

Moby Chip v1.7.1

Operation Manual

Moby Chip v1.7.1

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1.0 Getting Started

First of all, thank you for purchasing Moby Chip.

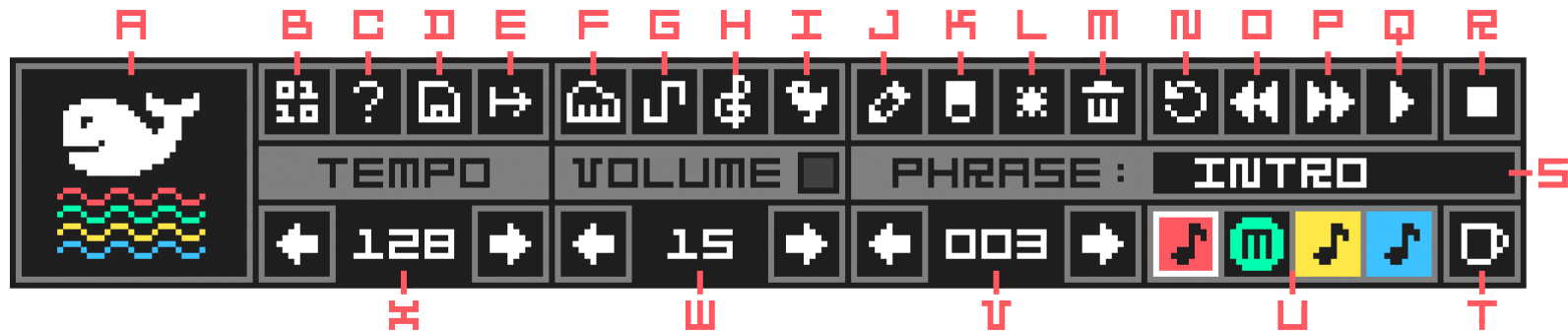
Moby Chip is a four track, easy to use, chip-tune, music sequencer. It was designed for the Apple iPad to recreate that old-school 8-bit video game sound. Each track is monophonic and generates sound from a user definable 4-bit 32 sample wavetable, or random pitched noise for drums and sound effects. The wavetable oscillators are band limited, using a proprietary algorithm, calculated in real time, and modeled somewhat after the original GameBoy's wavetable channel. Moby Chip does not use samples.

Moby Chip was design with professionals in mind. It's great for creating chip tune songs or sound effects. It has sample based timing with accurate tempos. Export options include full song or phrase with selectable tracks and four file formats: wav, AAC/m4a, caf, ringtone/m4r. Exported audio files are ready to use without editing. Drop them into your favorite App such as Ableton Live, Apple Logic Pro X, or use them in a video game. These files are exported to the Apple Files App in the "On My iPad" location in the Moby Chip folder. On M1/M2 Macs, the files can be accessed in the hidden "Library" folder (see section 11.9).

Moby Chip can be played live. Plunk out a tune on the piano/stylo onscreen keyboard with accompanying music provided by the Notes Grid (main screen) or the Song Editor. And like the music trackers of old, each note of each track can be individually edited by a long-press on a note when its track is selected. The instrument, octave, volume, glide (portamento), pan (including old-school delay stereo effect), arpeggiated chords, and trill effects, can all be adjusted per note. And one of my favorites, the Notes Grid supports triplets.

You can find in-depth information later in this manual. But don't let that keep you from jumping in and trying it out. Have fun!

--Danny Bliss
dan@binarysquare.com



2.0 Main Menu Bar

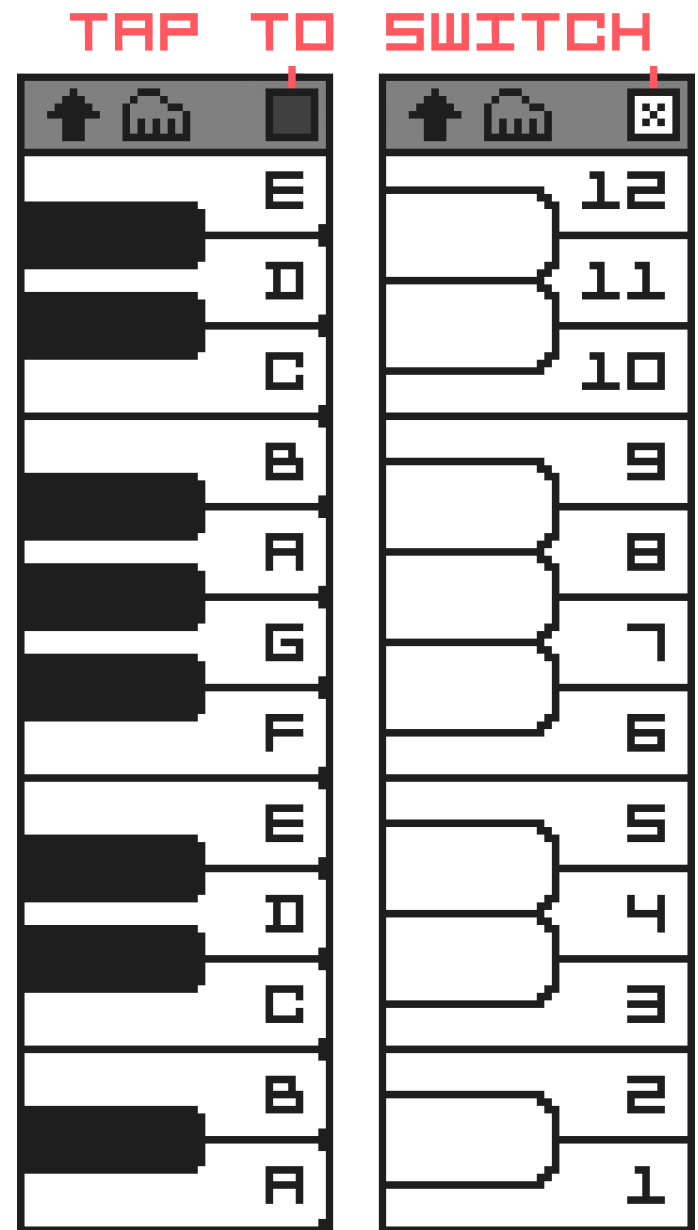
- A. **Moby Chip Logo** - Tap the Moby Chip logo once per beat to set the tempo.
- B. **Binary Square Logo** - Opens the About menu.
- C. **Question Button** - Displays this pdf file.
- D. **Files Menu** - Create, save, load, delete Moby files and export audio files (wav, m4a, caf, m4r).
- E. **Phrase Length Editor** - Adjust the length of a phrase (1-8 measures).
- F. **Keys Editor** - Edit settings for the onscreen keyboard.
- G. **Instruments Editor** - Create and edit sounds, and assign them to a track or onscreen keyboard.
- H. **Song Editor** - Sequence phrases to create a song or performance set.
- I. **Duck Button** - QUACK! (silences stuck notes).
- J. **Pencil Tool** - Add/Edit notes to the selected track.

- K. Eraser Tool** - Remove a note from the grid.
- L. Stop Note Tool** - Key down. Stops a sustained note.
- M. Trash Can** - Deletes all notes on the selected track.
- N. Playback Tool** - No looping, loops the entire phrase, loops the notes that are visible on screen, or Song Mode (plays what is defined in the Song Editor (H)).
- O. Double Left Arrow** - Moves the grid one beat to the left.
- P. Double Right Arrow** - Moves the grid one beat to the right.
- Q. Play/Pause** - Play/Pause the currently selected phrase.
- R. Stop Button** - Stop the currently selected phrase and return to the first measure.
- S. Phrase Name** - Displays the name of the currently selected phrase. Tap to edit.
- T. Coffee Mug** - Tap to copy the current phrase. Select a new phrase number. Tap again to paste.
- U. Track Select** - Select the active track to edit. Tap the selected button again to mute. Long press the track select button to launch the Defaults Editor (6.0 below).
- V. Phrase Select** - Use left/right arrows to select a phrase (1-128).
- W. Track Volume** - Use left/right arrows to adjust the volume of the selected track (0-15). Use the check box to toggle volume edit mode.
- X. Phrase Tempo** - Use left/right arrows to adjust the playback tempo (30-999 bpm).

3.0 Onscreen Keyboard

The piano/stylo keyboard uses a fifth monophonic channel separate from the Notes Grid. Tap the check box to switch between the two types of keyboards. Tap the arrow icon to extend the keyboard. Tap the piano icon to move the keyboard to the left or right side of the screen. The keyboard features true monophonic key stacking. Try holding down a note and then tap a second one to get the idea. **Hint: It only plays one note at a time.**

Use the Keys Editor (F) to select an instrument for the keyboard and edit other things like the note's: octave, volume, glide (portamento), pan, arpeggio, and trill effects. The same settings can be adjusted on each note in the Notes Grid.



4.0 Notes Grid (sequencer)

The Notes Grid is divided into beat sections, one measure on the screen at a time. The phrase length defaults to four measures and can be changed by pressing the Phrase Length Editor (E) and adjusting the length from one measure to eight measures. The Notes Grid can be scrolled left or right using the Double Left Arrow (O) and Double Right Arrow (P).

4.1 Add Notes to the Grid

Select the track to add notes to with the Track Select (U). Choose the Pencil Tool (J) to enter add/edit note mode. Then touch a grid square to add a note of the selected color.

4.2 Edit a Note

Select the track to add notes to with the Track Select (U). Choose the Pencil Tool (J) to enter add/edit note mode. Then press and hold the note square and the Notes Editor screen will appear (details are in the next section).

4.3 Make a Note Sharp or Flat

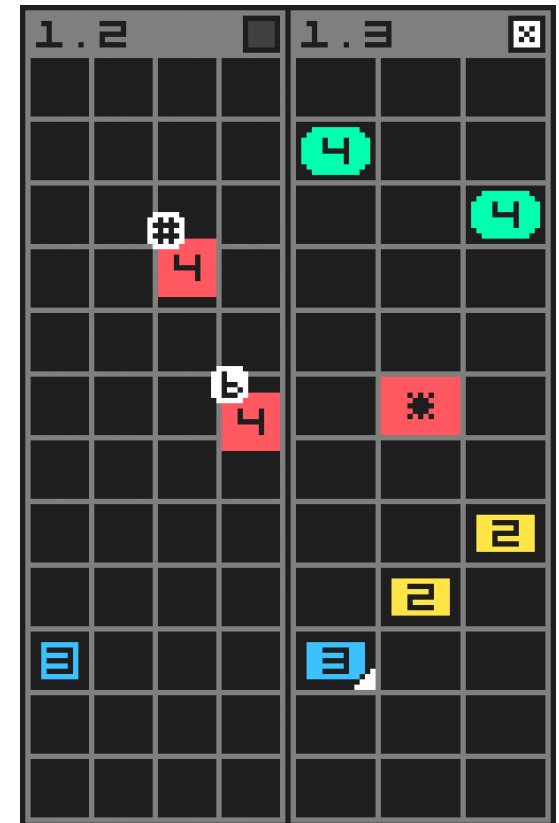
Select the track to add notes to with the Track Select (U). To make a note Sharp, swipe up on the note square. To make a note Flat, swipe down on the note square.

4.4 Delete a Note

Select the track with the Track Select (U). Choose the Eraser Tool (K) to enter delete note mode. Then press the note square to delete.

4.5 Stop a Note

Select the track with the Track Select (U). Choose the Stop Note Tool (L) to enter stop note mode. Then touch a grid square to add a stop note of the selected color.



4.6 Delete all Notes in the Selected Track

Select the track with the Track Select (U). Press the Trash Can (M). Confirm deletion with Yes or No.

4.7 Select a Triplet Grid

The Notes Grid is divided into beats with a beat count number at the top and a check box in the upper right corner. Touch the check box to toggle between triplets (3 notes/beat) and regular (4 notes/beat).

4.8 Playback Tool

The Playback Tool (N) has four states: no loop, loop the phrase, loop only what is currently visible, and Song Mode (plays back what is defined in the Song Editor (H) visually - useful for making videos).

4.9 Play, Pause, and Stop

Press the Play button (Q) to begin playback. While the phrase is playing, press again to pause. Press the Stop button (R) to stop playback and return to the first measure.

4.10 Label a Phrase

Press the Phrase Name (S) to add/edit a label for the selected phrase.

4.11 Select a Phrase

Use the Phrase Select (V) arrow keys to select a phrase (1-128).

4.12 Adjust Track Volume

Select the track color with the Track Select (U). Use the Track Volume (W) arrow keys to adjust the selected track's volume (0 -15).

4.13 Adjust Tempo and Tap Tempo Feature

Use the Phrase Tempo (X) arrow keys to adjust the playback tempo (30-999 bpm). Also, tapping the Moby Chip Logo (A) once per beat will set the tempo.

4.14 Copy and Paste a Phrase

Use the Phrase Select (V) arrow keys to select a phrase to copy. Press the Coffee Mug (T) to copy the selected phrase to the clipboard. Use the Phrase Select (V) arrow keys again to select a phrase slot to paste to. Press the Coffee Mug (T) again to paste.

5.0 Notes Editor

The Notes Editor allows modifying the sound of an individual note. Press and hold a note square while the Pencil Tool (J) is selected, and the Notes Editor screen will appear. **Hint: If the value is set to dashes, it will inherit its value from the previously edited note. If the value is set to "DEF", the note will revert to the track's default settings. The track's default settings can be changed by long pressing one of the Track Select Buttons (U) and editing the values in the Defaults Editor (6.0 below).**

5.1 Change Instrument

Use the arrow keys under the label Instrument to change sound patch (1-32).

5.2 Adjust the Octave

Use the arrow keys under the label Octave to change pitch in increments of 12 semi-tones (1-6).

5.3 Adjust Volume

Use the arrow keys under the label Volume to change volume (0-15).

5.4 Glide (Portamento)

Use the arrow keys under the label Glide to change portamento rate (0-255).



5.5 Pan

Use the toggle button under the label Pan to select stereo mode (Center, Right, Left, Delay-R, Delay-L). The options Delay-R and Delay-L will playback the Right and Left channels at full volume with one channel delayed up to 60 milliseconds for an authentic retro stereo effect. **NOTE: Delay only effects options Delay-R and Delay-L.**

5.6 Arpeggiated Chords

Use the arrow keys under the labels Chord-1 and Chord-2 to create an arpeggiated chord (0-12 semi-tones).

5.7 Trill Effect

Use the arrow keys under the label Trill to set the trill note (+/- 12 semi-tones). Use the arrow keys under the label Rate to set speed (0-15) of the trill effect based on the tempo.

6.0 Defaults Editor

Long press the Track Select button (U) to launch the Defaults Editor. It has the same settings as the Notes Editor (5.0 above) but without dashes and DEF settings. This allows modifying the default settings of each track separately. Select the "DEF" setting in any parameter in the Notes Editor (5.0 above) to revert a note's setting back to the default.

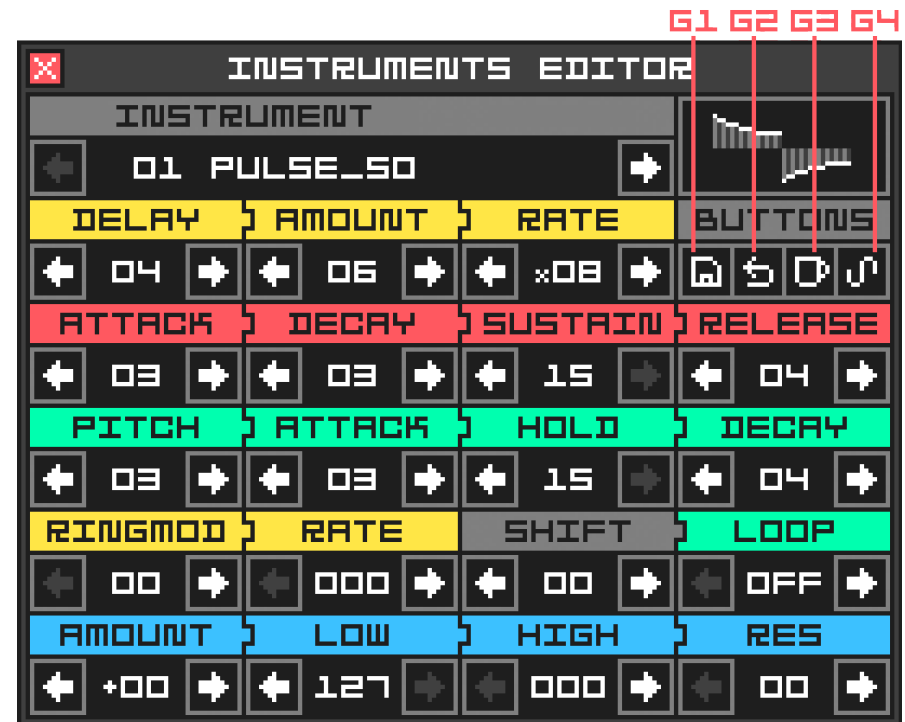
7.0 Keys Editor (F)

The Keys Editor has the same settings as the Notes Editor (5.0 above) but without dashes and DEF settings. This allows modifying the sound of the onscreen keyboard.

8.0 Instruments Editor (G)

The Instruments Editor allows the creation of a wide variety of retro sounds. Features include: Wave Editor, vibrato with delay, SID style ADSR (Attack, Decay, Sustain, Release) envelope, ring modulation, and a Pitch Envelope. **Hint: Use the onscreen keyboard to preview instruments.**

Warning: Exiting the Editor or switching Instruments without saving will reset your changes.



8.1 Select Instrument to Edit

Use the arrow keys under the label Instrument to select for editing.

8.2 Saving and Rename Instruments

Press the Save button (G1) to save changes and/or rename the selected Instrument.

8.3 Reset Instrument changes - (before saving)

Press the Reset button (G2) to restore any changes. Confirm destructive action with Yes or No.

WARNING: If the Instrument is saved, that becomes the new default.

8.4 Copy and Paste Instruments

Use the arrow keys under the label Instrument to select the source. Press the Coffee Mug button (G3) to copy the Instrument to the clipboard. Again, use the arrow keys to select the Instrument destination. Then press the Coffee Mug button (G3) again to paste.

8.5 Edit the Wavetable

Press the Wave Editor button (G4) to launch the Wave Editor (details are in the next section).

8.6 Adjust Vibrato

Use the arrow keys under the labels Delay, Amount, and Rate to adjust the vibrato. Delay (0-15) is the time before the vibrato starts. Amount (0-15) is change in pitch. Rate (0-15) is speed based on the tempo.

8.7 Adjust the Pitch

Use the arrow keys under the label Shift (-12 to +12 semi-tones) to adjust base frequency.

8.8 ADSR Envelope

Use the arrow keys under the labels Attack, Decay, Sustain, and Release. This is a traditional ADSR Envelope with values (0-15) based on the timing of the Commodore 64 SID chip.

8.9 Ring Modulation

Use the arrow keys under the labels RingMod and Rate. RingMod (0-15) adjusts the amount of the effect. Rate (0-255) is the frequency.

8.10 Pitch Envelope

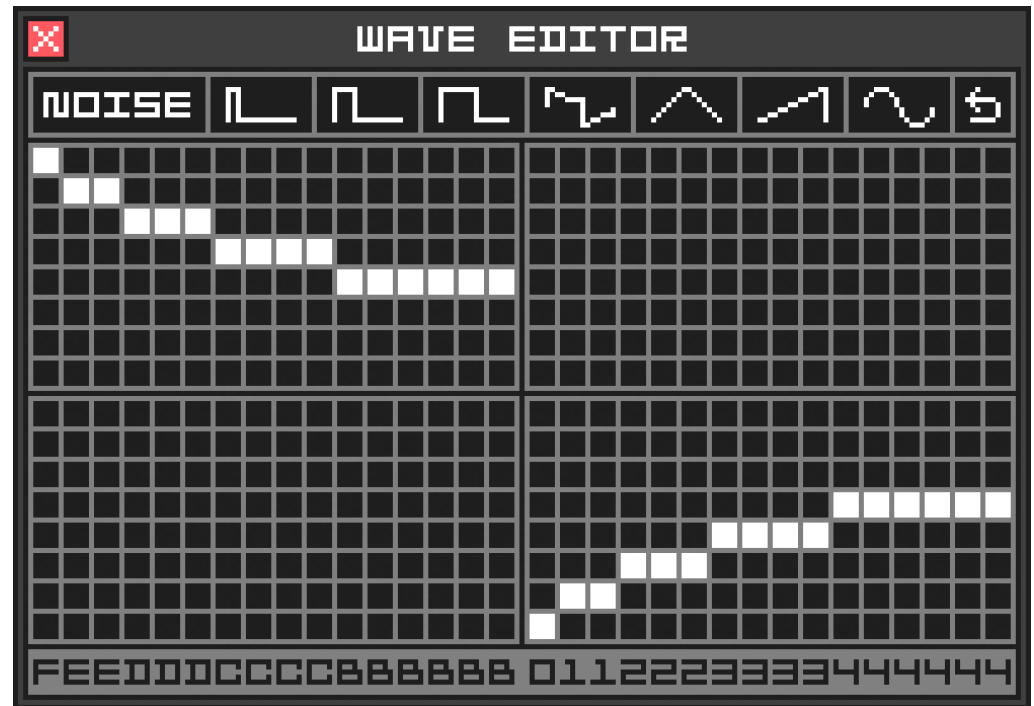
Use the arrow keys under the labels Pitch, Attack, Hold, Decay. Pitch (-48 to +48 semi-tones). Loop makes the pitch envelope repeat endlessly.

8.11 Low Pass and High Pass Filters

Use the arrow keys under the labels Amount, Low, High and Res. Amount (-10 to +10) adjusts the ADSR Envelope's influence on the low pass and high pass filters. Low (0 -127) adjusts the low pass filter cutoff frequency. High (0 -127) adjusts the high pass filter cutoff frequency. Res (0 - 64) adjusts the resonance of both filters.

9.0 Wave Editor (G4)

To open, press the Instruments Editor button (G), then press the Wave Editor button (G4) to launch. The Wave Editor allows drawing 4-bit 32 sample wavetables, and features the following presets to start with: pitched noise, 12.5% square, 25% square, 50% square, modified square, triangle, sawtooth, and a sine wave.



9.1 Selecting Preset Wavetables

Press one of the buttons on the top of the wavetable drawing grid.

9.2 Reset Wavetable - (before saving)

Press the Reset button in the top right corner to reset the wavetable.

9.3 Draw a Custom Wavetable

Touch or draw in the grid area to create a custom wavetable. After exiting the Wave Editor, the new wavetable will appear in the top right corner of the Instruments Editor.

Warning: Exiting the Editor or switching Instruments without saving will reset your changes.

10.0 Song Editor (H)

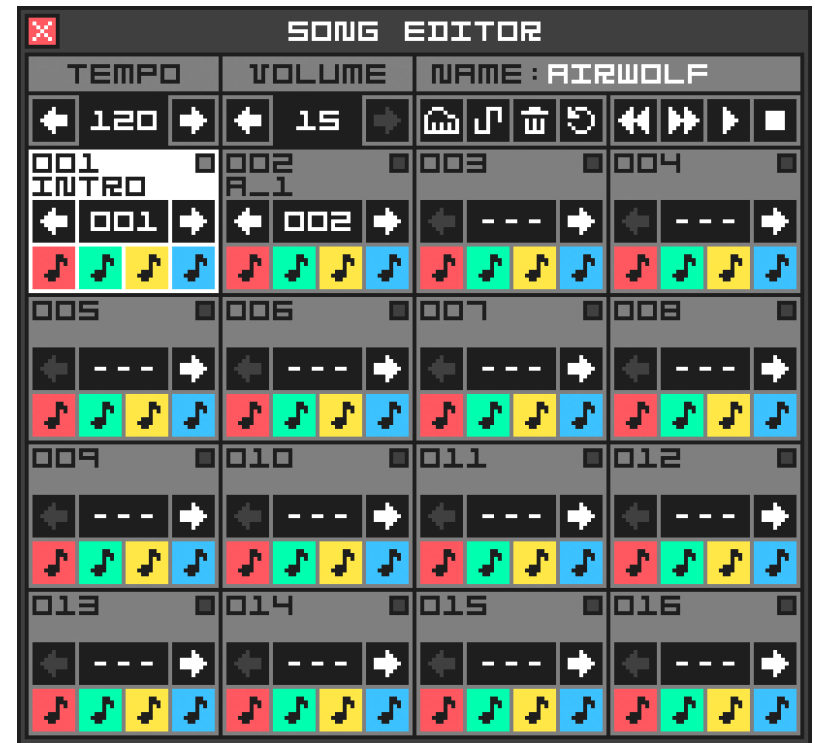
The Song Editor allows the creation of a full song or performance set. It's made up of 16 pages of 16 slots. Each slot represents a phrase. Each slot displays its position number, phrase name, phrase number, and a mute button for each track. The song will end when it comes to an empty slot.

10.1 Adjust Song Tempo and Tap Tempo

Use the Song Tempo arrow keys to adjust the playback tempo (30-999 bpm). Also, repeatedly tapping the Moby Chip Logo (A) acts as a tap tempo button.

10.2 Adjust Song Volume

Use the Song Volume arrow keys to adjust the song's volume (0 -15).



10.3 Keys Editor and Instruments Editor

Press the Keys Editor button or the Instruments Editor button.

10.4 Delete Song Page

Press the Trash Can to delete the song data on the currently selected page. Confirm destructive action with Yes or No.

10.5 Loop Song

Press the Loop Song button to endlessly repeat. The song will repeat at the first empty slot.

10.6 Select Song Page

Use the Double Left Arrow and Double Right Arrow to scroll through the song pages (0-16).

10.7 Play, Pause, and Stop (Song)

Press the Play button to begin playback. While the song is playing, press again to pause. Press the Stop button to stop playback and return to the first song slot.

10.8 Change up the playback order in real time

Press the top bar of a song slot to select (indicated by a flashing square). When the currently playing song slot is finished, it will jump to the selected song slot. Press the top bar of a selected song slot to deselect. **Hint: A selected song slot will continue to repeat itself until deselected or another song slot is selected.**

11.0 Files Menu (D)

Moby Chip song data is saved as a Moby file. This includes all instrument data, song data, phrase data, track data, and note data in one file. Songs and phrases can also be exported as audio files in wav, m4a, caf, and m4r. These files can be accessed outside the Moby Chip App in the Apple Files App or accessed through iTunes File Sharing or in the Finder (MacOS 10.15 and newer). On M1 Macs, the files can be accessed in the hidden "Library" folder (see section 11.9). **Hint: Use these methods to regularly backup data files.**

11.1 Create a New Song

Press the New button. Confirm data overwrite with Yes or No.

11.2 Save all Data to a Moby file

Press the Save button. The Keyboard will appear. Type in a file name



and press the Long Arrow button in the bottom right. The file will save. If the file name already exists, confirm data overwrite with Yes or No.

11.3 Load a Moby file

Press the Load button. Then select a file by touching the file's name. Then press Load Song. Confirm data overwrite with Yes or No.

11.4 Load Instrument Data only - (from a Moby file)

Press the Load button. Then select a file by touching the file's name. Then press Load Inst. Confirm data overwrite with Yes or No.

11.5 Delete a Moby file

Press the Load button. Then select a file by touching the file's name. Then press Delete. Confirm data deletion with Yes or No.

11.6 Export a Phrase

Press the Export button. Then select the Phrase option, choose the phrase number with arrow buttons, select which tracks to mute, then pick an audio format (wav, AAC/m4a, caf, ringtone/m4r), select Trim to remove silence from the end of an audio file (useful when exporting sound effects) or choose Loop to perfectly fit the end to the beginning. Then press the Long Arrow button in the bottom right. If the file exists, confirm data deletion with Yes or No.



11.7 Export a Song

Press the Export button. Then select the Song option, select which tracks to mute, then pick an audio format (wav, AAC/m4a, caf, ringtone/m4r), select Trim to remove silence from the end of an audio file (useful when exporting sound effects). Then press the Long Arrow button in the bottom right. If the file exists, confirm data deletion with Yes or No.



11.8 Reset Example Files

Press the Reset button to delete and reload all of the example .moby files. Confirm data reset with Yes or No. This will permanently revert any changes made to the example .moby files. This cannot be undone. Backup your files first. This will also restore any example .moby files that have been deleted.

Hint: This reset only affects the included EXAMPLE .moby files.

11.9 M1/M2 Macs - Locating Files

Open the Finder App and select your home/user directory in the Finder's Sidebar (⌘⇧S). Next, choose "View", "Show View Options" (⇧J), and then check the box next to "Show Library Folder". After that, navigate to /Library/Containers/Moby Chip/Data/Documents. Here you will find all of your files.

Note: This only works on M1/M2 Macs with Moby Chip installed.

12.0 Phrase Length Editor (E)

Use the arrow keys to change the Phrase Length (1-8 measures).



13.0 Volume Edit Mode

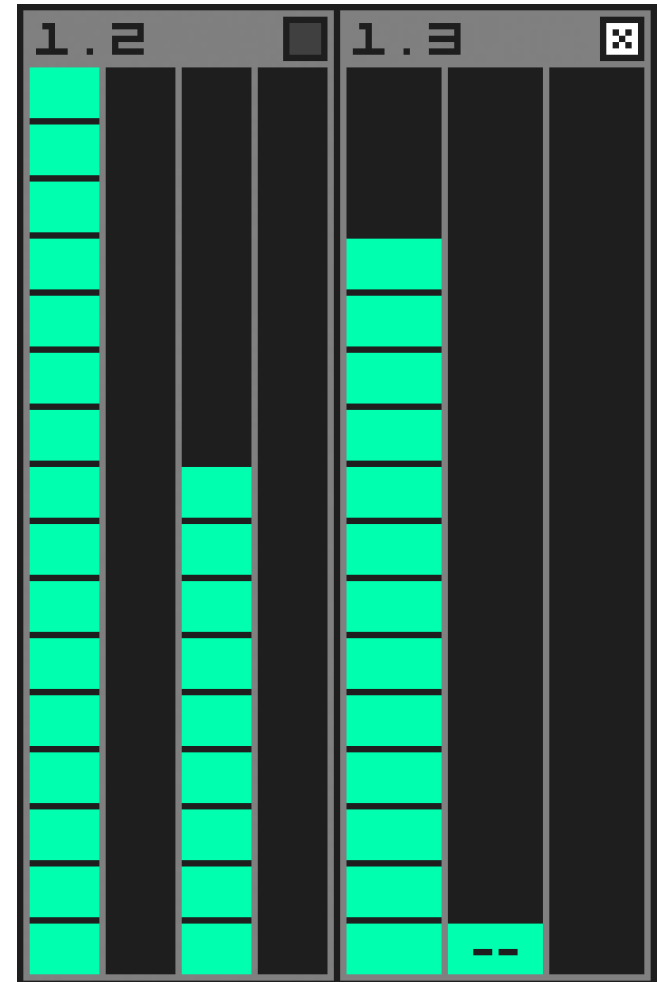
Tap the check box next to the Track Volume (W). Use the Track Select (U) to choose a track. Move the sliders to adjust the note's volume. **Hint: Only columns with notes will show a volume slider.**

14.0 MIDI Keyboard Support

Moby Chip supports basic MIDI through the Lightning/USB-C port. **Hint: It's only monophonic like the virtual touch keyboard. Click the duck to silence stuck MIDI notes.**

15.0 Contact Support

Feel free to contact me with any questions at dan@binarysquare.com.



GUI and DSP Created by Danny Bliss



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