

# Getting Started



Atomika is an emulation of the Soviet Polivoks synthesizer, manufactured at the Formanta Radio Factory between 1982 and 1990, and designed by Vladimir Kuzmin. At first glance, it appears to be a typical compact analog synthesizer (albeit, with cold-war radio design cues, courtesy of Mr. Kuzmin's wife Olimpiada), but it includes a number of unique features that have made it highly desirable amongst synthesizer cognoscenti.

First and foremost is Polivoks's unique filter. Instead of the likely-unavailable-in-the-Soviet-Union transconductance amplifiers seen in 12 dB/octave state-variable filter designs of the era, Kuzmin figured out a way to completely misuse programmable op-amps that were never intended for use in audio filter circuits to perform the same function, somewhat accidentally resulting in a rich and raunchy filter tonality. This was in the same ballpark as the (in)famous Korg MS-series filter, but with a sonic signature all its own. Up to

this point, we've never seen a virtual instrument that could properly reproduce the Polivoks filter tone, but our frequent collaborator Mark Barton (MRB) was able to nail it through a combination of analysis, breadboarding, and coding wizardry! Along the way, Mark discovered other methods to expand upon the unique Polivoks filter circuit, by adding unique *Starve*, *Filter Drive*, and *Amp Drive* controls that further extend its twisted palette, often in radical ways.

The original instrument also included a duophonic mode, similar to those seen in ARP synthesizers of the era, where the lowest and highest played notes would be assigned to each oscillator. Frankly, these worked pretty inconsistently, so Atomika trades this for a proper poly keyboard mode with up to 16-voice polyphony, as well as a mono mode with unison and detune for superior flexibility.

We also took the liberty of adding an arpeggiator and effects page, including a full-function arpeggiator and phasor, flange/chorus, echo, and reverb effects, plus a bonus FX Modulator LFO. In the spirit of Polivoks's bold and eccentric character, the FX Modulator enables radical (and synchronized) modulation of key effects parameters for radical and deranged sound transformations.

We hope you'll enjoy exploring Atomika's vast, madcap sonic landscape!

## Manual Layout

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

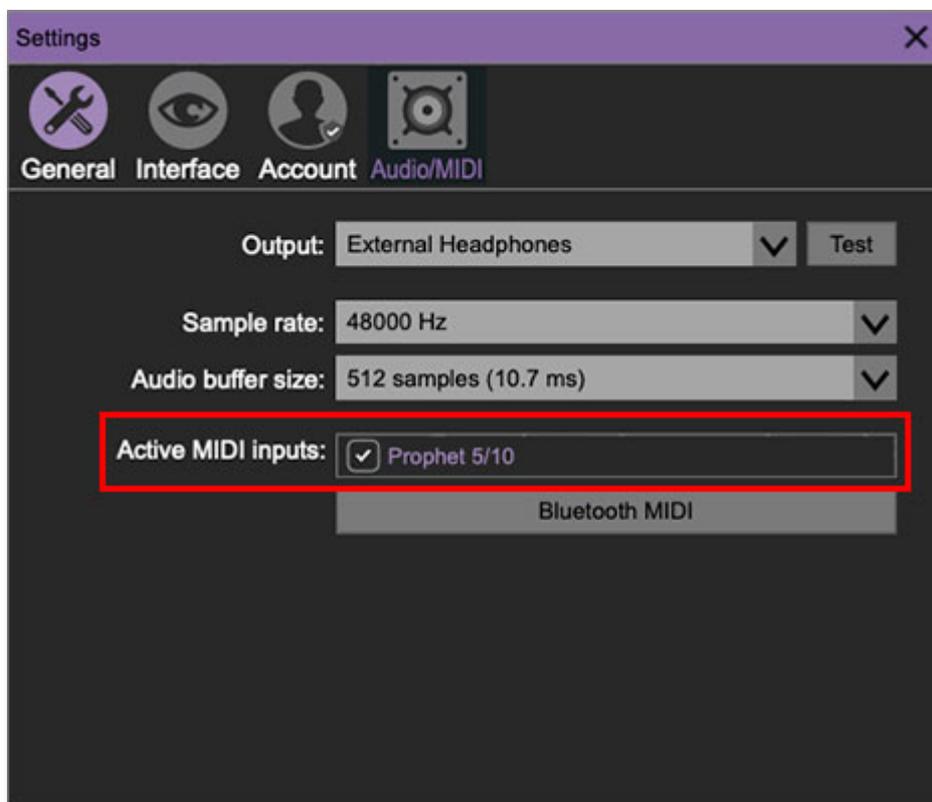
## Hey, I just fired up Atomika in standalone mode and it doesn't work! What the hey?!?

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If you just launched the standalone app version of Atomika (i.e., not a plugin running in DAW software) and nothing is happening when you play keys on your MIDI/USB controller, it's almost certainly because Atomika doesn't know what controller you're using. This is super easy to fix:



- Click the *Settings* gear icon in the purple menu strip at the top of the screen.



- Click the *Audio/MIDI* tab at the top. Now look for the name of your MIDI/USB controller next to *Active MIDI inputs* and check the box next to it. If you don't see the name of your controller here, ~~maybe this playing with synthesizers thing just isn't for you...~~ check that the controller is properly plugged in and powered up. If that doesn't work feel free to contact our support below.

## Technical Assistance

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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 open a support ticket with our friendly tech support staff at:

<https://cherryaudio.kayako.com/>

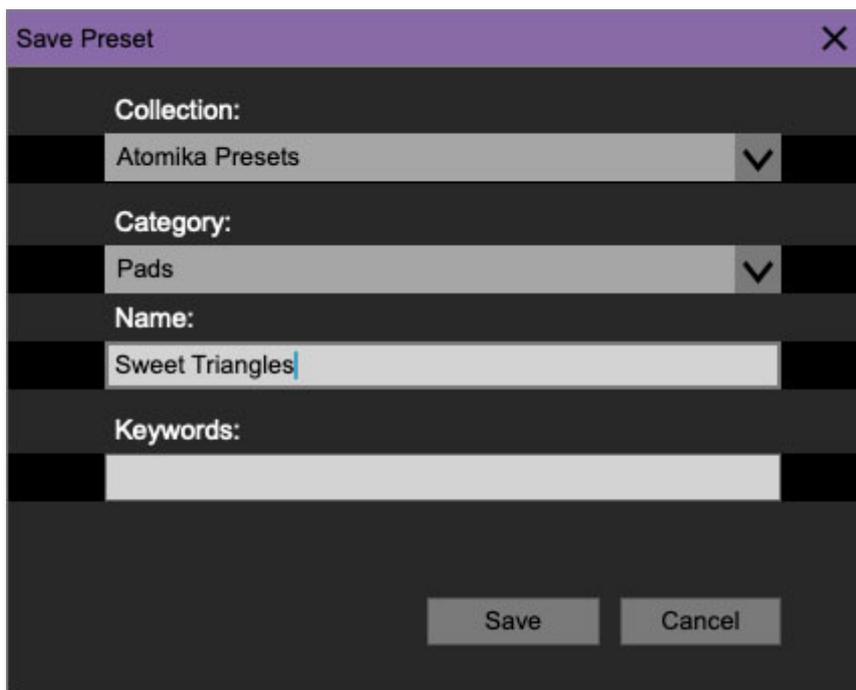
## Acknowledgements

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We'd like to extend a huge thank you to Andrew Ru for invaluable assistance with the front panel native panel translation.

The purple strip at the top of the Atomika 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:

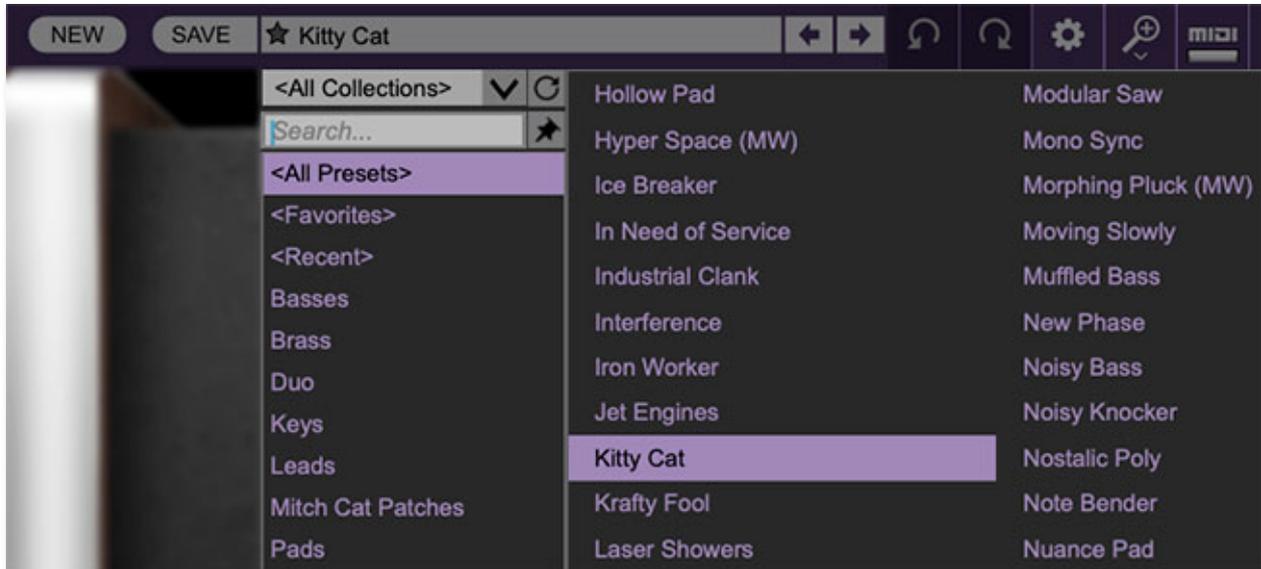
**New**- Opens a new blank patch preset. If an unsaved patch is currently open or you've modified an existing saved patch, a dialog asks if you'd like to save the patch in its current state. This greatly reduces the possibility of losing an edited unsaved patch.



**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 *Atomika 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.

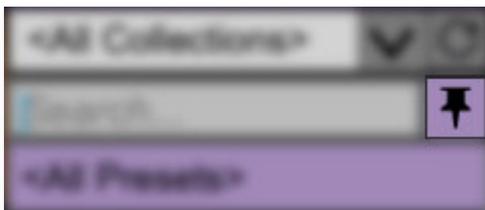
- **Patch**- A patch is an individual sound. To save a patch, simply type the name in the *Name* field and click *Save*.
- **Keywords**- You can add descriptive words such as “bass,” “lead,” “spaceship,” etc., to patches to make them appear when terms are typed in the *Search* field. Use commas to separate 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'...

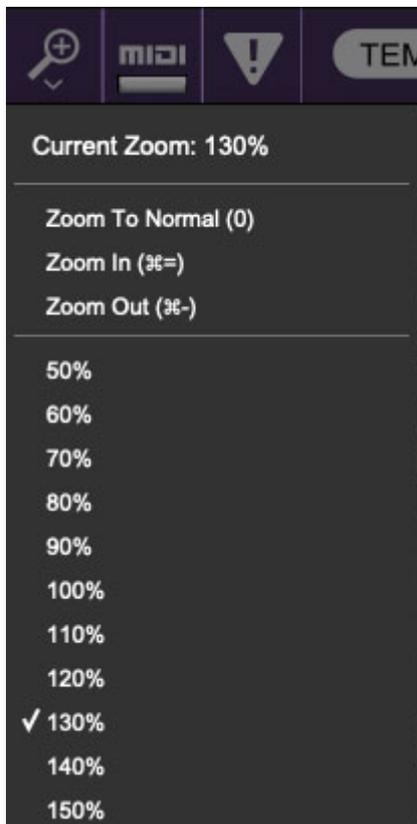
**Settings-** This is where user preferences for user interface, audio interfaces, user account, and more are configured. See the **Settings** section for full information.

### **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.



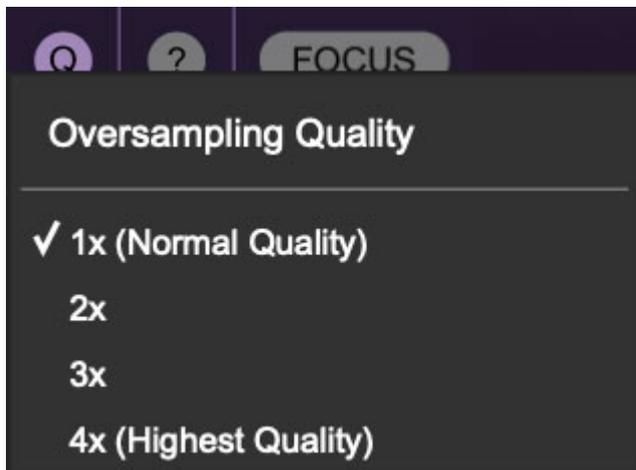
**Zoom Magnifying Glass**- Click to resize the Atomika interface. Selecting *100%* returns the user interface to native size.

**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.

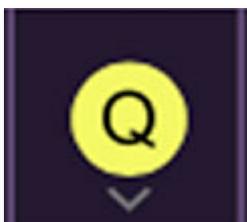


**Q Oversampling Quality** - The Q button sets Atomika's internal oversampling rate; the higher the setting, the better audio fidelity will be, with the caveat that more computer processing power will be required.

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*, Atomika's internal processing runs at 96 kHz, and is then reduced back to 48 kHz at the output stage.

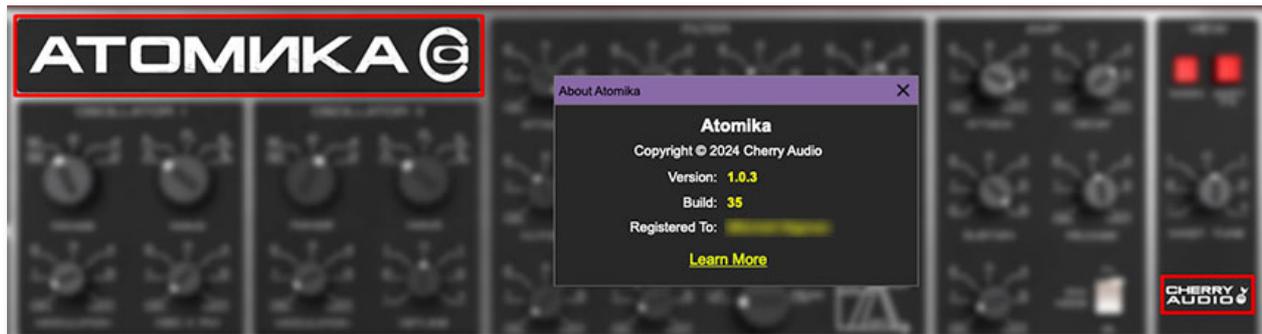
If the current DAW/instrument sample rate setting is 192 kHz and oversampling is set to *4x*, Atomika's internal processing will run at 768 kHz, and you will very briefly hear the most ameeeeezing synthesizer sound quality ever experienced by mankind before your computer instantaneously explodes in a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



When oversampling is set to any multiple greater than *1x*, the Q button glows yellow.



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



**Atomika and Cherry Audio badges**- Clicking these displays “about” information, and shows the version number and current registered user ID.

## Hide/Show Keyboard

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This lets you hide or display Atomika's onscreen keyboard. Hiding the keyboard reduces the overall plug-in window dimensions and is useful if screen space is at a premium.

## Focus

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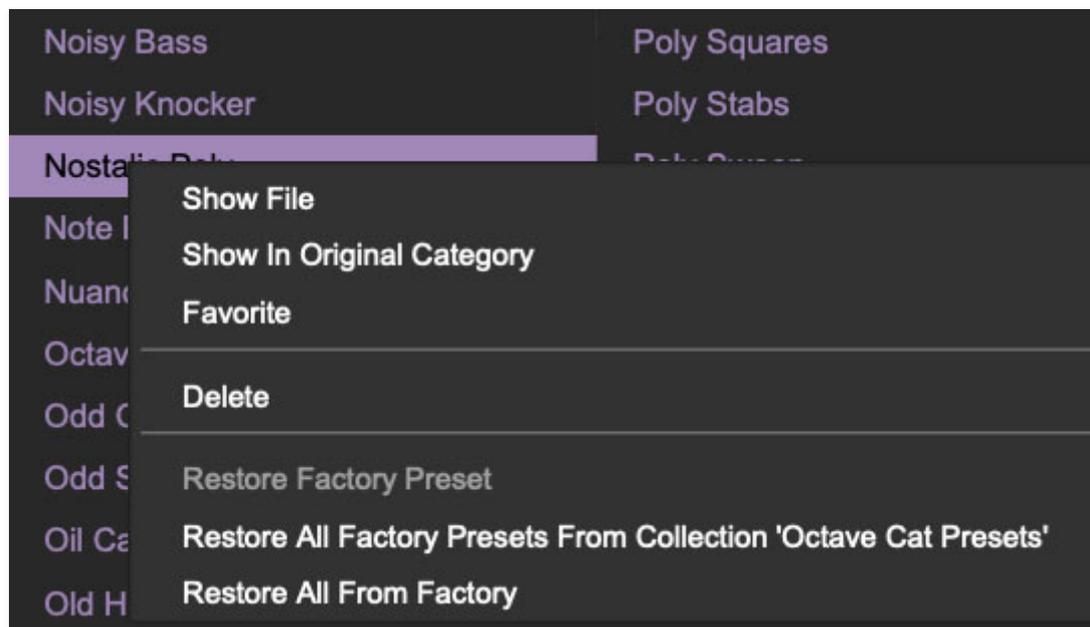


If you're using a tiny laptop, the user interface can potentially be hard to see. With this in mind, the *Focus* button conveniently blows up Atomika's view to roughly twice its normal size within the current window size. Unlike the *Zoom* "magnifying glass" function, *Focus* doesn't affect the current 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*.

## Preset List Right-Click Functions

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**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 'Atomika Presets'**- If any patches from the "factory" Atomika 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 Atomika bank mentioned above is the only factory bank, so this function and the *Restore All Factory Presets From 'Atomika Presets'* above have the same effect.

The original Polivoks panel was pretty straightforward. In addition to the original controls, Cherry Audio Atomika adds a full effects section with a dedicated modulator, plus a full-featured arpeggiator. In order to accommodate all necessary additional controls, we added a "page two" view. The current UI page is selected in the *View* section at the right of the instrument.



**Main / Arp/FX-** Use these buttons to select between Atomika's two UI pages. The *Main* page closely resembles the original instrument with controls for oscillators, filter, amp, modulator, and voice assignment, and glide. The *Arp/FX* page has all the controls for (you guessed it), the arpeggiator, effects, and the dedicated effects modulator section. **Note that control settings are not affected when switching between views.**

**Master Tune-** Sets the overall tuning for the entire instrument up or down by two semitones.

**Cherry Audio logo-** Clicking this displays "about" information, and shows the version number and current registered user ID.

**Volume-** Sets overall volume for the entire instrument. The five red LED's above the Volume knob display overall level. Unlike other Atomika controls that can cause it to desirably distort like crazy, we strongly recommend keeping this out of the red, otherwise you'll hear digital distortion of the yucky variety.

Atomika includes two oscillators. Their controls are mostly similar, but different enough that we'll go over each individually, because online-doc ink is free!

## Oscillator I

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**Range**- Coarsely sets the signal generator pitch range in octaves. These are at standard organ footage settings of 32', 16', 8', 4', and 2'.

**Wave**- This sets the basic oscillator waveform, including triangle, ramp, square, wide pulse, or narrow pulse.

**Modulation**- Sets the amount of modulation received from the Modulator in the upper-left corner. This is affected by the *Mod Wheel* switch in the Modulator section; for more info see the **Modulator** section.

**Osc II FM**- Sets the amount of modulation received from *Oscillator II*. Unlike typical low-frequency oscillator modulation (like the kind produced by the *Modulator* section) where the modulation sweep is clearly audible (imagine vibrato or tremolo), when pitch is modulated with an audio-range range oscillator, the modulation sweep is far too fast to be heard. This results in clangorous metallic sounds that can resemble ring modulation, bell tones, or the fabulous Yamaha FM digital synths of the 80s.

## Oscillator II

*Oscillator II* is largely the same as *Oscillator I* with a few minor differences.



**Range**- Coarsely sets the signal generator pitch range in octaves. These are at standard organ footage settings of 32', 16', 8', 4', and 2'.

**Wave**- This sets the basic oscillator waveform, including triangle, sawtooth, square, wide pulse, or narrow pulse.

**Modulation**- Sets the amount of modulation received from the Modulator in the upper-left corner. This is affected by the *Mod Wheel* switch in the Modulator section; for more info see the **Modulator** section.

**Detune**- This can be used to fatten dual oscillator patches by detuning a small amount, or for "building-in" musical intervals. Its range is up or down a fifth.

**Range**- Coarsely sets the signal generator pitch range in octaves. These are at standard organ footage settings of 32', 16', 8', 4', and 2'.



The Mixer section combines signals prior to the filter section.

**Oscillator I/Oscillator II level-** Sets the amplitude of each oscillator. Unlike most analog synths, these can really make a difference in the overall sound, particularly in conjunction with the filter *Resonance*, *Filter Drive*, and *Starve* controls and the Amp section *Amp Drive* control. We definitely recommend experimenting with oscillator levels if you're getting out there the aforementioned filter and amp controls!

**Noise** - Sets the volume level of Atomika's white noise generator. For those of you hoisting clipboards, white noise is a random signal wherein all frequencies across the frequency spectrum are represented equally (and for those of you who aren't... it's a loud hissing sound).



The original Polivoks filter is unquestionably its most unique feature - it boasts a truly unique, gnarly distorted tone. Although this certainly wasn't the intended outcome, the Polivoks filter is loved by many synthesists. Over the years, there have been numerous copies of its circuit in the hardware modular synthesis world, but up until now, it hasn't been emulated in the virtual synthesizer world.

The basic design was intended to emulate the 12dB/oct slope state-variable filters seen in Oberheim synths of the 70s and 80s. These are great-sounding filters and highly flexible as a result of their multiple modes (more on this later). Filters of this type made use of a still-relatively-new component called an "operational transconductance amplifier" or OTA. We'll assume that a lack of availability of fancy-pants OTAs in the Soviet Union during the 80s is what drove designer Vladimir Kuzmin to forego the OTA and instead make use of something called a "programmable op-amp" in its place. These were never intended for a variable filter application, but alas, Vladimir Kuzmin figured out a way to use it in such a manner, and thus, the raunchy Polivoks filter was born.

Also, we'd be remiss not to mention the nifty *Envelope Generator Mode* switch. This puts the Filter's ADSR envelope in looping mode, which essentially gains you an LFO, and it lets you create unique mod waveshapes. (The Amp section has this capability too, hooray!)

## The Original Polivoks Filter vs. Atomika's Super-Duper New and Improved Filter

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The controls for the original Polivoks filter are straightforward and similar to what you'd see in any garden-variety analog synth (cutoff frequency, resonance, envelope controls and depth, etc.). It does however have switchable lowpass and bandpass modes. However, Cherry Audio's Atomika goes WAY beyond, including the aforementioned lowpass and bandpass modes, plus highpass, notch, and peak modes. (see the *Response* control section below for the nitty gritty on exactly what each of these do) As you might imagine, these extra modes offer far more sounds than the original.

Furthermore, due to its unique design, our mad scientist DSP doctor Mark Barton discovered a few eccentric circuit behaviors along the way. Realizing these sounded pretty neat, these were incorporated into the design with the *Starve* and *Filter Drive* controls (as well as the *Amp Drive* knob in the Amp section). This all adds to up to even more of the idiosyncratic filter sound of Atomika.

## Filter Envelope Controls

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The dedicated ADSR filter envelope controls are incorporated into the Filter section. The filter envelope is hardwired to filter cutoff frequency, with its depth controlled via the *EG Depth* knob. If you're not familiar with the operation of an ADSR envelope generator, please see *How An ADSR Envelope Generator Works* in the [Amp](#) section.

**Attack**- Defines the length of time for voltage to rise from minimum to maximum voltage when a key is played.

**Decay**- Defines the length of time for voltage to fall from the attack stage 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 minimum voltage when a key is released.

**Cutoff**- Sets the frequency where frequency attenuation begins. Its effect is dependent upon the currently selected filter *Response* setting.

**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.

***Atomika's resonance circuit can result in some squelching and screaming at higher settings, so be cautious with volume when cranking the Resonance knob.*** That said, because of its propensity to distort, it usually doesn't get too crazy, because the distortion tends to act like a natural limiter. But hey, we gotta warn people, because who knows what folks will get up to (then blame us on momsbasementsynthdwell.com when everything goes awry because of the *Resonance* knob).

**Keyboard Tracking**- Causes the cutoff frequency to increase as ascending notes are played on the keyboard. The idea behind this that some (or all) of the keyboard CV signal is added to the cutoff frequency in order to offset the rising pitches of notes in order to maintain the brightness of notes as higher pitches are played. (If the filter cutoff frequency remained constant, lower notes would appear to sound brighter than higher ones.)

The original Polivoks did not include a keyboard tracking control - the tracking CV was "built-in" and set to a preset value. We decided to add the *Keyboard Tracking* control mainly to facilitate cranking the *Resonance* knob and "playing" the resulting pitched resonant notes across the keyboard.

**Envelope Generator Mode**- In the up position, the Filter envelope functions as a standard ADSR (attack/decay/sustain/release) envelope generator. In the down position, the Filter envelope is set to looping mode. This effectively converts the envelope generator to an LFO, with its controls affecting the modulation waveshape. The *Attack* and *Decay* controls are most effective here; be sure to set *Sustain* to a low value or the envelope won't loop at all.

**Starve**- This parameter is unique to the filter design, resulting from the aforementioned programmable-op-amp-incorrectly-used-as-filter architecture. If the settings are correct, the filter can take on an oscillating "bubbly" sound, for lack of better wording. Try *Cutoff* between 1 and 2, *Resonance* at max, and *Starve* between 5 and 6 as a starting point.

**Filter Drive**- This is not a standard filter overdrive/breakup control, but like *Starve*, is unique to how the Polivoks filter resonance circuit interacts with

the power supply rails. The technical details aren't important; what you should know is that it tends to work best with *Resonance* at high settings, and the *Filter Drive* knob at very low or very high settings - all manner of radical distorted noises happen when *Resonance* is cranked and *Filter Drive* is set to 0!

**Response**- Selects the overall filter curves. The jaunty graphic to the right of the *Response* selector shows a rough visual approximation of the lowpass, bandpass, and highpass response curves, with vertical representing amplitude, and horizontal representing frequency.

- **LP (Lowpass)**- Allows frequencies below the cutoff frequency to pass, but blocks frequencies above the cutoff frequency with an 12 dB/oct slope.
- **BP (Bandpass)**- Allows a band of frequencies in the vicinity of the cutoff frequency to pass, with a 6 dB/oct slope on either side of the peak.
- **HP (Highpass)**- Allows frequencies above the cutoff frequency to pass, but blocks frequencies below the cutoff frequency with a 12 dB/oct slope. Because they dramatically remove low frequencies, the highpass setting is useful for nasally tones with exaggerated high frequencies.
- **Notch**- Removes a band of frequencies close to the cutoff frequency and allows all other frequencies to pass. The notch width varies dependent on the current *Resonance* setting, with low *Resonance* resulting in the widest Notch width. Notch filters are useful for pseudo-phaser effects when their cutoff frequency is swept, but hey, that's notch your problem, right? (*"And the award for the most Daddest User Manual Joke goes to..."*)
- **Peak**- A pronounced resonant peak at the cutoff frequency, and no rolloff on either side of the peak frequency. Incidentally, the *Peak* setting excels at really saturated, aggressive sounds when the *Resonance* knob is cranked.

By the way, similar to the one on the original instrument, that fanciful little graphic next to the *Response* control gives a rough visual indication of the lowpass, bandpass, and highpass filter behaviors. The vertical axis represents amplitude; the horizontal axis represents frequency.

**Modulation**- Sets the amount of mod depth from the Modulator section at top left. This is affected by the *Mod Wheel* switch in the Modulator section; for more info see the **Modulator** section.

**EG Depth**- Sets the amount of mod depth from the ADSR Filter envelope generator controls at the top of the filter section.

**Velocity**- Sets the how much the cutoff frequency is affected by keyboard velocity. To use the *Velocity* control, make sure the *EG Depth* knob is at a non-zero setting (we recommend starting full up). It works slightly "backwards" - increasing the the *Velocity* amount increases control range, so the cutoff frequency appears to decrease as the *Velocity* knob is increased.



The Amp section controls overall amplitude (volume); this is mainly configured using the ADSR envelope generator, but controls for modulation amount and note velocity are also found here. .

**Attack-** Defines the length of time for voltage to rise from minimum to maximum voltage when a key is played.

**Decay-** Defines the length of time for voltage to fall from the attack stage 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 minimum voltage when a key is released.

**Amp Drive-** This sets the amount of drive into the amp section, and as you might imagine, it's used to overdrive the amp

section. Hooray for distortion!

**Envelope Generator Mode-** This is the same as the Filter section Envelope Generator Mode switch - in the up position, the Amp envelope functions as a standard ADSR (attack/decay/sustain/release) envelope generator. In the down position, the Amp envelope is set to looping mode. This effectively converts the envelope generator to an LFO, with its controls affecting the modulation waveshape. The *Attack* and *Decay* controls are most effective here; be sure to set *Sustain* to a low value or the envelope won't loop at all.

**Modulation-** Sets the amount of mod depth from the Modulator section at top left. This is affected by the *Mod Wheel* switch in the Modulator section; for more info see the **Modulator** section.

**Velocity-** Sets the how much note amplitudes are affected by keyboard velocity. It works slightly "backwards" - increasing the the *Velocity* amount increases the velocity range, so note amplitude appears to decrease as the *Velocity* knob is increased (whack a key hard and it'll make sense).



The Modulator section is a low-frequency oscillator that generates sub-audio range signals intended for modulation purposes. We've expanded on the original instrument in a couple of useful ways, including multiple modulation waveforms and tempo sync.

**Speed-** The Speed knob sets the Modulator speed, from 0.01 to 20 Hz (with *Sync* switch off) or from 8 beats up to 1/64th note triplets (*Sync* switch on). The LED above the *Speed* slider flashes at the current modulation rate.

**Waveform-** Selects the repeating pattern of the Modulator. Available waveforms are ramp, sawtooth, triangle, square, noise, and random (aka, sample & hold).

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

**Mod Wheel-** This is a really handy, but potentially confusing feature, so don't skim this section. If the switch is in the *Off* position, the Modulator is always "on." Its effects will be immediately audible by moving the Modulator knobs in the Oscillator, Filter, and Amp sections. Clicking to the *On* position enables control of Modulator depth with an external keyboard controller mod wheel. If the mod wheel is all the way off, Modulator depth is zero. This makes setting up a mod wheel to add vibrato or wah effects simple. **If it seems like the Modulator isn't working, check if the *Mod Wheel* switch is on.**

**Key Reset-** Enabling *Key Reset* restarts the Modulator cycle monophonically if no notes are currently on and a new note is struck. If additional keys are played, the Modulator 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 Amp amplitude (Amp section *Modulation* knob up). If you played a chord, with each note struck at a (slightly) different time, the Modulator would restart every time a note was played, which could result in a rhythmic mess.



The Voice Assign section sets the number of simultaneously playable notes, as well as unison mode and glide behavior.

**Glide-** The *Glide* knob causes notes to slide smoothly from one pitch to the next. Higher settings result in a slower change of pitch.

**Number of Voices-** Sets the maximum number of notes that can be played polyphonically, from 2-16 voices per

layer. These are last-note priority - when the max number of notes is reached, the oldest note will be stolen. With any modern computer, you should be able to leave this at 16, but we've provided lower settings to save processor cycles in case you're still holding on to that Pentium II machine (and hop on them forums to let everyone what jerks those guys at Cherry Audio are for not supporting your 15-year-old box of e-waste).

**Unison-** Unison stacks multiple voices according to the current *Number of Voices* setting. The *Unison* switch is used in conjunction with the *Unison Detune* knob which spreads out the tuning of the oscillators for fat sounds. The keyboard will only play monophonically (i.e., one note at a time) when the *Unison* switch is engaged.



The FX Modulator section is a low-frequency oscillator that generates sub-audio range signals specifically for modulating effects parameters. **Though it appears in the same location and has similar controls, it operates completely independently of the Main page Modulator section.**

**Speed-** The Speed knob sets the Modulator speed, from 0.01 to 20 Hz

(with *Sync* switch off) or from 8 beats up to 1/64th note triplets (*Sync* switch on). The LED above the *Speed* slider flashes at the current modulation rate.

**Waveform-** Selects the repeating pattern of the Modulator. Available waveforms are ramp, sawtooth, triangle, square, noise, and random (aka, sample & hold).

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

**Mod Wheel-** This is a really handy, but potentially confusing feature, so don't skim this section. If the switch is in the *Off* position, the Modulator is always "on." Its effects will be immediately audible by moving the Modulator knobs in the Phasor, Flange/Chorus, Echo, and Reverb sections. Clicking to the *On* position enables control of Modulator depth with an external keyboard controller mod wheel. If the mod wheel is all the way off, Modulator depth is zero. This makes setting up a mod wheel to control effects modulation really easy. **If it seems like the FX Modulator isn't working, check if the *Mod Wheel* switch is on.**

**Key Reset-** Enabling *Key Reset* restarts the Modulator cycle monophonically if no notes are currently on and a new note is struck. If additional keys are played, the Modulator won't restart until all keys are released.



Atomika includes four simultaneous effects: Phasor, Flanger/Chorus, Echo, and Reverb. These can be used in any combination. In case you're wondering why we didn't include an overdrive or distortion effect, it's because Atomika's Filter and Amp sections have so many colorful flavors of distortion, we figured a dedicated effect would be superfluous (also, we were running out of panel space and thought the FX Mod section was more useful!).

## Phasor



### Mode buttons-

- **Off**- Phasor effect is disabled.
- **4/6/12 Stage setting**- Atomika's phasor includes up to 12 all-pass filter stages. As a general rule, more stages = lush phase, but there are plenty of interesting tones to be had using the lower stage settings.

**Speed**- Sets the phasor's internal LFO speed from 0.01 to 8 Hz.

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

**Sync**- The *Sync* slide switch locks the rate of the Phasor's modulation LFO to the tempo in the top toolbar when

using the Atomika 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.

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

**FX Modulator**- Sets the amount of sweep mod from the FX Modulator section in the top left corner. To disable the Phasor's dedicated LFO, set the *Depth* control to zero. This lets you use the FX Modulator only for mod. Alternatively, the Phasor's internal mod can be combined with the FX Modulator for unique modulation shapes (in this case, we recommend enabling sync and experimenting with *Speed* subdivision settings for both).

**Q Width**- Sets the nominal frequency spread size or "bandwidth" of the all-pass filters. This control noticeably alters the overall tone and character - be sure to try it when experimenting with stage and feedback settings.

## 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.

### Mode buttons-

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

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

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

**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 Atomika 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.

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

**FX Modulator**- Sets the amount of sweep mod from the FX Modulator section in the top left corner. To disable the Flange/Chorus's dedicated LFO, set the *Depth* control to zero. This lets you use the FX Modulator only for mod. Alternatively, the Flange/Chorus's internal mod can be combined with the FX Modulator for unique modulation shapes (in this case, we recommend enabling sync and experimenting with *Speed* subdivision settings for both).

**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



Atomika's Echo includes digital, tape, and ping-pong, plus cool modulation section.

### 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.

**Time**- Sets delay time, from 1 to 2000 ms. If

the *Sync* button is enabled, time settings snap to synchronized note values.

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

**Mod Rate-** Sets the rate of delay time modulation from 0.20 to 20 Hz.

**Sync-** The *Sync* switch 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 Atomika standalone version or the current project tempo when the plug-in version is used in a DAW.

**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.

**Mod Depth-** Sets the depth of delay modulation. Lower settings give delays a nice, subtle warble. Higher settings can result in the infamous Steve Stevens "raygun" effect. (If I was that guy, I'd change my middle name to Stefan, just to confuse people.)

**Time FX Modulator-** Sets the amount of sweep mod from the FX Modulator section in the top left corner. To disable the Echo's mod LFO, make sure the *Mod Depth* control is set to zero. This lets you use the FX Modulator only for mod. Or use both...

**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.

**Mix-** Sets the ratio of clean to effected sound.

## Reverb

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### Mode buttons-

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



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

**Predelay**- Sets the length of time until the onset of reverb from 0 to 150 ms.

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

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

**Decay FX Modulator**- Sets the amount of modulation of decay time from the FX Modulator section in the top left corner. To disable the Flange/Chorus's

dedicated LFO, set the *Depth* control to zero. This lets you use the FX Modulator only for mod.

**Mix**- Sets the ratio of clean to effected sound.



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

**Pattern buttons-** These buttons enable the arpeggiator *and* select the order in which the notes of chords are played.

- **Off-** Arpeggio is disabled. You knew that.
- **Up-** Notes play in order from lowest to highest.
- **Down-** Notes play in order from highest to lower.
- **Up/Down-** Notes play from lowest to highest and back down from highest to lowest.
- **Rnd (Random)-** Notes are played in a random order.

**Speed-** Sets the playback speed of arpeggiator sequences, from 0.25 to 30 Hz (with *Sync* disabled).

**Sync-** Engaging the *Sync* button 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 Atomika standalone version or the current project tempo when the plug-in version is used in a DAW.

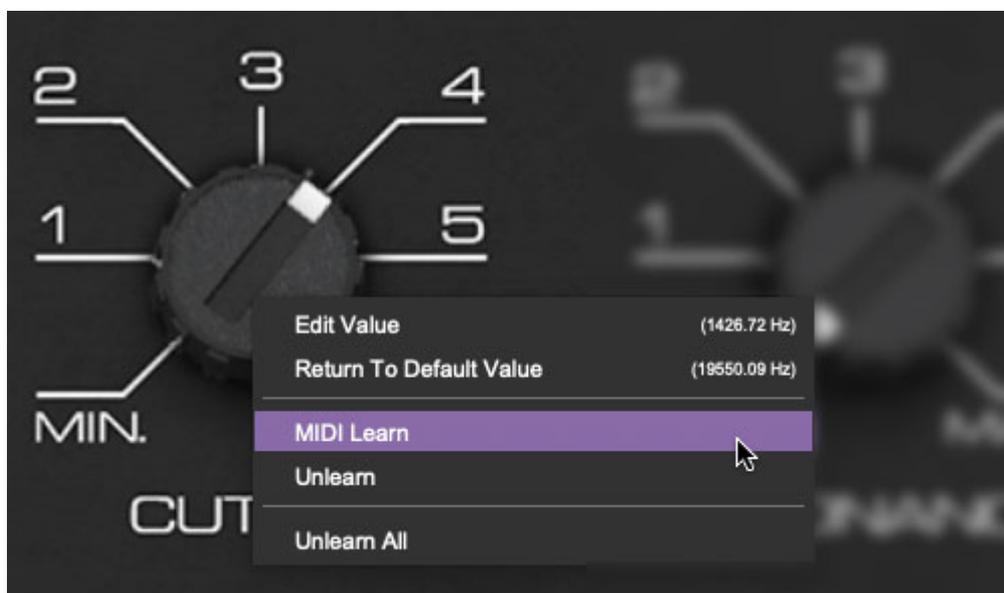
**Range buttons-** Selects how many octaves the pattern will play before repeating. Only one button can be pressed at any time.

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 Atomika 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 Atomika's nifty MIDI control assignments.

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



Begin by right-clicking on the *Cutoff* 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 Atomika control.

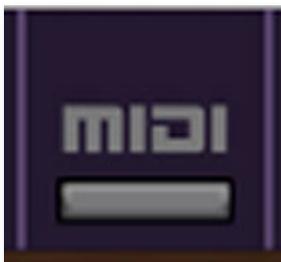


When in MIDI learn mode, any previously assigned controller numbers will show in squares. These indicate the MIDI continuous controller number of the assigned hardware control (these are also displayed in the *MIDI* library tab at left).

Once a MIDI controller has been assigned, in addition to real-time control of an Atomika 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 Atomika 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 Atomika:

- **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.
- **Aftertouch**- Besides sounding like a 1981 Melissa Manchester record, 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 Atomika'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.

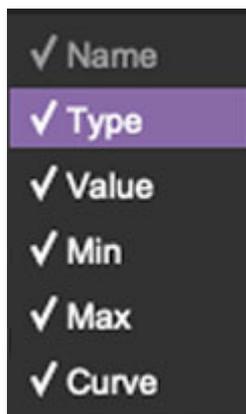
**Max**- Sets a limit on the highest value any automation control can set a mapped controller to. This actually recalibrates the range of the automation controller to the remaining parameter range.

- **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.

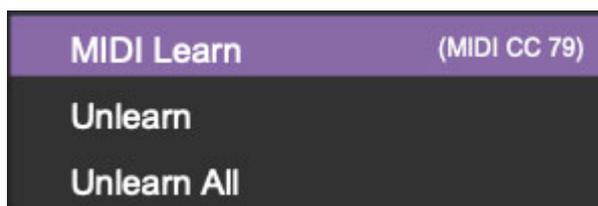
**Curve**- These allow the customization of how incoming MIDI CC controls affect the movement of Atomika's onscreen controls, ranging from exponential to linear to logarithmic curves.

## 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

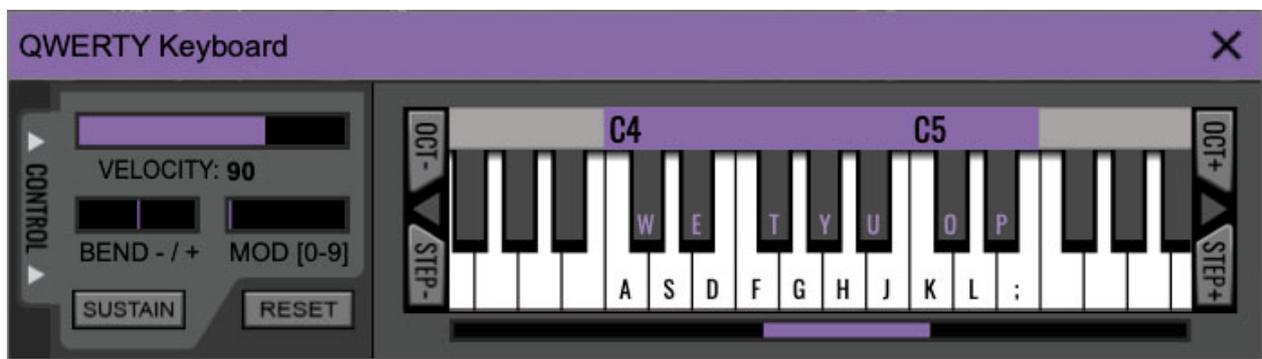


Right-clicking on an assigned parameter opens the menu above.

**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. Atomika will display a warning dialog prior to deletion in order to thwart potential unlearn-related disasters.



Atomika 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 MTK 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 fixed at a whole-step. 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.

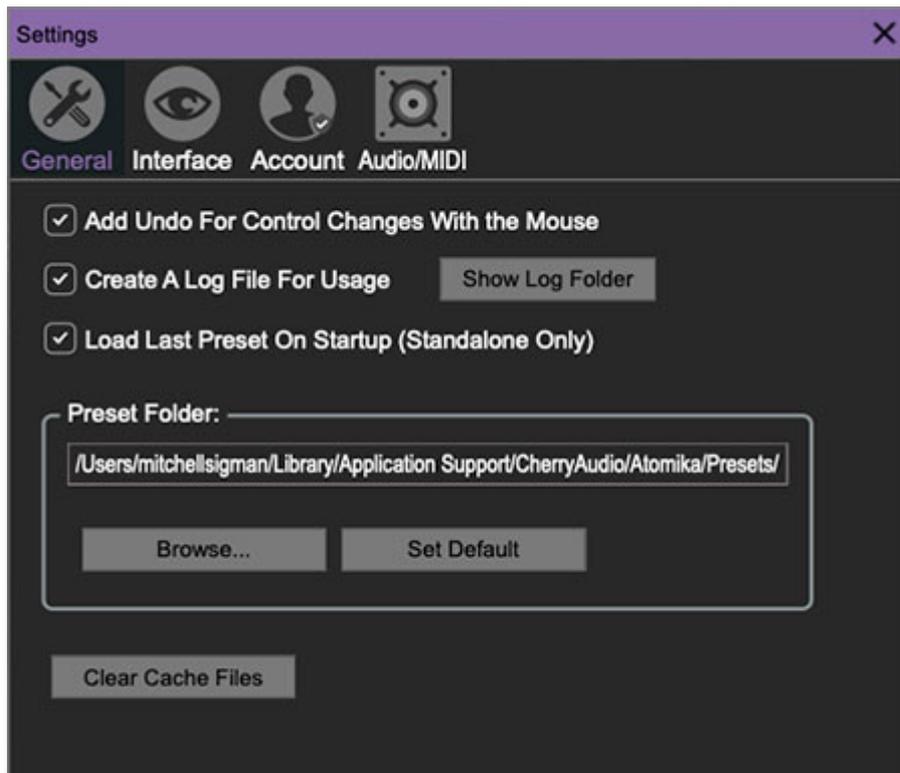
**Sustain-** The *Sustain* button mimics the functionality of a standard sustain pedal. Click the [TAB] key to engage sustain, or [SHIFT]+[TAB] to lock it. The *Sustain* button can also be engaged by mouse clicking it.

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



Clicking the settings gear icon 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 it should be!

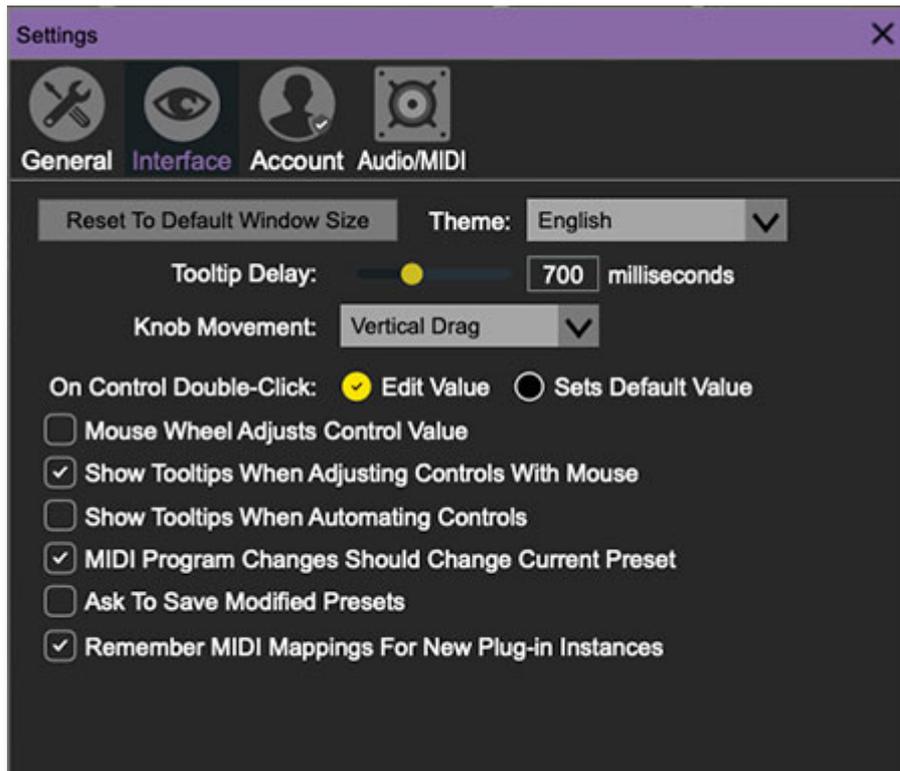
## General



- **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 Atomika'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 Atomika log file docs.
- **Load Last Preset On Startup (Standalone Only)**- Automatically loads the last preset used when Atomika standalone version is started.
- **Preset Folder**- Displays the current location of Atomika'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 Atomika's user interface settings.

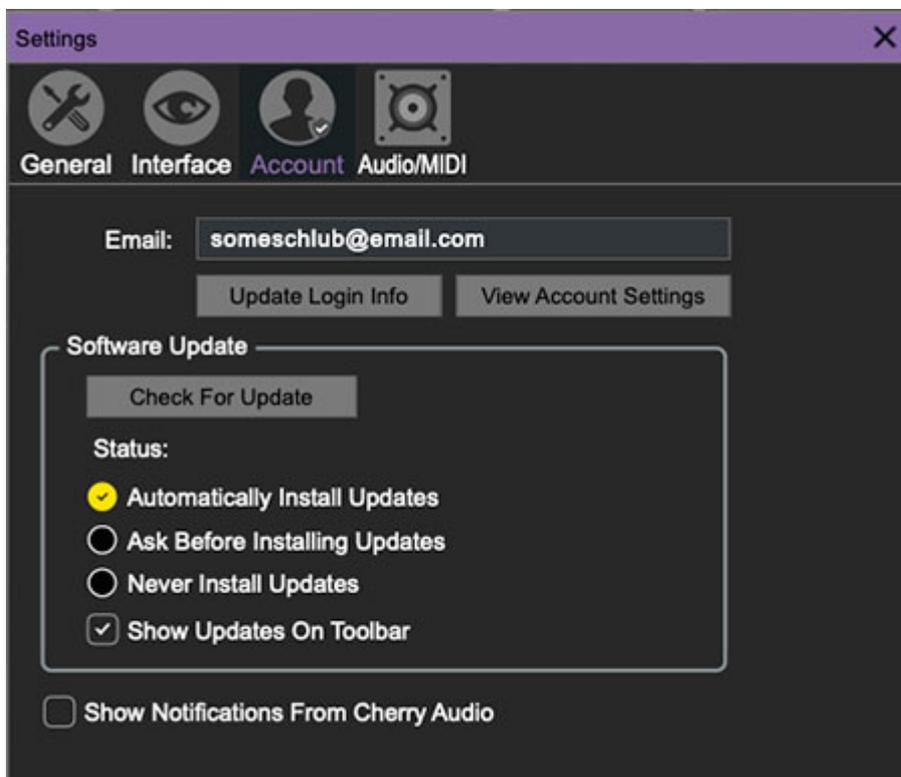
- **Reset To Default Window Size**- Resets the Atomika workspace to default size. Use this to reset the window size if the window somehow becomes too large for your display and can't be resized (pretty sure we fixed that bug a while back though!).



- **Theme-** This popup menu lets you choose between panel labeling in English, or Cyrillic Russian, like the original instrument. Pretty cool, huh?
- **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 Atomika 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, Atomika 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. Clicking this opens the same email and password login screen you'll see when initially launching Atomika.
- **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 Atomika handles updates.
- **Check For Update-** Click this to see if an updated version of Atomika available.

### Status-

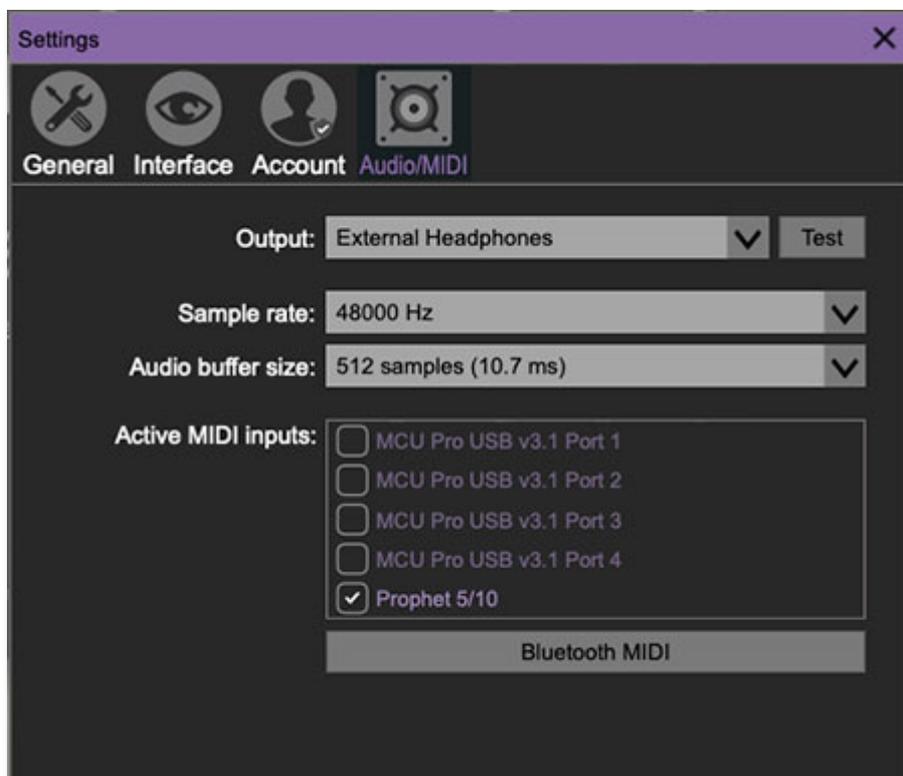
- **Automatically Install Updates-** Updates are automatically downloaded and installed.
- **Ask Before Installing Updates-** By default, Atomika automatically downloads new versions of modules when available. Checking this box defeats automatic updates and will ask if you'd like to install updates when 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 Atomika for live performances or other "mission critical" situations.

- **Never Install Updates-** Atomika 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, 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



Not to be confused with [audiomidi.com](http://audiomidi.com), where I used to work, these are settings for audio and MIDI hardware input and output.

**This tab is only visible in the standalone version of Atomika.**

- **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 Atomika'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**- 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* in the back of the manual, to make it extra challenging to figure out why things aren't working.)