Haptic Bits Lab

MIDI Software Guide

Foreword

You should be able to use most Digital Audio Workstation (DAW) software suites that support MIDI. However, please note that web-based apps (such as *Signal* by *Vercel*) may, at the time of writing this guide, have trouble processing MIDI signals quickly enough to accurately record fast-response bits, such as the Vibration Bit and Air Bits.

In this guide, we will cover setup and usage of Waveform Free, by Tracktion. Other alternatives include the open-source project Ardour (https://ardour.org/) and Apple Garageband (https://apps.apple.com/hk/app/garageband/id682658836?ls=1&mt=12&l=en).

Initial configuration

To record and play back MIDI, follow the steps below:

1)   **Set up** your MIDI Hub to your Bit.

   a)   To enable recording, connect a MIDI cable between *OUT* on the Bit and any *Input Port (# 1–2)* on the MIDI Hub. In this guide, we will use *Input Port #1.*

   b)   To enable playback, connect a MIDI cable between *IN* on the Bit and any *Output Port (#1–10)* on the MIDI Hub. In this guide, we will use *Output Port #1.*

2)   **Sign up** (if first time) for a free Tracktion account at:
       https://www.tracktion.com/welcome/waveform-free

3)   **Sign in** (automatically on email verification) and you will automatically be taken to *My Downloadable Products*, where you can press *Download* under

the icon for MacOS, Windows, or Linux. The page can also be found at:

https://marketplace.tracktion.com/downloadable/customer/products/

4)   **Follow** the installer instructions and open Waveform Free on your device.

5)   In Waveform, press *Settings* in the top-left corner, followed by *MIDI Devices* in the left-hand pane. Enable only the output and input channels with cables connected. In our example, this would be *MIDIOUT2* and *MIDIIN2*.
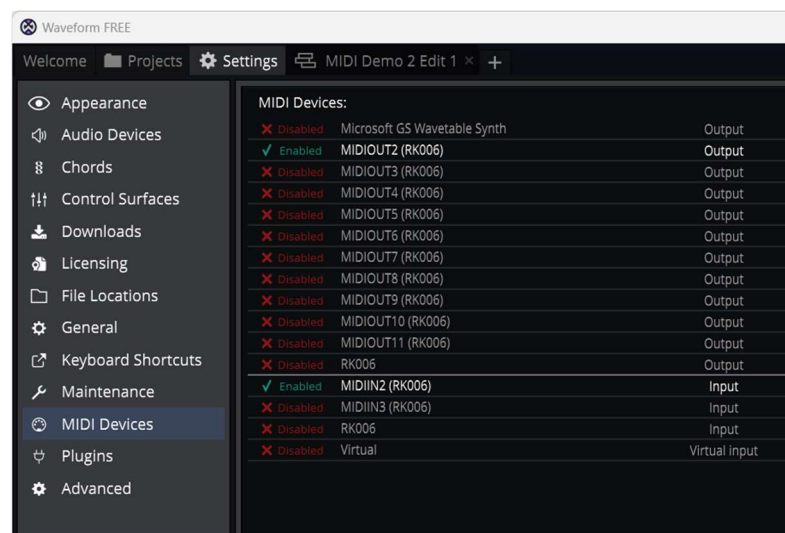

Image 1, MIDI Device Selection. Please note that the ports are represented by one number higher than what is printed on the MIDI Hub.

6)   Go to *Projects* in the top-left corner, and either press *New Project* or *Open Project* in the lower-left corner. If you're creating a new project, give it a name and press *Create Project* in the pop-up dialog window.
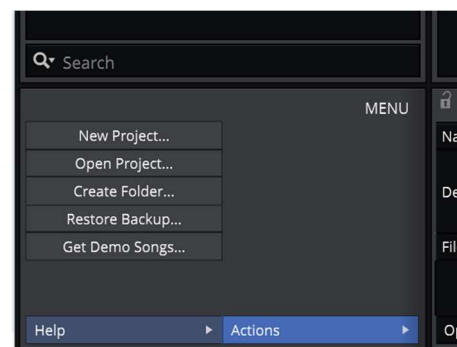

Image 2, Project choice. You can save projects for later use.

7)   **Set up input to a track** by right clicking the smaller *Input* field in one track and selecting *MIDIIN2* as the source. You can remove all other tracks by selecting them and pressing *Delete* or *Backspace* on your keyboard.

Image 3, input source choice.

8) **Set up output of the same track** by its right-hand side, right clicking the *MIDI Port Icon* and selecting *MIDIOUT2*.
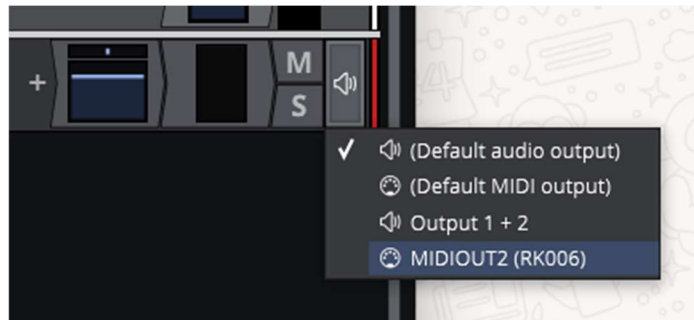

Image 4, output destination choice.

9) **Set the track height larger** and it should display all your recorded values automatically later. If not (perhaps with a low-resolution monitor) you can always make it even larger.
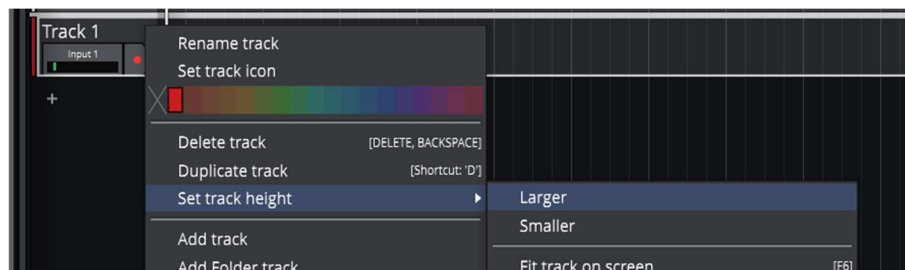

Image 5, track height choice.

10)   Activate recording of the track by pressing its small red *Recording* button.

Image 6, specific track recording button.

Recording

1)   Make sure that your *Haptic Bit* is set to the *MIDI REC* mode by rotating the rotary switch until the *RGB LED* turns red.

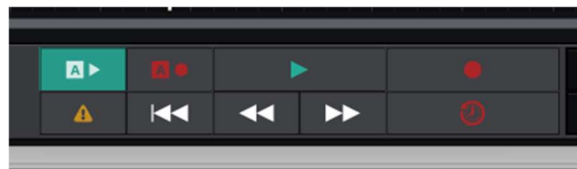2)   Press the larger red *Record* button in the lower centre of the Waveform window to start recording.

Image 7, the recording and playback pane.
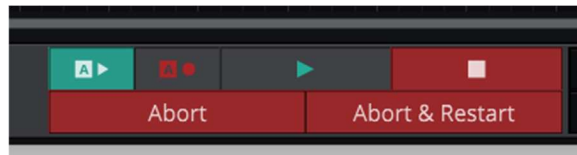
3)   Press the *Stop* button when done.

Image 8, the recording and playback pane while recording.

4)   After stopping, you should see your recorded data from MIDI Channel 1, Control Change 22, 23, and 24 (some Haptic Bits might use less numbers) on the track.

Image 9, recorded data sample.

5)   Press the 'Arrow' button in the lower left corner followed by 'File' and 'Save edit' to store your recording(s) for later use.
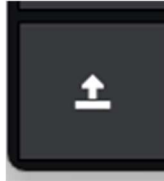

Image 10, the shortcut to the main menu.

Note A   Please note that values are recorded when they change and will be assumed to be zero until you turn a knob. This allows for greater flexibility when recording deliberate pauses. Hence, if you are creating a file for later playback, not that playback will be silent until the first value change.

Note B   You can combine multiple recordings into one longer track. You can also overwrite earlier recordings within the track.

Playback

1)   Make sure that your *Haptic Bit* is set to the *MIDI PLAY* mode by rotating the rotary switch until the *RGB LED* turns green.

2)   If you do not already have a project open, you can select one by pressing the 'Projects' tab in the upper left corner, followed by a choice form your list.
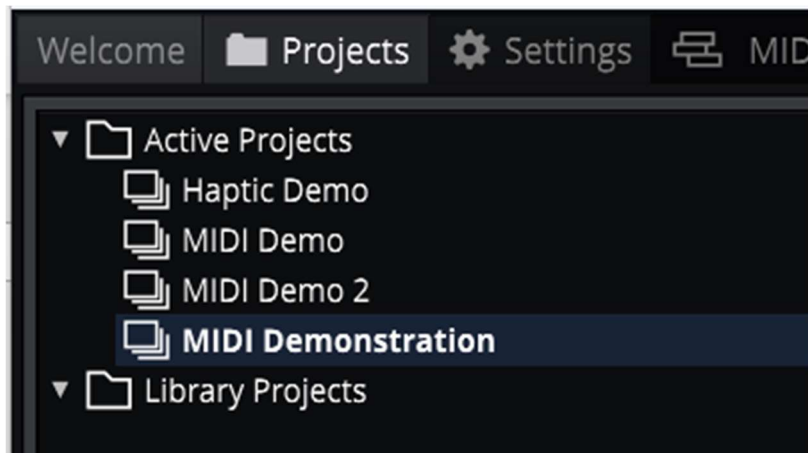

Image 11, project screen.

3)   Select where to start playing from either by using the *Navigation Pane* or placing the *Track Marker* on the timeline.
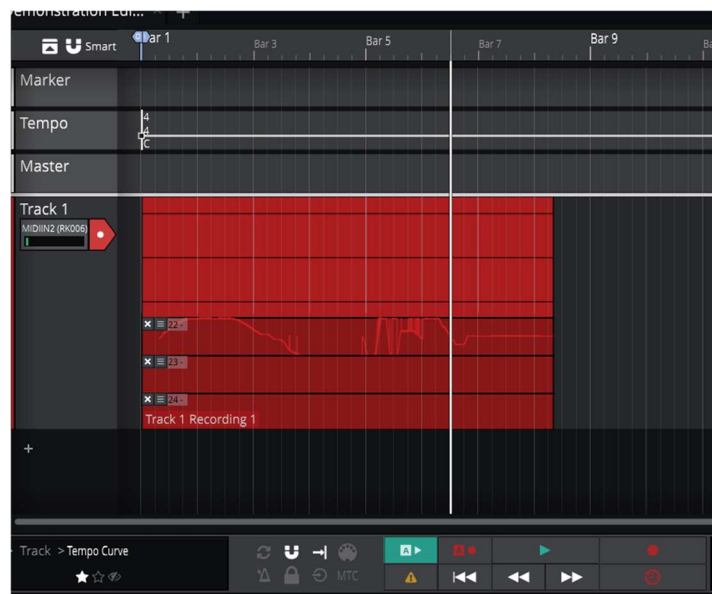
Image 12, track marker and navigation pane.

4)   Use the *Play and Stop* buttons in the navigation pane to control playback.

Note A   Some Haptic Bits come with hardware security features. For example, the Air Bit has a pressure sensor that disables inflation and/or deflation or air bags if they are full or empty. As such, unless you start your playback with the bags in the same state as they were before recording (at that same time in the track) the playback may not mimic the recording with full accuracy.

Editing

1)   Pressing 'G' on your keyboard with an empty track active or right clicking the track and selecting 'Insert MIDI 'Clip' will add MIDI tools to it. You can then add empty sub tracks for Control Change 22, 23, and 24.
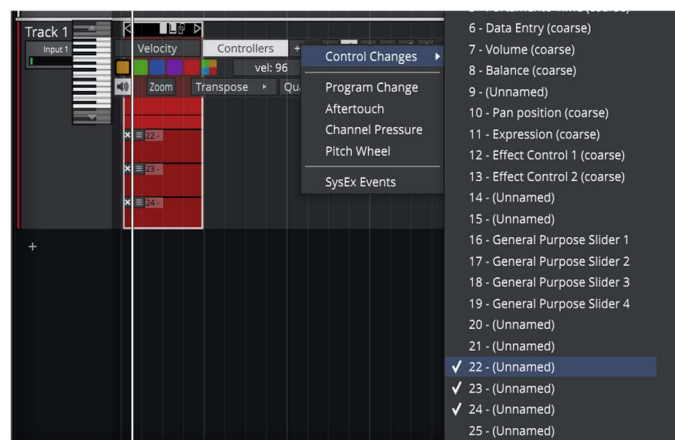

Image 13, MIDI sub menu.

2)   Use your left mouse button to draw values in the Control Change sub tracks.
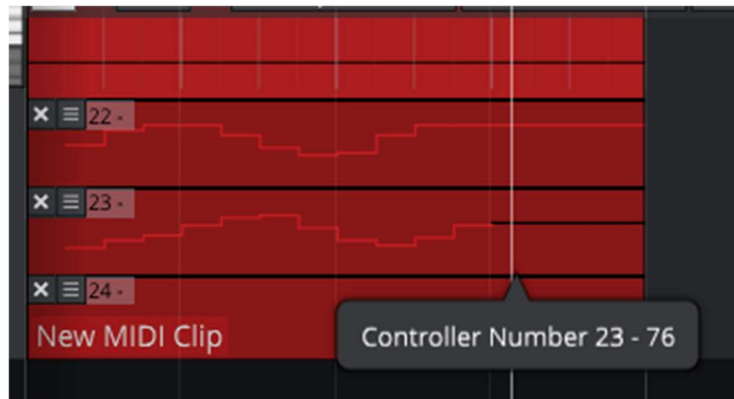
You can also overwrite previously recorded values this way.

Image 14, manual editing.