SONICCHARGE

microtonic

version 3.3.4

nuedge
DEVELOPMENT

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INTRODUCTION

Welcome to Sonic Charge Microtonic, the synthetic rhythm generator.

Microtonic is a VST® and AudioUnits compatible plug-in featuring a powerful drum and percussion synthesizer combined with a pattern-based drum-machine engine. You can use it as a conventional sound module to play drum sounds from your MIDI keyboard or sequencer, or you can use the built-in pattern engine to play drum patterns in sync with your sequencer.[1]

In Microtonic, a single universal sound architecture is used to simulate a wide variety of sounds. The parameters and the configuration of this architecture have been carefully chosen to be as versatile as possible while still keeping Microtonic simple and straightforward.

The sound of Microtonic is 100% synthetic and rendered in real-time. No samples or pre-rendered waveforms are used. This means that you can modify the sound in real-time with an instantaneous response by turning and dragging the knobs and faders of Microtonic. If your host supports parameter automation, you can record all parameter changes in your host sequencer for later playback with high accuracy.

Much work has been put into achieving optimal sound quality for Microtonic. There are virtually no compromises to the sound it produces. The oscillators are “over-sampled” and produce a clean sound without distortion or “aliasing” even at extreme frequency settings. The filters and equalizers have a full frequency response range, and parameter changes are smooth and responsive. The sound synthesis in Microtonic is exact without low-resolution approximations and quantization. All parameters have virtually unlimited resolution.

Furthermore, the triggering of drums is sample-accurate[2], and envelope generators and modulators work at the highest possible rate to give the sound a distinct sharpness. Microtonic works in any sample rate of your choice. In short, Microtonic delivers a quality that sets the standard for what synthetic drums and percussions should sound like.

Thank you for choosing Microtonic, I trust that you will find it a valuable addition to your palette of sounds.

/ Magnus Lidström

[1] Some hosts do not support synchronization of plug-ins, and in this case, the built-in pattern engine will be disabled.

[2] Timing accuracy may be affected by the precision of the host.

Architecture

Sound Synthesizer

The sound engine of Microtonic offers eight channels of stereophonic sound *(called "drum channels" or simply "channels")*. Each channel has its own set of parameters that define its sound. Collectively these parameter settings constitute a **drum patch**. You work with one channel at a time, and you can load and save drum patches individually. *(The file extension for a drum patch file is "**.mtdrum**")*

The parameters of a drum patch are organized into four main sections: the **Mixing Section**, the **Oscillator Section**, the **Noise Section**, and the **Velocity Sensitivity** section *(from left to right on the screen)*.

The **Mixing Section** is the final stage in the audio processing chain. It mixes the oscillator and the noise generator and optionally distorts and equalizes the channel. After this stage, the audio from the various channels is sent to the host. Microtonic plug-in comes installed in two different versions, the "standard version" *("Microtonic")*, which offers two assignable stereo outputs and the "multiple output version" *("MicrotonicMulti")* which offers eight individual stereo outputs, one for each drum channel.

The **Oscillator** produces a steady or pitch-modulated tone. The oscillator features three different waveforms and typically provides the tonal quality and the pitch of a drum sound. For example, a low-frequency tone with a quick drop in pitch is often used to synthesize bass drums. A higher frequency setting and a slower drop in frequency can simulate the sound of a tuned drum like a tom. Other types of modulations can be used to create a wide variety of sounds.

The **Noise Generator** is used to add noisy elements to the sound. For example, it can be a noisy punch sound, such as a hand or a drumstick hitting a drum, or the sound of the vibrating snares on a snare drum. **The noise generator also features a stereo mode where two uncorrelated noise sources are used for the left and right output channels.** This mode creates a dispersed stereo effect similar to the sound of a reverb. Furthermore, the noise section features a multi-mode filter with low-pass, band-pass, and high-pass modes and an amplitude envelope with different shapes allowing you to sculpt the noise just the way that fits your sound.

Lastly, we have a **Velocity Sensitivity Section** that controls how MIDI velocity and pattern accents affect the sound *(see below for more info on pattern accents)*. You have three different settings, two of which control the oscillator and noise volumes and one that controls the amount of pitch modulation on the oscillator.

Pattern Engine

The **Pattern Engine** plays rhythmic patterns in sync with your host preset *(that is, if your host supports tempo and song position synchronization of plug-ins)*. You have 12 different patterns to choose from, labeled **A** to **L**. Each pattern consists of up to 16 **steps**, and you may chain them in series so that when one pattern ends, the next automatically follows. Each step, in turn, has switches for triggering drum channels with either accented or normal velocity. *(Accented velocity corresponds to a MIDI velocity of 127, the hardest you can hit a MIDI key, and normal velocity is 64.)*

The **Rate** at which the patterns run is set globally for all patterns in a preset and is relative to the tempo of your host sequencer. The setting goes from 1/8, meaning that each step is a one-eighth note in length, up to 1/32.

Each step of a pattern also has a **Fill** option used to create rapid drum rolls at a rate of your choice. Finally, a **Swing** parameter gives your rhythm a looser, more human feel by delaying the sixteenth notes that fall between the eights *(this feature also goes by the name of "shuffle" in some products)*. The fill rate and the swing parameter are also set globally for the entire preset.

Pattern Changes usually do not occur in the middle of a pattern[1]. The patterns play to their full length before switching. You can automate and arrange pattern changes in several different ways. First, you have the chaining option where you create **Chains** of patterns that play after each other in series. As you only have 12 patterns to chain, this technique is somewhat inadequate for longer arrangements. One way to solve this is to automate pattern changes as parameter changes, provided your host supports this. *(The current pattern selection is a parameter just as any other.)* Another technique is to use MIDI notes to trigger patterns and record these notes in a MIDI sequencer track *(see MIDI Keyboard for details)*.

Notice that if you have **odd pattern lengths**, such as 7 or 13 steps, the pattern engine will synchronize its play position to the song position of your host sequencer in a manner that gives consistent and predictable results regardless of where you start the sequencer. If you switch between patterns with different lengths, this can result in the current step indicator jumping in peculiar ways.

Similar to the synchronization of pattern changes, starting and stopping patterns is synchronized to the length of the currently selected pattern. However, unlike pattern changes, you can force the pattern engine to start and stop immediately by clicking twice on the **Play** and **Stop Buttons**. *(Starting and stopping patterns may be automated as parameter changes, just like pattern changes.)*

The pattern engine of Microtonic can also transmit MIDI notes. Thus, to the extent that your host preset supports it, you can use Microtonic to trigger other MIDI devices. The MIDI keys / note-numbers are the same as for reception *(normally C1 to G1)*. The MIDI velocities depend on the accent settings *(64 or 128)*.

Presets

The drum patch settings for all eight channels, all the 12 patterns, and the global parameters together constitute a **Preset**. In Microtonic, you will find several functions that operate on the entire preset, including functions to load and save presets to "**.Mtpreset**" files.

Morph

Morph lets you interpolate all drum patch parameters *(for all eight channels)* between two end-points using a single slider. Patterns and global parameters *(like **Swing**)* are not affected. While you morph, the drum patch knobs and faders will turn and move along. You can leave the morph slider at any position and edit the preset there *(including copying, pasting, loading, etc.)*, and it will affect the two end-points according to where the morph slider is positioned. If the morph slider is to the far left or right, only the left or right end-points are affected. If the morph is cen-

[1] MIDI notes can be used to switch patterns immediately depending on the chosen **Pattern Launch Mode** in the MIDI Config Dialog.

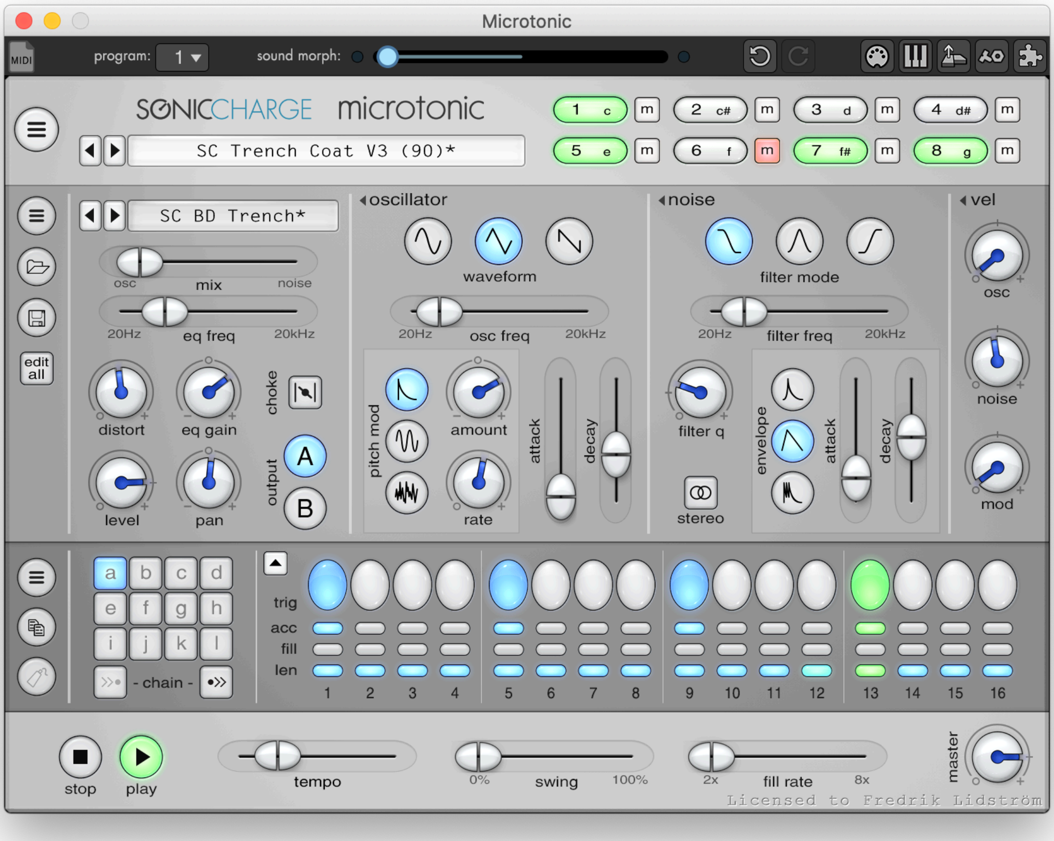
tered, both end-points will change by an equal amount. Morph can be controlled with MIDI and automated, allowing you to use it both for performance *(e.g., for dramatic build-ups)* and for editing *(e.g., exploring semi-random parameter settings)*.

Programs

The morph data, all patterns, and global parameters together constitute a **Program.** There are 16 programs in memory that you can instantly activate from MIDI or the user-interface at any given time without interrupting audio. These 16 programs are collectively known as the **Program Bank**, and it corresponds to the program bank accessible in VST hosts. By default, when you open a new instance of Microtonic, the last used 16 programs will be reloaded automatically. *(This behavior can be changed with the Preferences Dialog.)*

User Interface

The main window of Microtonic is divided into four sections with a **Toolbar** at the top containing a **Program Selector**, **Sound Morph**, and more. The top area is the **Preset Section** with the **Preset Browser** and channel buttons. Below this, you have the **Drum Patch Section** where the currently selected channel's drum patch parameters are visible. At the bottom, you have the **Pattern Section** and the **Global Section** *(including the master volume control of Microtonic)*.



Menus

The buttons marked with down-pointing arrows are menu buttons; menus concerning the relevant sections will pull down when you click on these. If you right-click anywhere in the main window *(or control-click on Mac),* there are also context menus available, with items relevant to the section or controller that you clicked on.

Repeat Last Menu

You can **Shift-Click** any menu button to repeat the last executed menu. This feature is especially useful for repeating functions such as altering and randomizing drum patches and patterns, shifting patterns left and right, etc.

Knobs and Faders

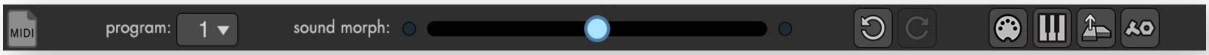
Parameters are edited with the numerous buttons, knobs, and faders found on the screen. Whenever you drag a fader or a knob, a hint window displays the name and setting of the parameter in question. The setting is shown in the natural unit for the parameter, e.g., frequency settings are expressed in hertz *(Hz)* and note name and volume settings in decibels *(dB)*.

Some keys on your computer keyboard modify the behavior of knobs and faders. If the **Shift Key** is held down, the rate of change is adjusted so that you can make finer adjustments. If the **Control Key** is held down *(command key on Mac)*, the fader or knob will reset to its default value *(i.e., the value of a newly initialized preset / drum patch)*. Finally, you can press the **Alt Key** when clicking a knob to temporarily change its mode from circular to linear or vice versa.

You can right-click any knob, fader, or button in Microtonic to open a small menu with a few different choices that work directly on the controller. For example, you can use this menu to enter an exact textual value or assign a MIDI controller to the parameter.

Toolbar

The **Toolbar** contains the **Program Selector**, **Sound Morph**, various buttons, and the **Midi Drag** icon.



MIDI Drag

This icon offers an alternative to exporting the current pattern to a MIDI file from the pattern menu. By dragging this icon to your desktop or a folder, it automatically creates a MIDI file *(file extension ".mid")* named after the current preset name. You can also drag and drop this icon directly onto a track in a host that supports "drag and drop" of MIDI files.

Program Selector

There are 16 program slots available in Microtonic. Clicking the program display will open up a popup menu to select which of the 16 slots you want to activate. There are also options for enabling **Midi Program Change** messages as well as **Write Protecting** all programs. By write protecting the programs, any edits you make will be lost as soon as you switch to another program. *(This can be handy in live performance situations.)*

Sound Morph

This slider allows you to morph all drum patches of all channels simultaneously. Read the section above called **Morph** for information on how this slider works.

Undo / Redo

These buttons undo or redo recent changes you have made. The “undo history” remembers up to 40 changes, but the history will be cleared every time you close the editor window.

Select Channel with MIDI

When the **Select Channel With Midi** option is turned on, Microtonic will select drum channels as you trigger them from your MIDI keyboard. This feature is especially useful if you plan to use the MIDI controller mapping feature to edit your drum patches *(see the section on MIDI Controllers And Keys for more info)*.

Notice that there is no way to distinguish MIDI notes from your keyboard from those that come from MIDI tracks in your host sequencer. Therefore, it may be a good idea to turn this option off before starting sequencer playback.

(This option is also available from the MIDI Config Dialog.)

Pitched MIDI Mode

Microtonic features a **Pitched Midi Mode**, which allows you to play melodies with the drum patches on your keyboard. Clicking this button will switch this mode on and off. In pitched mode, the eight drum channels are addressed with MIDI channels 1 to 8, and you have the entire keyboard for each channel. C3 *(note number 60)* will play the “original pitch” of the drum patch.

MIDI channel 10 still responds as it does in standard mode, which allows you to control Microtonic fully from your MIDI keyboard *(including changing programs, patterns, and muting channels)*.

(This option is also available from the MIDI Config Dialog.)

Stop Voices with MIDI Note Off

Turning this option on will make Microtonic mute voices on **Midi Note Off** messages, allowing you to change the drum sounds’ length by changing the note length in your sequencer. It is also useful when using **Pitched MIDI Mode** to sustain held midi keys.

(This option is also available from the MIDI Config Dialog.)

PO-32 Transfer

Click the button with the Teenage Engineering logotype to open the PO-32 Tonic transfer window. Here you can choose to transfer a single drum patch *(including morph settings)* or the full pattern *(including all unmuted drum sounds)* to the PO-32 Tonic hardware.

Transfers are done via an audible modem signal either over the speaker *(to the microphone on PO-32)* or through an audio cable *(to the line input on PO-32)*. The audio from Microtonic must be played loud and clear without any effects for the transfer to succeed. If you transfer over the speaker, hold the microphone on the PO-32 very close to the speaker.

If the transfer fails, the PO-32 will beep and flash “Err”. If it succeeds, you will hear a cheerful little melody, and the PO-32 will flash “End”.

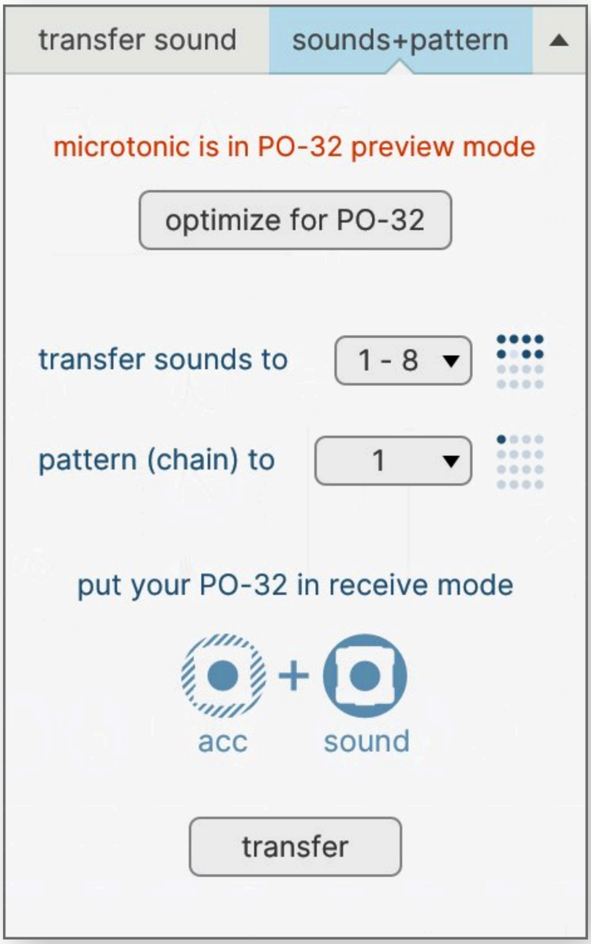
On PO-32, knob A is always the pitch *(by changing all three frequency sliders simultaneously),* and Knob B is the morph slider. Notice that unlike on Microtonic, morph can be set individually for any of the 16 sounds in PO-32.

Some morph settings are “out of bounds” for the PO-32. When transferring, you may see a warning that the morph settings had to be adjusted for the PO-32. When this happens, the drum will still sound identical to Microtonic at the **current** morph position, but at the left and right “morph edges”, the sound will be different *(both in the PO-32 and in Microtonic)*.

Bear in mind that the PO-32 has four monophonic channels, whereas Microtonic has eight stereophonic channels. When transferring a full pattern, channel 1 to 4 will interrupt any sounds playing on channel 5 to 8. While the **sounds+pattern** tab is open, you can hear a preview of how this sounds. *(If the transfer window is in the way, you can “minimize” it and remain in preview mode.)*

The **Optimize For PO-32** button attempts to minimize “voice stealing” by rearranging the drum channels. The algorithm estimates the importance of each drum played and tries to avoid cutting off important sounds. This problem is challenging for a machine to solve, and sometimes it fails. One way to help the algorithm is to manually raise the volume of important sounds before clicking the button and lowering them afterward. Another way is to mute the sounds that are unimportant to you. A final method is to rearrange the channels manually, e.g., by dragging the channels in the Matrix Editor.

Finally, some features are not available or work differently in PO-32 compared to Microtonic, e.g., the choke button, patterns shorter than 16 steps, the exact sound of fills under high swing settings, etc. While individual drum sounds should always sound identical, full patterns can sometimes sound very different.



microtonic is in PO-32 preview mode

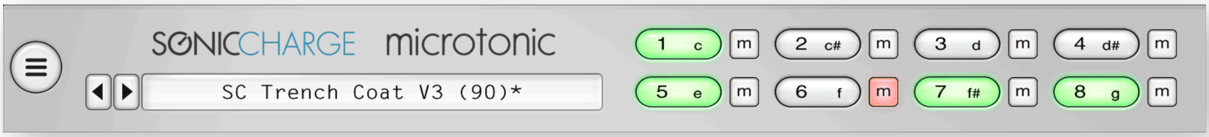
transfer sounds to 1 - 8 ▼

pattern (chain) to 1 ▼

put your PO-32 in receive mode

Preset Section

The **Preset Section** of Microtonic contains the preset selector and channel buttons.



Main Menu Button

Click the main menu button to display the main menu. Here you will find functions that operate on the entire preset and some general utility and installation functions.

- Undo / Redo
  These choices undo or redo recent changes you have made. The "undo history" remembers up to 40 changes, but the history will be cleared every time you close the editor window. You will also find buttons for **Undo** and **Redo** in the **Toolbar**.

- Open Preset
  Choose Open Preset to bring up an "open dialog" that lets you load a Microtonic preset file *(file extension ".mtpreset" or ".mtpg")*. The open dialog features direct previewing of presets when you browse them and options to load only parts of preset *(see Open Preset Dialog)*.

- Save Preset As
  Save Preset brings up a "save dialog" that lets you save the current preset settings into a Microtonic preset file *(file extension ".mtpreset")*.

- Revert to Saved
  Reloads the last saved version of the preset from disk. *(Only available if the current preset has been loaded from or saved to disk.)*

- Cut Preset
  This menu copies the current preset settings onto the clipboard and resets the settings in Microtonic.

- Copy Preset
  This menu copies the current preset settings onto the clipboard.

- Paste Preset
  This menu pastes preset settings from the clipboard, replacing the current preset. *(Only available if a Microtonic preset is available on the clipboard.)*

- Initialize Preset
  This menu choice will reset all preset settings, including all current drum patch parameters and all patterns.

- Exchange Preset / Clipboard
  This menu item exchanges the preset settings on the clipboard with the settings in Microtonic. This feature is useful if you would like to toggle between two different versions of a preset. Copy the first version, change the parameters *(or load a new preset)* and use this function to swap between the two different presets. *(Only available if a Microtonic preset is available on the clipboard.)*

- **Transpose Preset**
  This function will let you transpose the entire preset *(all drum patches)* by an arbitrary number of semitones up *(positive)* or down *(negative)*. You can enter decimals for a finer precision than whole semitones. To repeat the transposition, use the Repeat Last Menu feature.

- **Alter Drum Patches**
  Use this function to make minor random adjustments to all drum patches. To test various alterations, use the Repeat Last Menu feature.

- **Randomize All**
  Use this function to randomize all preset settings, including all current drum patch parameters and all patterns. A lot of effort has been put into making the random function create musically interesting results *(with an emphasis on the word "interesting", as in experimental, not necessarily musically pleasing)*. To test various random results, use the Repeat Last Menu feature.

- **Edit MIDI Controllers / Keys**
  This menu toggles the on-screen editing of MIDI keys and controllers mapping. See MIDI Controllers And Keys for a description of how this works.

- **MIDI Config**
  This menu item opens the MIDI config dialog described below in MIDI Config Dialog.

- **Preferences**
  Choose this item to open the preferences dialog described below in Preferences Dialog.

- **Register**
  Brings up a registration dialog where you register your copy of Microtonic. More information on how to purchase a registration key can be found on the Sonic Charge web site.

- **Read User Guide**
  Opens the Microtonic User Guide in your PDF reader.

- **Zoom**
  Opens the zoom overlay, which allows you to scale the Microtonic user interface.

- **About**
  Choosing this item will display a window with information on the version of Microtonic you are running.

Channel Buttons

There are eight channel buttons, one for each drum channel. Press a channel button to display and edit the drum patch parameters for that channel. The pattern editor will also display the triggers, accents, and fills of the channel you select. A blue light indicates the selected channel.

You may trigger a channel to preview its drum patch by clicking a selected channel button again. If the **Control Key** is held down *(Alt Key on Mac)*, the channel will be triggered accentuated *(MIDI velocity 127)*; otherwise, it will be triggered normally *(MIDI velocity 64)*.

The channel buttons also indicate when channels are being triggered by flashing quickly with a green light.

If you right-click a channel button, a menu will pop up, offering a few different drum channel choices. For example, from this menu, you can cut, copy, and paste entire channels, including the channel's pattern data for all patterns. These functions make it easy to swap the places of two channels. Just copy the first channel to the clipboard, choose Exchange Drum Channel / Clipboard on the second channel, and paste back on the first channel.

Mute Buttons

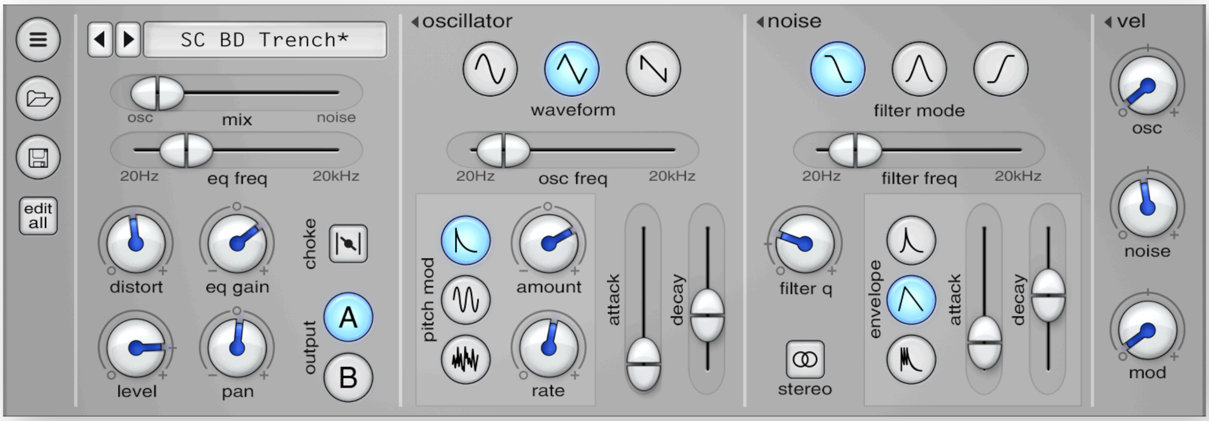
Pressing a mute button will toggle the muting of a channel. A muted channel will not respond to triggers from the pattern engine or MIDI notes. If a sound has already been triggered, it will not be shut off by muting the channel. Thus, it differs from the mute on a mixer-console where the sound turns off and on instantaneously. If you are using Microtonic to control other MIDI devices, the pattern engine will not generate MIDI notes for muted channels. Muted channels are indicated by a red light.

Holding down the **Control Key** *(Alt or Command key on Mac)* when clicking a mute button will solo that channel by muting all other channels, unless it is already soloed in which case it will be "un-soloed" by "un-muting" all channels.

The mutes can also be controlled from the MIDI keyboard, normally with the keys C2 to G2 *(MIDI note-number 48 to 55)*, but this may be customized to your preference *(see MIDI Controllers And Keys)*. When using keys to mute, the channel will stay muted until you release the key. *(Muting from the MIDI keyboard cannot be automated by the parameter automation features in your host as opposed to muting with mouse-clicks or from the computer keyboard. Instead, you can record the MIDI mutes in a MIDI track.)*

Drum Patch Section

In the middle of the main window, you have the drum patch section. This section contains all the controls for altering the drum patch of the currently selected channel.



Drum Patch Selector

If the current drum patch has been loaded from or saved to disk, the **Drum Patch Selector** will display its name. Use the buttons on the left and right-hand side of the name display to flip through patches on disk and click inside the name display to bring up a list with all the patches in the current directory. If the drum patch is modified, a star *(*)* is appended to the name. Note that you cannot explicitly rename a patch without saving it with a new name.

Drum Patch Menu Button

Click the drum patch menu button to open up the drum patch menu. The drum patch menu contains functions that operate on the drum patch of the currently selected channel.

- Open Drum Patch
  Brings up an "open dialog" that lets you load a Microtonic drum patch file *(file extension ".mtdrum" or ".mtdp")*. The open dialog features direct previewing of drum patches when you browse them *(see Open Drum Patch Dialog)*.

- Save Drum Patch
  Brings up a "save dialog" that lets you save the current drum patch parameters *(of the selected channel)* into a Microtonic drum patch file *(file extension ".mtdrum")*.

- Cut Drum Patch
  This menu copies the current drum patch parameters *(of the selected channel)* onto the clipboard and resets the parameters in Microtonic.

- Copy Drum Patch
  This menu copies the current drum patch parameters *(of the selected channel)* onto the clipboard.

- Paste Drum Patch
  This menu pastes drum patch parameters from the clipboard. The patch on the clipboard will replace the parameters of the selected channel. *(Only available if a Microtonic drum patch is available on the clipboard.)*

- Initialize Drum Patch
  This menu choice will reset all drum patch parameters of the selected channel to their default settings.

- Exchange Drum Patch / Clipboard
  This menu choice exchanges the drum patch parameters on the clipboard with the selected channel's parameters in Microtonic. This feature is useful if you would like to toggle between two different versions of a patch. Copy the first version, change the parameters *(or load a new patch)* and use this function to swap between the two different patches. It is also useful if you want to swap the drum patches of two different channels. *(Only available if a* Microtonic *drum patch is available on the clipboard.)*

- Transpose Drum Patch
  This will let you transpose the drum patch by an arbitrary number of semitones up *(positive)* or down *(negative)*. You can enter decimals for a finer precision than whole semitones.

- Alter Drum Patches
  Use this function to make minor random adjustments to the drum patch.

- Randomize Drum Patch
  Use this function to randomize the drum patch entirely.

Open Drum Patch Button

Press this button to bring up an "open dialog" that lets you load a Microtonic drum patch file *(file extension ".mtdrum or ".mtdp").* The loaded patch will replace the current patch parameters of the selected channel.

(This is a shortcut for "Open Drum Patch" in the Drum Patch Menu.)

Save Drum Patch Button

Press this button to up a "save dialog" that lets you save the current drum patch parameters *(of the selected channel)* into a Microtonic drum patch file *(file extension ".mtdrum")*.

(This is a shortcut for "Save Drum Patch" in the Drum Patch Menu.)

Edit All

When **Edit All** is enabled, turning any knob and dragging any fader will adjust all un-muted drum channels simultaneously. For example, if you turn **Distort** up 10%, then the **Distort** amount of all (un-muted) channels will be increased by 10%. If you are recording automation in your host, Microtonic will write parameter automation for all affected channels.

Mixing Section

The mixing section is the leftmost group and the final stage in the audio processing chain. It mixes the oscillator and the noise generator and optionally distorts and equalizes the channel. After this stage, the audio from the various channels is mixed and sent to the host.

- Oscillator/Noise Mix
  Range: 0/100 to 100/0
  Default: 50/50
  Oscillator/Noise Mix controls the mix of oscillator versus noise. Only the oscillator is heard at the far left setting *(100/0),* and at the far right *(0/100),* only the noise. In the middle *(50/50)*, the volumes are balanced so that the oscillator and noise sources are mixed with equal power.

- Equalizer Frequency
  Range: 20Hz to 20 000Hz *(20kHz)*
  Default: 632.46Hz
  Equalizing is applied after the distortion. Proper use of the equalizer plays an integral part in achieving a professional sound. You can use the equalizer to boost the bass frequencies of bass drum sounds or make the high-end frequencies of hi-hats sound crispy and sharp. Negative equalizer gain can create notch effects such as the typical loudness curve *(where the middle range is attenuated and bass and treble are boosted)*. Sweeping the frequency using parameter automation usually creates a cool effect.

- Distortion Amount
  Range: 0 to 100
  Default: 0
  This parameter controls the amount of distortion. Zero = no distortion *(100% linear)*, 100 = complete and utter destruction. The distortion unit is specifically designed to be useful for creating powerful drum sounds. It softly shapes the signal at very low settings, adding both odd and even harmonics, which creates a warm and thick sound. At higher settings, the distortion turns more into an overdrive effect, creating a harder sound. The distortion unit is the only part of Microtonic that has not been specifically designed to prevent “aliasing” artifacts on high-frequency material. There are two reasons for this: first, to be perfectly “alias-free”, the distortion would require a lot of CPU-power. Secondly, “aliasing” can be cool, and since everything else in Microtonic is virtually “alias-free”, this is a good place to give the user a choice. *(A word of caution here: the amount and the character of “aliasing” will be different when running in different sample rates.)*

- Equalizer Gain
  Range: -40db to +40db
  Default: 0db
  The equalizer gain setting. A negative gain will cut frequencies from the signal spectrum, whereas a positive gain will boost them. When the gain is high, the channel’s output level is automatically attenuated to achieve a more consistent volume. The peak or dip width *(i.e., the q value)* is fixed and cannot be changed.

- Level
  Range: -infinite dB to +10dB
  Default: 0dB
  This is the output level of the drum patch. When turned down to its minimum, the channel is shut off completely. Zero decibels *(the default setting)* is considered normal volume, and the maximum of 10 decibels is around three times as loud.

- **Pan**
  Range: -100 to +100
  Default: 0
  The **Pan** parameter controls the drum patch stereo position within its output pair. At the minimum and maximum settings, the patch is panned fully left and right, respectively. Microtonic uses a “sine/cosine pan law”, which means that the experienced volume remains more or less the same when panning.

- Choke
  Choices: Off, On
  Default: Off
  Enable **Choke** on a drum channel to have it “cut off” other drum channels that also have choke enabled. Useful for making the closed hi-hat sound mute the open hi-hat sound, for example. Lesser channel numbers will have priority over higher channel numbers, meaning that if they both try to play at the same time, only the lesser channel number will be heard. If you need to change the priority order, it is easy to rearrange channels in the Matrix Editor.

- **Output**
  Choices: A, B
  Default: A
  This is where you select the output pair for the channel. Microtonic has two individual stereo outputs, A and B, and each drum patch can be routed to either one. This feature is useful if you want to add external effects to some of the drum channels, but not all of them. If you feel that two separate outputs are not enough, there is an alternative version of Microtonic, which offers eight individual outputs, one for each drum channel *(“MicrotonicVSTMulti”/“MicrotonicAUMulti”)*. And remember, you always have the choice of creating more instances of Microtonic to attain additional outputs.

Oscillator Section

The oscillator produces a steady or pitch-modulated tone. The oscillator features three different waveforms and typically provides the tonal quality and the pitch of a drum sound. For example, a low-frequency tone with a quick drop in pitch is often used to synthesize bass drums. A higher frequency setting and a slower drop in frequency can simulate the sound of a tuned drum like a tom. Other types of modulations can be used to create a wide variety of sounds.

- Oscillator Waveform
  Choices: Sine, Triangle, Sawtooth
  Default: Sine
  The **Oscillator Waveform** setting defines the basic shape and character of the tone produced by the oscillator. The sine waveform produces an ideal sine tone with no overtones. It is useful for all types of drums, percussions, and effects. The triangle waveform produces a soft tone with all odd harmonics *(like a “square wave” but with less high-frequency content)*. The triangular waveform’s hollow character gives the sound a bit more “body” than the sine waveform and is thus very useful for toms, snares, and bass drums. Finally, the sawtooth waveform produces a distinct tone containing all harmonics. This sound is not very common in natural percussion sounds. It is most useful for special effects and electronic sounds, but also for sounds that need a lot of high-frequency energy such as cymbals.

- **Oscillator Frequency**
  Range: 20Hz to 20 000Hz *(20kHz)*
  Default: 632.46Hz
  Oscillator frequency setting *(or pitch)*, ranging from subsonic *(20Hz)* to supersonic *(20kHz)*. This is the steady frequency of the oscillator or the base frequency around which the pitch is modulated if pitch modulation is used.

- **Pitch Modulation Mode**
  Choices: Decaying, Sine, Random
  Default: Decaying
  The pitch modulator is one of the most powerful features of Microtonic. The combination of mode, amount, and rate lets you modify the sound of the oscillator dramatically. The **Decaying Pitch Modulation** mode is perhaps the most straightforward. It "bends" the pitch towards the oscillator base frequency and creates the typical drops in frequency you hear in most drums. With a negative modulation amount, the pitch will go upwards instead of downwards, useful for sound effects and percussions like tablas and clay drums. The **Sine Pitch Modulation** mode is quite versatile. At low modulation rates, it acts as an "LFO effect" that oscillates the pitch around its base frequency. At fast modulation rates, the sine modulator turns into an FM-like effect. FM generates inharmonic overtones giving the sound a metallic character that is useful for hi-hats and cowbell patches. Finally, the **Random Pitch Modulation** mode applies a random modulation of the pitch. At zero rate, it simply randomizes the pitch by the chosen amount every time the drum patch is triggered. At slightly higher rates, it gives the sound a sort of bubbly character. At the highest rates, it adds a band of filtered noise to the oscillator, where the modulation amount controls the band's width. With proper settings, the random modulator can simulate the sound of rattles, shakers, and tambourines.

- **Pitch Modulation Amount**
  Range: depends on modulation mode, decaying: -96 semi-tones to +96 semi-tones *(-8 octaves to +8 octaves)*, sine and random: -48 semi-tones to +48 semi-tones *(-4 octaves to +4 octaves)*
  Default: 0 semi-tones.
  Pitch Modulation Amount controls the amount of pitch modulation. You can use a negative amount to invert the modulator effect so that it starts from a low pitch and goes upwards instead of going downwards from a high pitch. *(Naturally, a negative amount with the random modulation mode is no different from a positive amount since the random modulator randomizes the pitch totally both upwards and downwards.)*

- **Pitch Modulation Rate**
  Range: depends on modulation mode, decaying: infinite ms down to 10ms, sine: 0Hz to 2 000Hz *(2kHz)*, random: 0Hz to 20 000Hz *(20kHz)*
  Default: 353.33ms / 17.78Hz / 100.0Hz
  The **Rate** parameter depends on the modulation mode. For **Decaying Pitch Modulation**, the rate setting controls the time it takes the oscillator to go from the highest frequency down to the base frequency *(or from the lowest frequency and up if the modulation amount is negative)*. At minimum rate setting, the oscillator is stuck at the highest / lowest frequency and never changes. Faster decay rates usually make the sound sharp and "snappy". For **Sine Pitch Modulation**, the rate setting controls the frequency with which the sine modulator oscillates. Just as with the decaying mode, the minimum rate setting makes the oscillator stick to its initial frequency and never changes. The highest modulation rates generate an

FM-like effect that can be used to create inharmonic sounds. **Random Pitch Modulation** uses a low-pass filtered noise as the modulation source, and for this mode, the rate controls the cut-off frequency of the low-pass filter. A low rate setting modulates the pitch slowly, and a high rate modulates the pitch rapidly. At zero rate, it simply randomizes the pitch by the chosen amount every time the drum patch is triggered. At the maximum rate, the random modulator will cause a controllable band of noise to be added to the oscillator.

- Oscillator Attack
  Range: 0ms to 10 000ms *(10s)*
  Default: 0ms
  The **Oscillator Attack** parameter controls the total time for the attack phase of the oscillator envelope. The oscillator and noise sections have separate amplitude envelope generators *(noise envelopes are more complex and offer three different shapes)*. With the default attack setting of zero, the envelope's attack phase is eliminated, and the oscillator triggers at full force directly. This causes a sharp transient with a distinct clicking sound. If you desire a softer sound, you can reduce this click by increasing the attack time just a little. Longer attack times suggests a sound that has been reversed in time because the oscillator attack phase is always exponential *(most synthesizers have a linear attack and an exponential decay)*.

- Oscillator Decay
  Range: 10ms to 10 000ms *(10s)*
  Default: 316.23ms
  The **Oscillator Decay** setting controls the time it takes for the oscillator to fade from max to zero volume. The oscillator envelope always runs from maximum to zero amplitude with an exponential decay curve *(the most natural-sounding type of decay)*. *(The observant reader may object that an exponential decay never reaches zero, which is true in theory; thus, the time setting is only an approximate.)*

Noise Section

The **Noise Generator** is used to add noisy elements to the drum patch. For example, it can be a noisy punch sound, such as the sound of a hand or a drumstick hitting a drum, or the sound of the vibrating snares on a snare drum. The noise generator also features a stereo mode where two uncorrelated noise sources are used for the left and right output channels. This mode creates a dispersed stereo effect similar to the sound of a reverb. Furthermore, the noise section features a multi-mode filter with low-pass, band-pass, and high-pass modes as well as an amplitude envelope with different shapes allowing you to sculpt the noise just the way that fits your sound.

- Noise Filter Mode
  Choices: Low-pass, Band-pass, High-pass
  Default: Low-pass
  The noise generator signal passes through a filter featuring three different modes: **Low-Pass**, **Band-Pass**, and **High-Pass**. The **Low-Pass** mode cuts high frequencies from the signal spectrum but leaves the lower frequencies intact, making the noise softer and duller. This mode is great for adding space and reverb to bass drums and such. The **Band-Pass** mode cuts both low and high frequencies but lets the middle range through, narrowing the sound like playing something through a small tube or poor speaker. This mode is a good starting point for many percussion instruments like snare drums, handclaps, etc. The **High-Pass** mode removes the lower frequencies and makes the noise bright and clear, which you generally want for hi-hat and cymbal sounds.

- Noise Filter Frequency
  Range: 20Hz to 20 000Hz *(20kHz)*
  Default: 20kHz
  This is the cut-off or center frequency of the filter, depending on the filter mode. The cut-off frequency for a **Low** and **High-Pass** filter is scientifically defined as the point on the filter curve where it drops below -3dB in gain. *(Put simply, this is the point where you start cutting in the signal spectrum.)* For the **Band-Pass** filter, the noise filter frequency is the center of the peak in the filter curve, i.e., the point where most of the signal's spectral power is present.

- Noise Filter Q
  Range: 0.1 to 10 000.0
  Default: 0.70710683
  The **Q Value** of a filter affects the shape of the filter curve just around the cut-off frequency. A high q value creates a distinct peak in the filter curve while a low q value changes the curve's slope so that it becomes softer and lets more of the signal through. The q value can also be said to define the band-pass filter peak; lower q values make it broader, and higher make it narrower. When the noise filter q is turned up to its maximum, the noise signal becomes so narrow that it sounds more like an irregular sine tone than noise.

- Noise Stereo Mode
  Choices: Off, On
  Default: Off
  The noise generator features a stereo mode where two uncorrelated noise sources are used for the left and right output channels. This mode creates a dispersed stereo effect on the noise, which can be used to simulate reverb effects of various kinds, or simply to broaden the stereo image of a sound.

- Noise Envelope Mode
  Choices: Exponential, Linear, Modulated *(clap)*
  Default: Exponential
  The **Oscillator** and **Noise Sections** have separate amplitude envelope generators. The noise section's envelope generator is more advanced and features three different modes *(or shapes)*. The **Exponential Mode** is the default choice and the most common mode. It creates a natural sounding fade in its decay phase. Its attack phase is also exponential, which is not that common *(most synthesizers have a linear attack and an exponential decay)*. A long exponential attack will suggest a sound that has been reversed in time or the sound of a fast engine "swooshing by" at great speed. The **Linear Mode** creates a more conventional attack, but its decay acquires a "gated" effect, which is great for simulating gated snare drums. Finally, the **Modulated Mode** is tailor-made for handclaps. It works by retriggering the envelope in rapid successions before going into the decay phase. In this mode, the attack setting controls the time until the decay phase by changing the number of triggers and the time between them.

- Noise Attack
  Range: depends on noise envelope mode, exponential and modulated: 0ms to 10 000ms *(10s)*, linear: 0ms to 6 666.67ms
  Default: 0ms
  The **Noise Attack** parameter controls the total time for the attack phase of the noise envelope. For the **Exponential** and **Linear** envelope modes, this is the time it takes the noise envelope to go from silence to maximum amplitude. For the **Modulated Mode**, this is the total time spent triggering short "clap bursts" until the decay phase kicks in. *(See above for more information.)* An attack setting of zero eliminates the envelope's attack phase and makes the drum patch trigger at full amplitude directly.

- Noise Decay
  Range: depends on noise envelope mode: exponential and modulated: 10ms to 10 000ms *(10s)*, linear: 6.66667ms to 6 666.67ms
  Default: 316.23ms / 210.82ms
  The noise decay parameter controls the decay time or the time it takes the envelope generator to go from maximum amplitude back to silence. *(The time for exponential decay is approximate since, in theory, an exponential decay never reaches zero.)*

Velocity Sensitivity Section

The **Velocity Sensitivity Section** controls how MIDI velocities and pattern accents affect the sound. You have three different settings, two of which control the oscillator and noise volumes, and one that controls the amount of pitch modulation on the oscillator. If all settings are zero, MIDI velocities and accents do not affect the sound at all.

- Oscillator Velocity Sensitivity
  Range: 0% to 200%
  Default: 0%
  This parameter decides how MIDI velocities and accents affect the volume of the oscillator. A setting of zero percent means that velocities *(and accents)* do not affect the volume. Higher percentages make velocities *(and accents)* affect the volume more. A setting of 100% means that the oscillator is silent if a note has zero

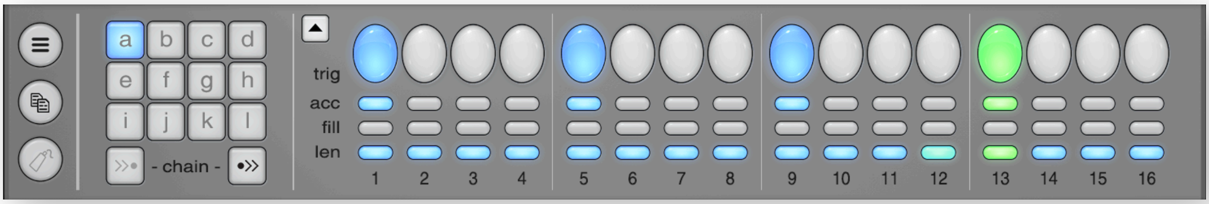
velocity. *(A setting of 200% means that MIDI velocities of 64 or more are required for the oscillator to be heard at all.)*

- **Noise Velocity Sensitivity**
  Range: 0% to 200%
  Default: 0%
  This parameter decides how MIDI velocities and accents affect the volume of the noise generator. A setting of zero percent means that velocities *(and accents)* do not affect the volume. Higher percentages make velocities *(and accents)* affect the volume more. A setting of 100% means that the noise section is totally silent if a note has zero velocity. *(A setting of 200% means that MIDI velocities of 64 or more are required for the noise to be heard.)*

- **Modulation Velocity Sensitivity**
  Range: 0% to 200%
  Default: 0%
  The final velocity parameter controls how MIDI velocities and accents affect the amount of pitch modulation on the oscillator. Set to zero percent, velocities *(and accents)* do not affect the pitch modulation at all; the pitch modulation amount is decided by the modulation amount parameter alone. Higher settings make velocities *(and accents)* change the modulation so that unaccented / softer notes have less modulation than accented / louder notes. Like the oscillator and noise velocity sensitivity settings, a setting of 100% or more means that the modulation can be turned off completely by low velocities.

Pattern Section

At the bottom of the window, you have the pattern editor. To the left of the pattern steps, there is a small button to show and hide the Matrix Editor.



Pattern Menu Button

Click the **Pattern Edit Menu** button to show the pattern edit menu. The pattern edit menu contains functions that operate on the currently selected pattern. If you hold down the **Control Key** *(Alt Key on Mac)* when clicking the menu, the functions will operate on the currently selected channel of the pattern only; otherwise, all channels are affected.

- **Cut Pattern / Pattern Channel**
  This function copies the currently selected pattern/pattern channel onto the clipboard and clears the pattern/pattern channel in Microtonic.

- **Copy Pattern / Pattern Channel**
  This menu choice copies the current pattern/pattern channel onto the clipboard.

- **Paste Pattern / Pattern Channel**
  Use this menu item to paste patterns or pattern channels from the clipboard. The contents of the clipboard will replace the settings in Microtonic. *(This menu item is only available if a Microtonic pattern or pattern channel is available on the clipboard.)*

- **Exchange Pattern / Pattern Channel**
  Exchange pattern/pattern channel exchanges the pattern/pattern channel on the clipboard with the settings in Microtonic. This feature is useful if you would like to toggle between two different versions of a pattern. Copy the first version, change the pattern and use this menu to swap between the two different versions. It is also useful if you want to swap two channels in a pattern. *(This menu item is only available if a Microtonic pattern or pattern channel is available on the clipboard.)*

- **Export Pattern To MIDI File**
  This menu item lets you export the currently selected pattern to a standard MIDI file. If the currently selected pattern is part of a "pattern chain", the entire chain will be exported. *(See MIDI Drag below for a more convenient method if you wish to export patterns directly to your host sequencer for tweaking and arranging.)*

- **Export Pattern To Audio File**
  Use this menu item to export the currently selected pattern *(or pattern chain)* to a "WAV file". When you select this item, you will be presented with a "save dialog" to choose further options for the export. The format choices are 16, 24, or 32-bit resolution and a selection of sample rates between 32 and 192 kHz. The 32-bit option will generate a so-called floating-point format with virtually infinite resolution and no clipping. You are also given a choice of how to treat the audio tail *(i.e., what to do with the remaining audio after the pattern/pattern chain has played its length)*. Select **None** to simply drop any remaining audio, select **Append** to append the audio *(and cut the file after the sound has decayed to silence)*, or select **Loop** to merge the tail into the beginning of the file so that it works well for looping.

- **Shift Pattern / Pattern Channel Left**
  Shifts the entire pattern or currently selected channel one step to the left. The pattern/pattern channel rotates so that the leftmost step is shifted out and then in again from the right. *(This function works on the designated length of the pattern.)* To shift more than one step, use the Repeat Last Menu feature.

- **Shift Pattern / Pattern Channel Right**
  Shifts the entire pattern or currently selected channel one step to the right. The pattern/pattern channel rotates so that the rightmost step is shifted out and then in again from the left. *(This function works on the designated length of the pattern.)* To shift more than one step, use the Repeat Last Menu feature.

- **Reverse Pattern / Pattern Channel**
  This menu choice reverses the pattern/pattern channel so that the first step becomes the last, and so on. *(This function only reverses material within the designated length of the pattern.)*

- ▸ Alter Pattern / Pattern Channel
  The Alter Pattern / Pattern Channel function is a handy little feature that shuffles random parts of the pattern around. It may be used to create variations of a pattern. The algorithm works solely on existing material, so altering an empty pattern is meaningless. *(Also, this function alters only material within the designated pattern length.)* To test various alterations, use the Repeat Last Menu feature.

- ▸ Randomize Accents and Fills / Channel Accents and Fills
  This menu item randomizes only the Accent and Fills of a pattern while not altering any triggers. It may be used to make minor variations of a pattern. To test various random results, use the Repeat Last Menu feature.

- ▸ Randomize Pattern / Pattern Channel
  This menu item randomizes the pattern/pattern channel totally, wiping out any already existing contents. A lot of effort has been put into making the random function create musically interesting results *(with an emphasis on the word "interesting", as in experimental, not necessarily musically pleasing)*. To test various random results, use the Repeat Last Menu feature.

Copy Pattern / Pattern Channel Button

This button works as a shortcut to the **Copy Pattern** / **Pattern Channel** menu. It copies the current pattern onto the clipboard or the currently selected pattern channel if you hold down the control key when clicking *(alt key on Mac)*.

Paste Pattern / Pattern Channel Button

This button is a shortcut to the **Paste Pattern** / **Pattern Channel** menu. If a pattern or pattern channel is available on the clipboard, it will be pasted; otherwise, this button is disabled.

Chain From Previous Pattern / To Next Pattern

These buttons are used to create chains of patterns. When a pattern in a pattern chain has finished playing, the next pattern in the chain will automatically follow. The patterns in a chain are always played in alphabetical order. *(On the screen that would be from left to right, top to bottom.)* When the last pattern in a chain has finished playing, the first one will start again. The leftmost button chains the previous pattern with the current and the rightmost chains the current with the next. *(Naturally, the left button is disabled for pattern A and the right button is disabled for pattern L.)*

If you switch to a pattern that is part of a chain, Microtonic does not necessarily start playing the first pattern in the chain, depending on the song position in your host sequencer. This behavior is to ensure a consistent and predictable result regardless of where you start the sequencer.

Pattern Selection Group

You use this group of 12 buttons to select pattern **A** to **L** for playing and editing. A solid blue light indicates the currently chosen pattern. The currently chosen pattern is the pattern that you edit with the **Pattern Edit Lanes**. If the pattern engine is not currently playing this pattern, it will do so after it has finished playing its current pattern. The pattern that is currently playing is shown by a flashing green light.

If a pattern is empty *(i.e., no triggers)*, its label will be a lighter gray, and if the currently selected pattern is part of a chain, the patterns of the chain will have blue labels.

Right-clicking a pattern button will bring up the pattern menu with some actions that you can perform on the pattern *(as described above under Pattern Menu Button)*.

Pattern Edit Lanes

The Pattern Edit Lanes are used to edit the currently selected pattern. *Alternatively, you may wish to use the Matrix Editor described below for editing all channels simultaneously.* The length lane is common for all the channels of a pattern, while the other three lanes only edit the currently selected channel. All lanes are clickable, and you may click and drag to set or reset several switches in one sweep. Furthermore, holding down the shift key will make the click alter all drum channels that are not currently muted. For example, you can use this feature to create a short pause or to set accents on a step for all the channels.

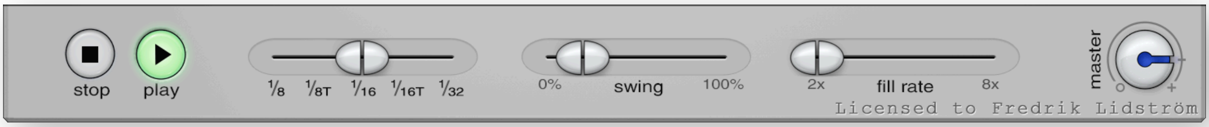
- Channel Triggers
  This is the most important lane in the pattern editor. Each button in this lane represents one step in the pattern and decides if a drum should be triggered at that step or not. The buttons display the steps for the currently selected drum channel. A blue button indicates a trigger, and a white indicates a pause. *(Note that the accent and fill buttons are ignored for steps without triggers.)* Clicking a button with the **Control Key** held down *(Alt Key on Mac)* will switch the accent of the step as well as the trigger.

- Channel Accents
  The **Accents** affect the velocities of drum hits triggered by the pattern engine. A step without an accent will trigger a drum with MIDI velocity 64, and a step with accent will play with MIDI velocity 127.

- Channel Fills
  Each step also has a **Fill** switch that is used to create rapid drum rolls. The **Fill Rate** is set globally for all patterns in Microtonic and may be set to two times per step up to eight times per step. The velocities in these fills decay by a fixed amount to achieve a natural rolling effect.

- Pattern Length
  The length of the current pattern is shown and edited here. The length is displayed in blue, and a green light indicates the current play position within the pattern. The length is the same for all channels of a pattern, so the currently selected drum channel does not affect this lane.

Global Section



Stop Button

The **Stop Button** stops and deactivates the internal pattern engine. Similar to the synchronization of pattern changes, the stop is synchronized to the length of patterns. If the **Stop Button** is blinking, the engine will stop after the currently selected pattern has finished playing. You can force the pattern engine to stop immediately by clicking twice on the stop button.

(Starting and stopping patterns may be automated just as pattern changes.)

Play Button

The **Play Button** enables and activates the internal pattern engine. Patterns start synchronized to the song position in your host sequencer as determined by the length of the currently selected pattern. *(For example, a pattern with a length of three sixteenth notes would start at the first, fourth, and seventh sixteenth note in the song, and so on.)*

If the pattern engine is set to start but has not done so yet, the **Play Button** flashes. This may be because the host sequencer is stopped or because the engine is waiting for a synchronized position to start at. You may force the pattern engine to start immediately by clicking the **Play Button** twice.

(Starting and stopping patterns may be automated just as pattern changes.)

Step Rate

Choices: 1/8, 1/8T, 1/16, 1/16T, 1/32
Default: 0%
This is where you set the rate with which the pattern engine runs relative to the tempo in your host. The setting goes from 1/8, meaning that each step is a one-eighth note in length, up to 1/32. There are also triplet rates that play three or six steps per quarter. *(The rate is set globally for all patterns in a preset.)*

Swing

Range: 0% to 100%
Default: 0%
The **Swing** parameter gives your patterns a looser, more human feel by delaying the playback of sixteenth notes that fall between the eights. *(This feature also goes by the name of "shuffle" in some products)*. The amount is set between 0 and 100 percent, where 0% is perfectly "we are the robots" stiff. *(The swing amount is set globally for all patterns and channels in a preset.)*

Fill Rate

Range: 2x to 8x *(per step)*
Default: 2x
Each step in a pattern has a **Fill** switch that may be used to create rapid drum rolls. The **Fill Rate** setting determines the speed of these drum rolls. The rate is measured in the number of hits per step. The default setting of two creates rolls of 32nd notes, and the maximum of eight creates rolls of 128th notes. Notice that you can use fractional rates as well *(such as 2.5)* for unsynchronized rolls. The velocities of fills decay by a fixed amount to achieve a natural rolling effect. If the step that triggers the roll is accented, the MIDI velocity will run from 128 to 64 over the roll; if not, it will run from 64 to 0. *(The fill rate is set globally for all patterns and channels in a preset.)*

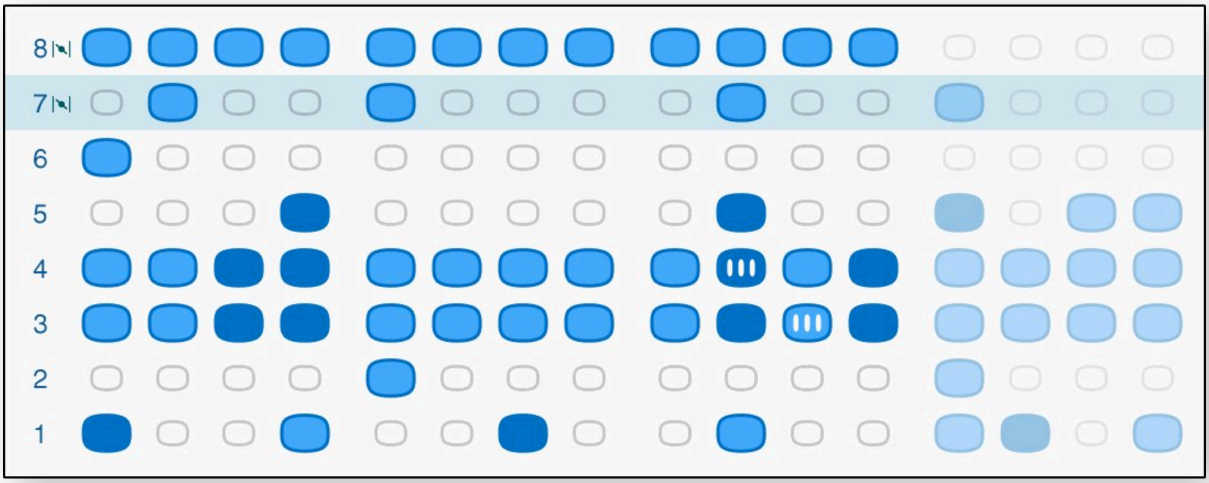
Master Volume

Range: -infinite dB to +10dB
Default: 0dB

This is the final output volume for the preset. When turned down to its minimum, the sound of Microtonic is shut off completely. Zero decibels *(the default setting)* is considered normal volume, and the maximum of 10 decibels is around three times as loud. The master volume affects both stereo output pairs of Microtonic.

Matrix Editor

The matrix editor allows you to view and edit the pattern steps for all eight channels simultaneously. Accented and filled steps are illustrated using different colors, shapes, and sizes. While clicking, you can hold down the **Control Key** *(Alt Key on Mac)* to make the steps accented or the **Alt Key** *(Command key on Mac)* to add a "fill" to the step or a combination of both.



The channel numbers on the left serve the same purpose as the **Channel Buttons**, allowing you to both select and trigger drum sounds by clicking them. You can also rearrange the channel order by clicking a number, and with the mouse button held down, drag it to a new location. When the mouse button is released, the channel will be inserted into the new location, shifting other channels up or down as necessary.

Shift Click channel numbers to mute them and **Control Click** *(Command Click on Mac)* to solo.

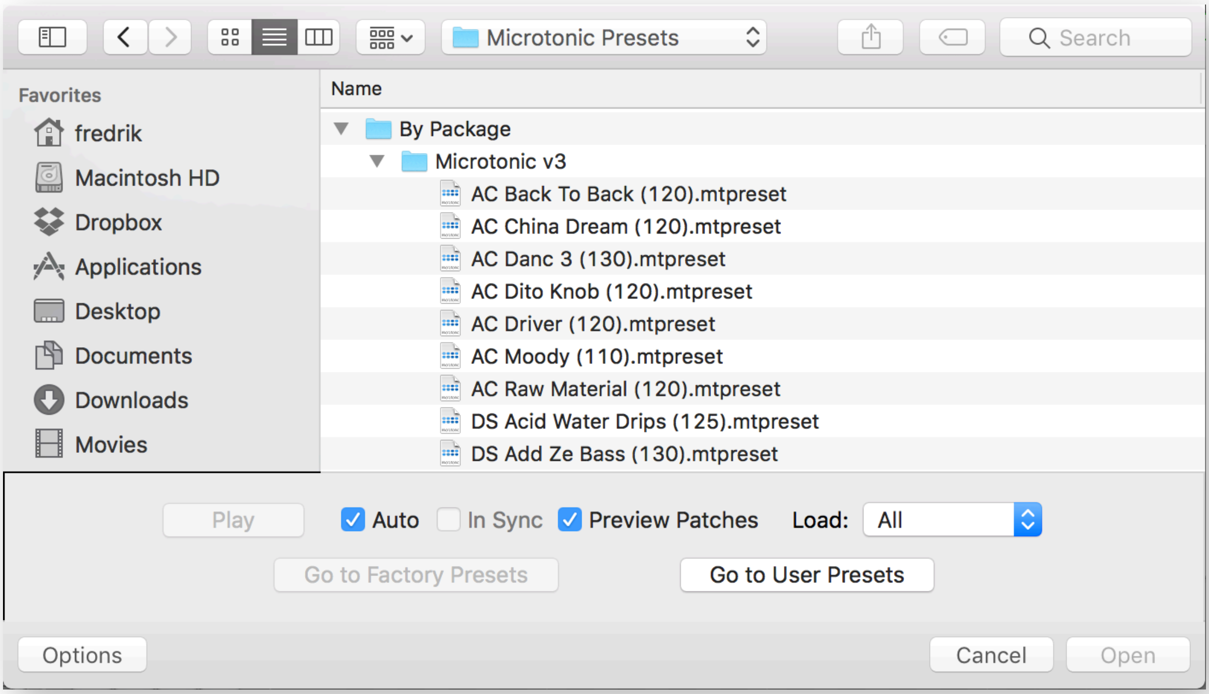
(Channels that use "choke mode" are indicated by a small choke symbol.)

Open Preset Dialog

The **Open Preset Dialog** includes a couple of options for previewing the preset within the browser. To preview, either click the **Play/Stop Button** or simply select **Auto** to start previewing as soon as you select a new preset in the list.

You can preview patterns in their original tempo or synchronized to the host sequencer by selecting **In Sync**. Use the **Preview Patches** option to try out the drum patches in a preset from your MIDI keyboard without having to open it first.

There are also options to load **All** data from the preset or only loading the **Patches** or **Presets**.



By Package
Microtonic v3
AC Back To Back (120).mtpreset
AC China Dream (120).mtpreset
AC Danc 3 (130).mtpreset
AC Dito Knob (120).mtpreset
AC Driver (120).mtpreset
AC Moody (110).mtpreset
AC Raw Material (120).mtpreset
DS Acid Water Drips (125).mtpreset
DS Add Ze Bass (130).mtpreset

☑ Auto □ In Sync ☑ Preview Patches Load: All

Clicking **Go To Factory Presets** changes the current directory to the factory preset directory. There you will find presets sorted by packages or all presets in one big flat directory. Clicking **Go To User Presets** takes you to the last place where you opened or saved a *(non-factory)* Microtonic preset.

Open Drum Patch Dialog

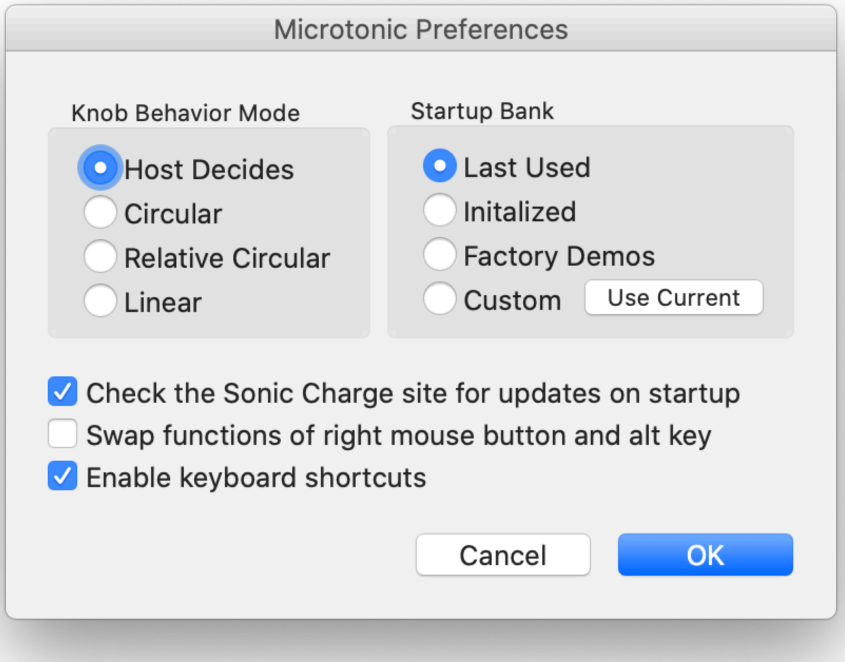
The **Open Drum Patch** dialog is similar to the preset dialog, and it also allows you to preview drum patches before loading. To preview them, click the **Play/Stop Button** or simply select **Auto** to preview the patch automatically when selecting them in the list.

Turn on **Play Accented** to preview the drum patches with accented instead of normal velocity. Use the **Preview in Preset** if you wish to preview a drum patch in the context of the currently playing pattern or from your MIDI keyboard.

Clicking **Go To Factory Patches** changes the current directory to the factory patches directory. There you will find presets sorted by categories, packages, or all drum patches in one big flat directory. Clicking **Go To User Patches** takes you to the last place where you opened or saved a *(non-factory)* Microtonic drum patch.

Preferences Dialog

The **Preference Dialog** is used to choose configuration settings for Microtonic. You access this dialog from the main menu *(see the section Main Menu Button above)*. The settings are “global” and are used by all instances of Microtonic.


Microtonic Preferences

Knob Behavior Mode

- ● Host Decides
- ○ Circular
- ○ Relative Circular
- ○ Linear

Startup Bank

- ● Last Used
- ○ Initalized
- ○ Factory Demos
- ○ Custom

☑ Check the Sonic Charge site for updates on startup

□ Swap functions of right mouse button and alt key

☑ Enable keyboard shortcuts

Knob Behavior Mode

Here you select the default behavior mode for all knobs of Microtonic. The default option, called **Host Decides**, makes Microtonic adhere to the preference of your host sequencer. **Circular** mode lets you click and drag knobs in a circular manner, just like a real hardware knob. **Relative Circular** mode works like the circular mode but does not immediately turn the knob to the mouse cursor when you click. The **Linear** mode makes the knob work like faders; you click and drag up and down *(or left and right)* to turn it.

Startup Bank

This setting decides which programs should automatically load when you open new instances of Microtonic. The default setting is to load the **Last Used** bank; you can change this to either: **Initialized**, which does not load any programs at all but starts Microtonic in an initialized state. **Factory Demos** loads the original sixteen factory demonstration presets. The last option is to load a **Custom** set of programs. By clicking **Use Current,** Microtonic will start with the presets that you have currently loaded in memory.

Check the Sonic Charge site for updates on startup

Activate this setting to automatically connect to the Sonic Charge internet site and check for upgrades. The check is performed in the background once every third day that you use Microtonic.

Swap functions of right mouse button and control/alt key

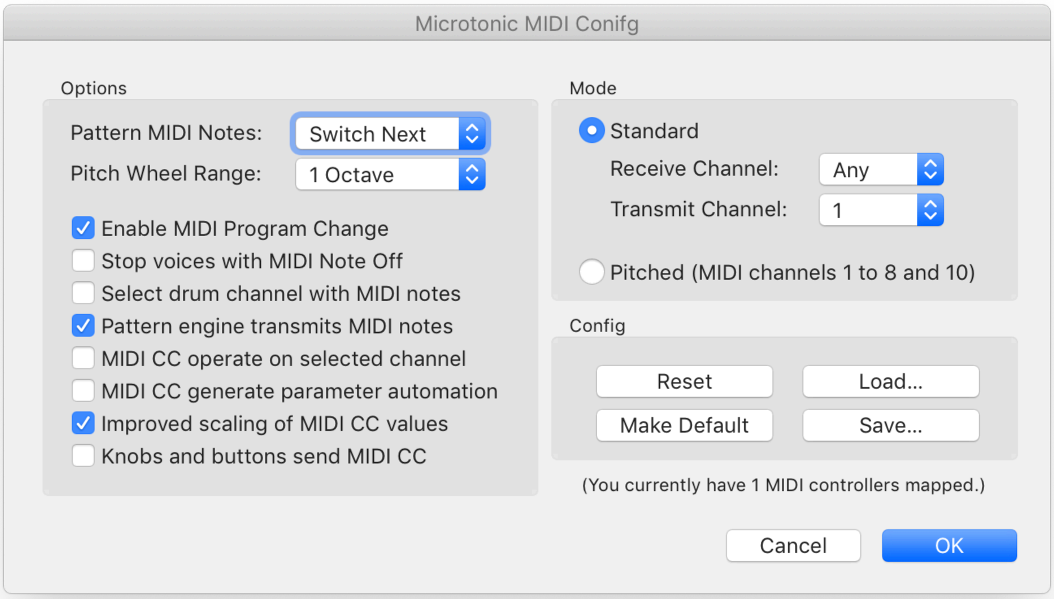
You can use this option to change the way the right mouse button is used. The right mouse button will take the role of the **Control Key** *(or Alt Key on Mac)* and vice versa. For example, with this option turned on, you can right-click channel buttons to trigger drums accented or to set steps in the pattern editor to trigger accented. The context menus that you normally reach by right-clicking are then obtained by holding down the control key instead.

Enable keyboard shortcuts

Lets you turn off keyboard shortcuts, allowing you to play MIDI notes with the MIDI keyboard without first having to click outside the Microtonic window.

MIDI Config Dialog

With the **Midi Config Dialog**, you configure how Microtonic responds to and transmits MIDI data. Each instance of Microtonic has its own configuration, and the configuration is stored with your song data when you save your project.



Microtonic MIDI Conifg

Options

Pattern MIDI Notes: Switch Next

Pitch Wheel Range: 1 Octave

☑ Enable MIDI Program Change
□ Stop voices with MIDI Note Off
□ Select drum channel with MIDI notes
☑ Pattern engine transmits MIDI notes
□ MIDI CC operate on selected channel
□ MIDI CC generate parameter automation
☑ Improved scaling of MIDI CC values
□ Knobs and buttons send MIDI CC

Mode

● Standard
Receive Channel: Any
Transmit Channel: 1

○ Pitched (MIDI channels 1 to 8 and 10)

Config

(You currently have 1 MIDI controllers mapped.)

Pattern MIDI Notes

The **Pattern Midi Notes** setting determines how patterns are “launched” by MIDI notes. In **Switch Next** mode *(default)*, the current pattern will be played fully before the next pattern is launched. **Switch Directly** will switch patterns directly when pattern notes are received. **Retrigger** also switches directly and restarts the patterns from step 1. **Retrigger Gated** works like **Retrigger** but will stop playing patterns when MIDI keys are released.

Pitch Wheel Range

Microtonic listens to **Midi Pitch Wheel** messages for real-time pitch transposition. Here you can set the range between 0 *(Disabled)* and 2 octaves. In **Standard Mode**, the pitch wheel will affect all channels simultaneously, while in **Pitched Mode**, it will affect individual channels.

Enable MIDI Program Change

Enable this option to make Microtonic switch between the 16 program slots when it receives **Midi Program Change** messages. Messages with program numbers above 16 will be ignored.

Stop voices with MIDI Note Off

Turning this option on will make Microtonic mute voices on **Midi Note Off** messages. This allows you to change the length of the drum sounds by changing the length of the notes in your sequencer. It is also useful when using **Pitched Midi Mode** to sustain held midi keys.

Select drum channel with MIDI notes

When this option is turned on, Microtonic will select drum channels as you trigger them from your MIDI keyboard. This feature is especially useful in combination with the **Midi Cc Operate On Selected Channel** option if you plan to use the MIDI controller mapping features to edit your drum patches.

Pattern Engine Sends MIDI Notes

Turn this option on to have Microtonic transmit MIDI notes for the patterns it plays. To the extent that your host preset supports it, you can use this option to trigger other MIDI devices and plug-ins from Microtonic. The MIDI keys transmitted are the same as for reception *(normally C1 to G1)* and can be edited as described in MIDI Controllers And Keys.

MIDI CC operate on selected channel

Normally, MIDI controllers that you map are mapped to parameters of specific drum channels in Microtonic. If you instead want to map MIDI controllers to drum patch parameters regardless of channel, you should use this option. When turned on, any MIDI controller action will only affect the currently selected drum channel. This feature is especially useful if you plan to use your hardware MIDI controller for editing drum patches. Notice that if you wish to automate parameters with this feature, you must also turn on the “**Midi Controllers Generate Parameter Automation**” option.

(see the section on MIDI Controllers And Keys for more info).

Notice that there is no way to distinguish MIDI notes that come from your keyboard from notes that come from MIDI tracks in your host sequencer. Therefore, it may be a good idea to turn this option off before starting sequencer playback.

MIDI CC generate parameter automation

There are two different techniques for recording parameter automation with plug-ins. Either you use the parameter automation features in your host *(usually referred to as reading and writing automation data)*, or you record MIDI controller data from a hardware MIDI controller into your MIDI tracks. Both techniques have their pros and cons. With some sequencers, it is easier to keep MIDI notes and controller data together by using the latter technique. However, the first technique is generally more reliable since you can change the MIDI controller mapping without damaging your recorded automation. If you wish to use the first technique with “automation writing”, and you are using a hardware MIDI controller, you should turn on this option.

Improve scaling of MIDI CC values

This option will remap MIDI Controller Change values so that zero is reachable on bipolar parameters. With this option turned on, MIDI CC on the three frequency parameters will be quantized to whole semitones.

Knobs and buttons send MIDI CC

Enable this option to send MIDI controller data for mapped knobs and buttons back to your MIDI controller hardware. This option is useful if your MIDI controller displays the current knob settings or if it has motorized faders. Enabling this feature allows you to keep your controller in sync when you change presets or channel selection in Microtonic. Notice that this feature only works with the **VST** version of Microtonic in hosts that supports routing MIDI from plug-ins to your MIDI interface. Also, some MIDI controllers do not respond to MIDI CC data for updating displays. In **Pitched Midi Mode** *(see below)*, controller data will be sent on MIDI channel 1 to 8 *(and 10 for global parameters like "Master Volume")* if **Midi CC Operate On Selected Channel** is off, or only 10 if it is on. Otherwise, in **Standard Midi Mode** all controller data is sent on the selected **Transmit Channel**.

Standard MIDI Mode

In standard MIDI mode, Microtonic will respond to one specific MIDI channel as designated by the **Receive Channel** choice *(or to all MIDI channels if the Receive Channel is set to "any")*.

If the **Pattern Engine Sends Midi Notes** option is turned on, Microtonic will transmit MIDI notes for the patterns it plays to one specific MIDI channel as designated by the **Transmit Channel** choice.

The keys used for triggering drum channels and selecting patterns can be edited as described in MIDI Controllers And Keys. Default assignments can be found below in MIDI Keyboard.

Pitched MIDI Mode

Microtonic features a mode called **Pitched Midi Mode**, which allows you to play melodies with the drum patches on your keyboard. In this mode, the eight drum channels are addressed with MIDI channels 1 to 8, and you have the entire keyboard for each channel. C3 *(note number 60)* will play the "original pitch" of the drum patch. If MIDI transmission is enabled, the same channels and notes will be used for transmission.

MIDI channel 10 still responds as it does in standard mode, which allows you to control Microtonic fully from your MIDI keyboard *(including changing programs, patterns, and muting channels)*.

Config

Use the **Reset Button** to reset the MIDI configuration to factory defaults. This button will also reset any MIDI controller mapping and customized MIDI keys. You can press **Make Default** to make the current settings the default configuration used every time you create a new instance of Microtonic.

The MIDI configuration is not stored in Microtonic preset files; instead, you can **Load** and **Save** MIDI configurations to separate files with the file extension ".scmc". These files also contain MIDI controller mappings and customized MIDI key assignments.

MIDI Controllers And Keys

Some hosts let you use the computer keyboard to perform common functions in Microtonic. A list of the relevant keys and functions can be found in Computer Keyboard.

Microtonic offers features for controlling the software from an external hardware MIDI controller. With the on-screen editing of MIDI controllers and key mappings, it could not be easier to set up your favorite controller to work with Microtonic.

To enter the mentioned editing mode, simply choose **Edit Midi Controllers / Keys** from the **Main Menu**, and you will see small gray markers above all editable knobs, faders, and buttons. Rectangular markers *(like those on top of the drum channel selection buttons)* indicate assignable MIDI keys, while oval markers indicate that you can assign MIDI controllers. Click once in a marker to quickly enter MIDI learn for a button or controller *(you will see a flashing MIDI connector symbol)*. Now, press the desired key or turn the desired knob on your hardware controller, and you should see a note name or a controller number in the little marker.

To edit the assigned key or controller, click the marker and drag the mouse up and down while holding the button down. If you wish to remove a mapped controller or reset a key to its default assignment, simply click once inside the marker and then click anywhere else.

When you are ready with your setup, simply choose **Edit Midi Controllers / Keys** again to quit editing. If you like to save your configuration, you can do so with the **Midi Config Dialog**, which also contains several other useful options for controlling Microtonic with your hardware controller.

Finally, if you wish to quickly map a single knob on your hardware controller to a parameter in Microtonic, you do not have to go through all the fuss with entering and leaving the editing mode. Instead, simply right-click the knob or fader, choose **Learn Midi Controller**, and turn the knob on your MIDI controller. It could not be easier!

Notice that the same MIDI key or controller number can be assigned to several different functions. Useful for layering several channels on a single MIDI key or controlling many parameters from the same knob.

MIDI Keyboard

The MIDI keyboard *(or MIDI sequencer tracks)* can be used to trigger drum sounds, starting, stopping, changing patterns and programs, muting, and “un-muting” channels. The actions you perform with your MIDI keyboard can be recorded in MIDI sequencer tracks, but they cannot be automated as parameter changes. The MIDI keys you use for these actions can be customized with the on-screen MIDI controller and key editing, described in MIDI Controllers And Keys. Following is a list of the default settings with MIDI keys, note-numbers, and their functions:

Key*(s)*	Note #	Function
C1 to G1	36 to 43	Trigger drum channel one to eight. MIDI velocity may affect the sound as determined by drum patch settings.
C2 to G2	48 to 55	Mute channel one to eight. The channel will stay muted for as long as the key is held down. Foot-switch *(MIDI controller 64)* can be used to sustain mutes.
C3 to B3	60 to 71	Select pattern a to l. *(Start pattern engine if it is stopped. Press twice to start immediately.)*
C4	72	Stop and deactivate the pattern engine. *(Press twice to stop and deactivate immediately.)*

In the table above, C3 is “middle-C”. If you use the pitched midi mode, these keys only respond on MIDI channel 10.

Computer Keyboard

If your host supports the routing of keys to plug-ins, you may use the keyboard to control Microtonic and perform some of the most common functions. Following is a list of the relevant keys and their functions.

Windows Key*(s)*	Mac Key*(s)*	Function*(s)*
1 to 8	1 to 8	Press once to select channel one to eight and preview its drum patch. With **Control Key**: preview accented. With **Shift Key**: mute *(or “un-mute”)* channel *(may be automated)*. With **Control Key** and **Shift Key**: solo *(or “un-solo”)* channel *(may be automated)*.
A to L	A to L	Select pattern **A** to **L** *(may be automated)*.
S	S	Press once: stop and deactivate the pattern engine synchronized. Press twice: stop and deactivate immediately. *(May be automated.)*

Windows Key*(s)*	Mac Key*(s)*	Function*(s)*
P	P	Press once: activate the pattern engine and start playing synchronized. Press twice: activate and start playing immediately. *(May be automated.)*
Control-X	Command-X	Cut pattern.
Control-C	Command-C	Copy pattern.
Control-V	Command-V	Paste pattern / drum patch / preset.
Control-J	Command-J	Shift pattern left *(one step)*.
Control-K	Command-K	Shift pattern right *(one step)*.
Control-L	Command-L	Alter pattern.
Control-Z	Command-Z	Undo.
Control-Y	Command-Y	Redo.

Requirements

The minimum requirements for installing and running Microtonic are:

- Microsoft Windows 7
  A host that supports 64-bit VST 2.4, or VST3 plug-ins
- macOS High Sierra (10.13)
  A host that supports 64-bit VST 2.4, VST3, or AudioUnit 2 plug-ins

Change History

Version 3.3.4 *(2022-11-07)*

- VST3 support.
- *(Windows)* Deprecated 32-bit support.
- Bug and compatibility fixes.

Version 3.3.3 *(2022-02-16)*

- *(Mac)* Native support for Apple Silicon.
- Bug fixes, “under the hood” maintenance, and improvements.
- Support for alternative “skins”.

Version 3.3.1 *(2020-08-24)*

- Added support for time-limited licensing.
- Made a workaround to handle a rare Windows problem with generating a unique machine-id.
- Fixed an issue that could cause the host user-interface to become sluggish when running many instances of Microtonic (even with closed plug-in windows).

Version 3.3 *(2020-03-04)*

- Scalable GUI and retina support.
- Scripts can now be written in Javascript.
- Scripts can display custom user interface panels.
- A new button in preferences lets you turn off keyboard shortcuts, allowing you to play MIDI notes with the MIDI keyboard without first having to click outside the Microtonic window.
- Fixed an issue where exporting audio and MIDI produced invalid files when running under trial.
- Fixed a problem with the “Optimize for PO-32” button after user scripts had been run.
- Program names with international characters should now show correctly in most hosts.
- *(Mac)* Several fixes to the standalone version, including better support for various audio interfaces.
- New algorithm for the “system unique identifier” used for authorization. Hopefully fixing the problem where the plug-in became unregistered spontaneously.
- Fixed a bug that could leave temporary files behind when saving and replacing files.
- *(Mac)* Solved a compatibility problem with DAWs that are built with recent Apple SDK’s, e.g. Cubase 10.5.
- *(Mac)* Notarized installer for Catalina.
- *(Mac)* New 64-bit compatible uninstaller.
- *(Mac)* “Go to folder” buttons in browser now work in Catalina.
- *(Mac)* 64-bit Audio Units no longer depend on the “Component Manager”. This means you should not need to restart after installation.
- *(Mac)* Preferences and registration data is now shared with “sandboxed” DAWs like GarageBand *(meaning Authenticator works with these DAWs too)*.
- *(Mac)* Fixed a problem where under certain conditions the preferences data could stay locked if the DAW crashed, requiring a full system restart.
- Lots of other minor bug and compatibility fixes.

Version 3.2 *(2017-02-02)*

- Functions for transferring patches and patterns to the Teenage Engineering / Sonic Charge PO-32 Tonic hardware.
- Redesigned GUI with toolbar at top plus lots of new shining pixels everywhere.
- First standalone version for Mac.
- Fixed a problem with morph *(the GUI sometimes lit up the incorrect waveform, envelope modes etc)*.
- Fixed a problem with 64-bit Mac that caused Cubase to crash when unloading the plug-in.
- Fixed a division by zero in the audio engine.
- Reassigned controller count in midi config dialog was wrong. Fixed.
- Swap control and right-click *(as set in preferences)* didn't work properly with pattern editing. Now it does.
- 64-bit Mac version now receives keyboard input like the other versions *(1-8 for selecting and playing drums etc)*.
- Search-box in file browsers now work on 64-bit Mac.
- All versions except 64-bit Mac: fixed a bug that caused Microtonic to stop listening to keyboard input after closing about box.

Version 3.1.1 *(2014-12-16)*

- Open browsers now feature two buttons to quickly take you to factory and user preset directories.
- Many minor bug-fixes.

Version 3.1 *(2013-05-17)*

- First fully 64-bit compatible version.
- Supports MIDI CC out for updating MIDI controllers with current parameter values.
- Supports MIDI CC for mutes as well as MIDI keys.
- Supports using MIDI CC to perform pattern edits.
- Drum patches that are loaded from factory preset folders are now referenced to with relative file paths meaning that it will be easier to use the drum patch browser to change patches in factory presets.
- Signed packages on Mac OS X.
- Name of DLL's changed from MicroTonic(Multi)VST.dll to Microtonic(Multi).dll only. Name of plug-in is Microtonic from now on, not µTonic or MicroTonic. Logotype is still µTONIC.

- Fixed a bug where MIDI events occurring simultaneously would be processed in incorrect order, e.g. a note with 100% legato could stop the next note with its note off event.
- Max length of program name reported to host is 64 characters.
- De-initializes and releases all resources when last instance is removed from project.
- Updated to latest support libraries. Lots of minor stability and compatibility improvements.
- In the file browser, drum patches are previewed on the individual outputs that they will load into.
- Supports automatic online registration through Sonic Charge Authenticator.
- New skin. Bigger. Beautifuller. Spacier. Space is the future.

Version 3.0.1 *(2011-05-10)*

- Fixed a problem in the AU version when loading version 2 projects that could make Microtonic use the wrong program number.
- Fixed a problem with clicks in exported audio when using the “Append” tail mode.
- Fixed a rare timing drift problem between GUI and audio when using certain audio cards.
- Solved a compatibility problem with the Windows version of Nuendo that froze the application when using copy functions in Microtonic.
- Eliminated some almost inaudible but unwanted aliasing in the sine oscillator.
- Microtonic now displays a special message when attempting to register with a version 1 or 2 key.
- Code is PPC G4 compatible again *(just as version 2 was)*.
- Updated scripting engine.

Version 3.0 *(2010-12-31)*

Major New Features

- A morph slider allows you to interpolate all eight drum patches simultaneously between two end-points. You can edit the drum patches with the morph slider at any position and it will adjust the interpolation end-points accordingly. Morph is an automatable and MIDI controllable parameter, so it can be used both as a performance parameter as well as an editing feature.
- Matrix editor window for viewing and editing the pattern steps of all eight drum channels simultaneously. *(Bonus feature: you can drag channel labels to reorder the drum channels of the preset.)*
- MIDI Program Change message support for instantaneously switching between up to 16 different presets *(loaded into memory)*. *(It is also possible to switch programs with MIDI notes.)*

- Drag and drop patterns as MIDI files directly into your sequencer *(supported by all major hosts)*.
- “Edit All Channels” button enables adjusting parameters for all drum channels simultaneously. E.g. turn up the distortion on all channels. Microtonic will write parameter automation for all affected channels, so the effect can be automated.
- A new “choke group” feature lets you assign two or more channels that should play mutually exclusively and cut each other off. Useful for closed and open hihats for example.
- A preset name display sits in the top of the window, with previous and next preset buttons and a popup list when you click the display.
- Support for MIDI Pitch Wheel for real-time pitch transposition with a range of up to 2 octaves.
- A new “Stop Voices with MIDI Note Off” option makes it possible to sustain the sound while you hold down MIDI keys (if you use Microtonic as a synth). It is also useful for changing the length of drum sounds with note lengths in your sequencer.
- Alternative “pattern launch modes”: “Switch Next” *(the behavior in earlier versions of* Microtonic*)*, “Switch Directly”, “Retrigger” and “Retrigger Gated”.
- Undo / redo.
- Shift-click menu buttons to quickly repeat last selected menu item.
- New 3D-rendered skin. Sharper, brighter, sexier with 32-bit graphics. *(Yes,* Microtonic *version 2.0 was using 20th century 16-bit RGB graphics still)*.

Other Improvements

- New menu functions: “Transpose” *(all channels or a single drum patch).* “Alter Drum Patches” *(all channels or a single drum patch)*. “Randomize Accents and Fills” *(on entire pattern or single channel)*. “Revert to Saved” *(revert to last saved version of preset)*.
- New trial system: up to three weeks of trial with full functionality. After that Microtonic will go silent until you register. Weeks will only be counted when you actually use Microtonic.
- Microtonic will now reload the most recently used program bank *(of 16 programs)* automatically when you create a new instance. *(This behavior can be changed from the Preference Dialog.)*
- From the file browser you can now select to load only the patches or the patterns from a preset.
- All filter algorithms have been replaced with a new custom design based on a modified state-variable topology. It allows exact replication of the original filter response, but with better accuracy, speed and stability when the frequencies are modulated.
- Parameter smoothing improved to allow quicker unfiltered parameter changes as well as slower filtered changes.

- You can optionally remap MIDI Controller Change values so that you can reach zero exactly on bipolar parameters. Also, with this option turned on, MIDI CC on the three frequency parameters will be quantized to whole semitones.

- Microtonic can execute simple script files *(written in* PikaScript*)* from a popup menu. A script button will show in the top-left corner if Microtonic finds script-files in a designated scripts folder.

- A write protect switch can protect the programs in memory by reverting any edits as soon as you switch to another program.

- You can assign the same MIDI key or controller number to several different functions. Useful for layering several channels on a single MIDI key or controlling many parameters from the same knob.

- All existing presets (including those in our additional downloadable patch packages) have been modified to obtain a high degree of consistency concerning which drum channels plays what type of sound. E.g. channel 1 plays bass drum patches, channel 5 plays snare drum patches etc. Also, all presets have been volume normalized using an automatic RMS algorithm.

Minor Changes

- Microtonic 3.0 uses a new registration key system. Registration keys for version 3.0 are not compatible with previous versions of Microtonic.

- All file formats have been upgraded *(using a cleaner and more consistent text format)*. Microtonic version 3.0 files are not downwards compatible with Microtonic version 2.0, so new file extensions have been chosen: ".mtpreset" and ".mtdrum".

- Noise levels are much more consistent across different sample rates *(the levels at 44.1khz were used as reference)*.

- New WAV export code allows for 24-bit audio export and improved WAV-file compatibility.

- Improved timing accuracy of notes and parameter changes, especially when host is using odd *(or just very large)* buffer sizes. This is at the expense of a constant latency of 64 samples, but all major hosts should support latency compensation.

- The envelopes are slightly improved. E.g., they now go all the way down to level 0 exactly *(avoiding clicks if* Microtonic *is run through extreme compression)*.

- Changes to "Mod Amount" will affect the sound immediately. *(Previously, changes to this parameter didn't have effect until the next note on.)*

- Step buttons light up when notes are played *(Yeah, this is the minor changes section.)*

Bug / Compatibility Fixes

- Fixed bug with VST midi events outside the current processing block.

- Fixed minor bug in linear noise envelope decay.

- Automation now starts directly when you click a fader *(instead of waiting until it is dragged)*.

- Improved problem with Microtonic spontaneously losing registration.

- Fixed a problem where holes*(!)* would appear in the user-interface on Mac.

- Fixed a problem with the oscilloscope when using the multiple outputs version *(in certain hosts)*.
- Works *(better)* with host and bridges *(e.g. VST Bridge)* that runs different instances in different threads.
- Many, many other minor fixes.

Version 2.0.3 *(2007-11-29) (Mac OS X only)*

- Fixed a compatibility problem in the Audio Units version that made the separate outputs of Microtonic unusable in Apple Logic version 8 and MOTU Digital Performer.
- Fixed a GUI compatibility issue under OS X 10.5 with certain hosts (e.g. Logic, GarageBand) that caused the user interface to come up white and empty when opening the plug-in.
- Exported MIDI files can now be imported into MOTU Digital Performer.
- The Mac version now features an uninstaller application. It can be found under the Sonic Charge Microtonic folder in your Applications folder.

Version 2.0.2 *(2006-05-18) (Mac OS X only)*

- The Mac OS X version of Microtonic is now a so called “universal binary”, compatible and optimized for Intel Macs.
- Better compatibility with certain AU hosts (e.g. Plogue Bidule).

Version 2.0.1 *(2005-11-17)*

- Introduced AudioUnit version for Mac OS X, ported using Symbiosis technology from NuEdge Development.
- Both AudioUnit and VST version for Mac OS X are compiled with XCode version 2.1 *(GCC version 4.0)*. This makes the code incompatible with any Mac OS X version prior to 10.3.9.
- Registration dialog includes e-mail address field *(optional for older registrations, but will become mandatory in the future)*.
- Prepared for physical distribution by detecting and loading registration information from removable media.
- New logotype and about box artworks by Bitplant.

Version 2.0 *(2005-06-20)*

Major New Features

- There is an alternative version of Microtonic with separate outputs for each drum channel *(“MicrotonicVSTMulti”)*.
- Microtonic features built-in support for MIDI controllers with easy-to-use on-screen editing and “MIDI learn”. A MIDI controller can be assigned to a parameter

in a specific drum channel, or if you prefer, to edit the currently selected drum channel. Once you have created your assignments you can save and load them.

- The preset and drum patch file browsers feature direct previewing within the browsers. You can preview presets and patterns in their original tempo or synchronized to the music you are playing. Presets and individual drum patches can be previewed and compared directly without leaving the browser.
- There is a “pitched MIDI mode” which allows you to actually play melodies with the drum patches on your keyboard. In “pitched mode”, the eight drum channels are addressed with MIDI channels 1 to 8 and you have the entire keyboard for each channel. C3 *(note number 60)* will play the “original pitch”. This opens up new possibilities when you will be able to use Microtonic not only for drums, but also for melodies and bass lines. *(Disclaimer:* Microtonic *will of course remain a drum synthesizer primarily.)*
- The oscillator section has been blessed with an attack parameter so that you can achieve a softer sound and reduce the click of those 808-style bass drums. The attack envelope is exponential, just like the default envelope mode of the noise section.
- You can export individual patterns *(or chains)* to standard MIDI files and WAV files.

Cool Improvements

- You can freely assign which MIDI keys the drum channels respond to and which keys to use for triggering patterns and muting channels.
- There is a preference dialog where you can choose how knobs should react *(circular, relative circular, linear or decided by host)*. You can also set a default startup preset and switch the functions of the right mouse button and the **Control / Alt Key**. The latter is excellent for working quicker with editing accents etc.
- You can play Microtonic patterns even when the host sequencer is stopped. Just click the play button while it is flashing in “waiting state” and it will start playing at once.
- Right-clicking drum channels give you some options on the entire channels *(like cut / copy / paste etc)*. Useful if you want to trade places of channels etc.
- Note names are displayed in the popup hints for the frequency sliders so that you can tune to an exact pitch. This is handy with the new “pitched mode” *(described earlier)*.
- You can right-click a knob or slider to set an exact value with text *(you may enter note names as well for frequency sliders)*. You can also right-click to quickly assign MIDI controllers to knobs, sliders or buttons.
- Knobs and sliders have sub-pixel precision. This goes well in line with Microtonic sound engine, which features an infinitely fine resolution on all parameters. Now the visuals are virtually infinite in resolution as well. *(Try dragging some knobs and faders with the shift key down, and boy is that smooth.)*
- Patterns that are part of the current “pattern chain” are lit in blue color. Empty patterns show up gray.
- You can drag and drop presets and drum patch files from the explorer / finder onto Microtonic.

- Clicking the drum patch name display will pop up a list with drum patches residing in the same directory for quick loading.
- There is a “select channel with MIDI switch” that allows you to select drum channels for editing from your MIDI keyboard.
- Shift-clicking a step button *(trigger, accent or repeat)* sets or resets that step button for all *(un-muted)* channels at once. Try it out for making abrupt breaks or intense fills in patterns.

Minor *(but still cool)* Improvements

- Windows version is even further optimized and generally uses around 15% less CPU.
- No longer does Microtonic pattern engine start to play automatically every time you open up a preset. If it is stopped, it stays stopped.
- The randomization features have been tuned a little, they should now hopefully give even more… erhm… interesting results.
- Soloing a channel will select that channel. This makes it easier to solo out and edit one channel at a time.
- A star *(*)* is appended to the preset name when it is modified *(just like with drum patches)*.
- Both the noise and oscillator envelope now have techniques to prevent clicking when retriggering with slow attack settings. This improves the sound of the noise envelope compared to version 1.0, especially with high q settings.
- If a host reports that output b is not connected, all the drum patches routed to output b will go to a.
- Better compatibility with certain hosts *(no names)* by implementing yet some more “safety measures”. Amongst other things we now prevent a problem were Microtonic would actually get unregistered spontaneously. *(I know it sounds weird, but it is true.)*
- File names and directories can contain unicode characters. They may not be displayed properly, but they should work. Previously you would get errors if you used unicode characters in names.
- Microtonic skin has undergone slight cosmetic surgery and now looks and feels clearer with sharper contrasts and a new drum patch display / selector amongst other improvements.

And lets not forget the numerous new presets and patches contributed by Elmodic, Rory Dows and others.

Credits and Contacts

Sonic Charge Microtonic v1.0 - v3.3.4 *(2003 - 2022)*

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Used technologies: *(see Copyrights section below for more info)*

NuXPixels & AU/VST Symbiosis by NuEdge Development
libpng by G. Randers-Pehrson
zlib by Jean-loup Gailly and Mark Adler
stack_trace by Edd Dawson
VST PlugIn Technology by Steinberg
Audio Units SDK by Apple

Sonic Charge website:

https://soniccharge.com

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Also, endless thanks to our marvelous beta testers (you know who you are). You did a fabulous job!

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