At its core, Yellowjacket is an emulation of the Wasp synthesizer, originally released by the British synth company Electronic Dream Plant (EDP) in 1978. Principally created by legendary synth designer Chris Huggett, the intention was to create a compact and affordable instrument for the European market. To achieve this, it made use of transistor-transistor logic (TTL) chips and a flat-panel keyboard that used capacitive copper plates in place of standard mechanical keyboard action. Among its other unique features were a small built-in speaker, a proprietary system predating MIDI that allowed multiple Wasps to be chained together, and a distinct blazing yellow and black "colour" scheme.

Many fledgling young English musicians started out on a Wasp, notably one "Nicholas James Bates", better known as Duran Duran synthesist, Nick Rhodes. The Stranglers' Dave Greenfield used *four* of them at live shows!

Cherry Audio's Yellowjacket faithfully emulates all aspects of the Wasp, particularly its quirky oscillators and raunchy CD4069 logic chip-based filter. And in the inventive spirit of EDP, we've added several modern features including 16-voice polyphony, a full complement of effects including a Wasp speaker emulation, diatonic scales, a uniquely innovative arpeggiator, multiple filter modes, aftertouch control, polyphonic aftertouch, as well as a distinctive four-layer multi poly mode allowing subtle (or not subtle) voice-to-voice variation.

Manual Layout

This manual will detail each section of Yellowjacket; the order of the chapters follows the signal flow (as opposed to the physical layout of the front panel).

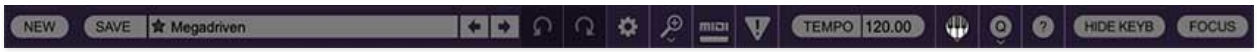
Technical Assistance

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/

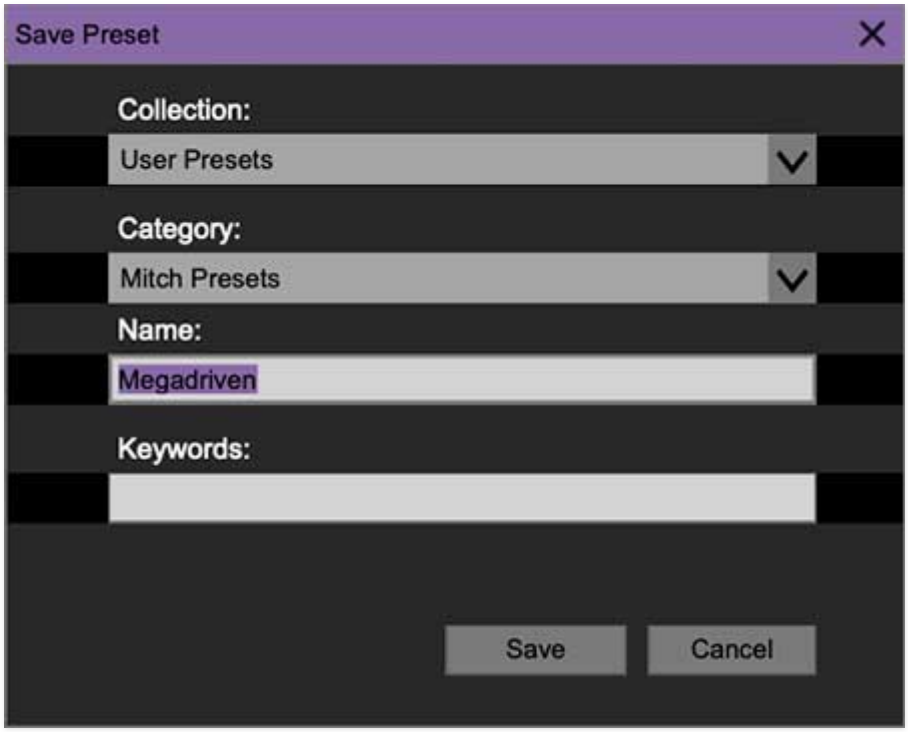
... or you can communicate directly with our super-cool (and quick) tech support staff at the link below.

https://cherryaudio.kayako.com/



The purple strip at the top of the Yellowjacket 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.

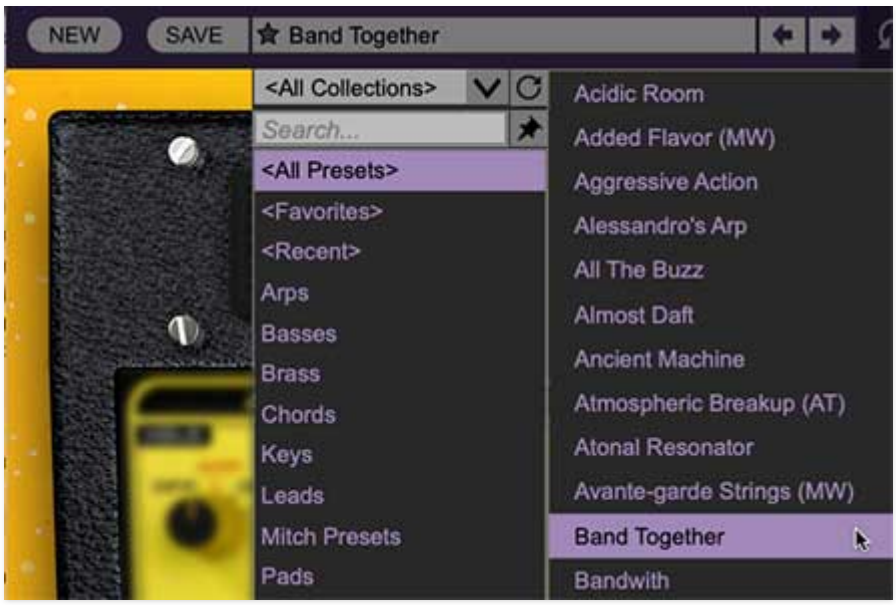


Save- Use this to save patches. There are a couple of levels of hierarchy:

- **Collection**- This is the top level of organization, and contains entire "sets" of presets. The *Yellowjacket 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 collections, 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.

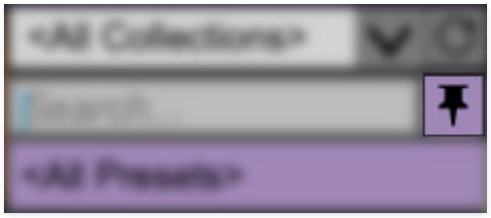
- **Patch**- A patch is an individual sound. To save a patch, simply type the name in the *Name* field and click *Save*.
- **Keywords**- You can add descriptive words such as “bass,” “lead,” “spaceship,” etc., to patches to make them appear when terms are typed in the *Search* field. Use commas to separate multiple keyword 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 horizontal 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 circular arrows- These undo or redo the last action. It remembers many steps, so if you really mucked something up, keep on clickin'...

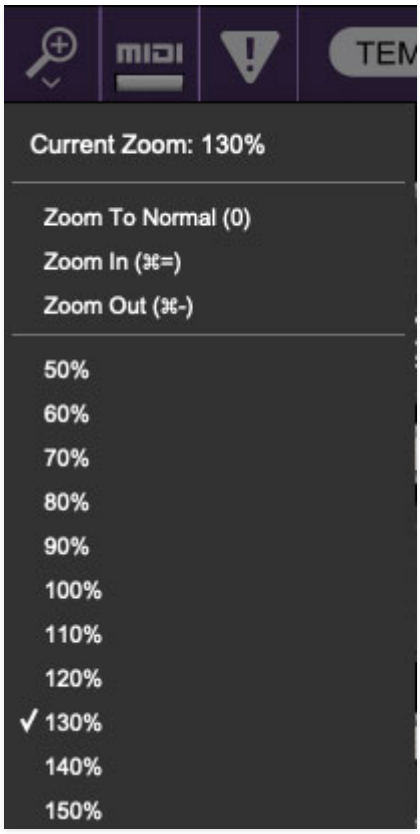
Settings- This is where user preferences for user interface, audio interfaces, user account, and more are configured. See the **Settings** section for full information.

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.

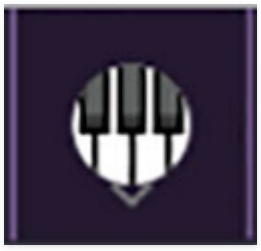
Compressed zip files containing multiple sounds can also be drag and dropped onto the UI. This works the same as with single sounds, but instead of the Save Preset dialog, you'll see the Import Preset Collection dialog. The presets will be added as a new collection and available in the categories for which they were tagged.



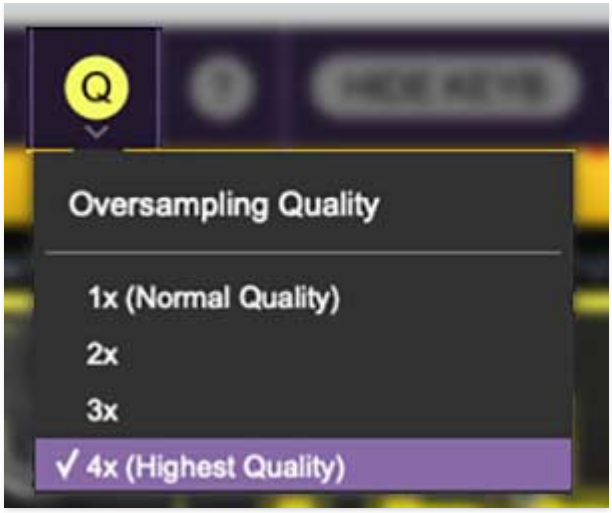
Zoom Magnifying Glass- Click to resize the Yellowjacket interface. Selecting *100%* returns the user interface to native size.

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.



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.



Q (Oversampling Quality) - The Q button sets Yellowjacket'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, Yellowjacket'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, Yellowjacket's internal processing will run at 768 kHz, and you will very briefly hear the most mind-blowing synthesizer sound quality ever experienced by mankind before your computer explodes instantaneously in a fiery, white-hot supernova blaze (or not).

? (Help)- Clicking this launches your web browser and opens this help document. (Confusing circular logic thing there, amirightpeople?)

Hide/Show Keyb- For the, "boo, it's taking up too much space on my 640x480 VGA display because it's 1993!" crowd, this hides the keyboard and its associated controls, reducing the overall GUI window height by about 300 pixels. However, you will be missing out on Yellowjacket's unique onscreen poly AT control and diatonic note assignments.

Focus Button

If you're using a laptop, the user interface can potentially be hard to see. With this in mind, the *Focus* button conveniently blows up Yellowjacket'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.

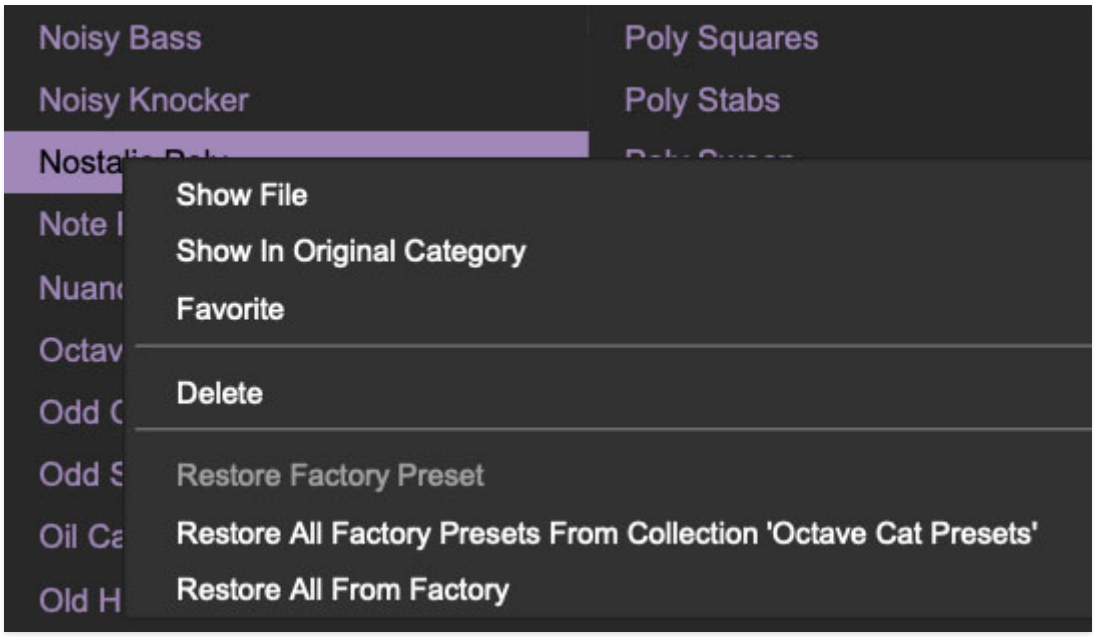
Using *Focus* mode couldn't be easier - just click the *Focus* button the top menu bar. To return to standard view, click *Reset*. **There's also a superfast key shortcut** - on Mac, hold the ⌘ [COMMAND] key and click the mouse; in Windows, hold the [OPTION] key and click the mouse. Focus can be reset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

Giant YELLOWJACKET logo - Clicking this displays “about” information, and shows the version number and current registered user ID.

Maximize and Touchscreen (Windows only)

Users can click or tap on the Maximize button in the upper-right corner on compatible Windows devices to make Yellowjacket fullscreen. Maximize is particularly useful with touchscreen monitors and gesture-capable tablet devices such as Surface Pro. When the device is configured to do so, Yellowjacket will respond multi-touch, including the capacitive-style keyboard and the pressure meters of the keys (through vertical motion).

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 just ghost it if you don't do the confrontation thing.)

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 'Yellowjacket Presets'- If any patches from the "factory" Yellowjacket 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 Yellowjacket bank

mentioned above is the only factory bank, so this function and the *Restore All Factory Presets From 'Yellowjacket Presets'* above have the same effect.

Panel View Mode

The original instrument was a very simple knob-per-function affair. Yellowjacket adds a cool arpeggiator as well as an extensive array of effects. Instead of cramming all of the controls onto the panel, we've divided the main synthesis controls and arpeggiator+effects controls over two panel view modes. **The two views are easily switched by clicking the *Edit / Arp. FX* buttons at the the top right**.

Edit Controls view:

Arp. FX view:

Switching the panel view mode has no effect on settings or sound. The current view mode is saved with the preset.

Yellowjacket includes two oscillators. Their controls are mostly similar, but different enough that we'll go over each individually.

Oscillator 1

Ft. (Footage)- Sets the coarse pitch range in octave increments through five ranges, in standard organ "footage" settings. Big number=low, small number=high.

PWM- Sets the amount of modulation applied to pulse width from the Control Osc. (i.e. LFO).

Pulse Width- Sets the width or "duty-cycle" of the pulse wave, from a very narrow pulse (10%) to a perfect square wave (50%).

Waveform- Selects oscillator waveform between ramp, pulse, and enhanced. The enhanced wave is a featured we borrowed from the related Gnat synth, which was the Wasp's smaller, one-oscillator brother. Since it only had one oscillator, it included an "enhanced" wave, which is a modulated pulse-wave with a fixed modulation rate. (The Korg Poly 6 included a similar feature.)

Oscillator 2

Oscillator 2 is similar to oscillator 1 with a few minor differences.

Ft. (Footage)- Sets the coarse pitch range in octave increments through five ranges, in standard organ "footage" settings. Big number=low, small number=high.

Pitch- This can be used to fatten dual oscillator patches by detuning a small amount, or for "building-in" musical intervals. Its range is -10 semitones and +4 semitones, just like the original.

Osc. Sync- This causes Oscillator 2 to force reset the start of Oscillator 1's waveform to the beginning of its cycle. The *Ft.* and *Pitch* knob are used to set the harmonic content. The mod wheel (or any other continuous hardware control) can be assigned to the *Pitch* knob for real-time sweeps - right-click on the *Pitch* knob, select MIDI Learn, move the mod wheel, and that's it).

Waveform- Selects oscillator waveform between ramp, square wave, and enhanced. Note that unlike Oscillator 1, the pulse wave is not variable, however, the enhanced wave is the same - a modulated pulse-wave with a fixed modulation rate.

This is a simple mixer for combining the two oscillators and noise source prior to the Filter section.

Osc.1- Sets the audio level of Oscillator 1.

Osc.2- Sets the audio level of Oscillator 2.

Noise Signal- Sets the audio level Yellowjacket's white noise generator. For those not familiar with white noise, it's a non-pitched hissing sound where all frequencies across the frequency spectrum are represented equally.

Depending on filter settings, white noise is useful for wind, cymbals, radio hiss, and most importantly, explosions, which according Devo, leave us feeling good.

The Control Oscillator aka low-frequency oscillator generates sub-audio range signals intended for modulation purposes.

Freq.- The *Freq*. knob sets the modulation speed, from 0.10 to a rather brisk 100 Hz (with *Sync* button off) or from 8 beats up to 1/64th note triplets (*Sync* button on). The lamp above the *Freq.* knob flashes at the current modulation rate.

Sync- When the *Sync* switch is enabled, speed will lock to host tempo when using Yellowjacket within DAW software, or to the current tempo in the top menu bar when using the standalone version.

Mod Wheel- This is a handy, but potentially confusing feature, so don’t skim this section. If the knob is in the *Off* position, modulation is always “on.” Its effects will be immediately audible by moving the *Pitch*, *Amp*., and *Filter* knobs.

Selecting the *On* position enables control of mod depth with an external keyboard controller mod wheel. If the mod wheel is all the way down, mod depth is zero. This makes setting up a mod wheel to add vibrato or wah effects really easy. **If it seems like the Control Osc. isn't working, check if the *Mod Wheel* control is set to *On* position.**

Pitch- Applies modulation equally to both oscillators. Useful for vibrato, sirens, and all manner of racket with random mod wave and extreme mod

amounts and rates.

Amp.- Applies modulation to the voltage-controlled amplifier (VCA). Subtle amounts are useful for tremolo effects; large amounts + fast mod frequency rates result in wild amplitude mod effects.

Free/Retrigger- In *Free* mode, the Control Osc. runs continuously. When set to *Retrig.*, the modulation cycle resets monophonically when keys are struck. In other words - if no keys are down and a key is struck, the mod cycle resets on keydown. The mod cycle does not reset if additional keys are pressed, it only resets when all keys are released (trust us, if it reset with every keydown when playing polyphonically, the result tends to be rhythmically messy). Generally speaking, *Retrig.* is useful with ramp, saw, and square waves in combination with the *Sync* button.

Waveform- Selects sine, ramp, sawtooth, square, noise, or random (aka, sample and hold) modulation waves. Unlike many synths, all mod waves are bipolar like the original instrument. In the case of sine (or triangle) waves, this is desirable, so that pitch (i.e. vibrato) goes up and down evenly. However, with other shapes, particularly square waves, unipolar mod is usually more desirable so that the frequency remains constant when the mod wave is low, and increases as mod is increased when the wave is high.

Filter Control- Applies modulation to the Filter cutoff frequency. Center position is off; turn the knob counterclockwise for negative modulation, or clockwise for positive modulation. Note that Control Osc. modulation is additive, so mod may not be audible dependent on the current *Freq*. and filter mode settings.

(For example, if the *Filter Freq.* knob is all the way up, positive filter modulation will not be audible, because like Nigel Tufnel's amplifier top, if everything's on 10, where can you go? Nowhere. And unfortunately, Yellowjacket's controls do not go to 11.)

Yellowjacket's filter is based upon the CD4069 logic chip-based filter of the original. It's a "state-variable" (like Maine, or Iowa) filter with a 12dB per-octave attenuation slope. The state-variable part refers to its curves - it can function as a lowpass, bandpass, notch, or highpass filter.

Freq.- Sets the frequency where frequency attenuation begins, i.e. which frequencies are allowed to pass, dependent on the currently selected filter type.

About Yellowjacket Filter Tracking: *Many analog synths include "filter tracking" controls or switches. The idea behind filter tracking is that filter cutoff frequency increases as higher notes are played in order to ensure equal brightness (or dullness) regardless of pitch. Like the original Wasp, Yellowjacket does not have any filter tracking controls; filter tracking is "built in" and is actually somewhat greater than the typically seen volt-per-octave standard. This means that Yellowjacket gets brighter at a pretty steep rate as higher keys are played. It's likely you won't notice it, but because of the sharp curve, the filter Freq. knob may not seem to do much when playing high notes (or low notes in highpass mode). You may also notice it when applying Control Envelope or Keyboard Pressure mod. If it seems like you're not getting enough filter mod in the range you're playing in, just tweak the main Filter Freq. knob to compensate.*

'Q'- Also know as "resonance," this emphasizes sound energy at and around the current cutoff frequency by adding feedback from the filter's output back to its input. At lower settings, this can be used to create mild resonances such as those heard in acoustic instruments. At extreme settings, it can be used as a sine wave generator, but be careful as high resonance settings can result in loud, screamy, dog-spooking (and speaker blowing) occurrences.

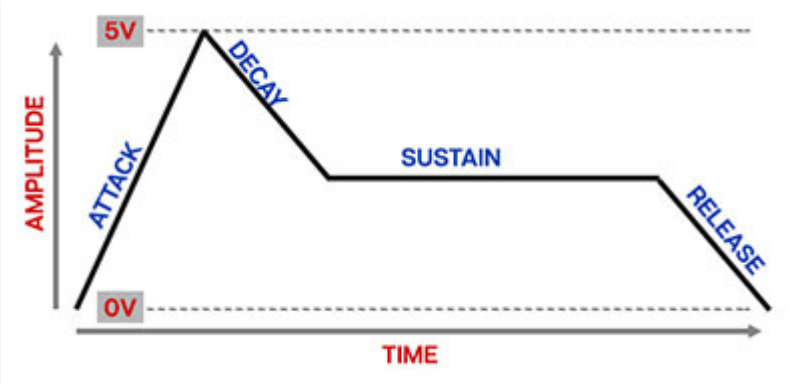
Type- Selects the overall filter curves.

- **Lo (Lowpass)**- Allows frequencies below the cutoff frequency to pass, but blocks frequencies above the cutoff frequency.
- **Band (Bandpass)**- Allows a band of frequencies in the vicinity of the cutoff frequency to pass.
- **Notch**- Removes a band of frequencies close to the cutoff frequency and allows all other frequencies to pass. Notch filters are useful for pseudo-phaser effects when their cutoff frequency is swept, and are notch-yer-problem (We regret to inform you that Cherry Audio manuals are written by your dad).
- **Hi (Highpass)**- Allows frequencies above the cutoff frequency to pass, but blocks frequencies below the cutoff frequency. Because it dramatically reduces low frequencies, the highpass setting is useful for nasally tones with exaggerated high frequencies.

The Transient Generators section includes a two envelope generators - a VCA envelope for controlling the volume curve, and a Control Env. that modulates filter cutoff frequency.

How an ADSR Envelope Generator Works

If you're not familiar with how envelope generators work, following is a nerdy explanation of how an ADSR works... it's a real conversation starter at parties!



When Yellowjacket 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 control 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.

VCA Env.

The VCA envelope controls the amplitude curve, i.e. volume of notes.

Attack- Defines the length of time for voltage to rise from zero to max when a key is played.

Decay- Defines the length of time for voltage to fall from max to sustain level.

Sustain Level/Repeat Freq./Sync- Sets the voltage level following attack and decay phases while a note is held.

Yellowjacket also includes the original instrument's unique repeat function - when *Sustain* Level is set to minimum, the attack and decay phases loop until the key is released, at which point it jumps to the release stage. Setting the *Sustain* knob to the *Repeat* position enables the *Repeat Freq.* control, which sets the rate of repeat from 0.01 to 25 Hz. Note that if the *Attack* and *Decay* controls are set to too high, it's possible to "overshoot" the *Repeat Freq.* rate, so begin with shorter attack and decay times and work your way up. We also recommend setting the *Release* control to zero. ("*Repeat Freak*" is also a 1983 club banger by Whodini. Not really. But you would've believed us.)

Sync- When the *Sync* control is enabled, *Repeat Freq.* will lock to host tempo when using Yellowjacket within DAW software, or to the current tempo in the top menu bar when using the standalone version. The range is 8 beats up to 1/64th note triplets.

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

Vel. (Velocity)- Sets the degree to which keyboard velocity affects overall envelope voltage output. At the minimum setting, velocity has no effect on the envelope. As the knob is set to higher values, playing the keyboard lightly decreases the overall envelope output. In a way, the *Vel* knob works

"backwards," because it creates increasingly lower voltages as its setting is increased when playing lightly.

Repeat Freq.- See *Sustain Level/Repeat Freq./Sync* above.

Attack Curve- This simultaneously adjusts the curve of the attack phase for both the VCA Env. and the Control Env. continuously from exponential to linear to logarithmic. Zero position is linear and matches the original instrument.

Control Env.

The circuitously named Control Envelope controls filter cutoff frequency. **The Control Env. operates a bit differently than the VCA Env.**

Filter Control- Applies modulation to the Filter cutoff frequency. Center position is off; turn the knob counterclockwise for negative modulation, or clockwise for positive modulation. Note that Control Env. modulation is additive, so mod may not be audible dependent on the current *Freq*. and filter mode settings.

Attack- Defines the length of time for voltage to rise from zero to max when a key is played.

Decay- Defines the length of time for voltage to fall from max to zero. Because of its "free run" behavior (see below), the decay control functions as a release control as well, much like a Minimoog.

NOTE: Unlike most conventional envelope generators that run through the attack and decay phase as long as a key is held (i.e. gate voltage high), the Control Env. "free runs" through the attack and decay phases regardless of how long a note is held.

Delay/Repeat Freq./Sync- At keydown, the *Delay* knob adds a pause of up to 500 ms before the onset of the attack phase.

The Control Env. can also loop like the VCA Env. When the *Delay* control is set to minimum, the attack and decay phases loop until the key is released. Setting the *Delay* control to the *Repeat* position enables the Control Env. *Repeat Freq.* control, which sets the rate of repeat from 0.01 to 25 Hz.

ANOTHER NOTE: Be careful when setting the Delay control. Dialing it to minimum will engage repeat mode, so take care to set it to 0ms to disable delay without enabling the repeat function.

Sync- When the *Sync* control is enabled, *Repeat Freq.* will lock to host tempo when using Yellowjacket within DAW software, or to the current tempo in the top menu bar when using the standalone version. The range is 8 beats up to 1/64th note triplets).

Vel. (Velocity)- Sets the degree to which keyboard velocity affects overall envelope mod to the filter cutoff control. At the minimum setting, velocity has no effect on filter frequency. As the knob is set to higher values, playing the keyboard lightly decreases the overall envelope output. as with the VCA Env., the *Vel* knob works "backwards," because it creates increasingly lower voltages as its setting is increased when playing lightly.

Repeat Freq.- See *Delay/Repeat Freq./Sync* above.

Attack Curve- see *Attack Curve* in previous section.

Volume and output meter- Sets master volume. Keep things in the green and out of the red for best results. There are plenty of ways to get rad sounding distortion from Yellowjacket - pushing this one into the red isn't one of them.

Pan- Sets the output placement from left to right in the stereo image. This may seem like an odd parameter to include, but its intended use is when Yellowjacket's unique Keyboard "Multi" modes are used - this allows independent panning of each of the three Multi Mode Voice Panels (check out the *Multi* settings in the **Keyboard Panel and Voice Modes** section for more information).

Master- Globally adjusts tuning up or down by up to 1 semitone.

Limiter- The *Limiter* switch applies a transparent limiting effect to help prevent overloading. This is particularly useful with higher Keyboard section *Voices* settings.

These controls set the number of simultaneously playable notes, as well as unison parameters, glide, octave transposition.

Mode- Determines the number of simultaneously playable notes. **Yellowjacket features a super nifty and somewhat atypical "Multi" mode, so we strongly recommend reading this section.**

- **Mono**- One note sounds at a time with last-note priority mode, that is, the most recently played note always sounds. The *Voices* and *Detune* controls are dimmed and deactivated.

- **Unison**- Unison stacks multiple voices monophonically according to the current *Voices* setting. The *Detune* knob spreads out the tuning of the oscillators for fat sounds. Note priority is always last-note, just like Mono mode.
- **Poly**- Multiple keys can be played simultaneously with the maximum number of notes set by the *Voices* control. If the max number of voices is exceeded, the newest note gets stolen. When using the arpeggiator Poly mode, it will play the arp notes always from voice 1, which cuts off the release.
- **Cycle**- Multiple keys can be played simultaneously with the maximum number of notes set by the *Voices* control. Yellowjacket sequentially plays

through each voice as new notes are struck. If the max number of voices is exceeded, the newest note gets stolen. When using the arpeggiator Cycle mode, it steps through the voices, which allows the release to happen.

You can clearly visualize what's going on with poly voice assignment by setting *Voices* to *8* or *16*, and observing the voice LEDs as you play in *Poly* and *Cycle* modes.

Multi Voice Modes and the Multi Mode Voice Panels

The *Multi* voice modes let you add variation and color by altering parameters on a per-note basis. It may look a little scary initially, but we promise, it's super easy to use!

When a selection from the Multi keyboard mode is chosen, three *Multi Mode Voice Panels* are revealed, each containing "offset" trimmer controls that add or subtract from five key sound parameters: Pitch, Pan, Filter Frequency, VCA Envelope Attack, and VCA Envelope Release.

These Voice Panels emulate the ability of the original Wasp synthesizer to be chained through its proprietary LINK interface with additional Wasp synthesizers - each with their own slight variations - and controlled using EDP's Caterpillar polyphonic keyboard controller. With each note played, Yellowjacket cycles through: the first note played is uses the normal, unaltered synth parameters, the second note's parameters are offset by the trimmer settings in the #2 offset box, the third note by the settings in the #3 offset box, and so forth. Note that the LEDs next to the offset box # light to indicate which Multi voice is sounding.

An easy way to understand Multi mode functionality is to set Mode to *Multi/Poly*, and Voices to *4* (i.e. the maximum number of voices that can

sound). In the #2 offset controls box on the bottom left, use the trimmer to set *Pitch* to something odd, like *+9.* Now slowly play and hold four consecutive notes. Hear how the pitch of the second note played is offset?

You may be wondering how the offset trimmer controls function when the *Voices* control is set to 8 or 16. In this case, the sequential nature of Multi mode repeats. If you look closely, you'll see that when *Voices* is set to 8, the main voice controls and each offset parameter box now have *two* voice active LEDs each. When voices is set to 16, each offset parameter box gets *four* voice active LEDs. If you're in *Multi/Poly* mode and a 5th note is played, the main voice sounds, when a 6th note is sounds, multi voice 2 sounds, and so on until a maximum of 16 voices is sounding (i.e. four LEDs for each multi voice), at which point the cycle starts over.

Let's go over how each Multi voice mode operates, then we'll detail the available offset parameters in the Voice Panels:

Mode- These are essentially the same as the "normal" keyboard modes, with the addition of Multi Mode Voice Panel parameter cycling.

- **Unison**- Unison stacks multiple voices monophonically according to the current *Voices* setting. Since all voices play simultaneously in unison mode, they won't cycle through as with poly modes - they all play at once. The offset controls still work on individual voices, allowing super massive sounds. By retuning the Pitch trimmers of the synthesizer offsets to form triads, you can create one finger chords.

  Note that the *Detune* knob still does its random-ish oscillator detuning thing on top of the offset box *Pitch* controls, so it's easy get out in the weeds tuning-wise.
- **Poly**- Multiple keys can be played simultaneously with the maximum number of notes set by the *Voices* control. The first available voice sounds - in other words, held notes will never get stolen. When playing one note at a time, the note will always sound from voice 1 of the primary synth. However, when playing multiple notes together, notes play sequentially and step to the next multi voice group.
- **Cycle**- Multiple keys can be played simultaneously with the maximum number of notes set by the *Voices* control. In this mode, Yellowjacket will always sequentially play through each voice and offset synth as new notes are struck. If the max number of voices is exceeded, the newest note gets stolen.

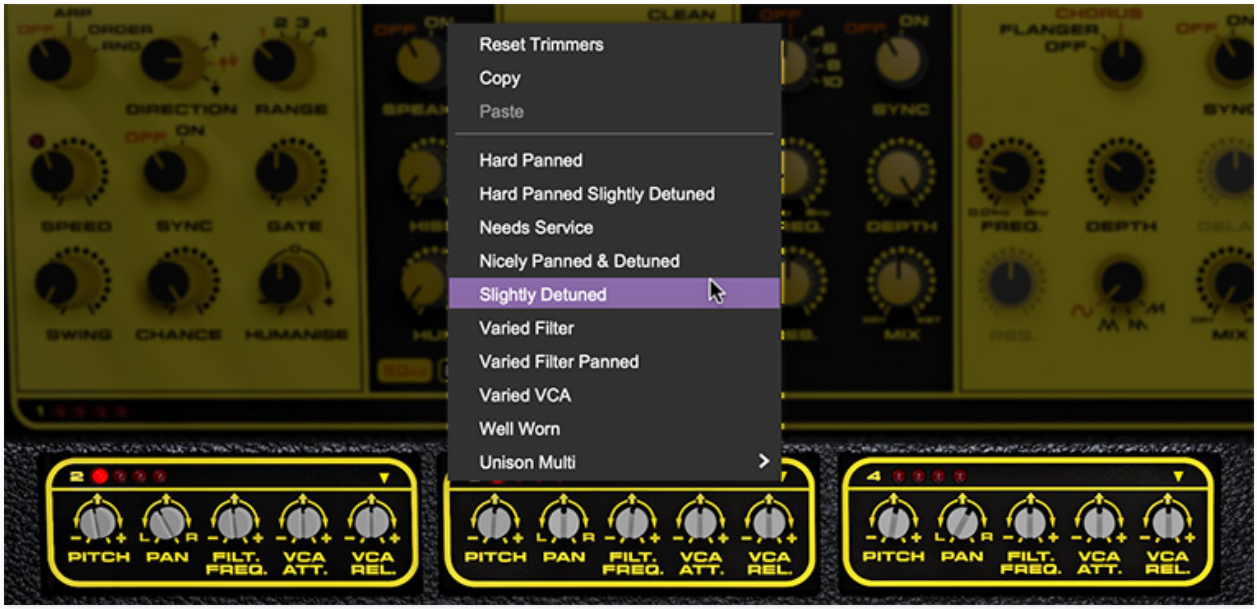
Voices- Sets the maximum amount of voices that sound in poly modes. In unison modes, sets the number of simultaneously sounded voices when a single note is played. Also, the sweet 1980 album from Hall & Oates featuring the smash hit, "Kiss On My List."

Detune- Sets the amount of random oscillator detuning or "spread" when unison modes are used. Note that *Detune* is dimmed and deactivated in all other voice modes.

Octave- Transposes both oscillators up or down by one octave.

Glide-The *Glide* knob makes notes slide smoothly from one pitch to the next. Higher settings result in a slower change of pitch. Naturally, this works best in mono or unison modes, but if you're using glide in poly mode, the standard *Poly* mode is preferable to *Cycle* mode.

An interesting aspect of the original instrument is that its two oscillators glide at slightly *different* rates. We assume this was done for more musical effect, and we've made Yellowjacket work the same way. Glide will also slew/round off the Control Osc. waveforms as the original Wasp did.



Multi Mode Voice Panel Parameters

In Multi mode, three numbered Voice Panels are added to the interface, each representing an additional mono synth voice with an abstracted interface of five parameters. These settings have trimmers that can be adjusted to create an offset variation from Yellowjacket's primary synth. Each also includes quick access to a set of Voice Panel presets for all three panels. Adjustments made to these trimmers can be subtle to simulate the slight

variations one might expect between multiple chained synthesizers or voice components. You can also apply extreme settings to produce single-fingered chords or patterns, stereo effects, and more.

Pitch- Fine tuning of the pitch, offset from the primary synthesizer settings, for the synth voice in a range from -12 to +12 semitones. By retuning the Pitch trimmers of the individual panels to form triads, you can create one-finger chords, or use in conjunction with the arpeggiator to create a transposable one-finger four-note step sequence.

Pan- Sets the % offset of output placement for the synth voice from left to right in the stereo image.

Filt. Freq.- Sets the % offset of the Filter Frequency for the synth voice, from -100% to +100%.

VCA Att.- Sets the % offset of the VCA Envelope Attack for the synth voice, from -100% to +100%.

VCA Rel.- Sets the % offset of the VCA Envelope Release for the synth voice, from -100% to +100%.

Presets- The downward-pointing arrow ▼ accesses a set of 10 primary panel configuration quick presets, such as *Hard Panned*, *Slightly Detuned*, *Well Worn*, and so on. Each preset applies pre-configured settings to all three voice panels at once to achieve the effect described.

Unison Multi is a collection of nine tuned panel sets primarily intended to be used when Keyboard mode is set to Multi / Unison mode, and includes individual tunings (*Major*, *Minor*, *Major 7*, etc.) and variations with hard panning. These are also useful for producing melodic sequences when used with the arpeggiator.

Also included are *Reset Trimmers, Copy,* and *Paste.* Unlike the presets detailed above, these commands are applied per single panel. For instance, selecting *Reset Trimmers* on synth panel 3 resets only that panel. Settings can also be copied from one panel and pasted to another without changing the third.

Yellowjacket responds to poly aftertouch, provided your USB/MIDI controller is poly AT capable. The controls in the Keyboard Pressure (da-da-da-dadada dun) section set mod depths of various parameters. If your USB/MIDI controller only outputs mono (summed) aftertouch, this still is used to control Keyboard Pressure.

Keyboard Pressure

Following are all the controls for Keyboard Pressure's six mod routings. These can be used in any combination.

- **Volume**- Overall amplitude mod depth via poly mod. Center position is none, turning the knob clockwise adds positive mod (volume gets louder with AT), turning the knob counterclockwise adds negative mod (volume gets softer with AT).

- **Pitch**- Pitch bend depth via poly mod. The range is 12 semitones up or down. Note that up (or down) two semitones, the setting is fully variable, but past two semitones, depth snaps to semitones.
- **Filter**- Filter cutoff frequency mod via poly mod. Note that because of the original instrument's odd built-in keyboard tracking curve, it might seem filter keyboard pressure isn't doing much - if you run into this, simply adjust the initial cutoff frequency with the *Freq*. knob in the Filter section to compensate.
- **Mod.**- Control oscillator (LFO) mod via poly mod. This is the same mod routing as mod wheel. **The *Mod. Wheel* switch in the Control Osc. section must be in the on position for Keyboard Pressure mod to operate.**

- **Assign**- This one is especially nifty. Clicking on the inverted triangle next to the knob opens a popup menu that lets you select from 29 parameters. The label beneath the knob changes to reflect the currently selected mod parameter. To reset/disable, select *Off* from the list. Below is a table of all possible *Assign* knob parameters:

SECTION	PARAMETER
Keyboard	Unison Detune
Oscillators	Osc.1 Pulse Width
Oscillators	Osc.2 Pitch
Mixer	Osc.1 Volume
Mixer	Osc.2 Volume
Mixer	Noise Volume
Control Oscillator	Frequency
SECTION	PARAMETER

Filter	Q
VCA Envelope	Repeat Frequency
Control Envelope	Repeat Frequency
Arpeggiator	Speed
Arpeggiator	Gate
Arpeggiator	Swing
Arpeggiator	Chance
Octafuzz	Drive
Octafuzz	Tone
Octafuzz	Mix
Phaser	Frequency
Phaser	Depth
Phaser	Mix
Flanger/Chorus	Frequency
Flanger/Chorus	Depth
Flanger/Chorus	Mix
Echo	Time
Echo	Feedback
Echo	Mix

SECTION PARAMETER

Reverb	Mix
FX Output	FX Level
FX Output	Stereo Expand

LED Meter- The five vertical LEDs display the amount of MIDI aftertouch data Yellowjacket is currently receiving.

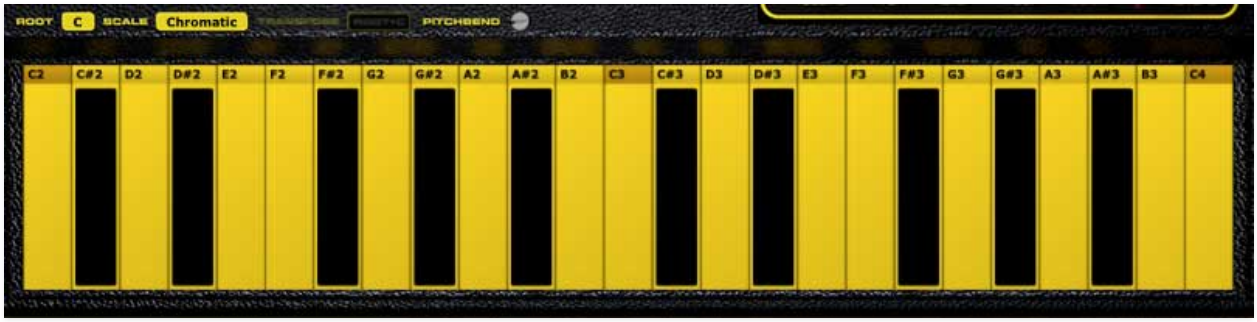
- **Reverb**- This allows AT to control a combination of the reverb effect *Decay* and *Mix* amount. Note that unlike the other Keyboard Pressure routings, the Reverb routing is positive mod only (i.e., more reverb). **Reverb must be enabled on the Arp./FX page for the Reverb pressure routing to work.** The VCA release determines reverb decay length. Short release times will result in the reverb tail being cropped as you lift your finger from the key. Longer release times allow the reverb tail to linger, allowing you to move on to the next note while the reverb is still happening.

About controllers: Though Yellowjacket isn't MPE compatible, Keyboard Pressure plays well with controllers from Keith McMillen Instruments, CME's Xkey series, Expressive E's Osmose, and Arturia's MicroFreak. If you are using an MPE controller, it's easy enough to configure one of the axes (I looked it up, that's how you pluralize it!) to control Yellowjacket's Keyboard Pressure.

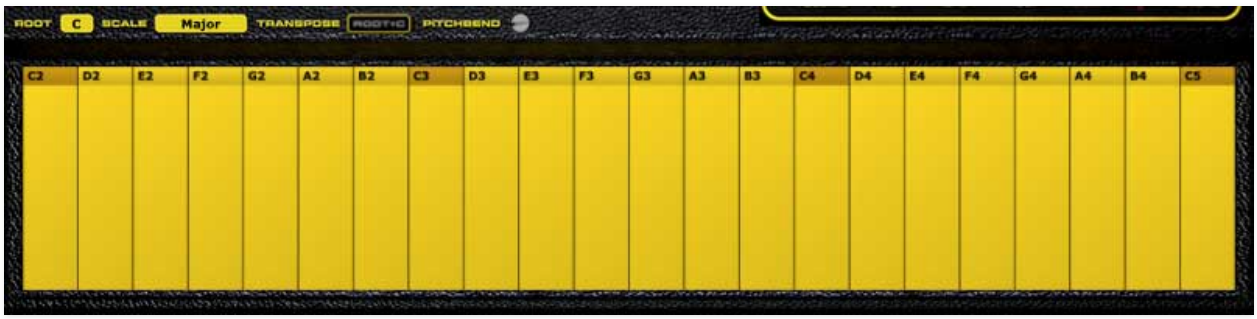
The original instrument featured a cheap and cheerful (and failure-prone) touch-capacitive keyboard. In addition to greatly improving its reliability, we've added the ability to automatically quantize to diatonic scales in any key. By default, it is set to play chromatically in the key of C, like any standard piano keyboard.

Keyboard Root and Scale control settings are stored per-patch, that is, they do not globally affect all sounds.

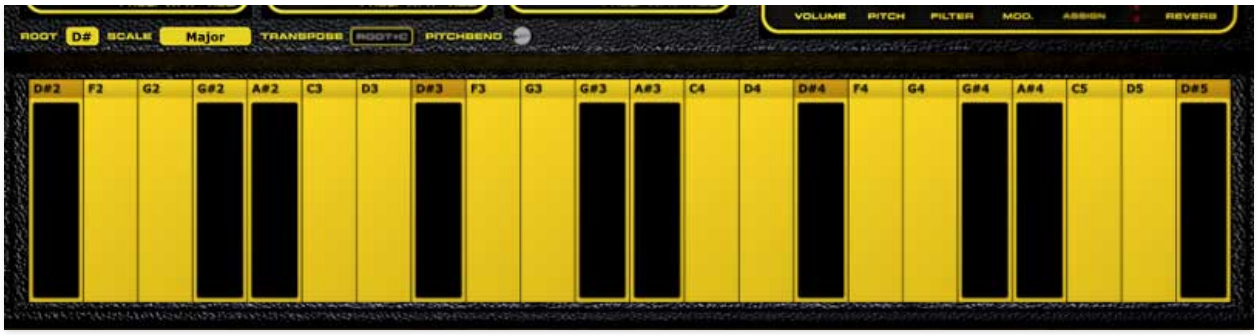
Root and Scale controls- The onscreen keyboard operates differently depending on whether the popup *Scale* control is set to *Chromatic* or one of the diatonic (seven-note) scale choices.



- **Scale = chromatic**- In *Chromatic* mode, the onscreen keyboard displays 12 notes per octave. The lowest onscreen note changes and the keyboard view is transposed depending on the *Root* note setting, however, USB/MIDI controller works as usual.



- **Scale = any diatonic scale from popup menu**- When any scale other than *Chromatic* is selected, the onscreen keyboard displays seven notes per octave. The onscreen notes conform to the current Root and Scale setting. The image above shows a diatonic C major scale with no accidentals (i.e. black keys).



Accidentals are displayed as black keys onscreen.

The available diatonic scales comprise the seven "**modes**," which are essentially the same basic step pattern, but beginning on different degrees of the scale. Also included is Harmonic Minor, which is the same as Aeolian, but with a sharp 7th (for you guitar nerds, the signature scale of virtuoso knobs, Richie Blackmore and Yngwie J. Malmsteen).

Note names always appear above the keys to make it easy to understand. These display the actual pitch you'll hear. If things seem to get confusing, remember you can aways set the Scale to *Chromatic* for standard keyboard operation.

Transpose/Root=C- When the *Transpose/Root=C* button is disabled, notes played on a standard USB/MIDI controller are unaffected by any of the **Root** and **Scale** control hooey discussed above. **Enabling *Root=C* lets you play a USB/MIDI controller just like the onscreen keyboard.** Playing C on the USB/MIDI controller always triggers the currently set root note, and white keys trigger the diatonic notes of the currently selected scale. Black keys on the USB/MIDI controller are disabled. Note that the *Transpose/Root=C* button is hidden and deactivated when *Scale* is set to *Chromatic*.

Worth noting! These features, especially when used in combination with the Keyboard Cycle modes and the Arpeggiator (detailed in the following section) provide the ability for users to create surprisingly effective and varied arpeggiated patterns with the touch of a single key. Check out the Arps category of the Yellowjacket Presets for examples.

Pitchbend- Sets the pitch bend range from 0 to +/-12 semitones. Just to be clear, the *Pitchbend* range setting is totally independent of all the keyboard stuff discussed above, it just happens to live nearby on the panel.

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

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 arpeggio playback on and off.

Mode switch-

- **Off**- Arpeggiator is disabled. The LED next to *ARPEGGIATOR* name illuminates when the it's active.
- **Arp**- Plays notes according to the *Direction* control setting.
- **Order**- Plays the notes in the order they are pressed dependent on current *Direction* setting. (trying really hard not to make a dumb *One Direction* joke here. Are they even famous anymore?)
    - **Up**- Notes sound in original order played.
    - **Down-** Notes sound in the reverse order they were played.
    - **Up/Down-** Notes sound in original order played followed by reverse order played. Tricky, right?

- **Random**- Plays held notes in random order.

Direction- The Direction control functionality varies a bit depending on the current position of the Mode switch as follows:

- **Mode Switch set to *Arp***- Selects up, up/down, or down note playback.
- **Mode Switch set to *Order***- See *Order* section above.
- **Mode Switch set to *Rnd.***- *Direction* control doesn't do anything. Control is dimmed and disabled.

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

Speed- Sets the pattern speed playback speed from 0.25 to 30 Hz. The LED flashes to indicate the current speed.

Sync- Engaging the *Sync* control locks arpeggio timing to master tempo. When engaged, the *Speed* 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 Yellowjacket standalone version or the current project tempo when the plug-in version is used in a DAW.

Gate- Sets the length of time note gates are held relative to the current speed. 50% is the default setting, i.e. half of the current Speed setting.

Swing- Delays every other note played by percentage defined by knob setting. Leave *Swing* at zero for straight time.

Chance- Sets the probability of a note sounding on a given step. This setting can also create random note breaks in the arp sequence, which, when combined with multiple arp tracks within a DAW, can produce unique, evolving poly-rhythms. By default, leave it up at 100% for notes to sound on every arpeggio step. At a minimum, there is a 30% chance that a note will sound on a given step.

Humanise- Adds a degree of randomness to arpeggio pattern timing. Positive values cause notes to play after the beat; negative values cause notes to play before the beat. When used in a DAW, Humanize can push or pull the arpeggio behind or forward of the beat to create engaging grooves. Use your DAW's parameter recorder to vary the amount, swinging from pull to push per bar for a more human response.

Additional Note- As mentioned previously, the Arpeggiator can be combined with the Keyboard Cycle modes and Scales to provide varied patterns, even with the touch of a single key. By individually tuning the pitch of the different Multi Mode Voice Panel synthesizers in Multi Cycle mode, for

instance, the arpeggiator effectively becomes a transposable four-note step sequencer. See the Yellowjacket presets "Cheap Arp" and "Dream Sequence" for examples of this. Yellowjacket can yield surprisingly effective and diverse results with each pass when combined with other arpeggiator features such as Chance and Humanise.

Yellowjacket includes five simultaneous effects: Speaker, Octafuzz, Phaser, Flanger/Chorus, Echo, and Reverb. These can be used in any combination. Additionally, it includes a global FX Out section with a unique stereo expander function.

Speaker

Yellowjacket includes a speaker effect that emulates the original instrument's onboard speaker, a feature that made the Wasp even more cost-effective back in the day. The speaker simulation gives Yellowjacket a decidedly lo-fi tone and changes the signal to mono. However, any stereo effects *after* the Speaker effect will add additional stereo width to the signal. **If you load a preset and unexpectedly hear some hiss and hum, the mic image at the top of the interface indicates you have this effect on.**

Speaker- Enables and disables the speaker effect. The LED next to *SPKR* name illuminates when the it's active.

Hiss- Amount of background noise in signal.

Hum, 50/60 Hz selecter- Amount of mains hum in signal. The hum frequency is selectable with the 50Hz and 60Hz buttons below. These correspond to the mains hum in England and US.

Note that Hiss and Hum are heard constantly, not just when notes are playing.

Octafuzz

A multimode overdrive/distortion effect with built-in octaver. The LED next to *OCTAFUZZ* name illuminates when the it's active.

Mode control-

- **Off**- Distortion effect is disabled,
- **Tube**- Tube overdrive tone.
- **Fuzz**- Aggressive, hairy fuzztone emulation.
- **Saturation**- Plenty of gain here, but high frequencies are more intact.
- **Clean**- Distortion is disabled, but Octave, Tone, and Mix controls are still active.

Octave- Adds a square wave either one octave down when knob is turned counterclockwise from center, or two octaves down when knob is turned clockwise from center.

Drive- Sets the amount of distortion/fuzz.

Tone- Tilt EQ; turning the knob counterclockwise from center position increases bass, turning clockwise from center position increases treble.

Mix- Sets Octafuzz wet/dry ratio.

Make-up Gain- This guy's hiding in the lower section of Octafuzz. The idea here is that different Drive settings can radically affect the overall sound level. Make-Up Gain acts as something of a "master volume" to make it easier to match input and output levels.

Phaser

Phase shifter effect with up to 10 stages. The LED next to *PHASER* name illuminates when the it's active.

Mode control-

- **Off**- Phaser effect is disabled.
- **4/6/8/10 Stage setting**- Yellowjacket's phaser includes up to 10 all-pass filter stages. As a general rule, more stages = lusher phase, but there are plenty of interesting tones to be had using the lower stage settings.

Sync- The *Sync* control locks the rate of the Phaser's modulation LFO to the tempo in the top toolbar when using the Yellowjacket standalone version, or to the current project tempo when the plug-in version is used in a DAW. When engaged, the *Speed* knob snaps to note values ranging from 1/64th note triplet to 8 beats.

Freq.- Sets the phaser's internal LFO speed from 0.01 to 8 Hz.

Depth- Sets the effect depth - essentially an amount control.

Res.- Increasing the amount of *Resonance* intensifies the phasing effect. This is sometimes referred as "feedback" in other phasor units.

Mix- Sets Phaser wet/dry ratio. Typically you'd want this at 50/50 for classic phasing effects.

Flange/Chorus

We've included a thick and warm flange/chorus effect. Flanging and Chorus are closely related - the general difference being that flangers use a shorter time range and some amount of feedback (this intensifies the "jet-flyby" whoosh), whereas choruses utilize a slightly longer delay time, and no feedback. The LED next to *FLANGER/CHORUS* name illuminates when the it's active.

Mode control-

- **Off**- Flange/Chorus effect is disabled.
- **Flanger**- Flange mode is enabled.
- **Chorus**- Chorus mode is enabled. Note that the *Resonance* knob is disabled when in Chorus mode.

Sync- The *Sync* slide switch locks the rate of the Flange/Chorus's modulation LFO to the tempo in the top toolbar when using the Yellowjacket standalone version, or to the current project tempo when the plug-in version is used in a

DAW. When engaged, the *Speed* knob snaps to note values ranging from 1/64th note triplet to 8 beats.

Freq.- Sets the flanger/chorus internal LFO speed from 0.01 to 8 Hz.

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

Res- Sets the amount of internal feedback when in Flange mode. Higher values result in a more intense flange sound.

Modulation Waves- Selects the shape of the modulation waveform. Options include sine, triangle, sawtooth, and ramp.

Mix- Sets the ratio of clean to effected sound. Flanging and chorusing is usually optimal at a 50/50 setting, but we've added the *Mix* control by popular demand to allow more subtle (or warble-riffic) tones.

Echo

Yellowjacket's Echo includes digital, tape, and ping-pong, plus cool modulation section. The LED next to *ECHO* name illuminates when the it's active.

Mode buttons-

- **Off**- Disables Echo effect.

- **Digital**- A pristine sounding digital delay.
- **Tape**- Reproduces the effect of a vintage "space echo" tape delay.
- **Ping Pong**- Echoes alternate between audio channels.

Sync- The *Sync* control locks the delay 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 Yellowjacket standalone version or the current project tempo when the plug-in version is used 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.

Drive- Adds subtle overdrive to the delayed signal for a more vintage sound. Keep in mind that the *Tape* algorithm adds a fair amount of its own drive-y mojo.

Spread- Alters the left and right channel delay times creating a stereoizing effect. Greater amounts of spread increase the delay time differential and thus the stereo separation.

Feed Back- Routes the output to the input for additional repeats. Be careful at high settings as this can result in runaway feedback madness.

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.

Mix- Sets the ratio of clean to effected sound.

Reverb

Cherry Audio's awesome reverb effects, including super-big Galactic mode. The LED next to *REVERB* name illuminates when the it's active.

Mode buttons-

- **Off**- Disables Reverb effect.
- **Room**- Recreates a vintage algorithmic-style medium room verb.
- **Hall**- A large, hall-style reverb.
- **Plate**- A medium-to-large studio plate-style algorithm.
- **Spring**- Recreates mechanical spring-reverb effect often seen (and kicked) in vintage guitar amps.
- **Galactic**- Cherry Audio's exclusive, giant, spacey reverb.

Hi- A highpass filter affecting wet reverb signal only. Low frequencies are increasingly attenuated as the knob setting is increased.

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

Lo- A lowpass filter affecting wet reverb signal only High frequencies are increasingly attenuated as the knob setting is decreased.

Mix- Sets the ratio of clean to effected sound.

FX Out

This acts as a master control section for effects and includes an awesome stereo expand function.

Global- Allows all effects (including the Speaker effect) to be bypassed.

Level- Sets an overall level for Octafuzz, Phaser, Chorus/Flanger, Echo, and Reverb. The dry signal and Speaker effect are not affected.

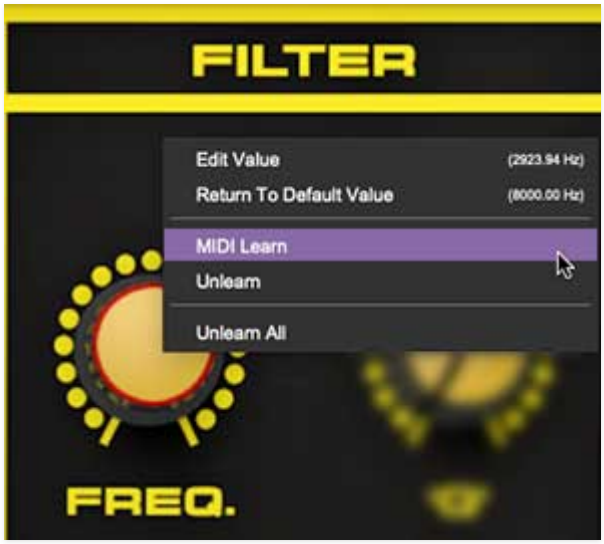
Stereo Expand- This widens the stereo image for dry and effected signals when the FX Out *Global* control is set to *On*. At minimum setting, stereo expansion is disabled. Note that voice pan positions are retained.

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 an Yellowjacket 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 Yellowjacket's full array of MIDI control assignment possibilities.

In this example, we'll assign a hardware slider/knob control to the filter *Freq.* knob.



Begin by right-clicking on the *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 Yellowjacket 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 Yellowjacket 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 purple top toolbar.

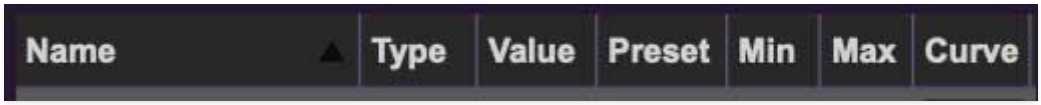
MIDI Learn button- This is almost exactly the same as enabling MIDI learn mode by right-clicking a control. Click the *MIDI Learn* button to enter learn mode (all controls turn purple). Unlike right-clicking on specific knobs, where Yellowjacket automatically exits controller assignment mode, clicking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

New Mapping Type- This popup menu selects whether newly assigned MIDI mappings will be global (affects all sounds and doesn't change when different presets are selected) or saved with individual presets.

MIDI Tab Columns



Name- Displays the name of the parameter being controlled.

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

- **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 old Tascam and Fostex reel-to-reel monsters, but it's useful if your MIDI controller has tape-style transport control buttons.
- **Aftertouch**- Some keyboard controllers transmit controller data when keys are pressed and released as they're held down. 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.
- **Key**- This allows keys of the computer QWERTY keyboard to act as button controls for Yellowjacket'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.

Preset- This slider works in conjunction with the *New Mapping Type* menu. In the left position (gray background), the MIDI mapping is global (affects all sounds and doesn't change when different presets are selected), in the right position (lavender background), the MIDI mapping is saved with, and only affects the current sound preset.

The *Preset* switch is super nifty, because it means MIDI mappings can easily be set to global or per-preset status at any time. (A lot of folks asked us for this feature.)

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.

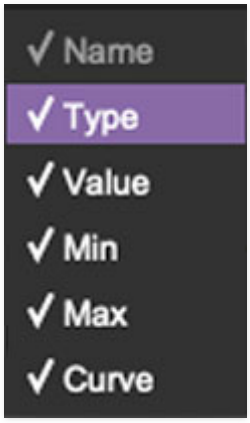
- ***Super Tricky Min-Max Tricks***- Not only can parameter ranges be limited via the the *Min* and *Max* knobs, mapped control destinations can be

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.

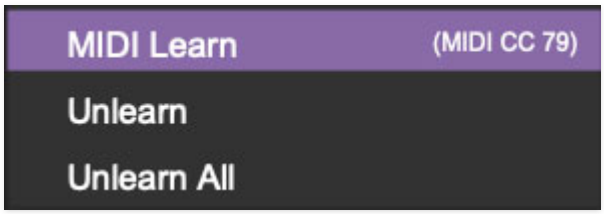
Curve - These allow the customization of how incoming MIDI CC controls affect the movement of Yellowjacket's onscreen controls, ranging from exponential to linear to logarithmic curves.

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

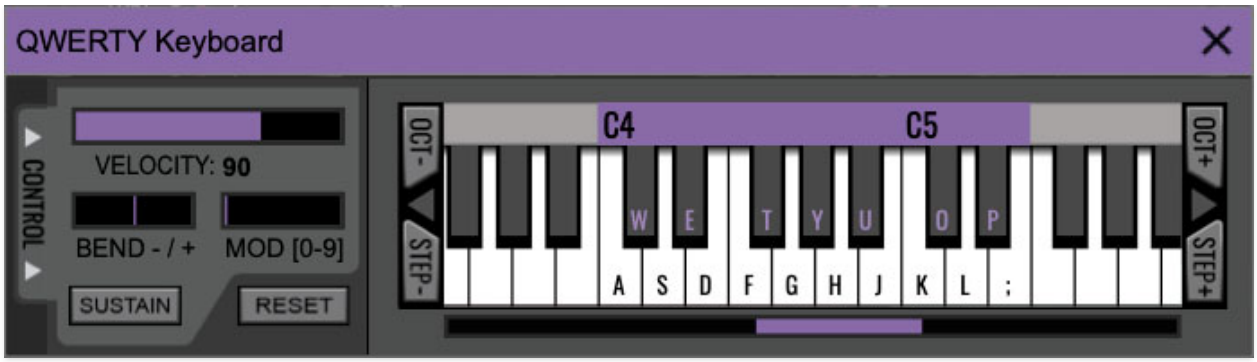


Right-clicking on an assigned parameter opens the menu above.

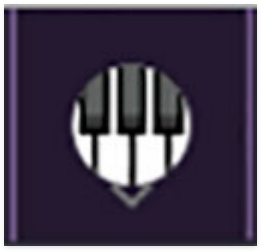
MIDI Learn- This is used to change the controller assigned to a particular parameter.

Unlearn- Deletes the selected automation parameter.

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



Yellowjacket can be played by clicking its onscreen keyboard with a mouse or trackpad, but if you don't have a MIDI keyboard attached to your computer, there's a better way - your computer's QWERTY computer keyboard can be used to play notes.We call this the "musical typing keyboard," or "MTK." Following is a list of MTK keyboard modifiers and functions:



Opening and Closing the MTK - Click the 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, 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 Miniverse 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.

Pitch Bend- To pitch a note or notes, press the + or - computer keyboard keys while playing a note. Bend depth is determined by the setting of the *Pitchbend* "trimmer pot" above the keyboard in Yellowjacket's UI. Notes can also be pitchbent by clicking the mouse in the *Bend* area.

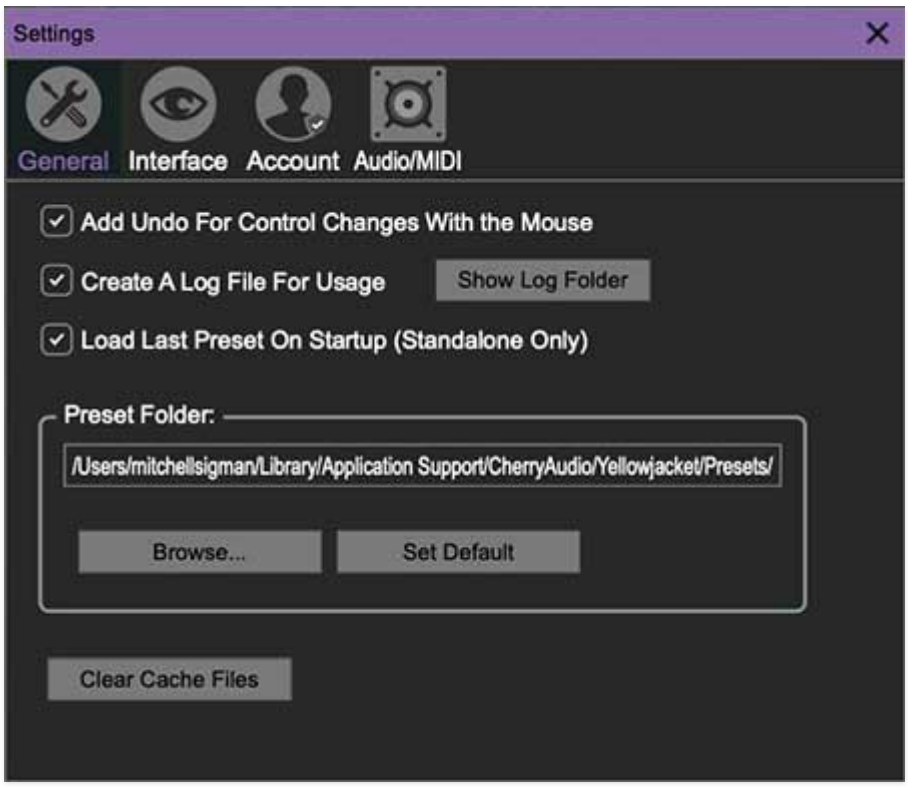
Mod Wheel- To add mod wheel modulation, press the number keys from *0-9* (above the character keys) while playing a note. The modulation amount will vary from none (*0*) to full modulation (*9*). Note that modulation will "stick" at the selected number; to disable modulation, click the *0* key. Mod can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

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 are on the two panel, as it should be!

General

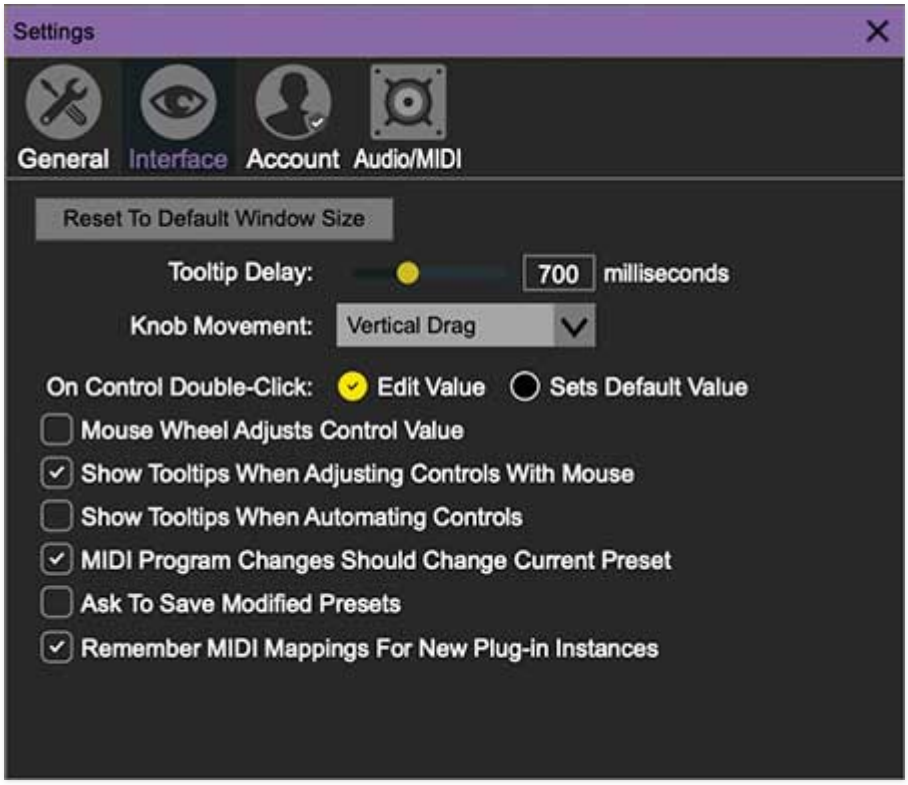


- **Add Undo For Control Changes With the Mouse**- Enabling this allows undo of knob/slider/button adjustments. You'll want this on if you want the ability to undo all aspects of patch editing and programming.
- **Create A Log File For Usage-** This creates a text doc of all of Yellowjacket's internal 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 Yellowjacket log file docs.
- **Load Last Preset On Startup (Standalone Only)**- Automatically loads the last preset used when Yellowjacket standalone version is started.
- **Preset Folder-** Displays the current location of Yellowjacket'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 Yellowjacket's user interface settings.

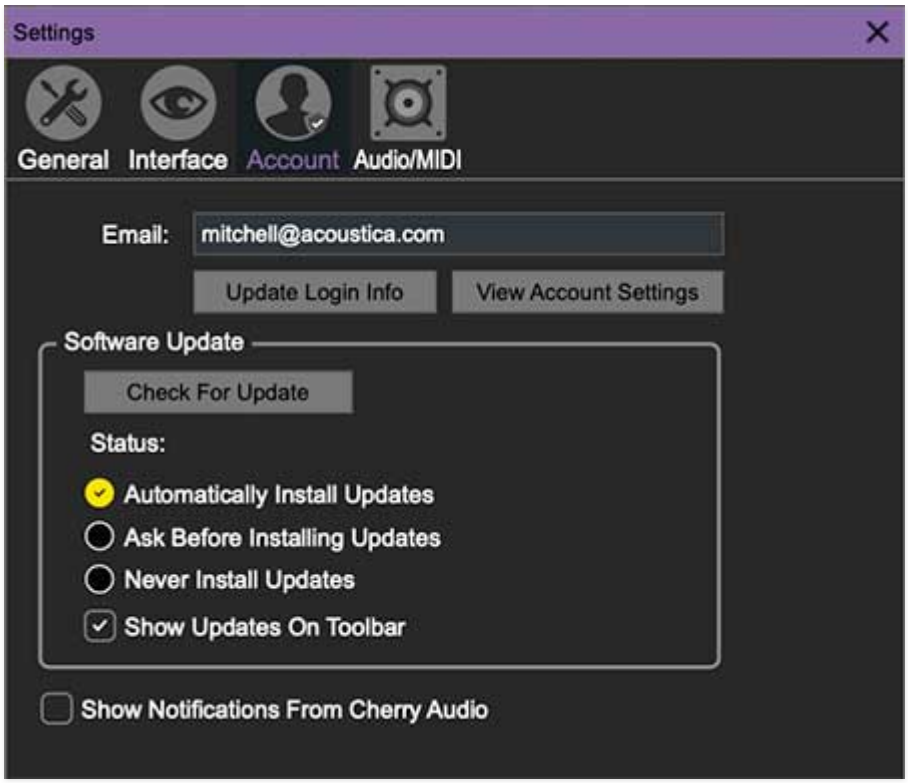
- **Reset To Default Window Size-** Resets the Yellowjacket workspace to default size. Use this to reset the window size if the window somehow becomes too large for your display and can't be resized (pretty sure we fixed that bug a while back though!).

- **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 Control 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 clicked.
- **Show Tooltips When Automating Controls-** Displays parameter tooltips/values next to controls any time a control is changed, i.e. if a control is moved via an assigned MIDI controller or a *Perform* panel knob, etc.
- **MIDI Program Changes Should Change Current Preset-** Allows MIDI program change messages to change Yellowjacket 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, Yellowjacket remembers all global MIDI Tab controller settings.

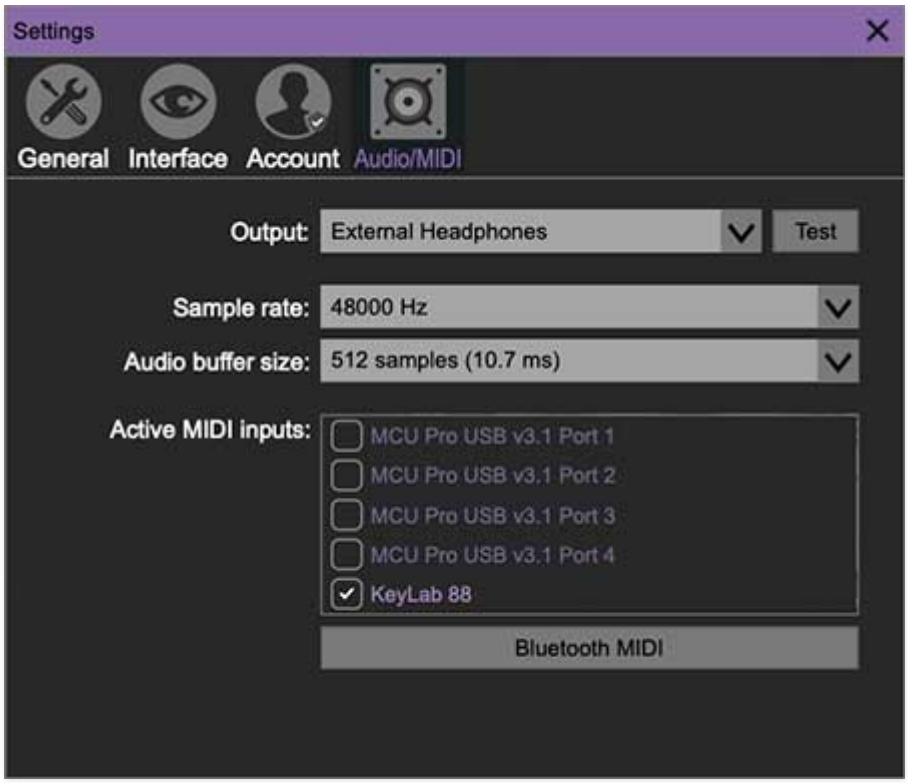
Account



Settings for your personal login information and account.

- **Email**- Displays the email address of the current login.
- **Update Login Info**- No, this isn’t a place for news and tour dates for yacht rock superstar, Kenny Loggins (you can keep the fire burnin' **here** though). Clicking this opens the same email and password login screen you’ll see when initially launching Yellowjacket.

Audio/MIDI



These are settings for audio and MIDI hardware input and output.

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

- **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). The *Test* button will produce a sine wave when clicked; this will help with troubleshooting, aka, "WHY THE HECK ISN'T THIS MAKING ANY NOISE?!?"
- **Sample Rate-** This sets the global sample rate. Lower sample rates offer better performance, but if you have a fast computer, high sample rates may offer slightly improved fidelity (at the very least, they'll give you something to bicker about on gearspace.com).
- **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**- Enable MIDI input sources, i.e. MIDI/USB keyboards, pad controls, MIDI knob/fader control surfaces, etc. Check boxes to enable one or more devices. **If a MIDI/USB controller isn't working in standalone mode, make sure the appropriate box is checked here.** (We put this this piece of info *way* at the back of the manual, to make it extra challenging to figure out why things aren't working.)