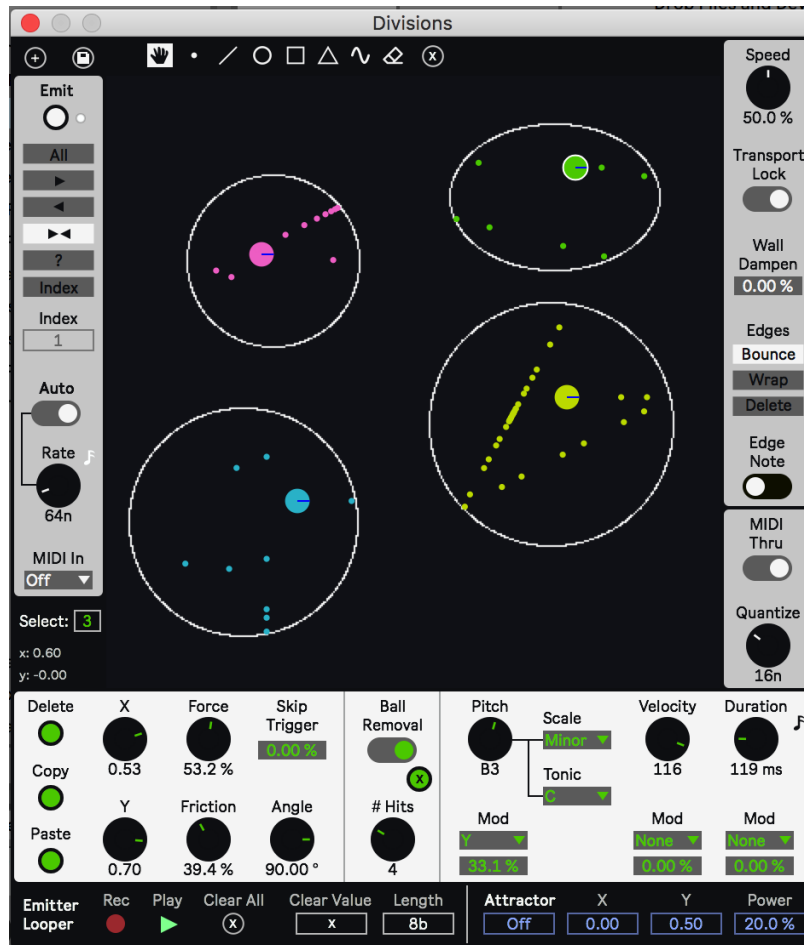# Divisions User Manual



## To install:

Unzip the folder and drop the folder called "Divisions" in this exact location in order for presets to load correctly: *ableton/user library/presets/midi effects/max midi effect*

For best results or if you are having issues, make sure you are using the latest version of max/msp. You do not need to have a license if you are using Live suite. Download the newest version here: https://cycling74.com/downloads and once downloaded go to the ableton Preferences > Library and set the newly downloaded version of max to the one ableton should use. (Also you can try to see if it works fine with your bundled version first).

## Synopsis

Divisions is a MaxForLive MIDI Effect. Use various drawing tools to draw walls that balls can bounce off of. You can create up to 32 emitters to launch balls with different settings. When a ball bounces off of a wall, a MIDI note is output based on the settings of its emitter. Use Divisions to create various different MIDI effects in a less conventional way! Whether a sequencer, arppeggiator, melody/counter point/chord generator, note delay, and whatever else you come up with!

At the top of the device there are several functions and tools. On the left side There is a "+" button which adds a new emitter. The disk button next to that saves the current state (position and velocity) of every ball that was emitted. This is useful for recalling an identical state at the moment of saving upon reloading a saved set or preset. To the right are the cursor modes. The Hand mode allows for selecting and moving emitters and the attractor (explained later). Holding shift and dragging an emitter cause it to rotate its angle of where it launches a ball. The other cursor modes are drawing tools for drawing walls. The dot is a free hand tool, there is also a line tool, shape tools for ellipse, rectangle, triangle, and sine wave. Holding shift while drawing any of the shapes causes them to lock to an even shape such as a circle, square, and equillateral triangle. The shapes also have parameters for rotation. The sine wave has settings for its starting phase and frequency. Next there is an eraser with a size option. To the right of the drawing tools is a button for clearing all drawn walls.
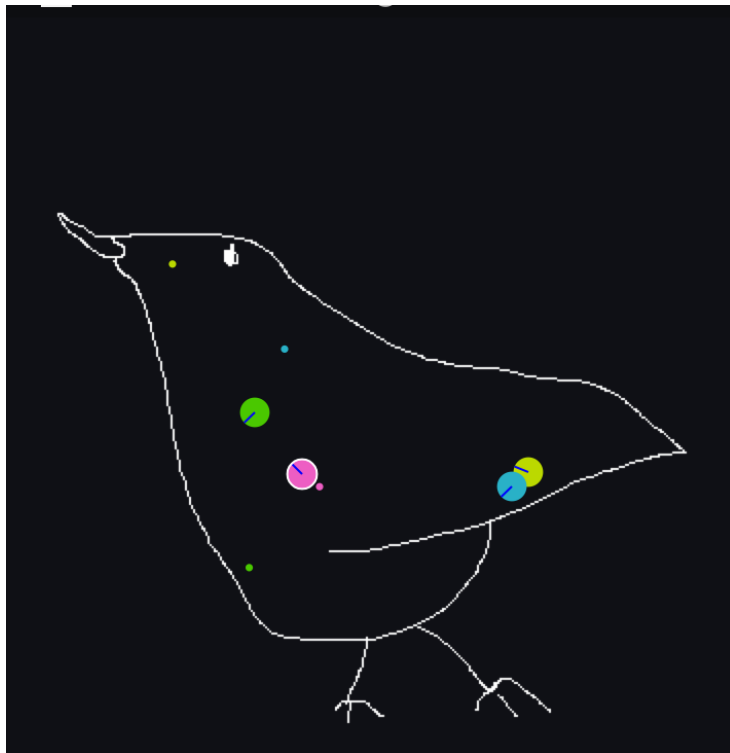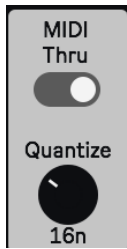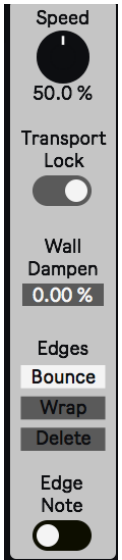


In the central area walls, emitters, and balls are displayed. In this example there is a drawn bird which are the walls the balls bounce off of. The emitters are the larger colored circles. The black line on them indicates the direction that they launch their balls.
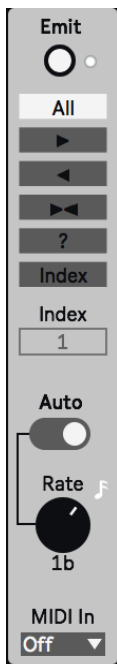


On the left side is a menu for triggering an emitter to launch a ball. The top Emit button triggers an emission manually. Below the button are the modes for which emitter is targetted. All triggers all emitters, the direction arrows cycling through the emitters forward, backward or foreback. "?" chooses a random emitter, and Index only triggers the emitter index selected by the Index parameter below. Below this is an Auto emit mode where an emission is triggered at a set rate. At the bottom is a dropdown menu with options for incoming MIDI note messages. Off causes MIDI note messages to have no effect on triggering. "Trig" causes note on messages to trigger an emitter. The "Hold" mode makes it so that a note on message triggers a ball and a matching note off message releases the ball. In this Hold mode all other triggering and removal of balls is ignored.

On the right side is a menu with various options. At the top is the Speed or framerate of the simulation. Transport Lock causes the simulation to run only when Live's transport is running. Wall Dampen cause the balls to lose speed or force each time a wall is hit. The higher the percentage the more it will slow down the ball. Edges chooses the behavior for when a ball hits the edge of the screen. Bounce causes it to bounce off, wrap causes it to wrap around and delete removes the ball. Edge Note allows for MIDI notes to also be output when the ball hits the edge of the screen.

Speed

50.0 %

Transport
Lock

Wall
Dampen
0.00 %

Edges
Bounce
Wrap
Delete

Edge
Note

MIDI
Thru

Quantize

16n

Just beow that menu is a couple of parameters for output settings. MIDI Thru allows incoming MIDI notes to be passed through. Quanitze quantizes the outgoing MIDI notes from the ball collisions.

Select: 1

x: 0.77

y: -0.68
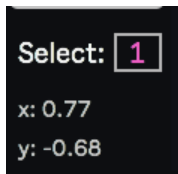
In this section there is a parameter for selecting an emitter without using the cursor mode. This could also be mapped.

| Delete | X | Force | Skip Trigger | Ball Removal | Pitch | Scale | | Velocity | Duration |
|--------|-----|-------|--------------|--------------|-------|-------|--|----------|----------|
| ⬤ | ⬤ | ⬤ | 0.00 % | ⬤ | ⬤ | Chrom ▼ | | ⬤ | ⬤ |
| Copy | -0.16 | 50.0 % | | ⊗ | C1 | Tonic | | 120 | 500 ms |
| ⬤ | Y | Friction | Angle | # Hits | | C ▼ | | | |
| Paste | ⬤ | ⬤ | ⬤ | ⬤ | Mod | | | Mod | Mod |
| ⬤ | -0.23 | 0.00 % | 315.00 ° | 8 | None ▼ | | | None ▼ | None ▼ |
| | | | | | 0.00 % | | | 0.00 % | 0.00 % |

These are the parameters for the currently selected emitter. Delete removes the emitter. Copy and Paste allow you to copy settings from one emitter and paste them to another. There are X and Y position settings. You can set the force that the emitter launches the ball and the friction amount that slows the ball down. Skip Trigger states the chance that the emitter will skip launching a ball when triggered. Angle sets the direction of the launching. There are two Ball Removal modes. One is removing the ball after a set number of Hits, and the other is removing a ball after a set time interval. On the right are the settings for the output MIDI note. There is the Pitch, Velocity and Duration. Each of these can take a modulation source for changing the value, with a bipolar modulatino depth underneath. The modulation source options are: None, X and Y positions (for example if pitch was modualted by Y, then the Y position or height of the ball upon colliding with a wall will change the pitch), Mag or distance from center, Speed, Angle, Index (this is the index of the ball itself, for example if there were 10 balls, then ball number 5's index modulation value would be 0.5 at 100%), and Hits (only works if Ball Removal is in Hits modes). For the pitch there are also scale and tonic options.
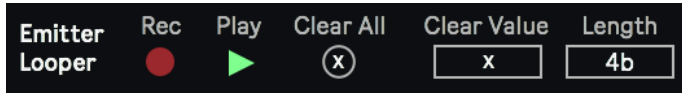
The bottom left section is for an Emitter Parameter Looper. This exists because **EMITTER PARAMTERS CANNOT BE MAPPED TO CONTROLLERS AND RACKS NOR AUTOMATED!** This is because there would have to be 32 instances of each emitter parameter to do that and it would cause very long loading times! To compensate a bit for this we have this internal automation looper. You can set the Length of the looper and any Emitter parameter changes will be recorded and looped if the Recording is on. This only loops emitter parameter changes and nothing else! You can clear all recordings if you'd like, or you can use Clear Value to clear an individual parameter change that was recorded. To do that, enable Clear Value and then just change the parameter value of the parameter you desire to clear the recording of.

To the right of the looper is an attractor/repeller. When enabled, it is added to the simulation as a purple-blue circle. The attrctor pulls balls towards



it, unless the Power parameter is in negative percentages in which cause it repels balls. The Power also sets the strength of the force. You can set its X and Y position here or with the Hand cursor mode.
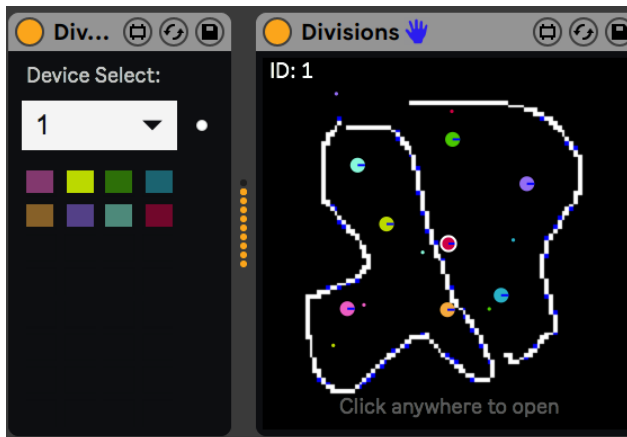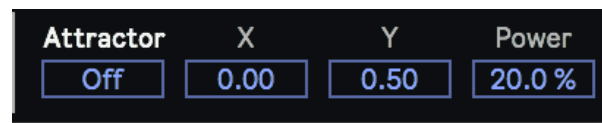


Lat to mention is the Divisions Listener device that comes with it. This device is not necessary to use for general use. However, if you'd like to send MIDI notes to another track from only one of the emitters, then you can use the Listener. The Listener allows you to select to receive from an instance of Divisions (chosen based on the Device ID, in this example it is ID "1") and choose a single emitter from that instance to receive notes from (the colored squares). This way you could use one instance of Divisions to control several different instruments with each emitter!

I hope you enjoy this device! Please email me if you have bugs or other issues:
dillonbastan@gmail.com
**More:** http://dillonbastan.com