

pHATmatik PRO

iZotope, Inc.

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Manual revision 1.5 April 10, 2005

1. Installation



Welcome to pHATmatik PRO

Thanks for purchasing pHATmatik PRO.

pHATmatik PRO is the result of nearly a year and a half of research and development. There were three goals while developing it:

- Make it easy for professional musicians, producers and engineers to work with loop-based content within their existing digital audio workstation.
- Free musicians, producers, and engineers from the creative limitations traditionally imposed by using loop-based content by eliminating the constraints of tempo, key, and even timbre.
- Above all else, create a truly musical instrument... a way to interact with and 'perform' loop based content that is a means of creative expression, not simply another 'toy' for the studio.

Have fun and enjoy making music with pHATmatik PRO!

About the manual

This manual covers the concepts and operation of pHATmatik PRO v 1.1. Always be sure to check for updates [at www.izotope.com](http://www.izotope.com).

All the screenshots in this manual are from the Windows version of pHATmatik PRO. The Mac and Windows versions of pHATmatik PRO are nearly identical in terms of Musician User Interface, but we'll be sure to point out wherever things are different for Mac musicians.

Translations of this manual may be downloaded from our web site at <http://www.izotope.com/phantmatik/>

Requirements

- Mac OS X - Audio Unit or VST compatible host application, G3 333, 128 MB RAM
- Windows XP/2000 - VST 2.0 compatible host application, PIII 450, 128 MB RAM

New in 1.1

- Support for Mac OS X Audio Units and VST
- Support for saving and loading pHATfiles. Now you can store and retrieve all your slice and tempo settings right along with your loop in an industry-standard .WAV file!
- New 'trim loop' features allow you to remove leading and trailing audio data in your loops. You no longer have to switch to an external editor to get rid of those extra downbeats!
- Improved loop browser with preview and favorites (natively on OS X) makes navigating even the largest loop library a breeze.
- In addition to automatic transient detection for slicing, you can now also tell pHATmatik PRO™ to slice on 16th or 32nd notes.
- Per-slice switchable one-shot mode.
- Midi trigger export files can now optionally have midi velocity interpolated from each slice's RMS value. Perfect for creating groove templates!

Installing pHATmatik PRO

Installing pHATmatik PRO is simple:

FOR MAC OS X Audio Unit:

1. Mount the pHATmatik PRO AU.dmg file by double-clicking on it.
2. Drag the pHATmatik PRO.component file from the mounted volume to either /Library/Audio/Plug-Ins/Components/ or <your home directory>/Library/Audio/Plug-Ins/Components/.

FOR MAC OS X VST:

1. Mount the pHATmatik PRO VST.dmg file by double-clicking on it.
2. Drag the pHATmatik PRO.vst file from the mounted volume to either /Library/Audio/Plug-Ins/VST/ or <your home directory>/Library/Audio/Plug-Ins/VST/.

FOR PC:

1. Run the installer
2. The installer will choose a default installation location for the documentation and the pHATmatik PRO dll and ask you if you'd like to install to a different directory.

Note that the installer checks to see if you have a VST Plugins directory entry in the Windows registry and copies the dll there if it's found. If the installer doesn't automatically detect your host's VST Plugins directory, you can simply manually copy the PhatmatikPROVST.dll file from the installation location to your host's plugin folder.

Authorization

The first time you run pHATmatik PRO, you'll be asked to enter your serial number. Simply enter the serial number included in

the pHATmatik PRO box (or in your registration e-mail if you purchased pHATmatik PRO directly via download). **Save your serial number in a safe place! You need it each time you install the software.**

Uninstalling

FOR MAC:

1. Simply delete the component/vst/plugin in file you copied during installation.
2. Optionally, delete 'pHATmatik PRO Preferences' from your preferences folder.

FOR PC:

To uninstall pHATmatik PRO, simply go to the Windows Control Panel, select 'Add/Remove Programs' and select pHATmatik PRO from the list of installed programs. The uninstaller will remove all files copied during installation.

Note: The installer won't uninstall the pHATmatik PRO dll from your host's folder if you manually copied it there after installation.

Support

You can always get support at www.izotope.com/support/. There, you will find our searchable knowledge base and frequently asked questions.

If your question is not already answered in our knowledgebase, you can submit questions through the online form for additional support.

2. Getting Started

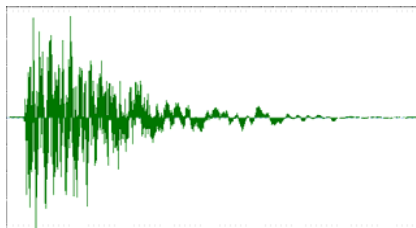
What is pHATmatik PRO?

pHATmatik PRO is a completely new type of virtual instrument... it's not a synth and it's not a sampler, but it's a little bit of both, too. If you've never worked with loop slicing tools before, expect to spend a little time wrapping your head around pHATmatik PRO. This manual and our support site at <http://www.izotope.com/support> are your friends.

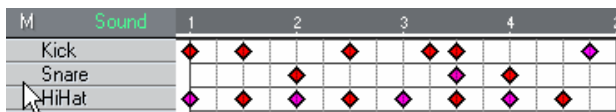
In order to explain pHATmatik PRO, we have to spend a little time explaining its core feature: *beat slicing*.

Every audio file contains essentially two types of data: Sound information, the individual sounds that make up a sound file, or the *what* of the audio, and timing information, the *when* of the audio.

To illustrate, let's look at the waveform of a single snare drum hit

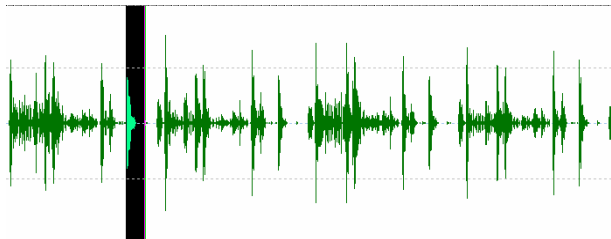


And then at a simple drum pattern:



Notice the snare is set to be triggered on the two and four, with an accent on the three's 'and'. Now if we use that

pattern to trigger a drum kit with the snare sound depicted in the first figure, we might have a loop that looks something like this:



Note that the sound information (the individual sounds of the drum instruments) and the timing information (from our midi pattern above) are now *encoded* into a single audio stream.

Now, this is fundamentally how music works: the encoding of various timbres with rhythmic and harmonic data. The problem with audio is, once it's 'encoded' it's difficult to work with either the sounds or the timing/harmonic data separately.

If, for instance, we recorded our scenario above at a tempo of 120 bpm, and then later wanted to use the loop in a project at 140 bpm, the only solution is to play the loop back faster... which has the annoying side effect of making the pitch higher as well. Likewise, if our example were harmonic data, say a bass guitar loop, recorded in the key of 'C' and we later wanted to use this loop in a project that is in the key of 'F', the only way we could do it would be to speed up the audio the corresponding amount to get the desired change in pitch. Of course, now the loop will be shorter, and won't play back in time.

It's clear then, that we need a way to *decode* the original timing and sound information from an audio loop. That's what beat slicing accomplishes.

If we look again at the waveform of our loop, we see a pattern of *transients* corresponding to the individual hits in our loop. These transients correspond to the rhythmic content of the loop and, via sophisticated software analysis, we can extract the original timing information of the loop.

The transients further act as 'sound markers' delineating where individual timbres begin and end within the loop. Once again, software can quickly analyze these transients and break the waveform into its constituent sounds.

Once we've performed these two analyses and have our timing data and our sound data separated, we have unlimited freedom in editing the loop:

- We can change the pitch of the audio (or individual slices) without affecting the length.
- We can play the timing info back slower or faster (as a midi sequence) without affecting the timbre of the audio. You can even gradually change tempo and the loop will follow.

These two features alone are a powerful tool: Audio content no longer needs to be in the key or the tempo you need it in! Simply slice it up and make any adjustments you need. But that's just the beginning of the creative possibilities....

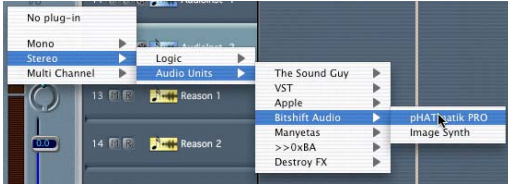
- Create completely new content from existing loops. Since the timing information is in a malleable format (MIDI), you can create fills, correct timing, or even pitch correct individual syllables of a vocal performance without affecting its rhythmic feel
- Mixing freedom. Ever wondered how you were going to add a little reverb to the snare in that killer loop without washing out the hats and kick? Now that all your sounds are isolated, it's no problem.

In the past, to utilize beat-slicing, musicians had to interrupt their creative workflow, switch to another app, deal with confusing, poorly supported proprietary file formats, sample dump transfer or any number of other hurdles seemingly designed to halt the creative process. pHATmatik PRO provides you with the only beat slicing technology that drops right into your creative environment as a *Musical Instrument*, ready to respond to your creative whims instantly. pHATmatik PRO does everything you've just read about better, faster, and more intuitively than any other tool on the market. And much, much more as you'll see...

Now that you're in the loop, let's have some fun...

Tutorial

Let's get started by loading up an instance of pHATmatik PRO in your host.



pHATmatik PRO launches ready to go. The first thing you'll need to do is load a loop, so open pHATmatik PRO's file browser using the file button in the toolbar:

MAC OS X: pHATmatik PRO for Mac OS X doesn't use the custom file browser, but rather the excellent standard Mac OS X Navigation Services File Dialogs.



The file button toggles the file browser open



pHATmatik PRO's custom file browser opens. The file browser is a little different than what you're used to, but it's that way for a reason! It's custom-designed to make working with large numbers of loops super-easy!

1. Navigate to a folder with a loop you'd like to work with. If you purchased the boxed version of pHATmatik PRO, there are many excellent loops

to be found in the 'free loops' folder on the CD-ROM.

While you can theoretically load any audio into pHATmatik PRO, it generally makes sense to load loops that are four bars or less, since pHATmatik PRO can only trigger 80 slices.

2. Enable loop preview by un-muting the speaker button in the file browser's toolbar (In OS X check 'Auto-Preview'):



Note: You can leave loop preview enabled and quickly move through an entire directory of loops, previewing each against your arrangement. (future versions of pHATmatik PRO will actually preview files at the host tempo and in sync with the transport!)

3. Once you've previewed the loop, double click on its name in the lower file pane to load it into the slice editor.
4. Close the file browser by clicking on the file icon in the toolbar again.
5. To slice your loop, simply adjust the sensitivity slider and press the 'do slice' button in pHATmatik PRO's toolbar:



6. We'll get more into the slice editing features later in this manual... for now, notice that the loop has been divided up into 'slices' and that each 'slice' has a corresponding midi note.
7. If you have a midi keyboard connected to your DAW, you can trigger the slices using your keyboard! Simply

set up your keyboard/host to deliver midi on track 1 to pHATmatik PRO and check it out. Instant drum kit!

8. You can also preview individual slices directly from pHATmatik PRO's MUI: simply hold down the **[SHIFT]** key and click on a slice in the waveform display.
9. Preview the loop at the host's tempo by pressing the 'play preview' button in pHATmatik PRO's toolbar.



Play Preview works in two modes: when the host's transport is stopped, play preview plays the current channel's loop at the host's tempo. When the host's transport is engaged (i.e., when the song is playing) play preview will play back the loop at the host's tempo -AND- phase locked to the host's bar/beat position.

10. If you want to recreate the original loop in your arrangement, you're going to want to get the timing information from your loop into your song as midi data triggering pHATmatik PRO. I'll show you two ways to do it.
11. a) Click on the midi export button. A standard file dialog pops up asking you what name you'd like to give the exported midi file.



Then use your hosts' midi import feature to import the file you just exported.

12. b) -OR- You can do it the easy way! Simply press the **[OPTION/ALT]** key, click on the midi export button, and drag the midi to your hosts' arrange page!

14. Now ensure the track you just imported/dragged the midi to is set to send midi to pHATmatik PRO, press 'play' in your host and you'll hear the original loop at your host's tempo! Change your host's tempo and the loop will follow the changes seamlessly. With the midi loaded into your sequencer, you could now edit the midi to create fills, quantize the midi to create a different feel for the loop, or simply scrap the midi data altogether and create a new loop from scratch with the old loop's sounds!

It's up to you... you're in the loop.

As you've probably guessed, this tutorial has only scratched the surface of what's possible with pHATmatik PRO. We recommend you spend some quality time with the remainder of this manual to familiarize yourself with the deeper features, but it's certainly not a requirement. With these basics, you can simply experiment with all the knobs in the slice and master section and get right on to having fun.

About Loop Edit

The top half of pHATmatik PRO's user interface coupled with the file browser is where you'll do most of your work loading and editing loops. It was designed to be *very* fast to use, and so some of the features aren't immediately apparent and rely on keyboard shortcuts instead of 'mouse marathon' back and forth clicking.

Let's start off by going through all of the components of the loop edit interface:



Loop Browser Button - this toggles pHATmatik PRO's custom loop browser (standard file dialog on OS X) open and closed.



Do Slice Button - this button will engage pHATmatik PRO's sophisticated auto-slice detection engine and slice up the currently loaded loop with the current sensitivity settings.

When you slice your loop, each slice will automatically be assigned a midi note,

Note: this will erase any slices that you currently have in your loop!



Sensitivity Slider - this determines how picky pHATmatik PRO's auto-detection algorithm is when slicing up a loop. Generally, a higher setting (further to the right) will result in more slices.



Midi Export - this button allows you to export the timing information of your groove to a standard midi file suitable for import into your host application. The button works in two ways:

1. You can simply click on it and a standard file save prompt will ask you where you'd like to save the file. After choosing a location, use your sequencer's 'import midi file' feature to load the file and trigger pHATmatik PRO.
2. You can press **[OPTION/ALT]** and then click on the midi export button and drag the midi timing information to your host's arrange page. This is an extremely easy and streamlined way to work.



Play Preview Button - clicking on this button has a different effect depending on the current state of the host:

1. **If the host isn't playing.** This button will play the current loop at the host's tempo. This is great for quickly previewing your slice settings, filters, envelopes, etc.
2. **If the host is playing.** This button will play the current loop at the host's tempo phase locked to bar/beat position. This is great for previewing the loop against your arrangement. **Note:** this works well in most host applications, but is intended as a preview feature only... occasionally a bar will drop out.

If you change slice positions while play preview is engaged, it will take some time for the changes to be reflected in what you're hearing. Best to stop play preview and start it again. This will refresh the internal sequencer and let you hear your changes immediately.



Midi Selects Slice Button - when this button is engaged, incoming midi will select the current slice, just as if you had clicked on the slice with your mouse. This is very useful for quickly switching between slices when editing per-slice parameters.

If midi selects slice is engaged and you have multiple slices selected, the next incoming midi note will clear the selection, leaving only the triggered slice selected.



Midi Animate Button - When this button is engaged, incoming midi will briefly flash a slice red. This is helpful in determining which slice is making what sound.

Tip: turn the studio lights down low, export the loop's midi, engage 'midi animate', then sit back and enjoy the light show. It's quite fun to watch!



Preferences Button - When this button is pressed, the pHATmatik PRO preferences dialog will be displayed. The preferences are straightforward:

1. **Favorites.** Specify up to five folders for 'quick navigation' in the custom loop browser. Note that in Mac OS X, you should use the Finder's Favorites feature instead.
2. **Sample Export Directory.** Specify the directory where pHATmatik PRO will place audio files for slices exported via drag and drop.
3. **Knob Style.** Choose whether you like circular or linear (slider-style) mouse-interaction with pHATmatik PRO's knobs.
4. **Export Midi Velocity.** When checked, exported midi files will have velocity corresponding to the 'loudness' of the corresponding audio for each slice. This is really only useful for extracting 'groove templates' from a loop, as using a midi file exported with this option engaged to trigger the source loop sounds very strange!



Save as pHATfile Button - Clicking on this button will open a standard 'Save As...' dialog for saving the current loop as a new pHATfile. A pHATfile is simply a standard 24-

bit .WAV file with additional headers describing the tempo and slice points of a sliced file. If you subsequently load a pHATfile from pHATmatik PRO's browser, all the slice and tempo information will be intact. This also lets you transfer slice information to other applications and virtual instruments that support pHATfiles.



Slice on Metric Value Buttons - Clicking on these buttons will ignore transient information in the loop and instead place slice markers on every 16th or 32nd note, respectively.

The placement of slice markers when you slice on metric values is dependent on the current number of beats and tempo. In order for the markers to be placed correctly, the 'Beats' setting (see next section) must be accurate for the current loop.

Tip: you can slice on metric values other than 16 or 32 by 'fudging' the beats value. For example, if the loop actually has 8 beats (2 bars), you can place slice markers on every 64th note by temporarily changing the number of beats to 4 and clicking on the '32nd Note Slice' button.



Beats entry/display - This field displays the beats in the current loop. If you've loaded a pHAT file or ACIDized wav file, this will be set to the actual number of beats in the file. If not, pHATmatik PRO makes an educated guess (which is always four) and calculates the tempo of the loop based on the number of beats and the length of the file.

To change the number of beats, simply click in the blue area and type in the new number of beats.

If your loop isn't four beats long, you MUST enter the correct number of beats into this field before exporting midi or

engaging play preview. Otherwise, pHATmatik PRO will calculate the tempo of your loop incorrectly and will not be able to match it to the host's tempo in a sensible fashion.



Tempo display – This field displays the currently calculated tempo. Note that you can't change this manually... you must change the number of beats in order to change the tempo.



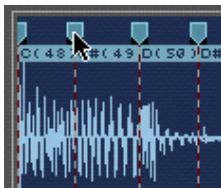
Channel select control – this display tells you which of pHATmatik PRO's 16 channels you're currently working on. Each of pHATmatik's 16 slots corresponds to the same midi channel. So if you're working on channel 3 in pHATmatik PRO, you want to make sure that the corresponding track in your host application is also set to send midi to pHATmatik PRO on channel 3.

To change the current channel simply click in the blue area of the channel select control and select the channel from the drop down.

REMEMBER: *All of pHATmatik PRO's controls correspond to the current channel. If you 're making tweaks and you don't hear what you expect to, check to make sure you're making the tweaks in the right channel.*

Working with slices

Although pHATmatik PRO's automatic transient detection is the best available, you may still want to edit the slice markers manually. pHATmatik PRO makes this painless.

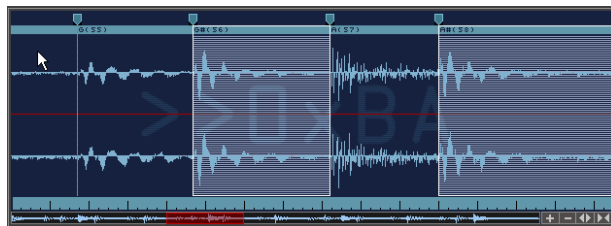


The marker lane

1. **Moving a slice** - to move a slice, simply click on its marker and drag it where you would like it.
2. **Deleting a slice** - to delete a slice, simply hold down [ALT/OPTION] and click on the slices marker. Note that this cannot be undone.
3. **Creating a new slice** - to create a new slice, simply hold down [ALT/OPTION] and click in the marker lane where you'd like the new slice marker to appear. A dark grey vertical line appears to let you know where the slice will be when you release the mouse button.
4. **Previewing a slice** - to hear a slice along with all of its settings, press the [SHIFT] key and click on the slice in the waveform display.

Previewing a slice works just like striking a midi key... as long as you hold down the mouse button (or the shift key) the slice will sound. When you release the mouse button, a note-off is sent to the sounding voice. This is extremely useful for previewing envelope and loop settings.

5. **Selecting a slice** - to select a slice for editing in the slice editor, simply click on it. The selected slice gets a white overlay to indicate that it's selected.
6. **Selecting multiple slices** - to add additional slices to the current selection, hold down the [CTRL] key and click on the slice you'd like to add. Holding down the [CTRL] key and clicking on an already selected slice will remove it from the selection.



7. **Selecting all slices** - to select all slices quickly, click on the 'select all' button in the slice editor.
8. **Trimming The Loop** - Sometimes, you'll load a loop that has extra audio at the beginning or end of the file. This is very common in loop libraries that come on Audio CD - many times the loop will have the first downbeat of the next bar. To 'trim' the loop, simply move the start or end markers located in the ruler lane so that the audio you'd like to crop is dimmed in the display. The start marker snaps to the nearest slice marker when moved, while the end marker moves freely for finding the perfect loop point.



HINT: When trimming a loop with known tempo that has an extra downbeat at the end, watch the tempo display while you drag the end marker to the left. When the tempo display matches the

loop's documented tempo, you've found the right spot.

Exporting slices

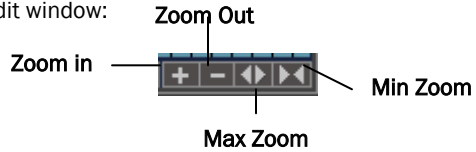
pHATmatik PRO gives you the ability to quickly export slices to another application or plugin via drag + drop.

1. Select the slices you'd like to export by holding down the **[CTRL]** key and clicking on them with the mouse.
2. Hold down the **[ALT/OPTION]** key, click anywhere in the waveform display, and drag the slices to the application you'd like to export them to. Different applications and plugins support drag and drop differently, consult the target application's documentation for more information.

When you export slices via drag and drop, the audio files are placed in the folder specified in the 'Sample Export Directory' in pHATmatik PRO's preferences.

Zoom

If you need to get a closer look at your loop's waveform simply use the zoom buttons in the lower right corner of the loop edit window:



When you're zoomed in, you can use pHATmatik PRO's zoom scroller to move around the loop in the wave editor. A miniature view of the loop's waveform is super-imposed on the background of the zoom scroller.



4. Slice Edit

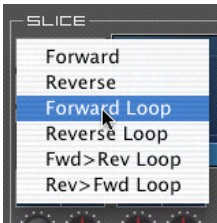


About Slice Edit

pHATmatik PRO has a multitude of per-slice options. Each slice can be panned, pitched, filtered, looped, reversed independently of other slices. Thanks to the abundant features available to you in the per-slice edit window, you can treat each slice in your loop as a fully-independent oscillator.



Slice output selector – each slice in each of pHATmatik PRO's sixteen channels can be independently routed to any of pHATmatik PRO's four stereo outs. This is useful if you want to route all of the snare hits in your loop to a different channel in your host to add reverb without affecting the rest of the loop. If multiple slices are selected when this control is clicked, all of the slices will be routed to the specified output.



Slice loop mode selector - this control allows you to switch the slice between an of five looping modes:

1. Forward – the slice plays normally from start to finish and stops.
2. Reverse – the slice plays backwards from it's end to it's beginning and stops
3. Forward loop – the slice plays the area between the start and end loop points (see page 23) continuously as long as a key is held, moving forward through the samples.
4. Reverse loop – the slice plays the area between the start and end loop points (see page 23) continuously as long as a key is held, moving backwards through the samples.

5. Alternate between forward and reverse loops, beginning with forward.
6. Alternate between reverse and forward looping, beginning with reverse.

If multiple slices are selected when the loop mode is changed, all of the slices will receive the new loop mode settings.



Amp Level – controls the volume level of the slice. Note that there is no gain, only attenuation.

Amp Pan – places the slice in the stereo field. Note that for stereo loops, this is true stereo panning, and so may cause clipping when panned hard left or right. If this happens, reduce the Amp Level control until the clipping stops.



Pitch coarse and fine – adjusts the pitch of the slice. Display in cents.

Per slice filter – each slice has it's own resonant highpass/lowpass 12dB filter.

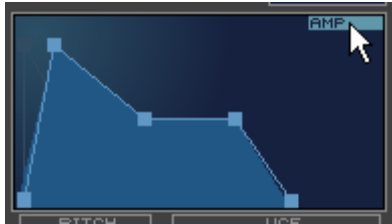


One-shot - each slice can be switched into one-shot mode. In One-shot mode, the slice will ignore note-off messages and play to the end of its sample. If the slice is in a looping mode, the one-shot mode button won't engage.



Multipurpose edit screen

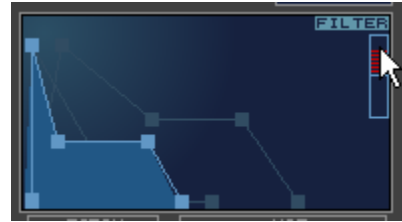
In Order to maximize the utilization of your limited screen real estate, pHATmatik PRO uses a multipurpose edit display in both the Slice and Channel Master sections. Getting familiar with the operation of this screen and it's options is key to becoming a pHATmatik PRO poweruser. It's really simple once you get the basic concept.



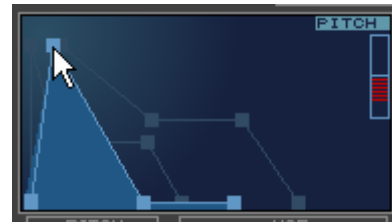
To switch between different screens in the multipurpose editor, simply click on the screen's function name in the upper right hand corner. This will cycle you to the next edit screen until you come back round to the first one again.

In the Slice multipurpose edit screen, the available screens in order are:

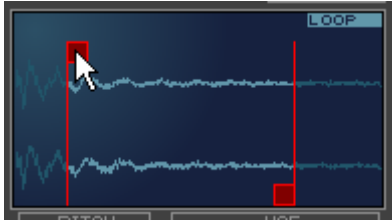
Amp Envelope (pictured above) - a standard ADSR envelope that controls the amplitude output of the slice. Note that each slice's amp envelope is *independent* of the others. If you want to change the amp envelope for all slices, simply select them all, and then adjust the amp envelope. (This applies to all the envelopes in the per edit section).



Filter Envelope – a standard ADSR envelope modulating the slice's filter cutoff frequency. Note that the filter envelope has an addition 'amount' bipolar slider on the right side of the screen. This determines to what degree and in which direction the envelope's modulation will affect the filter's cutoff frequency. To change the amount, simply click and drag in the amount slider. The amount slider can be reset to 'no modulation' (the center position) by holding down the **[CTRL]** key and clicking anywhere in the slider. This envelope can be edited for multiply selected slices.



Pitch Envelope – a standard ADSR envelope envelope modulating the slice's playback pitch. Note that, like the filter envelope, the pitch envelope has a bipolar amount control that determines the degree and in which direction the envelope's modulation affects pitch. To change the amount, simply click and drag in the amount slider. The amount slider can be reset to 'no modulation' (the center position) by holding down the **[CTRL]** key and clicking anywhere in the slider. This envelope can be edited for multiply selected slices.



Loop start and end edit – This screen allows you to adjust the slice's loop points (see the description of the playback modes above). To move the loop points, simply click and drag on the large red square marker handles.

Loop points are absolute and therefore cannot be edited for multiply selected slices. If you edit the loop points while more than one slice is selected, *only the first selected slice's loop points will be changed.*

5. Channel Master



About the Channel Master

pHATmatik PRO's channel master section provides enormous power in shaping the sound of your loop. With tempo-synced LFOs that go into the audio range, a super-horrible distortion, spacey comb filter, sweet analog-modeled multimode filter and more, a single loop can generate countless variations effortlessly.



Mute button - this button stops all output from the channel. It's post-everything.



Clear button - This button unloads the current channel's loop, freeing up memory.



Reset button - This button resets all of the parameters in the master and slice section to their default values. Perfect for when your tweaking gets out of control.



Amp knob - controls the output level of the channel. Note there's no gain, only attenuation.

The amp knob is automatable via midi cc



Tempo-synced delay - this is a straightforward tempo-synced delay with settings for

1. **Mix** - how much of the delay signal is present in the channel master output.
2. **Feed** - How much each iteration of the delay attenuates signal in the delay buffer. Note that pHATmatik PRO's delay supports full feedback. You've been warned.

3. **Sync** - The length of the delay buffer. pHATmatik PRO's tempo delay offers up a huge number of musically useful synchronization values. To select the synchronization amount, click in the blue area underneath 'SYNC'... a pop-up menu will appear displaying all of the synchronization options. Select the desired note value.



The mix and feed knobs are automatable via midi cc.

Distortion - does what it says - distorts your output. The single control affects the amount of the distortion from 'none' to 'subtle' to 'make it stop! It hurts!'. The distortion is switchable pre/post vcf via the 'PST/PRE' switch to the left of the knob.

The distortion amount is automatable via midi cc.



Transpose - this control lets you modify the pitch of the loop by musically useful values, namely half steps. The center

'C' note of the control is 'no transpose' with the keys below and above indicating the appropriate amount of transposition.

Note: you can control the transpose function easily from your midi keyboard! The keys on the transpose control respond to midi note numbers 24 - 47 with midi note number 36 corresponding to 'no transpose'. This is very useful when working with harmonic loops like bass lines. (or banjol)

You can temporarily disengage this feature if you find that you inadvertently transpose by hitting one of the transposition keys in your midi keyboard, or your sequencer's piano roll. Click on the 'Auto' button above the transpose keyboard to toggle the feature on and off. Note that this is a temporary setting and is not saved with the song file or in the preferences.

About the LFOs

pHATmatik PRO sports two advanced *sample accurate* tempo-syncable Low Frequency Oscillators that can also reach well into the audio range in non-sync mode.



LFO in 'sync' mode – place one of pHATmatik PRO's two LFOs into sync mode by clicking on the 'sync' button in the upper right hand corner of the LFO.

Select a waveform from the 'SHAPE' column. There are four choices, saw, sine, square and ramp (reverse saw).

To change the desired synchronization division, click anywhere in the blue area below 'SPEED'. A pop-up menu with the available synchronization values will appear. Select the desired setting from the menu.

pHATmatik PRO's LFOs are *sample-accurate* when they're synchronized to tempo. This means that your settings will always sound the same and will always lock instantly to wherever you start playback. This is invaluable when working with slow synchronization settings (e.g. 8 bars)...

However, note that if your host is looping in an area shorter than the current synchronization setting that the lfo will 'reset' each time the transport loops.



LFO in 'free wheel' mode – place one of pHATmatik PRO's two LFOs into freewheel mode by clicking the 'sync' button in the upper right hand corner of the LFO.

Select a waveform from the 'SHAPE' column. There are four choices: saw, sine, square and ramp (reverse saw).

To change the frequency of the LFO, turn the 'SPEED' knob to the desired frequency.

NOTE: if you're new to this, LFOs don't make any sound of their own... instead they're used to *modulate* other parameters. Kind of like a very steady second (and third!) pair of hands. We'll find out more about how to make the LFOs useful when we discuss the mod matrix further down.

The LFOs speed knob is automatable via midi cc in 'freewheel' mode

About the Comb Filter

Comb filters sound great on drums!



A comb filter is a very short delay (< 250 ms) with variable feedback that gives a metallic, alien vibe to everything you pass through it. No one can describe it to you. You have to hear it for yourself.

The comb filter is made up of three controls:

In switch – essentially the 'on' button. When the in switch is lit, the comb filter is switched into the signal path and affecting the output.

Delay knob – controls the length of the comb filter's buffer. At settings between 0.50 and 0.90, takes on a tuned metallic quality at high feedback settings.

The Comb Filter delay knob is automatable via midi cc.

Feedback knob – controls how quickly signal in the comb filter's buffer is attenuated down to zero. Useful to think of this as an 'amount' control.

The Comb Filter feedback knob is automatable via midi cc.

Master multipurpose edit

The channel master's multipurpose edit screen provides access to three master functions. The master pitch and filter envelopes, and the super-powerful modulation matrix.

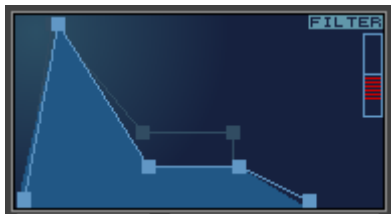


Master pitch envelope - a standard ADSR envelope envelope modulating the master playback pitch.

To adjust the envelope, simply click on one of the envelope's handles and drag.

Note that, like the filter envelope, the pitch envelope has a bipolar amount control that determines the degree and in which direction the envelope's modulation affects pitch. To change the amount, simply click and drag in the amount slider. The amount slider can be reset to 'no modulation' (the center position) by holding down the **[CTRL]** key and clicking anywhere in the slider.

All envelope handles and the amount slider are automatable via midi cc.



Master filter envelope - a standard ADSR envelope modulating the master filter cutoff frequency.

To adjust the envelope, simply click on one of the envelope's handles and drag.

Note that the filter envelope has an 'amount' bipolar slider on the right side of the screen. This determines to what degree and in which direction the envelope's modulation will affect the filter's cutoff frequency. To change the amount, simply click and drag in the amount slider. The amount slider can be reset to 'no modulation' (the center position) by holding down the **[CTRL]** key and clicking anywhere in the slider.

All envelope handles and the amount slider are automatable via midi cc.

About the Mod Matrix

LFO1	LFO2	MOD	VEL	MOD
14	0	0	10	VCF
0	-15	0	0	PITCH
0	0	0	31	AMP
0	0	0	0	F ENV

pHATmatik PRO allows you to route four different modulators, LFO1, LFO2, Mod Wheel, and Velocity to four different targets; Master VCF cutoff, Master Pitch, Master Amp, and Master Filter Envelope Amount.

To route LFO1 to Master VCF cutoff, for example, simply click in the corresponding field in the matrix and drag up or down to set the amount of modulation applied to the target parameter.

To reset a matrix field, simply click in it.

All of the matrix fields are automatable via midi cc control.

About Midi Learn and Automation



This will be the shortest section on automation EVER! To map a midi cc to an automatable parameter in pHATmatik PRO, simply do the following:

1. Right click (**CTRL-click** or **ALT-click** on Mac OS) on the control you want to automate. (the midi learn light will light up)



2. Send a midi cc message to pHATmatik PRO.
3. Tweak away! The midi cc number is mapped to that control. You can map as many controls to the same cc as you'd like.
4. To un-learn a midi-cc to control mapping, hold down the **[SHIFT]** key and right click (Just **SHIFT+click** on MacOS) on the control.

If you initiate a midi learn and then change your mind, just click on the midi learn light to turn midi learn off.

NOTE: When you map one of pHATmatik PRO's controls to midi cc, the mapping applies to all 16 channels. In other words, if you've mapped controller 74 to master vcf cutoff in channel one, midi cc 74 will control vcf cutoff in all channels. (however, each channel's automation will still work independently)

There is also a rudimentary implementation of standard host automation for musicians who for one reason or another can't use midi cc messages for automation.

However, the host automation *only works on the first pHATmatik channel*. If you want to record and play back automation on multiple channels, you'll need to use midi cc.

For more information on using the standard host automation in pHATmatik PRO, consult your host's manual or visit www.izotope.com.

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