

# **MIDI Mutator**

**MIDI file transformer plug-in**

User Guide

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# Glossary

**Contour Transformations:** keep the same basic shape, but make the intervals between notes larger or smaller.

**DAW:** Digital Audio Workstation, the host application where VST and Audio Unit plugins are loaded.

**Event:** (as used in this software) an 'event' is multiple notes beginning at the same position, e.g. when a chord is voiced. When changing 'events', all notes are affected that begin at a specific time.

**Inversion:** horizontal or vertical mirroring of notes. Play the motive upside down or right to left. The latter is also called 'retrograde'.

# Introduction

**MIDI Mutator** is a collection of tools to modify any aspect of a MIDI sequence: rhythm, timing, accents, chords, chord voicings and shape. For example you can replace the rhythm but preserve the notes, or try other chord voicings for the loaded track.

The **MIDI Mutator** features a Markov model which is able to create similar MIDI sequences from a dropped MIDI file. It is available in the Shape menu.

**MIDI Mutator** features:

- regenerate the rhythm using 6 rhythm generator algorithms from RapidComposer, plus a new one that preserves exact note and rest lengths, suitable for modern genres
- Markov generator which lets you generate similar style sequences
- use rhythm from another MIDI file
- slice a pattern, then rearrange slices randomly
- displace notes randomly, randomize note positions and/or lengths
- extend, widen, randomize chord voicings, replace the chord progression
- change the beat positions to change the feel
- replace or randomize accents
- increase/decrease polyphony
- randomize pitches
- for monophonic phrases: change the contour, add connecting notes.
- simple activation. No internet connection is required for activation or operation

**MIDI Mutator** is available for Windows and macOS and comes as VST2.4, VST3 and AU (MIDI FX) plug-in versions, with native Apple Silicon support on macOS.

# Getting started

## System requirements

### Windows

- Supported operating systems: Windows Vista/7/8/10 (32-bit or 64-bit)
- Intel/AMD processor 1.4 GHz minimum
- For VST2/VST3 plug-ins: a DAW supporting these plug-in formats

### macOS

- macOS 10.11 - 13 (latest update)
- Intel processor 1.4 GHz minimum
- For VST2/VST3/AU plug-ins: a DAW supporting these plug-in formats

**MIDI Mutator** is a MIDI FX plug-in which means it sends and receives MIDI events. It does not output audio. In order to use the plug-in you need to route the plug-in output to a virtual instrument track. You will find more details for how to accomplish this in the user guide of your DAW.

# Installation

The installation should be guided and straight-forward. You only have to follow the steps described in the installation program.

## Installation on Windows

VST2.4 (32-bit) plug-in location:

`C:\Program Files (x86)\VSTPlugins\MIDIMutator_Win32.dll`

VST2.4 (64-bit) plug-in location:

`C:\Program Files\VstPlugin\MIDIMutator_x64.dll`

You can override the VST2.4 plug-in paths during installation.

The VST3 plug-in is installed in

`C:\Program Files\Common Files\VST3`

, and in

`C:\Program Files (x86)\Common Files\VST3`

on 64-bit Windows.

Saved presets are stored in your user documents folder:

`C:\Users\<username>\Documents\MIDIMutator`

After a successful installation it might be required to add the corresponding plug-in search path to your host software. Please refer to your DAWs manual to find out how to do that.

## Installation on macOS

VST2.4 plug-in location:

`/Library/Audio/Plug-Ins/VST/MIDIMutator.vst`

VST3 plug-in location:

`/Library/Audio/Plug-Ins/VST3/MIDIMutator.vst3`

Audio unit plug-in location:

`/Library/Audio/Plug-Ins/Components/MIDIMutator.component`

Saved presets are stored in

`~/Documents/MIDIMutator`

**Important:** on macOS the plug-in host (DAW) should have read/write access in your user Documents folder, otherwise **MIDI Mutator** won't be able to load and save its settings and presets.

## Software activation

When first running **MIDI Mutator**, you will be asked to type the license key that you received with your order. **No internet connection is required for activation or operation.**

# Overview

## Workflow

You drop a MIDI file (e.g. a bass line or chord pattern) on the workspace, then select which aspect you want to modify (click on Rhythm, Timing, Accents, Chords, or Shape). A sub-page opens with the available actions. Make the changes by clicking on the appropriate button. Preview the modified notes, and if you are satisfied with the results, you can save the notes, or drag the notes as MIDI directly to your DAW.

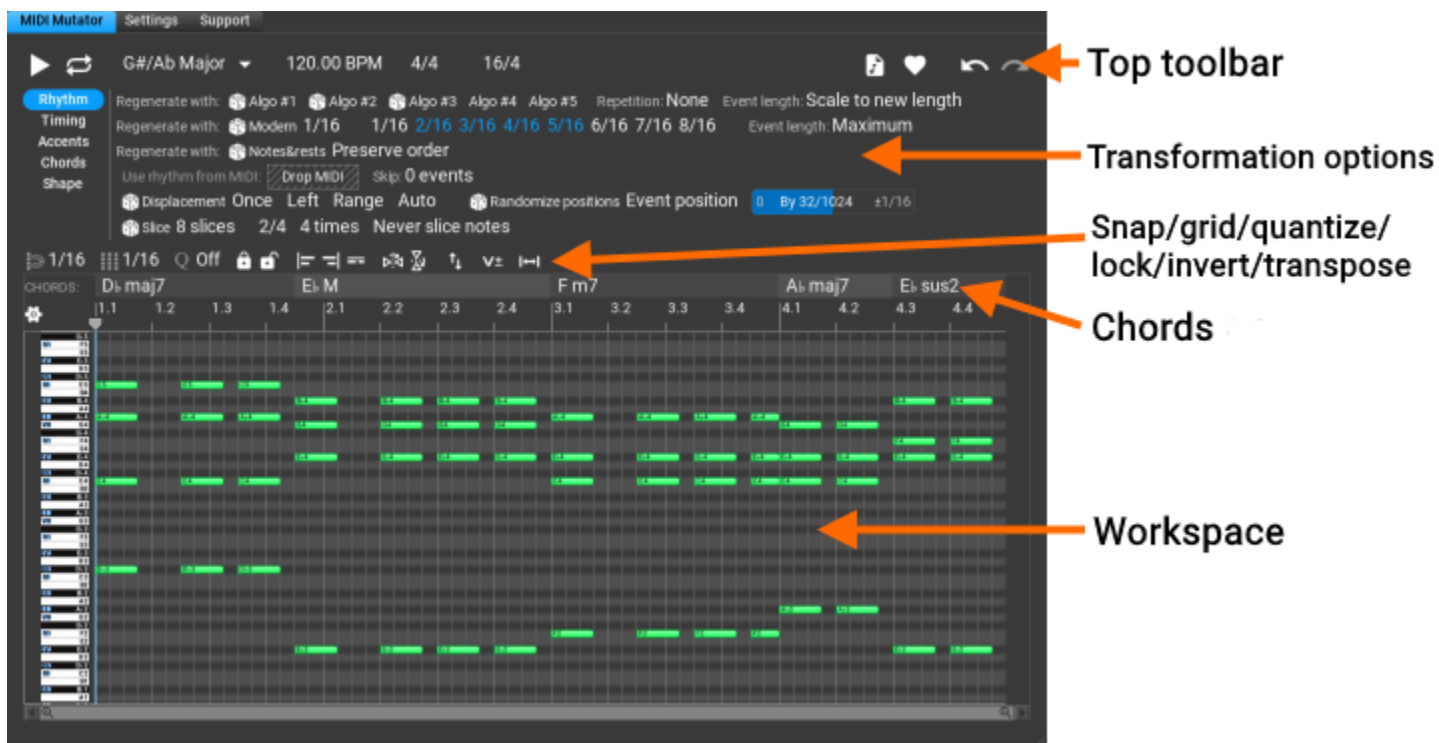
## User interface


There are three main pages in the user interface:

- **MIDI Mutator:** the main editing workspace
- **Settings:** miscellaneous and user interface settings, keyboard shortcuts.
- **Support:** update checking, version history and feedback

The user interface consists of the tool bar and transformation options at the top and the workspace where you can directly edit the notes.





 : Play back the currently edited notes. At the end of the playback the cursor returns to the playback start position.

 : Loop playback

**C Major**: the scale used for diatonic operations. While the chords are automatically updated after each note editing, the scale can be changed manually. After dropping the MIDI file, the scale is set according to the notes, plus some other scale suggestions may be available.

**120.00 BPM**: playback tempo. By default this is the host tempo. Overriding the tempo is possible, see "Use Host Tempo" in the settings.

**4/4**: the signature to use. By default this is the host signature. Overriding the signature is possible, see "Use Host Signature" in the settings.

**16/4**: the length of the phrase in signature denominator units. You can increase or decrease the length.



: Drag the edited notes as MIDI. You can drag the edited notes directly to the DAW



: Access saved sequences. A single click saves the current notes and options with the current date and time. Right-click to display earlier states that can be restored.



: Undo last change

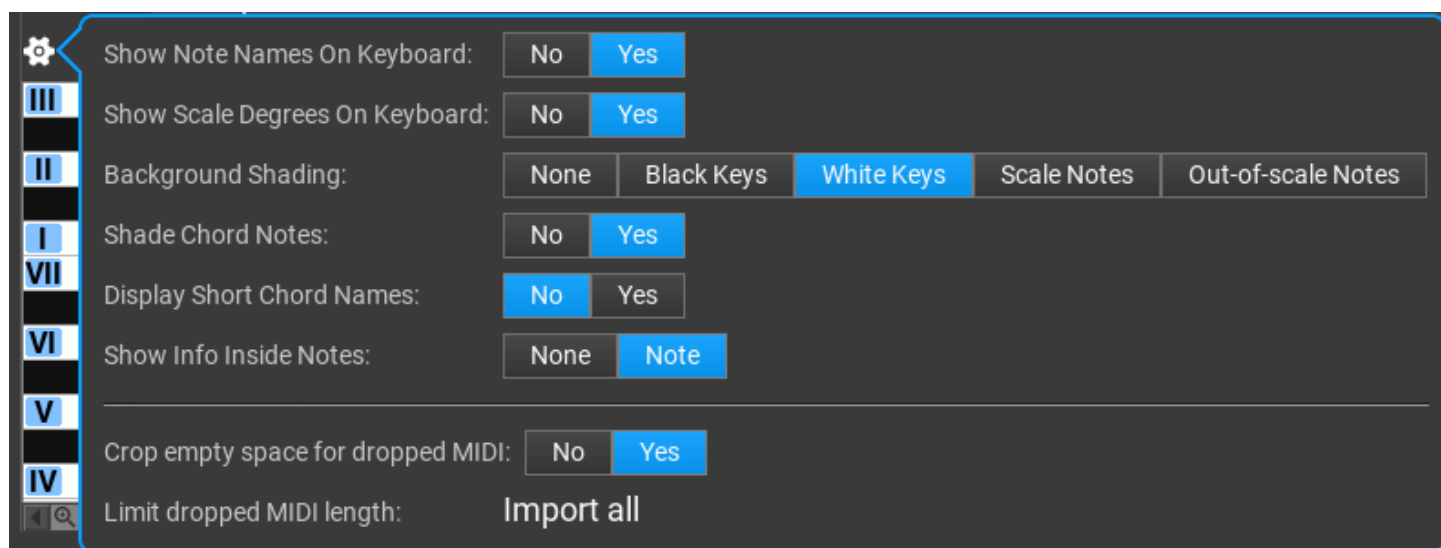


: Redo

## Piano roll options

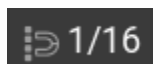
The piano roll does automatic vertical zooming by default. You can scroll the keyboard (vertical drag or mouse-wheel) and zoom the keyboard (Ctrl+vertical drag or Ctrl+mouse-wheel). Double-click to return to automatic zooming.

Clicking on the ‘cogwheel’ icon will show more options:

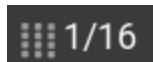


Most options are self-explanatory here. At the bottom there are two useful settings for MIDI file import: you can crop the empty space, and limit the length of the dropped MIDI file.

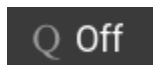
## The editing toolbar



: snap setting in the editor



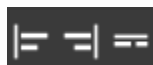
: grid setting in the editor



: quantize. Select the division and set the amount of quantization by dragging the 'Q' vertically.



: lock and unlock notes. You can preserve 'good' notes by locking them. Please note that some operations may slightly change the position of the locked notes. Double click to lock/unlock all notes. Shift-click will lock/unlock the unselected notes.



: select all notes beginning/ending at the same time, or having the same pitch with a single click. Shift-click on a note to select all notes under the same chord.



: invert horizontally or vertically. Ctrl-click does chromatic vertical inversion. These are applied on unlocked selected notes, or all unlocked notes if there is no selection.



: diatonic transposition for vertical dragging or using the mouse wheel. Use Ctrl-drag or Ctrl-mouse wheel for chromatic transposition



: change 'note on' velocities. Ctrl-drag will set all velocities to the same value. Double-click will set all velocities to 100 (of 127 being the maximum). This is applied on unlocked selected notes, or all unlocked notes if there is no selection.



: change note lengths easily by 1/32's. Ctrl-drag to set all note lengths to the same value. Double-click will set all notes to maximum length, but overlapping is avoided. This is applied on unlocked selected notes, or all unlocked notes if there is no selection.

## The timeline

Dragging the timeline vertically will zoom in/out, horizontal dragging scrolls the timeline. Double-clicking will automatically zoom out the melody to the most optimal view.

## The chords track

The chords track is displayed above the timeline:



The chords can be set by clicking on the chord note or chord name. Chord boxes are split/joined by using Alt-click (Option-click on macOS). It is possible to drag the chord edges to make a chord shorter or longer.

**Please note: chords are automatically updated after each editing operation!**

Chords depend only on the current notes.

No chords are shown for monophonic content (e.g. bass line or melody)

## The workspace

Notes can be edited on the workspace. By default chord notes are green, scale notes are blue, and other non-scale notes are red, but this can be set up in the User Interface settings.

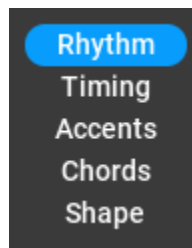
### Some shortcuts:

Create note:	Ctrl-click or double click on background
Split/join notes:	Alt-click inside note
Toggle note selection:	Ctrl-click inside note
Resize notes:	drag right edge horizontally
Move/transpose notes:	drag notes
Duplicate notes:	Ctrl-drag selected notes
Delete notes:	press Delete key or select 'Delete' in the context menu (right click)
Cut/copy/paste:	use the context menu (right click)

# Working with MIDI files

The first step is dropping a MIDI file on the workspace. A single track can be edited, so for multi-track files the first track is used that includes notes. Any monophonic or polyphonic pattern can be used. Some options in the UI appear only for monophonic or only for polyphonic notes.

You can choose what you want to change by highlighting one of the top left buttons:



## Changing the rhythm

Make sure **Rhythm** is highlighted in the top left columns.

Various rhythm options are displayed. Some of them will completely replace the original rhythm from the MIDI file, other operations just slightly modify it.



When changing the rhythm, locked notes will be preserved but their position may change. An 'event' is multiple notes beginning at the same position, e.g. when a chord is voiced. When changing 'events', all notes are affected that begin at a specific time.

- **Algo #1**: regenerate the rhythm using 'Probabilistic Rhythm'. Right click to set 'randomness' from 'expected' to 'random'.

- **Algo #2**: regenerate the rhythm using 'Subdivision' which works by dividing time into halves. Right click to set the subdivision type: 'Random weighted', 'Random' or 'Successive':
  - 'Random weighted' selects a position randomly and divides the interval. Long undivided intervals have higher probability to be found.
  - 'Random' selects a time interval randomly to divide. Short and long intervals have equal chance to be divided.
  - 'Successive': after a subdivision, the new subdivision occurs at the left or right side of the division place. When the smallest allowed interval (1/8) is achieved, subdivision will continue with the longest interval.
- **Algo #3**: regenerate the rhythm using 'Generic Rhythm'. This rhythm has no settings.
- **Algo #4**: regenerate the rhythm using 'Euclidean Rhythm'. This rhythm has no randomness or any settings.
- **Algo #5**: regenerate the rhythm using 'Polyrhythm'. This rhythm has no randomness.
- **Repetition**: specify if you want the first few bars repeated.
- **Event length**: this tells the algorithm how to map original notes to the new rhythm. Because rhythm changes, the original notes may have a shorter or longer space in the new rhythm.
- **Modern**: rhythm used in deep house and other modern genres. Select the note lengths to be used in the pattern.
- **Notes&rests**: also useful in modern genres, this rhythm preserves note and rest lengths, and will use them without changing them.
- **Use rhythm from MIDI**: it is possible to use the rhythm from another MIDI file. Drop the MIDI file on 'Drop MIDI'. It is possible to skip the first rhythm events.
- **Displacement**: this will offset the rhythm for a single note or multiple notes, to left or right, by the given amount. Use this to introduce minor changes in the rhythm.
- **Randomize** positions: offset note or event position and/or lengths randomly.
- **Slice**: slice the rhythm based on the division, and rearrange slices randomly

# Changing the timing

Make sure **Timing** is highlighted in the top left columns.

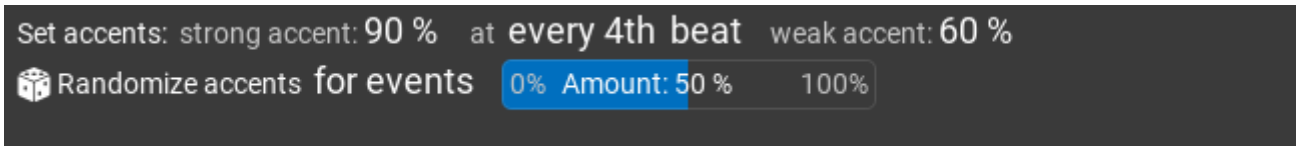
Depending on the signature, each beat can be slightly shifted earlier or later in 1/1024th units. This changes the feel of a rhythm pattern. Timing presets can be saved and loaded by clicking on the 'heart' button in the right bottom corner:



# Changing the accents

Make sure **Accents** is highlighted in the top left columns.

Various accent options are displayed. Accent means 'note on' velocity.



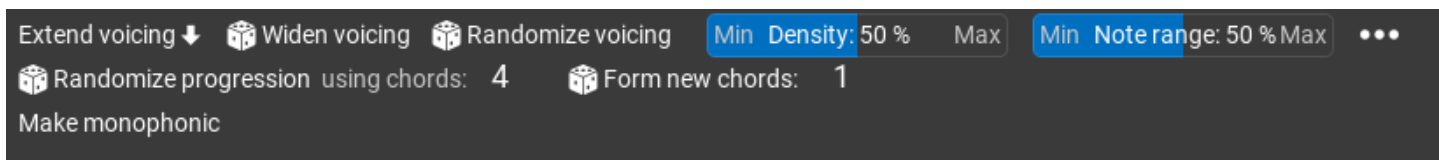
**Set accents:** replace accents. Place strong accents at the given intervals and weak accents to all other notes. 100% means 'note on' velocity 127.

**Randomize accents:** change accents randomly to a given amount.

# Changing the chords

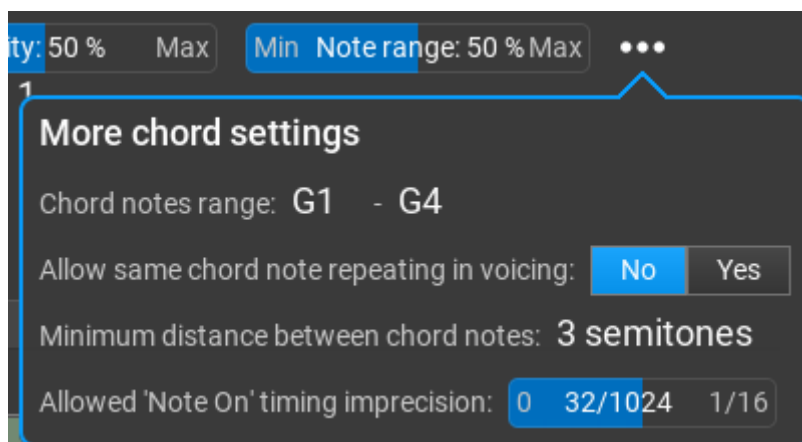
Make sure **Chords** is highlighted in the top left columns.

Various chord options are displayed, but only when the edited notes are polyphonic.



- **Extend voicing**: add a voicing note below the lowest note (unless the lowest note is locked)
- **Widen voicing**: select the voicing with the biggest distance between pitches based on 'density' and 'note range' (only the unlocked notes)
- **Randomize voicing**: create random chord voicing based on 'density' and 'note range' (only the unlocked notes)
- **Density**: this value determines the number of voicing notes to use
- **Note range**: the distance between the lowest and highest allowed chord note

Clicking on the three dots will offer more chord options:



- **Randomize progression**: use a random chord progression based on the 'chords count'
- **Form new chords**: change some chord notes to form another chord. This is not always possible, only when chords are repeated.
- **Make monophonic**: remove parallel notes to make a monophonic phrase


## Changing the shape/notes

Make sure **Shape** is highlighted in the top left columns.

Various shape options are displayed. Some of them will be available for monophonic notes only, and hidden for polyphonic patterns.

You can find the most interesting feature, the Markov generator here:



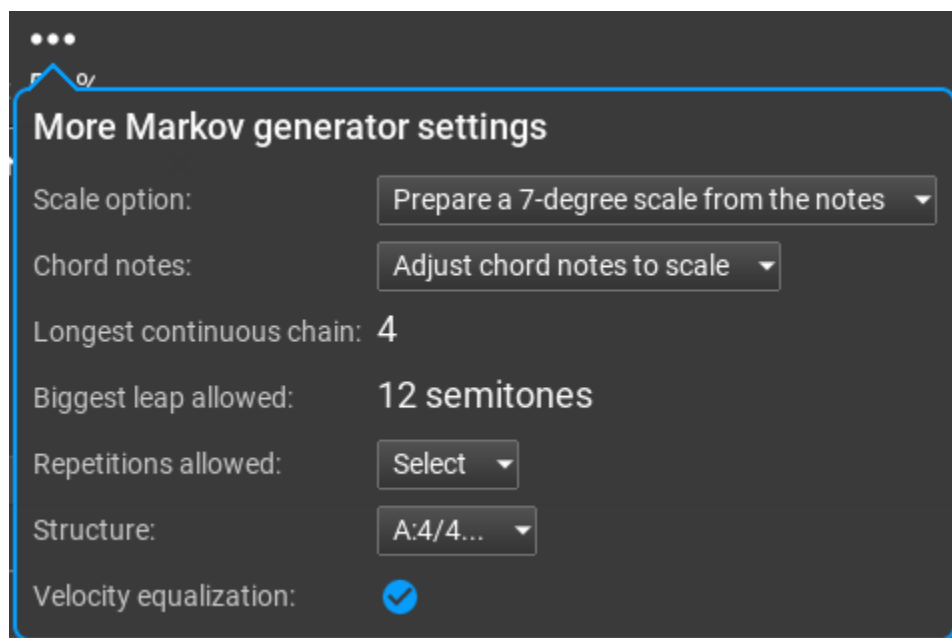
 Markov generator   Expectedness: 80 %   Note range: C3 - C6   ...  
Matching rhythm: 75 %   Matching melody: 50 %   Matching scale note: 50 %

The dropped MIDI file is analyzed, and based on the analysis, new variations can be created that are similar in style to the original MIDI file. This works like **AI** but here you have full control over the note selection (set the weights depending on what is important for you), and it is not necessary to use thousands of MIDI files for a lengthy training.

If **Expectedness** is 100%, always the note with the highest weight is selected as the 'next' note (no randomness). For 90%, the 'next' note is randomly selected from the 2 best notes, for 80% the 'next' note is randomly selected from the 3 best notes, etc.

Set weights for matching rhythm, melody or using the same scale note as in the original MIDI file.

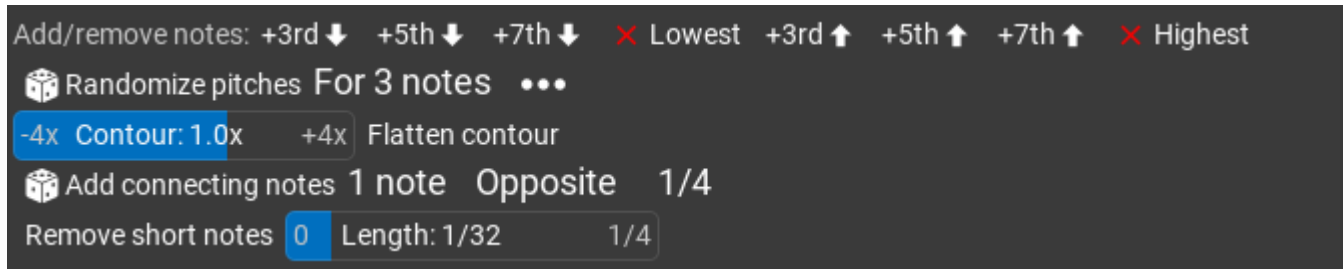
You'll find other options, of which **Structure** is very useful: it lets you set up repeating sections. The letters A, B, C... mean different sections that can be repeated. The numbers after the letter denote the length, e.g. **A:6/4** means 6 quarter notes. It is possible to enter a custom formula too.



The "**Scale option**" is used only when the file is dropped and analyzed, and cannot be changed later if a file is already loaded in the MIDI Mutator. So you need to set that before using a new

MIDI file. It is possible to use a chromatic scale but that is not recommended as the Markov generator works best with diatonic scales. All other options can be changed any time.

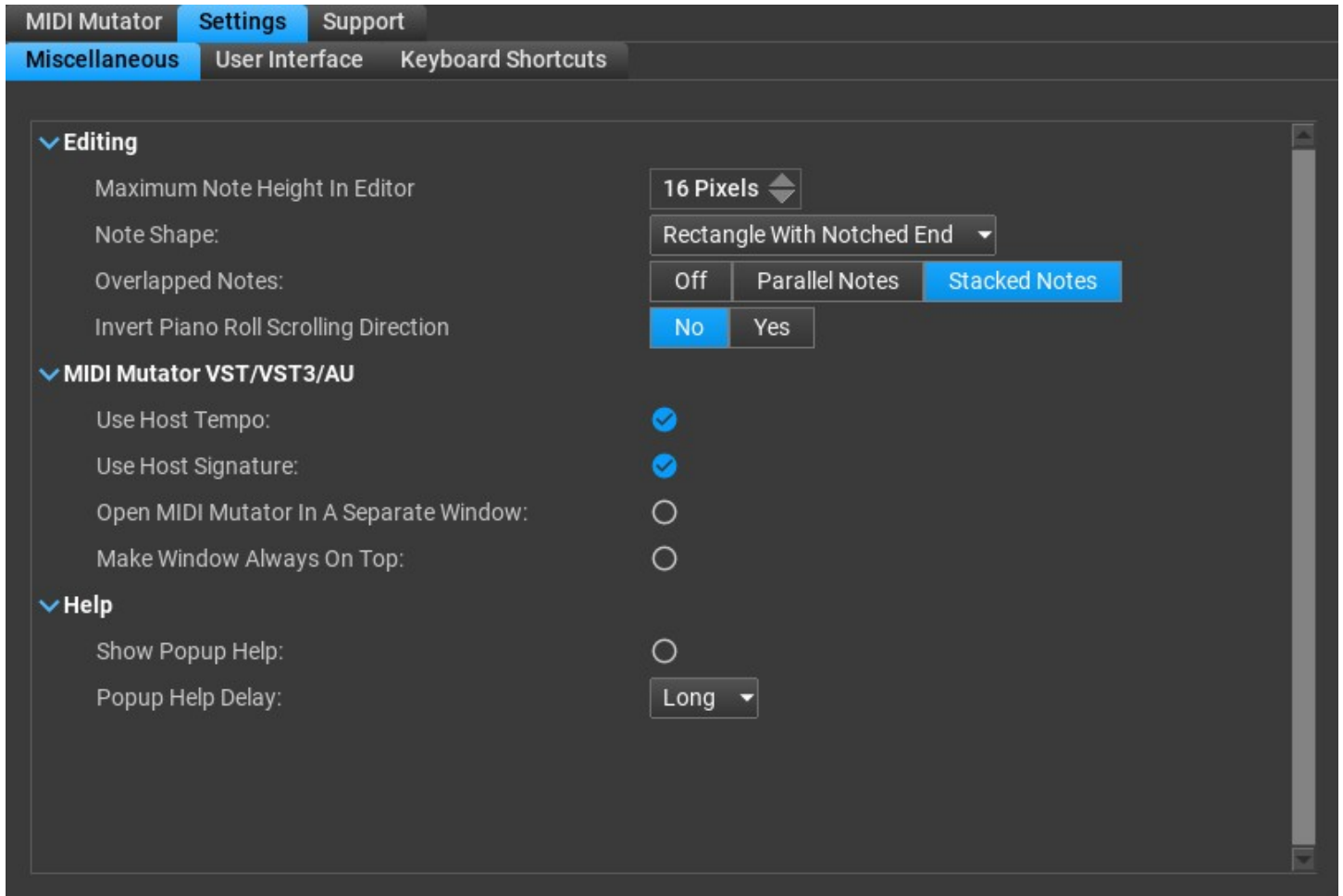
Other 'Shape' options:



- **Add/remove notes:** add a 3<sup>rd</sup>, 5<sup>th</sup> or 7<sup>th</sup> note below the bottom note or above the top chord note.
- **X Lowest:** delete the bottom/lowest chord notes
- **X Highest:** delete the top/highest chord notes
- **Randomize pitches:** add a random scale steps (or semitones) to a few notes. Set up the possible notes for a click on the three dots button.
- **Contour:** Contour transformation, scale the note pitches. This works on monophonic phrases only
- **Flatten contour:** Makes the notes shape smoother. Sometimes it is not possible to further flatten.
- **Add connecting notes:** Insert 'connecting' notes between melody/bass notes, to make a smoother transition from one note to the other. You can set connection direction too.
- **Remove short notes:** Remove notes shorter than the threshold

# Settings

Accessing the program global settings is possible by clicking on **Settings** in the top bar:



## Miscellaneous

Explanations for the various settings on this page:

### Editing

- **Maximum Note Height In Editor:** You can zoom the piano roll by Ctrl-drag or Ctrl-mouse wheel, and this setting provides the maximum height of a piano roll note.

- **Note Shape:** Specify how the notes should be displayed. Possible values: Rectangle, Rectangle With Narrowing End, Rectangle With Notched End, Rectangle With Notched End At The Top
- **Overlapped Notes:** specify how overlapped notes are display. It is not a good idea to have overlapped notes. Possible values: Off, Parallel Notes, Stacked Notes
- **Invert Piano Roll Scrolling Direction:** scrolling direction can be changed for the piano roll, this may be needed on macOS

## MIDI Mutator VST/VST3/AU

- **Use Host Tempo:** The tempo is automatically synchronized with the host tempo.
- **Use Host Signature:** The signature is automatically synchronized with the host signature.
- **Open MIDI Mutator In A Separate Window:** It is possible to open the user interface in its own window, not in the window the plug-in host provides. This is a useful when there are UI rendering issues.
- **Make Window Always On Top:** The plug-in editor window will be always on top of other windows

## Help

- **Show Popup Help:** When enabled, you will see a help message when the mouse is over a UI element
- **Popup Help Delay:** The delay before a pop-up help appears when you leave the mouse over a UI element

# User Interface

**MIDI Mutator** has a very flexible user interface: you can change colors, adjust font sizes, button shapes, shading and import/export UI themes. We won't list all the color settings here.

# Keyboard Shortcuts

A keyboard shortcut is assigned to most operations. You can re-assign shortcuts, or display them as an HTML page.

# Support

Version and build date is displayed on this page. You can check for updates or send bug reports, or open the on-line user guide in your web browser.

## Checking for updates

Click on “Check For Updates”. If there is an update available, the program offers downloading it. **MIDI Mutator** does not start installation, and does not install anything automatically, you need to start the installer manually.

## Reporting bugs

Pressing the “Send Bug Report” button opens the standard “mailto:” URL handler on your computer. In some cases this is not configured (e.g. when using a web mail). In this case please send us your questions, suggestions and bug reports to support at musicdevelopments dot com with as much information as possible: OS version, plug-in host version, **MIDI Mutator** version, the steps required to reproduce the issue. It is useful to include a problematic preset (with .rcMMUT file extension from the folder Documents/MIDIMutator/MIDIMutator) as an attachment, because it contains not just the notes, but all the options you have set.

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