cableguys

MidiShaper

Manual

v1.6

Contents

Welcome to MidiShaper

Cableguys MidiShaper is a powerful MIDI modulation plugin that enables you to take deep control of your external hardware synths, drums machines, samplers, effects and even lighting rigs, as well as MIDI-enabled plugin instruments, effects and music applications on your Mac or PC.

Four independent modulation Sources each comprise an LFO and an Envelope Generator, the combined outputs of which can be routed to multiple target parameters by variable amounts. MidiShaper's freely editable LFOs let you design waveforms, from simple to complex, using a set of intuitive editing tools, combining straight lines and smooth curves. MIDI-triggered Envelope Generators provide another input-responsive layer of modulation and control, further expanding the creative possibilities.

System Requirements

Windows
Windows 7, 8, 10 or 11
VST2 or VST3 host DAW
64-bit

Mac
Mac OS X 10.13 or later
Intel or Apple Silicon processor
VST2, VST3 or AU host DAW

Works with Ableton Live, Logic Pro, Cubase, Bitwig Studio, FL Studio, REAPER, Studio One, and many other DAWs that support VST2, VST3 or AU.

Installation & Licensing

Please refer to the online Cableguys Installation Instructions.

Setting up MidiShaper to control an external instrument or effect

To use MidiShaper as a Continuous Controller (CC) modulation source for your external hardware synthesizer, sampler, drum machine or effect, you just need to insert it as an audio effect on any track, then select the MIDI Out port and Channel to which your hardware is connected in the **Output** and **Channel** fields.

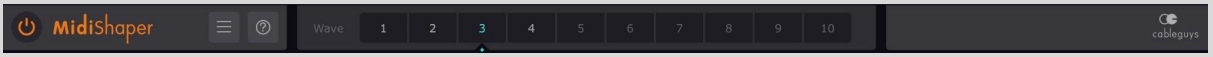
Setting up MidiShaper to control a plugin instrument or effect

MidiShaper can be routed to any plugin instrument or effect capable of receiving MIDI Continuous Controller (CC) input. How complicated this is to set up will depend on the way your DAW handles internal MIDI routing and automation: some, such as Ableton Live and Reaper, make it very easy, while others – Logic Pro, most notably – involve rather more steps. The MidiShaper Routing Setup Guide section at the end of this manual provides detailed instructions for a number of popular DAWs:

- Ableton Live
- Apple Logic Pro
- Bitwig Studio
- Image-Line FL Studio
- Native Instruments Maschine
- PreSonus Studio One
- Steinberg Cubase

Reference

Top Bar



The Top Bar houses the Bypass and Wave Selector controls, Main Menu and Wave-Editing Quick Guide toggle.

- **Bypass:** Enable and disable MidiShaper.
- **Main Menu**: Access various preferences and settings. See below for details.
- **Wave editing quick guide**: Click the **?** icon to open the wave editing quick guide, which lists the point creation and modification options available in the wave editor.
- **LFO Wave Selector**: Select any of the ten LFO waveforms for editing in the **LFO Wave Editor**. The dotted indicator and colored highlight show which wave is currently selected.

Main Menu

- **Preset**
  - **Load FXP**: Browse to and load a stored preset in FXP file format.
  - **Save FXP**: Save the current preset to your hard drive as an FXP file, for storage and sharing.

- **Scaling**
  - **75-200%**: Scale the MidiShaper GUI up or down to suit your monitor resolution. Only Scaling percentages that won't exceed your display resolution are made available – the rest are grayed out.

- **Settings**
  - **Use OpenGL Graphics (Windows only):** Enable this for improved UI performance. We recommend leaving it off, however, as it comes with a couple of caveats:
    - Due to a bug in some graphics drivers, using OpenGL may at some point result in graphical problems within the plugin's interface. If this happens and you cannot access the Main menu any more, please see our **FAQ page** to find out how to disable OpenGL for the plugin.
    - Ableton Live may freeze when its Spectrum device is enlarged while the ShaperBox interface is open.

- **Help**
  - **Show Help**: View a Quick Guide to MidiShaper's wave editing controls and more.

- **Open Web Manual and Tutorials**: Access this manual and tutorials.
- **Check for Updates**: Ensure your MidiShaper is up to date.
- **System Information**: Opens a detailed description of your system setup for information and support purposes. Click the **Copy** button to copy the System Information to the system clipboard.
- **Change License**: Switch your current MidiShaper license for a different one.

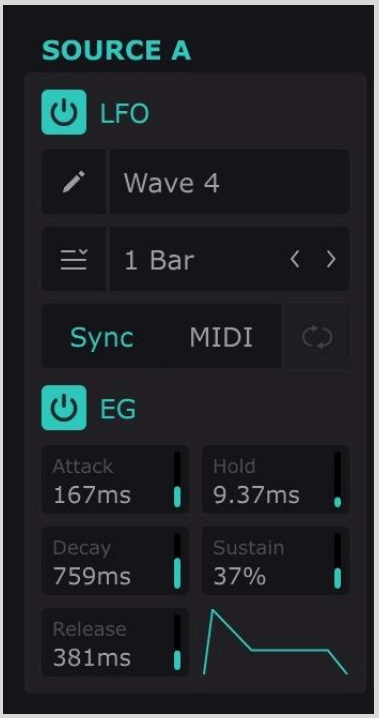
Help Bar

At the bottom of the GUI, the Help bar serves as a quick reference guide directly within the plugin. The information it provides depends on what you place the mouse pointer over:

- **Controls**: A brief description of the control, including available settings where applicable.
- **Preset waveforms**: The name of the preset waveform.
- **LFO waveform point**: The position of the point on the graph, from 0 to 1 on the X axis and -1 to +1 on the Y axis.

Sources

MidiShaper's four Source modules each house an LFO and an Envelope Generator, and are independently assigned in the **Modulation** section to output Pitchbend, Aftertouch and Mod Wheel data streams, as well as up to six simultaneous MIDI CCs.

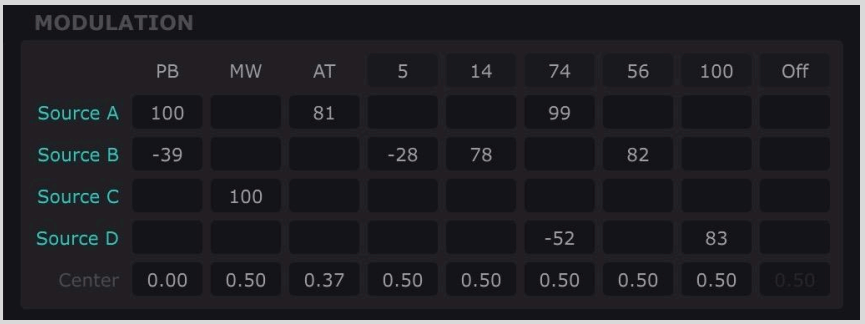


- **LFO On/Off**: Activate and deactivate the LFO for this Source. When LFO and EG are both active for a Source, they are multiplied together, so the EG controls the LFO's intensity over time.
- **LFO Wave Selector**: Select any of the ten LFO waveforms drawn in the wave editor, or **Noise**, which outputs random values at the **Update Rate**.
- **Show Waveform:** Click the pencil icon to switch the Wave Editor above to show this LFO's waveform for editing.
- **LFO Length**
  - **Bars/Beats**: The LFO syncs to the host DAW's clock, looping at the **Triplet**, **Straight** or

Dotted note value or number of bars selected from the menu. Step through the menus using the **<** and **>** buttons to the right.
    - **Hertz / ms**: The LFO rate is set in Hertz (cycles per second), or milliseconds if **Loop** is set to Off. When **Hertz / ms** mode is selected, the **Speed/Length** parameter to the left of the Wave Editor becomes active, for setting the cycling LFO frequency or one-shot LFO duration. Note that in Hertz mode, the LFO is 'synced' to project position once when you hit play – this gives consistent-sounding playback from a given position.
    - **Pitch**: The LFO speed will be set to the frequency of the MIDI note played. Try it for bizarre ring modulation-style effects! When Pitch is selected, the Trigger mode switches automatically to **MIDI**, and the **Octave** field appears.
    - **Octave**: In **Pitch** mode, transpose the incoming MIDI notes by up to +/-3 octaves. Useful for AM/FM-type effects.
- **Trigger Mode**
    - **Sync**: The default mode. The LFO locks to your project's tempo and play position, and the LFO Length is set in musical units (bars and beats) or Hertz / ms – see **LFO Speed** above.
    - **MIDI**: Every incoming MIDI note triggers/restarts the LFO. The LED in the **MIDI** button illuminates whenever a note is received. MIDI notes are also routed to the target device or plugin, thereby triggering it. To trigger MidiShaper's LFOs without the MIDI also triggering the instrument it is modulating, you'll need to use a virtual MIDI port such as MIDI Yoke on Windows or the built-in IAC Driver in macOS. With MidiShaper set to output on that port, the notes it receives won't be passed on to the instrument.
- **Loop**
    - **On**: The LFO loops, but resets to the start when a MIDI note is received.
    - **Off (1-Shot)**: The LFO does not loop, but will play once when a MIDI note is received, then remain at the final value of the waveform.
- **EG On/Off**: Activate and deactivate the MIDI-triggered Envelope Generator for this Source. When LFO and EG are both active for a Source, they are multiplied together, so the EG controls the LFO's intensity over time. MIDI notes are also routed to the target device or plugin, thereby triggering it. To trigger MidiShaper's EGs without the MIDI also triggering the instrument it is modulating, you'll need to use a virtual MIDI port such as MIDI Yoke on Windows or the built-in IAC Driver in macOS. With MidiShaper set to output on that port, the notes it receives won't be passed on to the instrument.
- **Envelope Generator Controls**: Set up the timings and sustain level of the Envelope Generator. The graphic at the bottom right shows the current shape of the envelope.
    - **Attack**: When a MIDI trigger is received, the Attack sets the time it takes for the modulation signal to rise from 0 to its maximum value.
    - **Hold**: Set the amount of time that the signal remains at maximum after the Attack stage has completed.
    - **Decay**: Set the time it takes for the signal to fall to the Sustain level after the Hold stage completes.
    - **Sustain**: Set the level at which the signal rests after the Decay stage for as long as the triggering MIDI note is held.
    - **Release**: Set the time it takes for the signal to fall to 0 once the triggering MIDI note is released.

Modulation

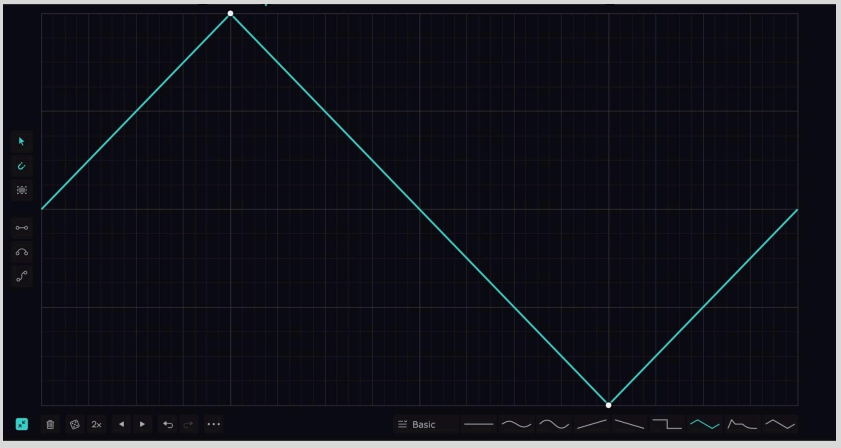
MidiShaper's four **Sources** can be assigned to modulate Pitchbend, Mod Wheel, Aftertouch and up to six additional MIDI CCs (Continuous Controllers).



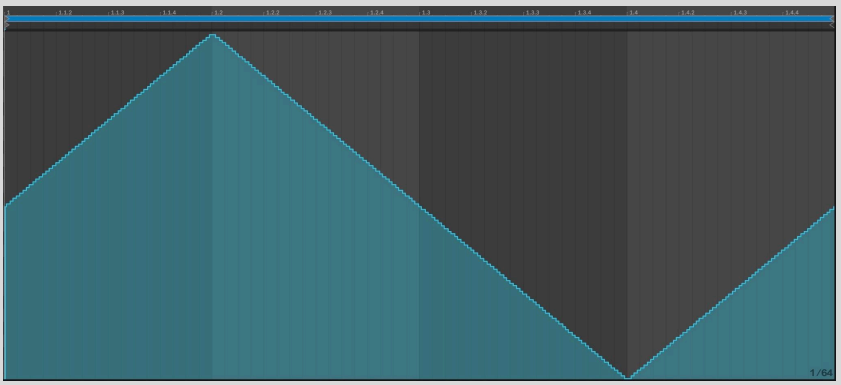
Sources and targets

Each Source is represented as a horizontal row in the modulation matrix, while each column represents a single MIDI output signal. The first three columns are 'hardwired' to the commonly modulated **Pitch**, **Mod Wheel** (CC1) and **Aftertouch** (or Channel Pressure) signals, while the other six columns are each assignable to any of the remaining 127 available MIDI CCs. To choose a CC, click the Modulation Target field at the top and select from the menu that appears. Or, use the mousewheel.

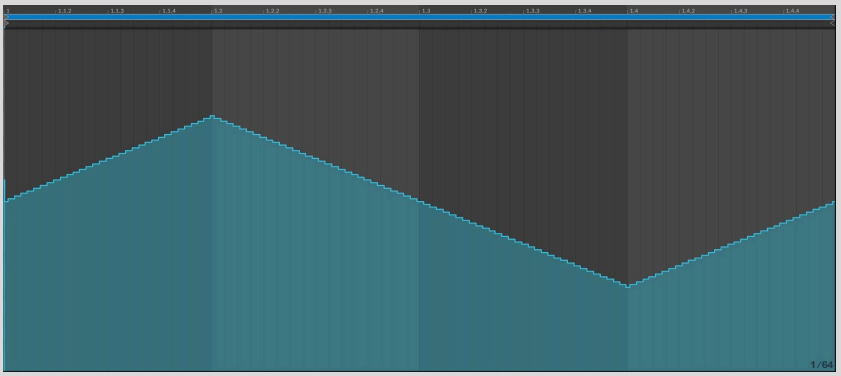
The cells specify the Amount (or 'depth') of modulation, from -100 (full inverted modulation) to 100 (full modulation), via 0 (no modulation). For 1:1 modulation – ie, so that the Y axis of the Wave Editor corresponds to the full 0-127 MIDI CC range – set the Amount to 50. For an inverted 1:1 match, set the Amount to -50. Values above and below will scale the MIDI CC output.



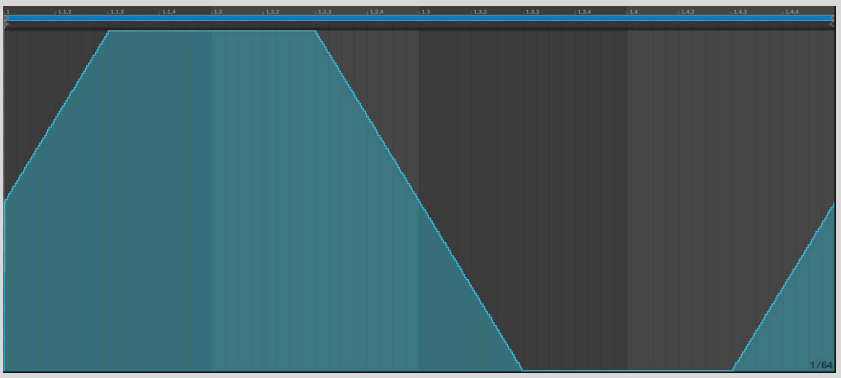
In the following examples, the above triangle waveform LFO (running at '1 Bar' **Loop Length**) has been assigned to a MIDI CC. The curve in each screenshot shows the MIDI CC output generated by MidiShaper with the stated **Amount** setting.



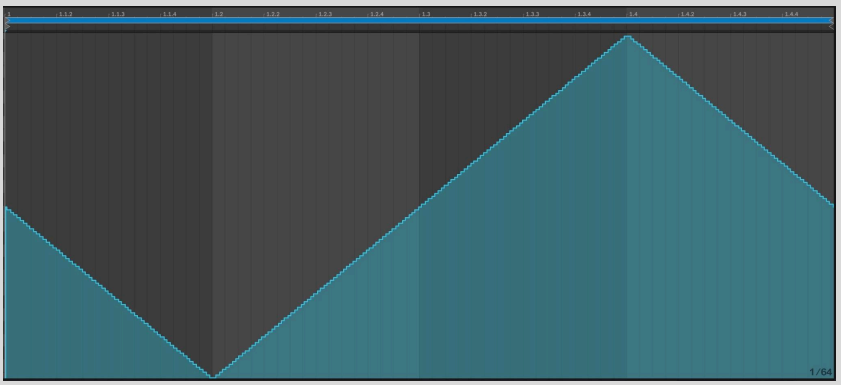
Amount 50: the MIDI CC output matches the shape of the LFO waveform 1:1, covering the full MIDI CC value range of 0-127.



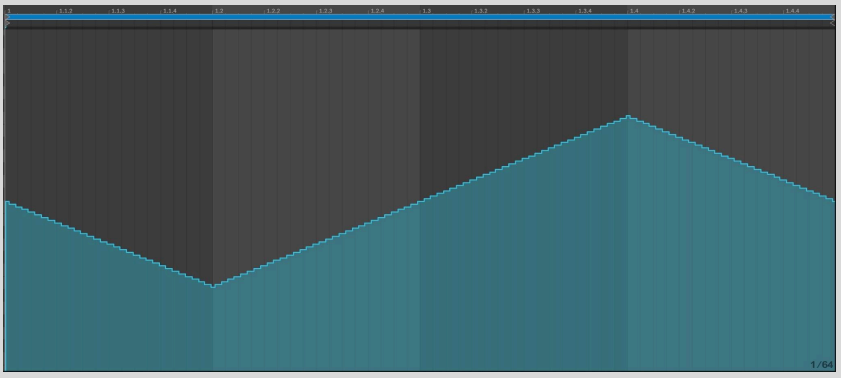
Amount 25: the MIDI CC output ‘halves’ the LFO waveform.



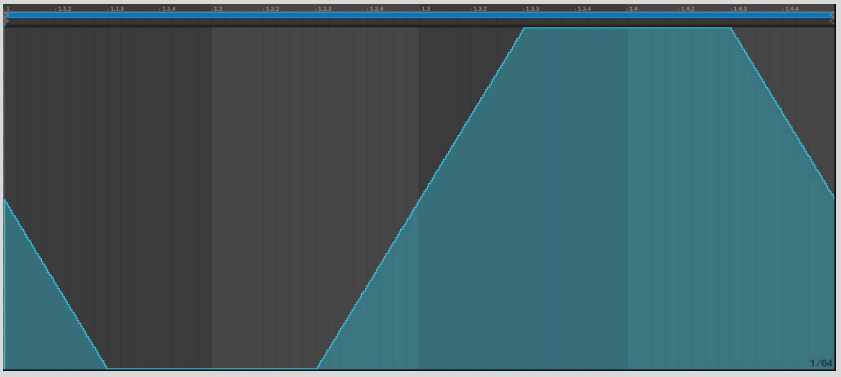
Amount 100: the MIDI CC output ‘doubles’ the LFO waveform, exceeding the range of MIDI CC values (0-127), thus clipping the waveform



Amount -50: the MIDI CC output inverts the LFO waveform.



Amount -25: the MIDI CC output inverts and 'halves' the LFO waveform.



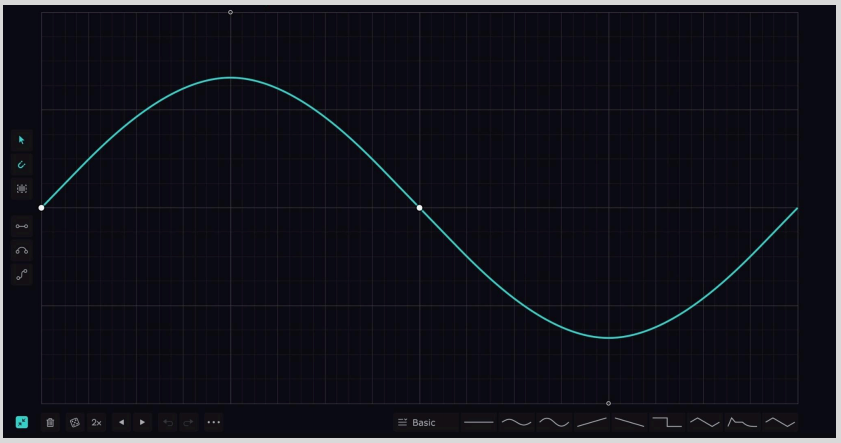
Amount -100: the MIDI CC output inverts and 'doubles' the LFO waveform, exceeding the range of MIDI CC values (0-127) and thus clipping the waveform

Modulation Center

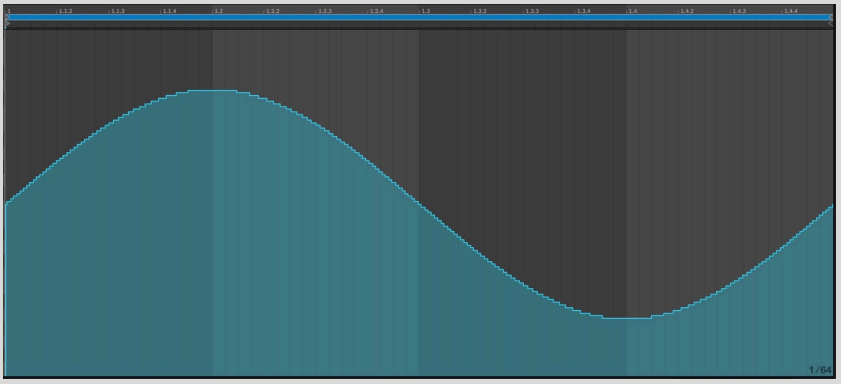
The bottom row (**Center**) of the modulation matrix sets the center point of the modulation signal for each target parameter, around which modulation occurs. At the default Center of 0.50, 0 on the Y axis in the Wave Editor (the middle line) represents a MIDI CC output of 64

– the effective “midpoint” between 0 and 127, which is the full range of any MIDI CC. To calculate MIDI CC value output by Y=0 in the Wave Editor, multiply Center by 127.

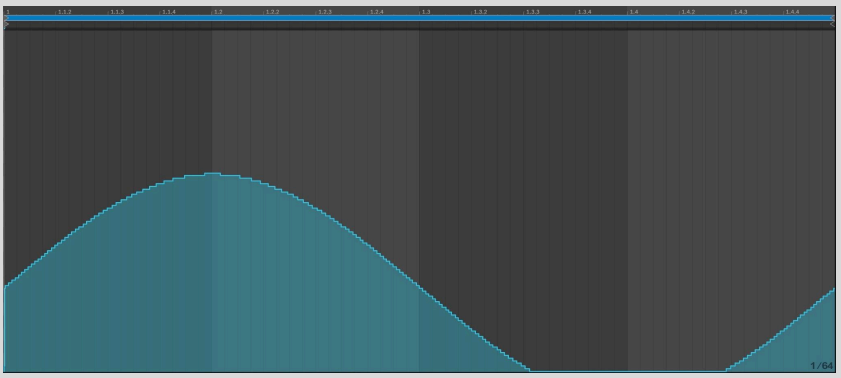
When the modulation around the Center value causes the MIDI CC value to fall below 0 or rise above 127, it will hold at the exceeded value (0 or 127) until the modulation returns to within the 0-127 range.



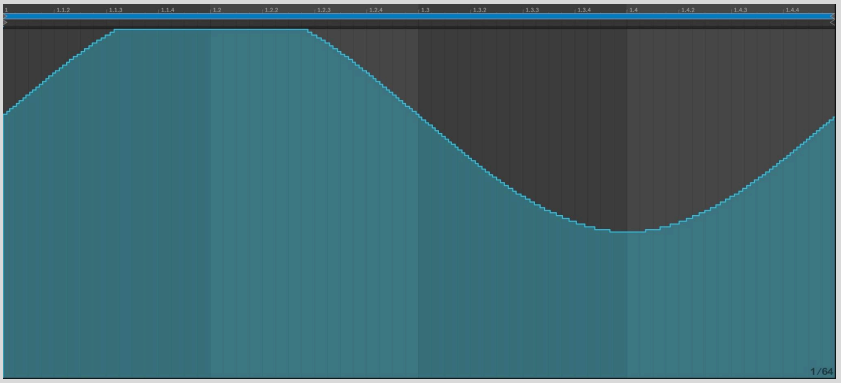
In the following examples, the default sine wave LFO (running at ‘1 Bar’ **Loop Length**) has been assigned to a MIDI CC at 0.50 Amount. The curve in each screenshot is the MIDI CC output generated by MidiShaper with the stated **Center** setting.



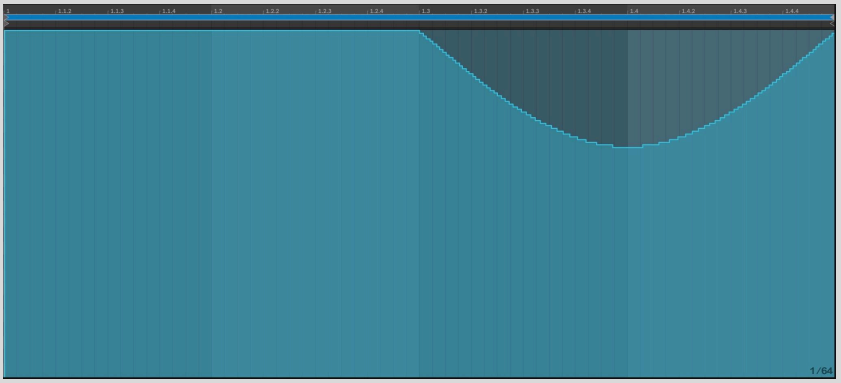
Center 0.50: At the default value of 0.50, the MIDI CC output matches the LFO waveform, ie, Y=0 in the Wave Editor maps to a MIDI CC output of 64 (0.5x127=63.5, which rounds up to 64, since MIDI CCs can only be integers).



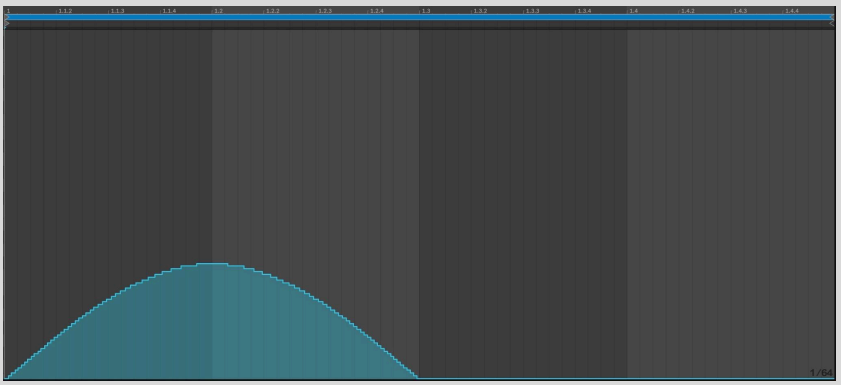
Center 0.25: Y=0 in the Wave Editor maps to a MIDI CC modulation output of 32 (0.25x127=31.75, which rounds up to 32, since MIDI CCs can only be integers).



Center 0.75: Y=0 in the Wave Editor maps to a MIDI CC output of 95 (0.75x127=95.25, which rounds down to 95, since MIDI CCs can only be integers).



Center 1.00: Y=0 in the Wave Editor maps to a MIDI CC output of 127 (1.00x127=127).



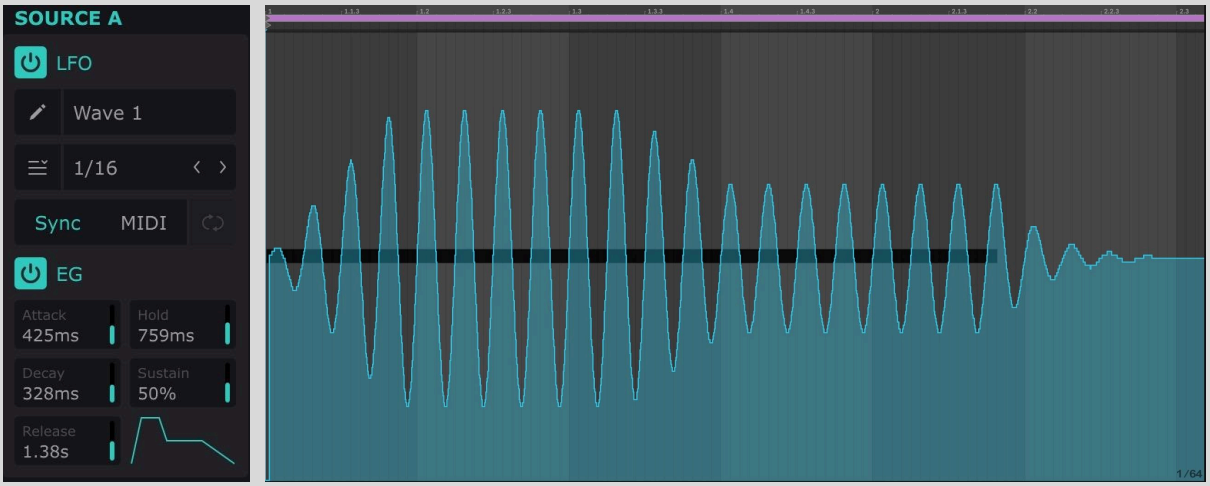
Center 0: the MIDI CC modulation output doesn't rise above 0 until the LFO waveform reaches 0.00 (the middle line) on the Y axis in the waveform editor – ie, Y=0 in the Wave Editor maps to a MIDI CC modulation output of 0.

Using the LFOs and Envelope Generator together

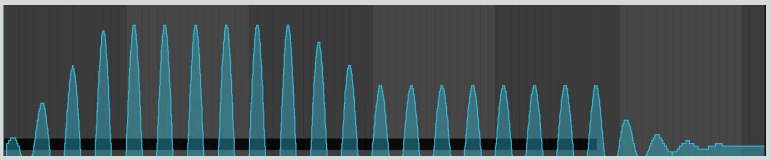
While each source's Envelope Generator and LFO might look like two separate units, when both are active, the modulation shapes they create are always multiplied together, for use as a single modulation source. With both LFO and its EG enabled, the LFO will fade in and out according to the EG's shape, and the LFO won't output anything until the EG is triggered.

If the LFO is set to MIDI Triggering mode, the incoming MIDI notes will trigger both the Envelope and the start of the LFO cycle.

Here's an example of how the LFO and EG in a Source stack up when used together. The LFO is set to the default sine wave, while the EG is set up as shown. In the recorded MIDI CC output, the EG is being triggered by the MIDI note in the background, and it controls the depth of the LFO's modulation over time.



Indeed, if you look at the overall shape of the modulation, you'll see that it matches the shape of the small envelope graphic at the bottom of the Source panel, as shown below.

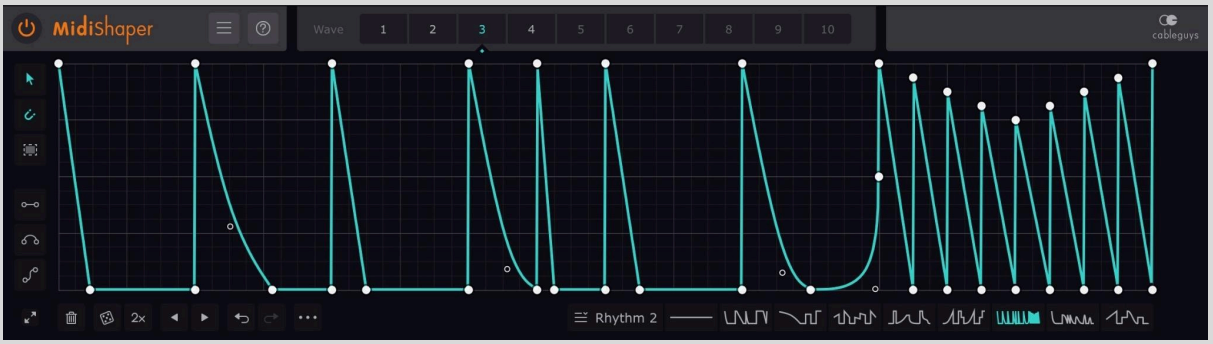


MIDI Setup

The MIDI Setup panel is where inputs and outputs to and from MidiShaper and its target hardware devices or plugins are set up.

- **Input**: Set the MIDI input for triggering MidiShaper's LFOs and Envelope Generators. The default 'From DAW' option receives MIDI from the host DAW via its in-built MIDI routing system. If your DAW does not support 'From DAW' routing, you can instead select a virtual MIDI port, as described in the DAW-specific setup guides. You may also select an external MIDI device port to trigger directly from that device. With any Input other than 'From DAW selected, the **Channel** menu enables the input to be switched to any MIDI Channel from 1-16.
- **Output**: Set the MIDI output. All physical MIDI ports (ie, those of your MIDI and/or audio interfaces, keyboards, etc) will be listed for routing directly out to external hardware. For modulation of plugins, leave this set to the default 'To DAW' – which simply outputs MIDI to the host DAW via its usual MIDI routing system – unless your DAW doesn't support 'To DAW', in which case you'll need to use a virtual MIDI port, as described in the DAW-specific setup guides. With any Output other than 'To DAW' selected, the **Channel** menu enables the output to be switched to any MIDI Channel from 1-16.
- **Octave**: Restrict the triggering note input to a specific note in a specific octave, or allow triggering with the default 'All Notes'.
- **Update Rate**: Set the rate at which MIDI data is sent to the output. Smaller values will provide higher resolution, but some DAWs may have issues with very small values.
- **Teach**: Turn on to output a constant triangle waveform modulation signal on the selectedMIDI CC. Use this to quickly assign CCs to MIDI Learn-enabled target parameters.

LFO Wave Editor



MidiShaper features a powerful Wave Editor for designing and editing your own LFO waveforms in exquisite detail. Create smooth curves, peaks, cuts and slopes using soft or hard breakpoints to define gentle transitions or sharp bends in the wave. Or, use three Pens to freely draw, adjust and sequence steps, ramps, arcs and S-curves.

LFO waveforms are made up of freely adjustable “points” (aka nodes or breakpoints). There are three weights of point:

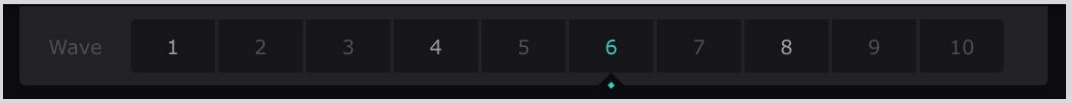
⬤ Hard: Creates a tight angle. Extremely precise, but can cause clicks due to the instantaneous parameter change.

● Medium: The angle is rounded off slightly – great for 'instant' jumps without clicking artifacts.

○ Soft: For smooth, flowing curves – create sweeping modulations, soft pulses and gradual changes.

Using these, any LFO shape can be created, from stepped staircases to gentle, pulsing curves, or any combination thereof.

LFO Wave Selector



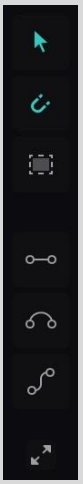
Switch between the then available waveform slots for editing in the Wave Editor. The currently selected waveform is shown by a dot indicator and colored highlight. Unselected waveforms that are used in an LFO have a white highlight.

Wave Presets

MidiShaper includes a palette of quick access Wave Presets. These cover a range of modulation shapes to use as-is or as the basis for your own waveforms, sorted into the categories **Basic**, **Beat**, **Accent**, **Sweep**, **Edge**, **Rhythm** and **Creative**. Select a category from the drop-down menu, then click a waveform to load it into the Wave Editor.

LFO Tool Strip

Here you will find the tools used to create and edit waveforms. From top to bottom:



- **Pointer**: Click to create and edit points, and drag to select multiple points – see *How to edit points with the Pointer tool* below.
- **Snap to grid**: When active, newly added and dragged points are snapped to the background grid.
- **Select all points**: Click the button to select all points. See *Working with selections*, below, for a run-down of the operations and modifier keys that can be applied. A diagonal line appears instead whenever any points are selected, and this can be clicked to cancel the current selection.
- **Line Pen**: Draw, adjust and repeat lines – see *How to use Pens* below.
- **Arc Pen**: Draw, adjust and repeat curved arcs – see *How to use Pens* below.
- **S-Curve Pen**: Draw, adjust and repeat S-shaped curves – see *How to use Pens* below.
- **Expand Wave Editor**: Expand the Wave Editor to fill the entire MidiShaper interface, enabling more detailed editing.

LFO Control Strip

The LFO Control Strip enables various further functions to be applied to the waveform. From left to right:

- **Delete Points:** Remove all points.
- **Randomize wave points**: All points are set to random positions and weights. No points are removed or added. Points snap to the background grid if Snap To Grid is selected. **SHIFT**-click to move points vertically only, preserving the rhythm.
- **2x:** 'Double-time' the waveform. **SHIFT**-click to 'triple-time'.

- **Move wave/selection left/right**: Shift the wave one grid space left or right. Hold **SHIFT** for precise adjustment (1/16th of a grid space).
- **Undo/redo**: Step back and forth through your edits. Works individually for each of the 10 waveforms.
- **•••**: Open the Wave/Oscilloscope menu – see below.

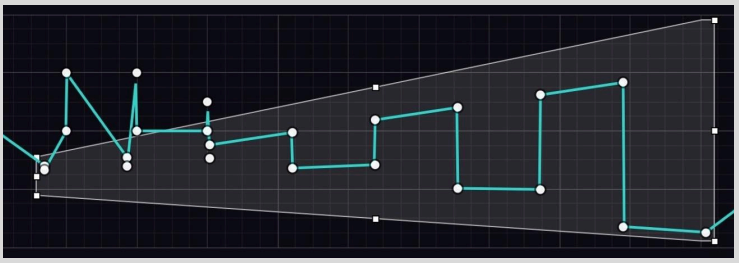
Note that Delete, Randomize, 2x and Move all work on selections, too.

How to edit points with the Pointer tool

- **Create line**: Click once anywhere
- **Create curve**: Drag on the line
- **Add soft point**: Ctrl-click anywhere
- **Toggle hard/soft**: Click breakpoint
- **Set medium point**: Shift-click breakpoint
- **Move breakpoint**: Drag
- **Delete breakpoint**: Double-click
- **Selection**: Drag in empty space
- **Temporary snap**: Hold Shift

Right-clicking a point opens a menu via which you can switch it between Soft, Medium and Hard weights, and delete it.

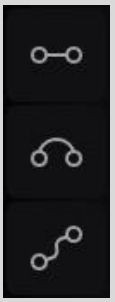
Working with selections



Select multiple points by dragging the Pointer in empty space. You can then move and scale the points by dragging the box or the handles around its edges. Hold **Alt** to lock to vertical movement only, or **Alt-Ctrl** for horizontal lock. Hold **Alt** while stretching to scale about the center. Hold **Ctrl** while stretching a side handle to skew the selection, and hold **Alt-Ctrl** to skew about the center.

💡 TIP: Click the '?' icon in the top bar to access a wave-editing Quick Guide right inside MidiShaper.

How to use Pens

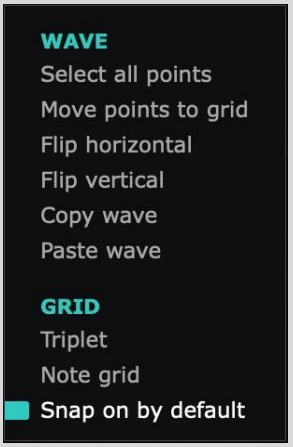


MidiShaper's three Pens enable lines, arcs and S-curves to be created, manipulated and repeated in the waveform. They all work in the same way, with a simple, intuitive workflow.

- **Click once** to add a line, arc or S-curve at the location shown by the white visual preview.
- **Click again** without moving the mouse to add the same shape again, right after the first. Repeat as required!
- **Click-drag** to change the length and height of the Pen shape. Note that if you drag far enough left, the shape will be flipped around (and clicking to repeat will move from right to left!). The Pen will retain its shape until edited again.
- **Hold SHIFT** to switch temporarily to the Pointer tool, to edit the waveform or work with selections.
- Pens always snap to the grid.

Wave/Oscilloscope Menu

Right-click any empty area in the Wave Editor, or click the ••• button in the LFO Control Strip to open this menu.



- **Wave**
  - **Select all points**: Creates a selection around all points in the Wave – the same as clicking the 'Select all points' tool button.
  - **Move points to grid**: Snaps the points of the wave/selection to the grid.
  - **Flip horizontal**: Reverse the wave/selection in time.
  - **Flip vertical**: Invert the wave/selection.
  - **Copy/paste wave**: Transfer waves between LFOs, other instances of MidiShaper (regardless of host DAWs and plugin formats), and even other Cableguys plugins (works with versions of FilterShaper XL, ShaperBox and MidiShaper released after April 2024). Holding **Shift** while selecting **Paste wave** will scale the pasted wave to cover the same vertical range as the existing wave – useful for trying different waves while maintaining a consistent 'depth' of modulation.
- **Grid**
  - **Triplet**: Change the snap grid to triplet time – useful for shuffle/swing rhythms.
  - **Note Grid**: Overlay a grid representing two octaves of note values on the Wave Editor, for visual guidance (and snapping) when designing pitch modulation. For the grid to make sense, set the **Pitch** mod amount to 100% and your synth to a pitchbend range of 1 octave.

- **Snap on by default**: When selected, the **Snap to grid** function will be active in newly loaded instances of MidiShaper.

💡 TIP: With all points selected, you can adjust the intensity of the waveform by stretching it vertically, or speed it up/slow it down by stretching it over time (for example, to turn a half-bar pattern into a full-bar one). Hold **ALT** while stretching to scale about the center.

MidiShaper routing setup guides

The setup process for MidiShaper involves routing MIDI CCs to the target plugin or device via the DAW's internal routing system, a virtual MIDI port, or a physical MIDI output. Here are step-by-step guides to getting up and running with several of the most popular DAWS.

All DAWs

Modulating hardware devices

Load MidiShaper onto any track able to host plugin effects. Select a MIDI output in MidiShaper's MIDI Setup panel, and choose a MIDI CC to transmit in the Modulations section. Now your hardware synthesizers and effects, VJ equipment and anything else capable of receiving MIDI CCs can be modulated by MidiShaper's LFOs and EGs.

To set up your hardware to receive input from MidiShaper, use its built-in MIDI Learn system (if available), or refer to its documentation for a list of its assigned MIDI CCs.

Virtual MIDI ports

If your plugin instrument or effect doesn't feature a MIDI Learn function, you can assign MidiShaper to modulate its controls using your DAW's onboard MIDI mapping system. For this, you need to use a virtual MIDI port.

Windows: We recommend MIDI Yoke, LoopBe or loopMIDI, all of which are free.

macOS: Mac users have virtual MIDI ports built into the operating system. To activate them, open the Audio MIDI Setup app in **Applications/Utilities**, and select 'Show MIDI Studio' from the **Window** menu. In the MIDI Studio, double-click the IAC driver and check **Device is online**. You can now add and remove virtual MIDI ports to make them available in FL Studio.

Please be aware of two issues when using virtual MIDI ports:

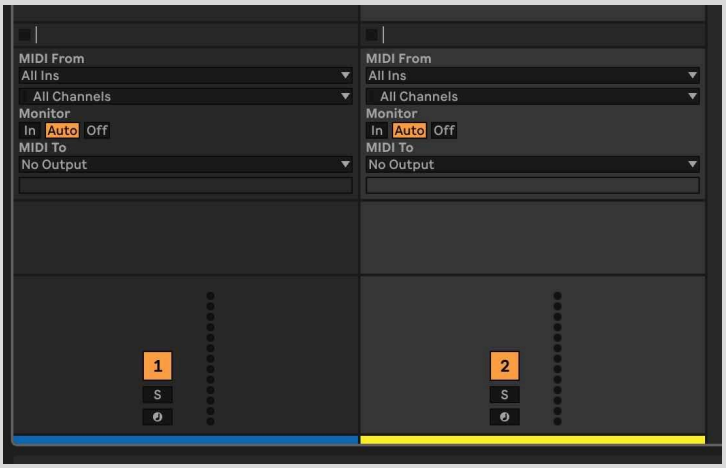
- Timing might not be totally accurate, especially when you render your track.
- If you install or remove system-wide virtual MIDI ports later, you'll need to set up your chosen virtual MIDI ports again in your existing projects when you revisit them.

Ableton Live

1a. Modulating plugin instruments via MIDI Learn

If your plugin instrument has a MIDI Learn function built in, assigning MidiShaper to modulate its controls is particularly easy. We're using u-he's DIVA synth for this example, but the process should be the same with any MIDI Learn-capable instrument.

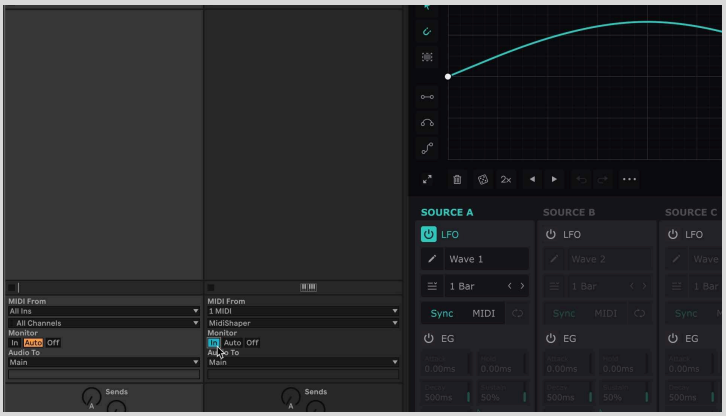
1. Create two MIDI tracks in Ableton Live – 'MIDI 1' and 'MIDI 2'.



2. Insert the VST version of MidiShaper on 'MIDI 1', and your instrument on 'MIDI 2'.

3. Open MidiShaper, and make sure 'To DAW' is selected in the **Output** field of the **MIDI Setup** area. In the Modulation area above, click 'Off' above the fourth column in from the left, and select the MIDI CC you want to use for modulation – '9', for example.

4. In the **MIDI From** menu of the ’MIDI 2’ track, select 'MIDI 1', then 'MidiShaper', and activate **Monitor** 'In'. Now, your instrument (DIVA in our example) can only be triggered by MIDI notes on track ’MIDI 1’.



5. Open your instrument and find its MIDI Learn function. If it doesn't have one, you'll need to make the assignment within the DAW itself – please see your DAW's documentation for details on how to do this.

6. Activate your instrument's MIDI Learn function and select the control that you want to assign MIDI CC 9 to – the control will instantly start moving. That knob is now controlled by MIDI CC 9, which is currently being sent to it by MidiShaper.

7. If you want to control more parameters with MidiShaper, select the MIDI CC you want to assign in MidiShaper's **Teach** menu. That MIDI CC will be output constantly, enabling you to assign it in your instrument by activating MIDI Learn. Once you've assigned the MIDI CC to the target control, turn MidiShaper's **Teach** function 'Off'.

1b. Modulating plugin effects via MIDI Learn

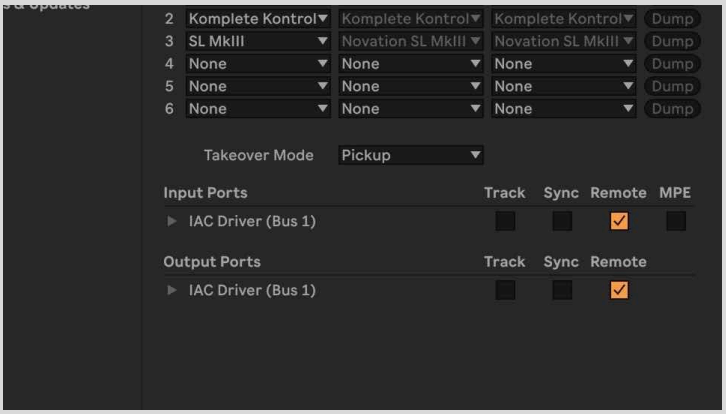
You can also use MidiShaper to directly modulate MIDI Learn-enabled plugin effects in Live. First, create a MIDI track and insert MidiShaper onto it. Then add a 'dummy' MIDI track to receive MIDI from the MidiShaper channel and route it to the MIDI Learn-enabled plugin effect that you want to modulate, as shown in this screenshot (the Audio track is hosting the effect plugin):

Then, use your plugin effect's in-built MIDI Learn system with MidiShaper, as described in steps 5-7 above.

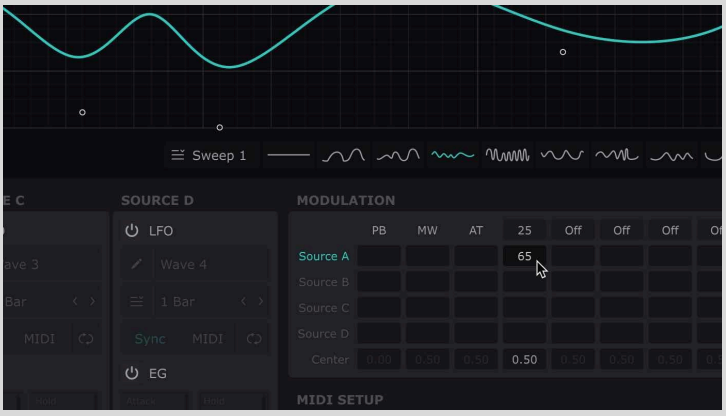
2. Modulating a plugin instrument/effect, or Live's own device and mixer controls, via MIDI mapping

If your plugin instrument or effect doesn't feature a MIDI Learn function, you can assign MidiShaper to modulate its controls using Live's onboard MIDI mapping system. For this, you need to use a virtual MIDI port, as described at the start of this chapter. With your virtual MIDI port set up, follow these steps to modulate Live's mixer and devices, or any third party plugin.

1. Once you have your virtual MIDI ports installed, open Live's MIDI Preferences and turn the input port's **Remote** button on. Then, select the virtual MIDI port in the **Output** menu of MidiShaper's MIDI Setup panel to complete the routing.

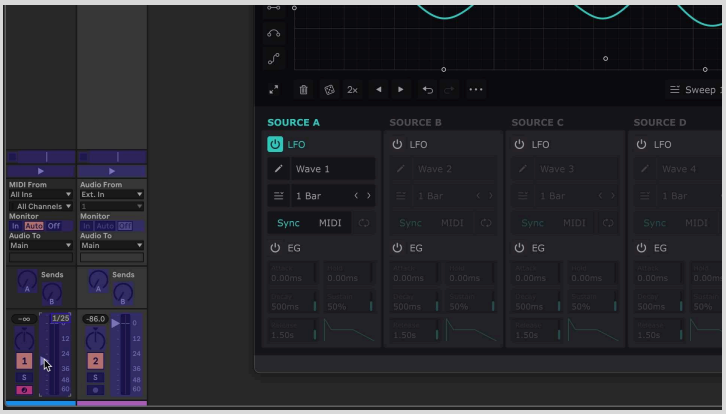


2. Select a MIDI CC from the menu at the top of one of the five assignable columns in the MidiShaper matrix, and raise the modulation depth to that column for any active Source.

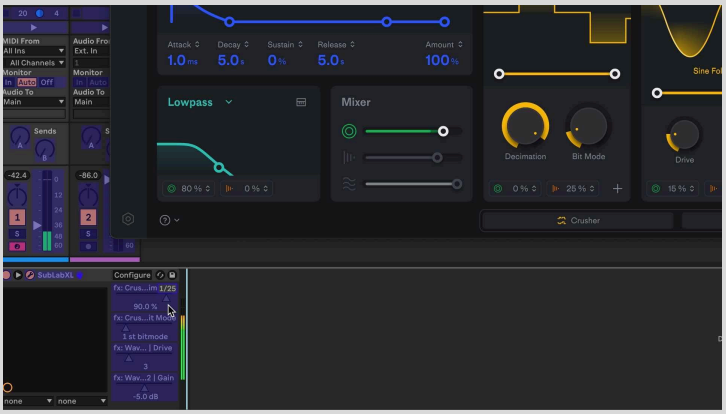


3. Now click the **MIDI** button at the top right of the Live interface, or press **Command** (Mac) or **Control** (PC) and the **M** key on your keyboard to enter MIDI Map mode. Then click one or more target Live mixer or Device parameters to arm them for automatic MIDI mapping. The

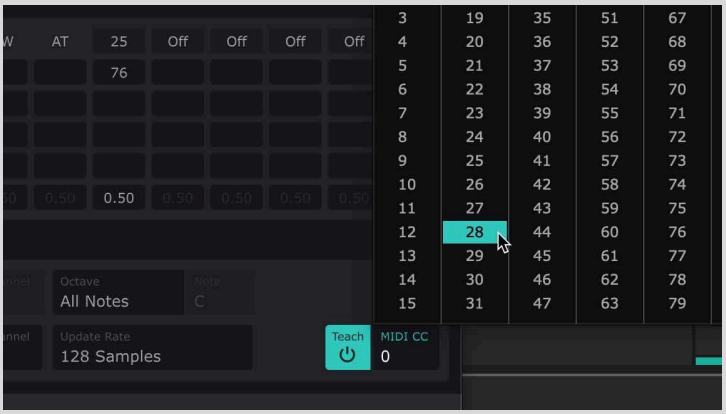
selected mixer or device parameters automatically map to the selected CC via the virtual MIDI port and begin to modulate as soon as MIDI Map mode is exited.



4. To reveal a plugin's controls for MIDI mapping, click the **Unfold Device Parameters** button in the Device box, then the **Configure** button. Clicking a parameter in the plugin adds it to the list in the Device View – these parameters can now be selected for MIDI mapping as described in step 3.



5. To avoid signal confusion when MidiShaper is already outputting any CCs, select your new MIDI CC from MidiShaper's **Teach** menu. That CC will then output constantly, overriding all other outgoing CCs for the purposes of assignment, until Teach is turned 'Off' again.



Apple Logic Pro

Setting up MidiShaper in Logic Pro is a little more complicated than in most other DAWs. Here, we'll show you what can be done and the limitations that Logic imposes. Once it is set up, however, you'll be able to route MidiShaper's super flexible LFOs to your hardware devices, Logic's controls, and your software synthesizers and effects.

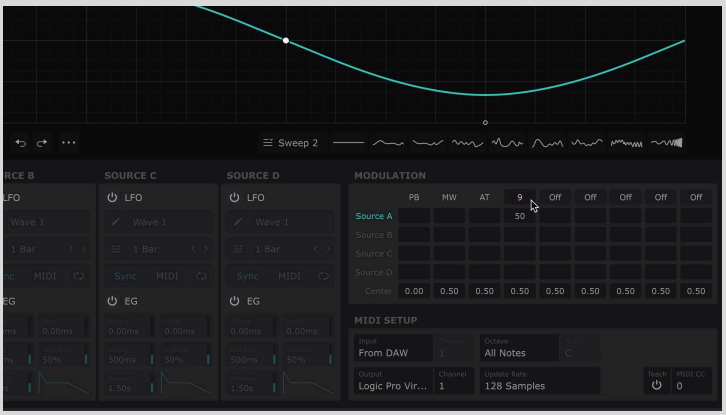
Note: For MidiShaper's waveform to update correctly, audio playback must be running and there must be either an audio clip or a virtual instrument on MidiShaper's track. This is because Logic bypasses plugins that it regards as inactive.

1 . Modulating plugin instruments via MIDI Learn

We're using the software synthesizer Diva, by u-he, for this example, but any synth with a built-in MIDI Learn function will work in the same way.

1. Create a project, load your synth and add some notes.

2. Add MidiShaper to the synth's track. Set MidiShaper up to route Source 1 to any MIDI CC you like in the Modulations section (we've gone for CC9 here), and output to 'Logic Pro Virtual In' in the **Output** menu.

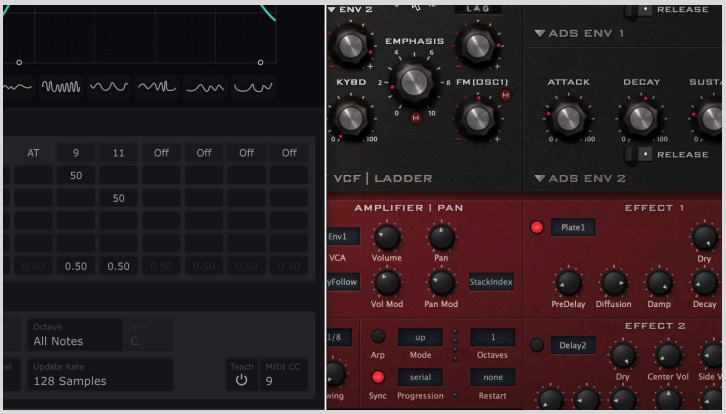


3. Arm the synth's track, then activate MIDI Learn in your synth for the parameter you want to modulate. The control will instantly start moving.

4. To modulate another parameter, set up a waveform in LFO 2, assign LFO 2 to Source B if it isn't already and turn Source B on, then route it to, for example, MIDI CC11. MidiShaper is now sending CC9 and CC11 at the same time – which is a problem, as the synth doesn't know which one to use for its MIDI Learn function. To solve this, select MIDI CC11 from MidiShaper's **Teach** menu. This mutes all other signals apart from the selected one, outputting – in our case – only CC11.

5. In your synth, activate MIDI Lean for another control that you want to modulate. The control will immediately be assigned CC11 as its MIDI control source and start moving in response to the incoming Teach signal.

6. Set **Teach** to 'Off'. MidiShaper now sends out CC9 and CC11 again, modulating your two assigned controls.



Note: You'll need to select 'Realtime' in Logic's **Bounce** dialog when bouncing audio, otherwise the modulation will not be included in the bounce.

Note: Some soft synths save their MIDI setups globally, so if you open another instance of the same synth, or use it in other songs, the same assignments will be maintained.

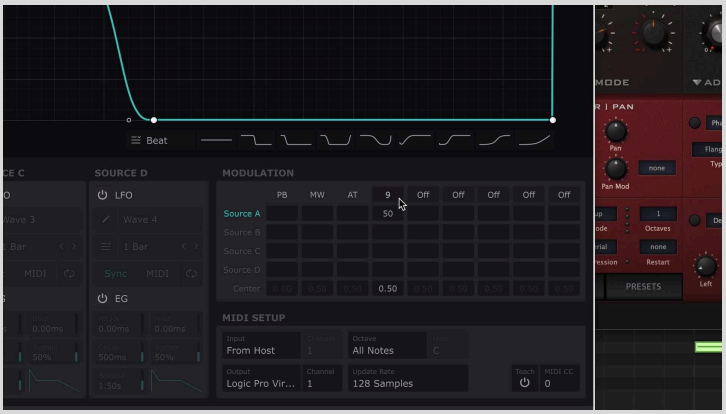
Software effects are – to our knowledge – not able to receive MIDI in Logic, so they cannot make use of MIDI Learn.

2. Modulating plugins and Logic's controls via Logic's Controller Assignments

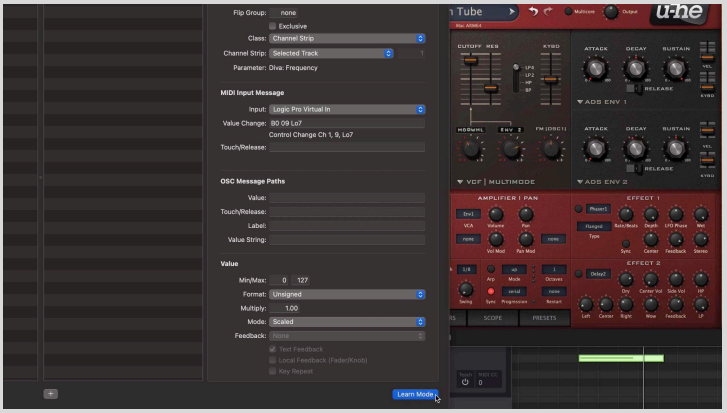
For soft synths that don't feature onboard MIDI Learn – as well as plugin effects and Logic's own controls – you can use Logic's Controller Assignments setup. This can also be helpful when modulating several instances of the same synth, as those that store their MIDI setups globally will cause issues using the method above.

1. Create a new project with two instances of your synth (Diva again in our example) loaded, and add some notes.

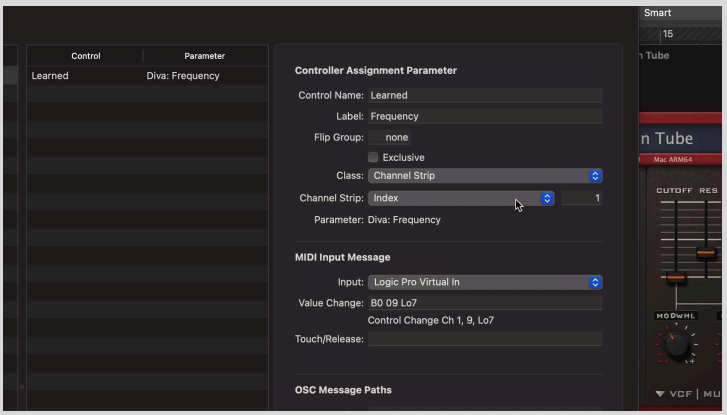
2. Let's modulate a software instrument. Add MidiShaper to the first track, then set it up to route Source 1 to any MIDI CC you like in the Modulations section (we've gone for CC9 here), and set the **Output** to 'Logic Pro Virtual In'.



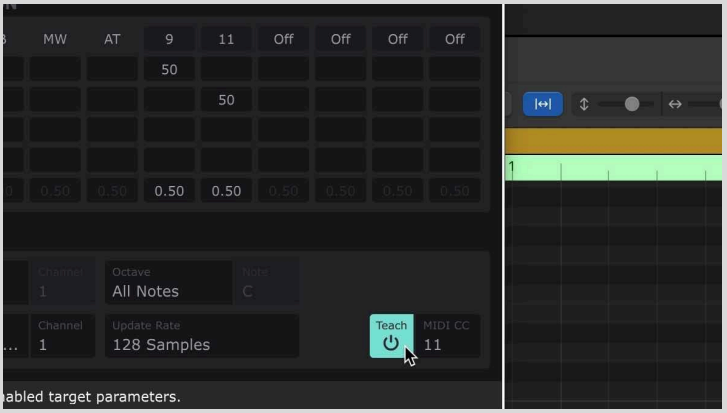
3. Open your synth and move the control that you want to modulate with MidiShaper – for example, Diva's **Cutoff** knob. Then open Logic's **Controller Assignments** panel from the **Logic Pro > Control Surfaces** or **Preferences** menu, and switch to 'Expert View'. There, uncheck the Link button at the top-left corner and click 'Learn Mode' in the bottom right corner. An entry for the control you moved is added, and the control itself will immediately start modulating. Deactivate Learn Mode afterwards.



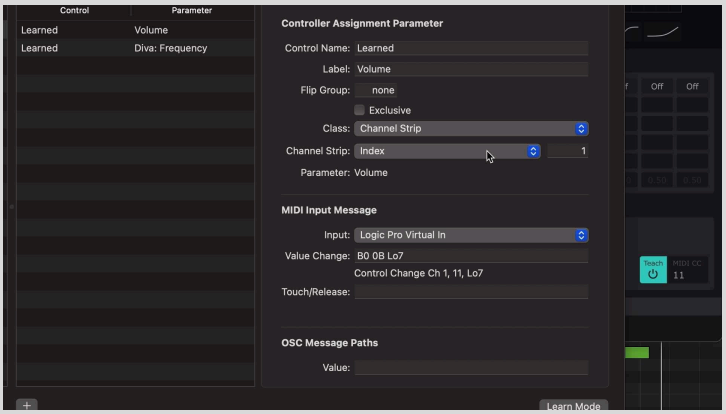
4. Switch the **Channel Strip** option from 'Selected Track' to 'Index' – otherwise, selecting another track will route the assignment to that track instead. You also need to provide the number of the track (the 'index' in question). If you have eight tracks in your project and your synth is on track 5, the index will be '5'. Note that you'll need to update the index if you move the track or add another track above it.



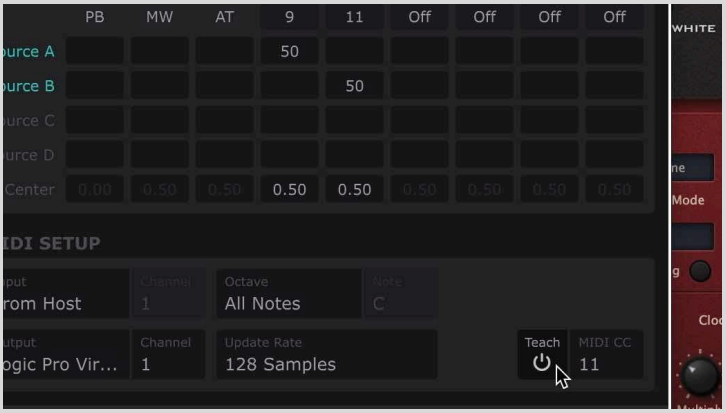
5. Now let’s use the same instance of MidiShaper to modulate the track's volume slider. Set up a waveform in LFO 2, assign LFO 2 to Source B if it isn’t already and turn Source B on, then route it to, for example, MIDI CC11. MidiShaper is now sending CC9 and CC11 at the same time – which is a problem, as Logic doesn't know which one to use for its MIDI Learn function. To solve this, select MIDI CC11 from MidiShaper's **Teach** menu. This mutes all other signals apart from the selected one, outputting – in our case – only CC11.



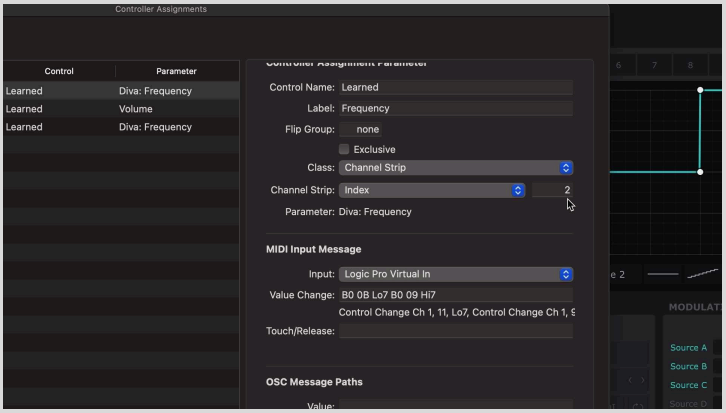
6. Move the track's volume slider, then open Logic's **Controller Assignments**, and activate 'Learn Mode'. An entry for the volume slider will appear. Again, uncheck 'Learn Mode', then change **Selected Track** to 'Index' and enter the number of the track.



7. In MidiShaper, set **Teach** to 'Off'. MidiShaper now sends out CC9 and CC11 again, modulating your two assigned controls.



8. Modulating a second track with another instance of the same synth or modulating a software effect works similarly. You can use the existing MidiShaper instance, or open another one. If you use another one, be sure to either set it to a different MIDI Channel or use a different MIDI CC number.



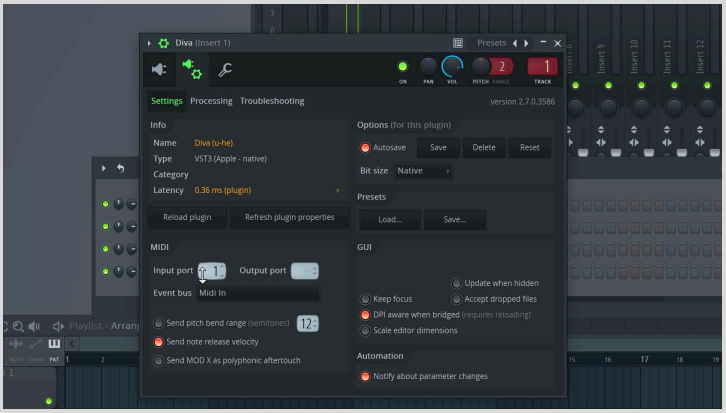
Note: The modulation will not be included when bouncing audio, even when choosing 'Realtime' in Logic's **Bounce** dialog. Also note that the settings in Logic's Controller Assignments are stored globally, not per song. Both of these issues can be resolved by recording the modulation as automation. Click Logic's **Automation** icon, then choose 'Touch' automation mode for the track.

Image-Line FL Studio

1. Modulating plugins that support MIDI Learn

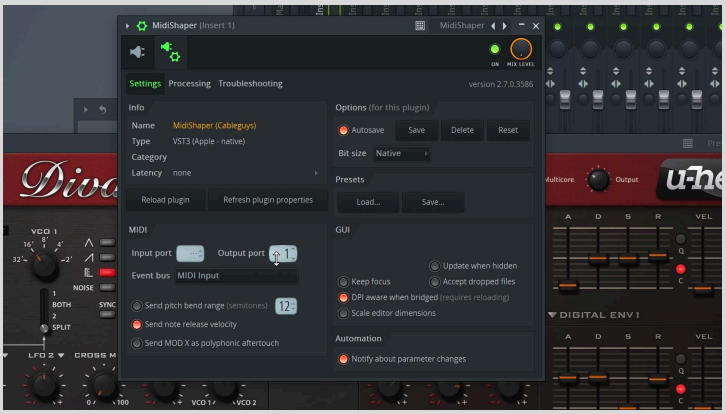
1. Insert the plugin effect or instrument that you want to modulate with MidiShaper. We're using u-he Diva here.

2. Open the plugin's **Detailed Settings** panel (the cogwheel button, top left). In the **Settings** tab, set the **Input Port** in the MIDI section to '1'. Close the Detailed Settings panel.

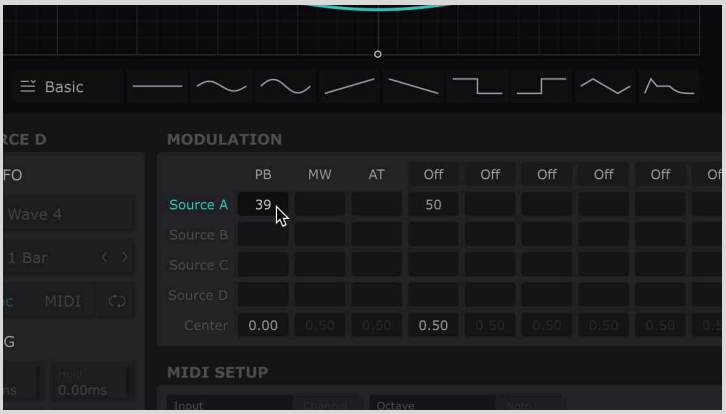


3. Insert MidiShaper into the same channel as the target plugin, and open MidiShaper's **Detailed Settings** panel (the cogwheel button, top left).

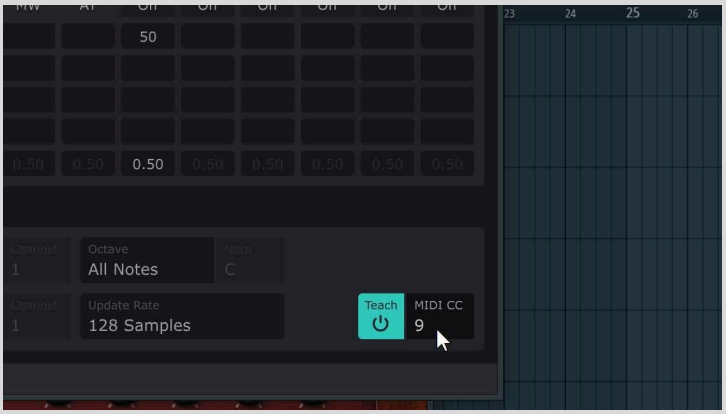
4. In the **Settings** tab, set the **Output Port** in the **MIDI** section to ‘1’. Close the Detailed Settings panel.



5. The connection is made: raise or lower the **PB** (Pitch) modulation amount in MidiShaper’s modulation matrix to hear it applied to your instrument.

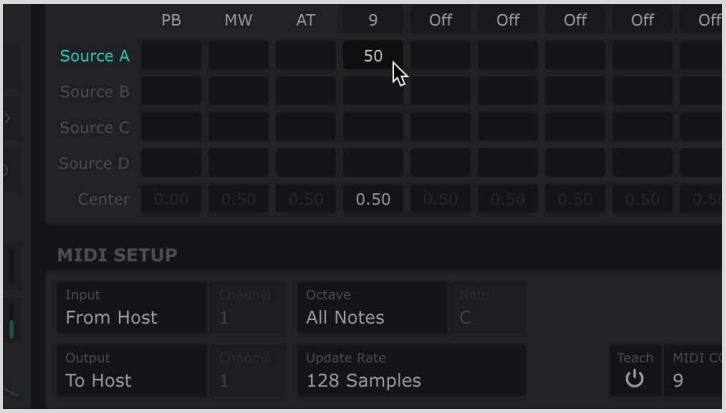


6. Click MidiShaper's **Teach** menu and set it to the MIDI Continuous Controller (CC) of your choice – ‘9’, for example. Activating the Teach function makes MidiShaper output only the selected MIDI CC, muting all other signals. Its purpose is to avoid assignment conflicts, since the MIDI Learn function of most software devices listens for any and all incoming CCs.



7. Activate MIDI Learn in your target plugin to assign the incoming MIDI signal to the parameter of your choice.

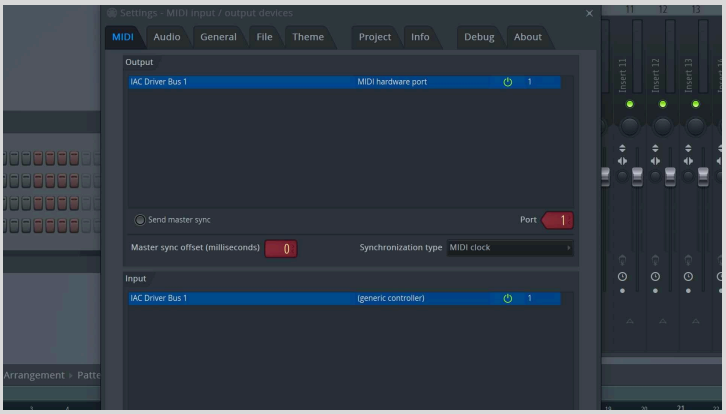
8. Once the assignment is made, turn MidiShaper's Teach function 'Off'. Now you can control the assigned parameter via MidiShaper's modulation matrix.



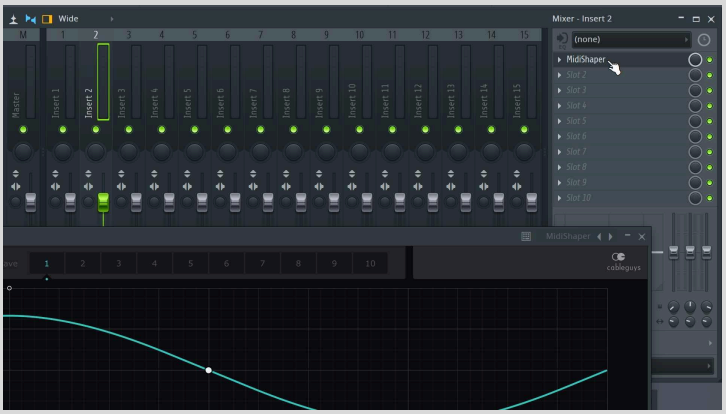
2. Modulating a plugin instrument/effect, or FL Studio’s own device and mixer controls, via MIDI mapping

If your plugin instrument or effect doesn't feature a MIDI Learn function, you can assign MidiShaper to modulate its controls using FL Studio’s onboard MIDI mapping system. For this, you need to use a virtual MIDI port, as described at the start of this chapter. With your virtual MIDI port set up, follow these steps to modulate FL Studio’s mixer and devices, or any third party plugin.

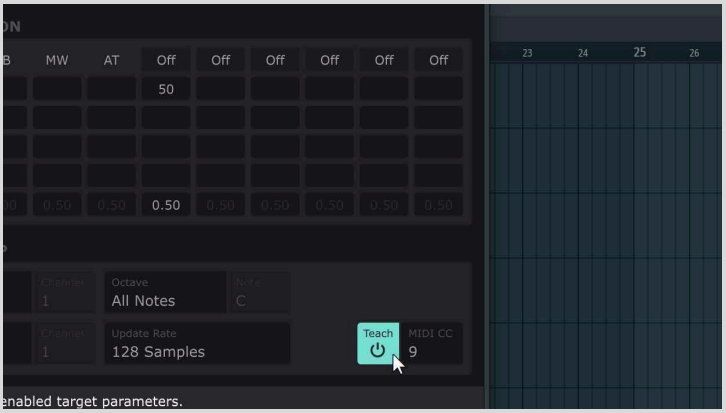
1. Open **Options>MIDI Settings**, and activate your virtual MIDI driver in the Input section. Click the **Enable** button below and set the **Port** to 1, or whatever number you like.



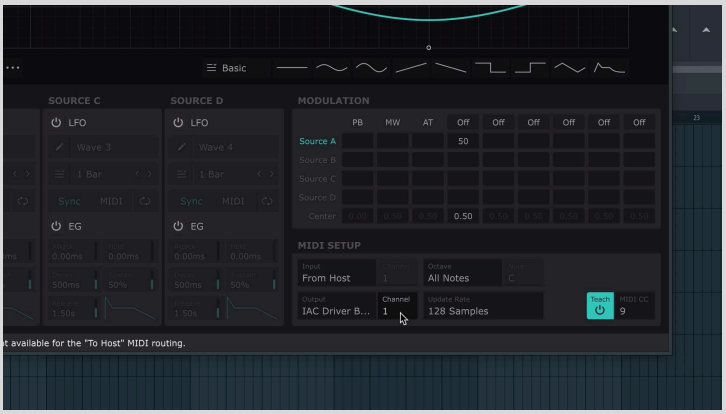
2. Insert MidiShaper into any channel in the project.



3,. Click MidiShaper's **Teach** menu and set it to the MIDI Continuous Controller (CC) of your choice – ‘9’, for example. Activating the Teach function makes MidiShaper output only the selected MIDI CC, muting all other signals. Its purpose is to avoid assignment conflicts, since the MIDI Learn function of most DAWs listens for any and all incoming CCs.



4. Set the **Output** in MidiShaper to your virtual MIDI port, and leave the **Channel** set to '1'.

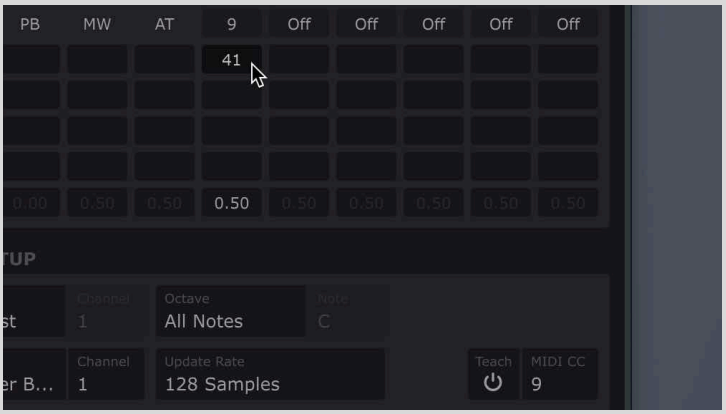


5. Open your target plugin instrument or effect, or the FL Studio Mixer, and move the control that you want to modulate.

6. If you're modulating a native FL Studio control – ie, a mixer fader, or a knob in any of FL Studio's built-in plugins, right-click the control and select **Link to controller**. If you're modulating a third-party plugin, select **Last tweaked>Link to controller** from the **Tools** menu. The **Remote Control Settings** dialog will appear. If it appears and instantly disappears, that means the **Port** and **Channel** are already set to receive MidiShaper, so the connection has been made and the control should begin to modulate. You can turn MidiShaper's **Teach** function 'Off' and select **Link to controller** again to open the dialog, however, if you like.

7. If the **Remote Control Settings** dialog does stay open, in the MIDI Controller section, set **Port** to the same value as set earlier in FL Studio's **MIDI Settings** dialog, **Channel** to '1', and **Ctrl** to the MIDI CC selected in MidiShaper's **Teach** menu. Click **Accept** and the connection is made – the control should now be modulated.

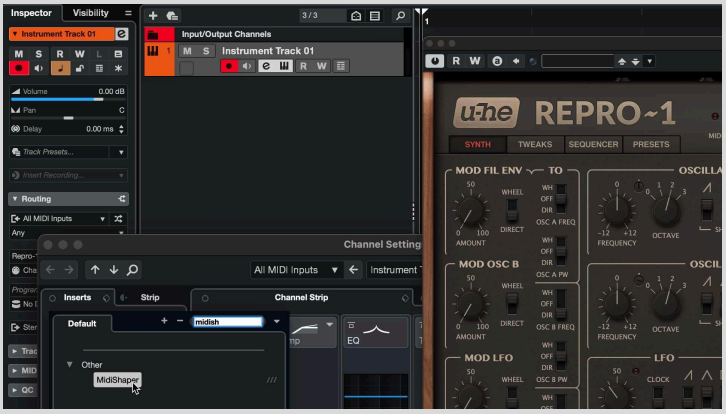
8. Once the assignment is made, turn MidiShaper's **Teach** function 'Off'. Now you can control the assigned parameter via MidiShaper's modulation matrix.



Steinberg Cubase

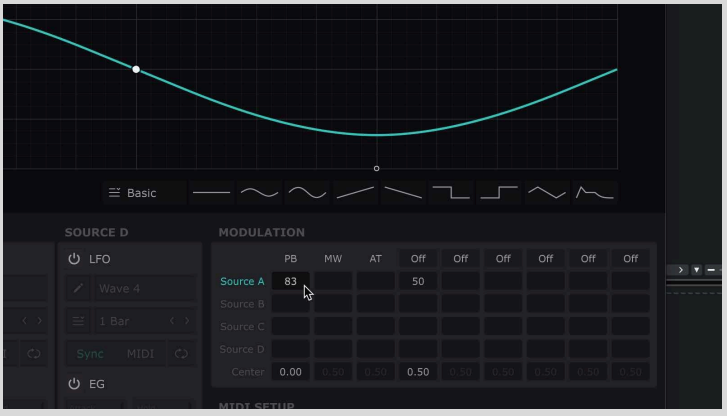
1. Modulating plugins that support MIDI Learn

1. Select the instrument track you want to modulate, open the **Insert Effects** settings, add a new effect and choose MidiShaper.



2. Set the **MIDI Input** of the track to 'MidiShaper – Midi Output', and make sure **Monitor** is activated at the top of the Inspector.

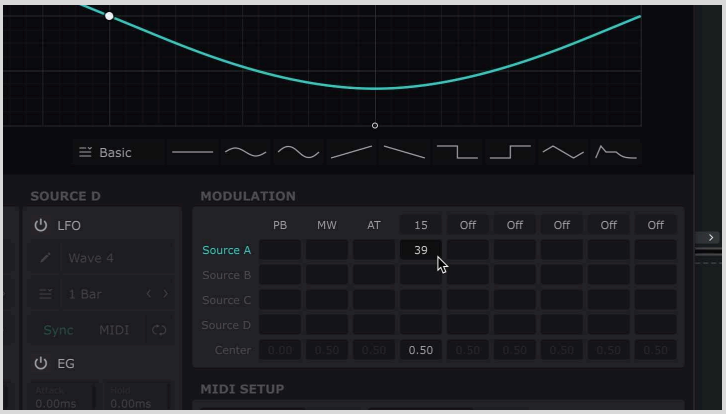
3. You can now send pitch, mod wheel and aftertouch modulation signals by assigning them to Sources in MidiShaper's modulation matrix. Other parameters of your software device need to be assigned via its MIDI Learn function.



4. Open MidiShaper's **Teach** menu and set it to the MIDI Continuous Controller (CC) of your choice – ’15’, for example. Activating the **Teach** function makes MidiShaper output only the selected MIDI CC, bypassing all other signals. Its purpose is to avoid assignment conflicts, since the MIDI Learn function of most software devices listens for all incoming CCs.

5. Activate MIDI Learn in your software device to assign the incoming MIDI CC to the parameter of your choice. Important: Once the assignment is made, be sure to set MidiShaper's **Teach** function to 'Off'.

6. Now you can control the assigned parameter via MidiShaper's modulation matrix.

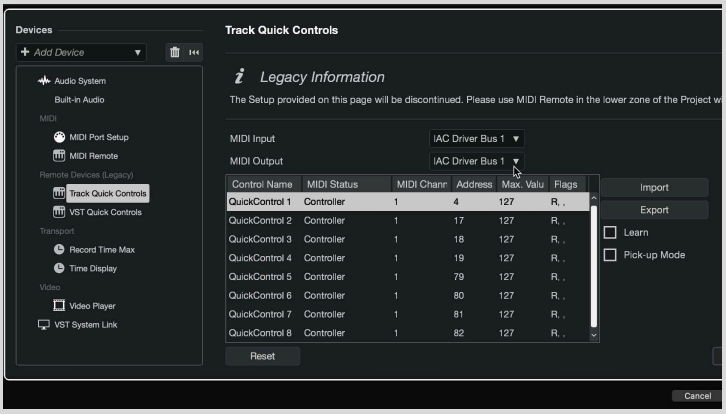


2. Modulating plugins via Cubase's Quick Controls

Software instruments and effects that don't support MIDI Learn can be controlled by MidiShaper via a virtual MIDI port using Cubase's Quick Controls. For this, you need to use a virtual MIDI port, as described at the start of this chapter. With your virtual MIDI port set up, follow these steps to modulate Cubase's Quick Controls.

1. Insert MidiShaper into the track hosting the device you want to control, as described above, and set its **Output** and the track's MIDI Input to your virtual MIDI port.

2. Go to **Studio > Studio Setu**p and select the **Track Quick Controls** tab. Set **MIDI Input** and **Output** to your virtual MIDI port, and make sure the MIDI channel for all eight Quick Controls is the same as that set up in MidiShaper. Assign MIDI CCs to the Quick Controls by changing the **Address** values, or just make a note of the MIDI CCs they're assigned to.



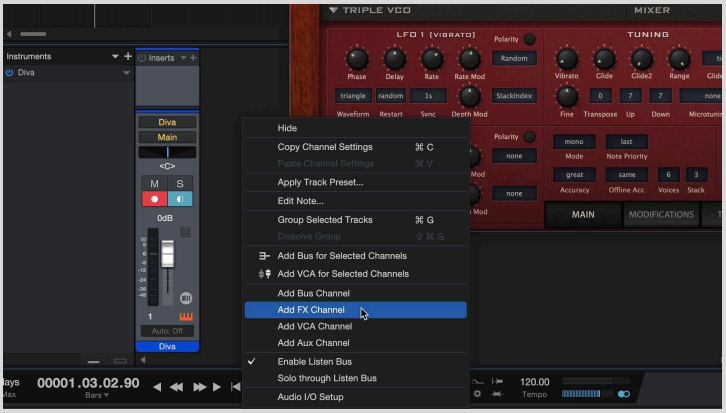
3. Click the **L** button in the Quick Controls Inspector or plugin interface panel to activate QC Learn mode and move the parameter that you want to assign. Turn The **L** button off, or the next parameter you touch will override the assignment.

4. Now, simply select the assigned MIDI CC in MidiShaper's Modulation Matrix and raise the modulation **Amount** to modulate the parameter.

PreSonus Studio One

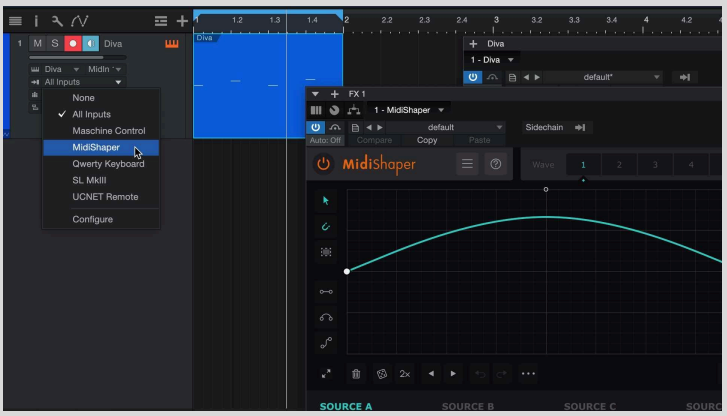
1. Modulating plugins that support MIDI Learn

1. With the instrument you want to modulate set up on an Instrument track (we're using u-he Diva for demonstration purposes), add an FX Channel.

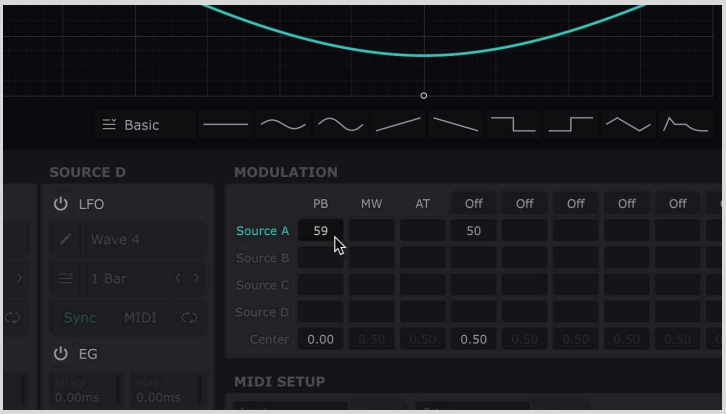


2. Click the **+** button at the top of the FX Channel and choose **MidiShaper** from the menu.

3. Change the Instrument track's input setting to **MidiShaper**.



4. You can now send pitch, mod wheel and aftertouch modulation signals by routing them to sources in MidiShaper's modulation matrix. Other parameters of your software device need to be assigned via its MIDI Learn function.



5. Click MidiShaper's **Teach** menu and set it to the MIDI Continuous Controller (CC) of your choice – '15', for example. Activating the Teach function makes MidiShaper output only the selected MIDI CC, bypassing all other signals. Its purpose is to avoid assignment conflicts, since the MIDI Learn function of most software devices listens for all incoming CCs.

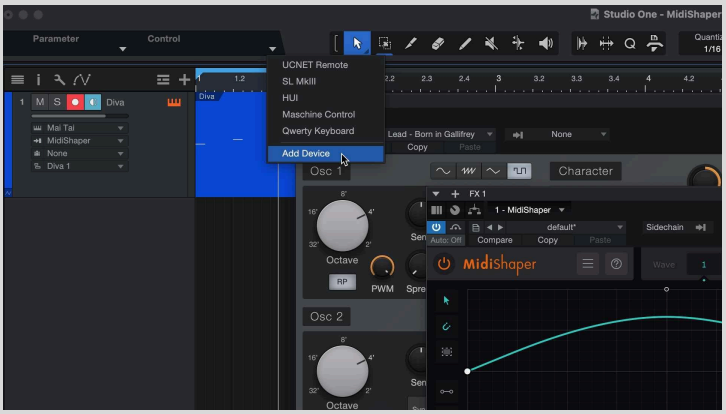
6. Activate MIDI Learn in your instrument or effect to assign the incoming MIDI CC to the parameter of your choice. Once the assignment is made, be sure to set MidiShaper's **Teach** function to 'Off'. Now you can control the assigned parameter via MidiShaper's modulation matrix.

2. Modulating software devices that don’t support MIDI learn

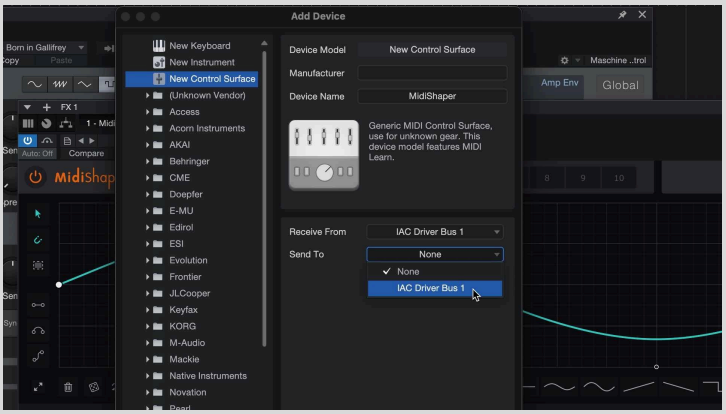
Software instruments and effects that don't support MIDI Learn can be controlled by MidiShaper via a virtual MIDI port. For this, you need to use a virtual MIDI port, as described at the start of this chapter. With your virtual MIDI port set up, follow these steps to modulate Studio One’s mixer and devices, or any third party plugin.

1. Insert MidiShaper onto the track hosting the device you want to control, or an FX track as described above, and set its MIDI output to the virtual MIDI port you activated earlier.

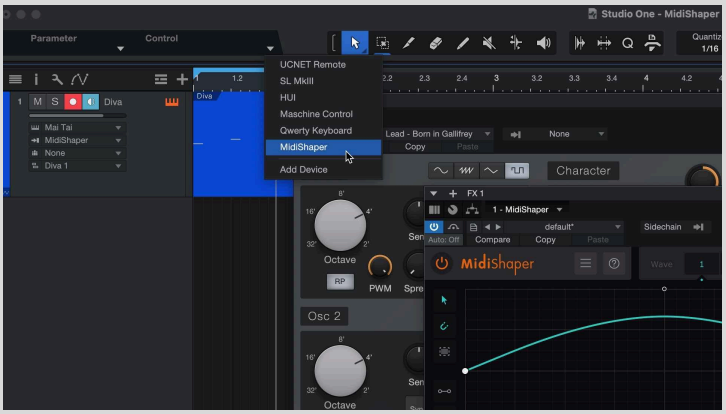
2. Now we need to register MidiShaper as a MIDI controller in Studio One. Click the downward arrow in the Control area of Studio One's top bar and choose ‘Add Device’.



3. Choose **New Control Surface**, give your virtual controller a name, and set the input (**Receive From**) and output (**Send To**) to your virtual MIDI port. Click **OK**.



4. Choose your virtual controller from the **Control Area** menu.



5. Activate MidiShaper's **Teach** mode by setting it to your MIDI CC of choice – we've gone for CC15 here. In the **External Devices** MIDI controller control panel, click the **MIDI Learn** button. The input signal will be received and a control knob will appear, modulated slowly up and down by MidiShaper's Teach signal.

6. In the top section of the plugin instrument or effect that you want to control, click the **Edit Mapping** button (the tiny cogwheel at the top right). The controller knob that we set up earlier (Control1) will be visible in the right hand side of the Control area in the plugin itself. Move the parameter you want to control and it will appear in the left half of the Control area. To assign the knob (and thus MidiShaper) to the parameter, click the arrow button in between them. The parameter will start to move in response to MidiShaper.

7. When the assignment is complete, turn MIDI Learn off in the **External Devices** control panel, set MidiShaper's **Teach** mode to 'Off', and close the **Edit Mapping** panel. Now assign the MIDI CC to a Source in MidiShaper's modulation matrix and set up the LFO waveform as you like.

Bitwig Studio

Add MidiShaper to the track hosting the software device you want to control – u-he Diva, for example. Make sure it's positioned *before* the device(s) you want to control in the device chain. MidiShaper is immediately ready to go – the three basic modulations at the left hand end of the modulation matrix (Pitch, Mod wheel and Aftertouch) will work with no further setup required.

1. Modulating software devices via MIDI Learn

Many software instruments and effects support MIDI Learn, although the specific implementation of it varies from device to device.

1. With MidiShaper inserted before the plugin instrument and/or effects that you want to modulate, make sure the **Output** in MidiShaper's MIDI Setup panel is set to 'To DAW'.

2. Click MidiShaper's **Teach** menu and set it to the MIDI Continuous Controller (CC) of your choice – '9', for example. Activating the **Teach** function makes MidiShaper output only the selected MIDI CC, muting all other signals. Its purpose is to avoid assignment conflicts, since the MIDI Learn function of most software devices listens for any and all incoming CCs.

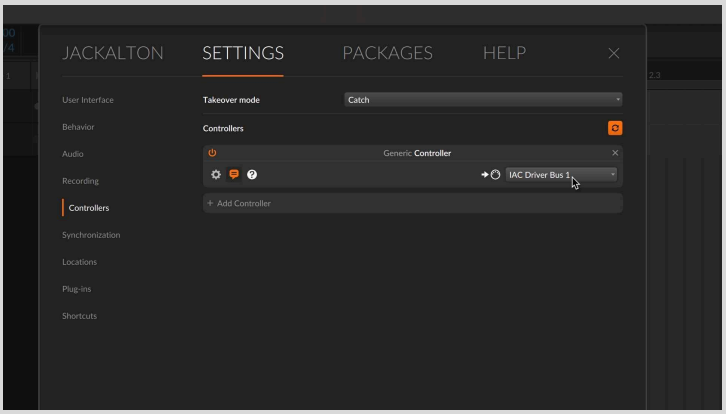
3. Activate MIDI Learn in your software device to assign the incoming MIDI signal to a parameter of your choice.

4. Once the assignment is made, turn MidiShaper's **Teach** function 'Off'**.** Now you can control the assigned parameter via MidiShaper's modulation matrix.

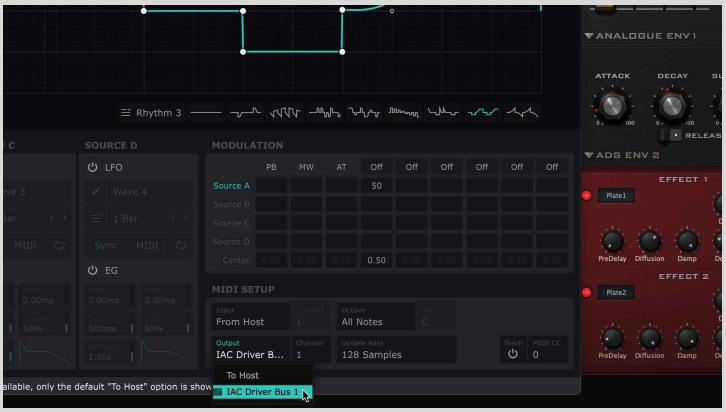
2. Modulating software devices that don’t support MIDI learn

Software instruments and effects that don't feature their own MIDI Learn systems can be controlled by MidiShaper via a virtual MIDI port. For this, you need to use a virtual MIDI port, as described at the start of this chapter. With your virtual MIDI port set up, follow these steps to modulate Bitwig Studio’s mixer and devices, or any third party plugin.

1. Make sure the virtual port is active in the **Controllers** panel in Bitwig's **Preferences**. MidiShaper and the plugin(s) you want to modulate don't need to be on the same track.



2. In MidiShaper, set the **Output** in the **MIDI Setup** section to your virtual MIDI port.



3. Click MidiShaper's **Teach** menu and set it to the MIDI Continuous Controller (CC) of your choice – '9', for example. Activating the **Teach** function makes MidiShaper output only the selected MIDI CC, muting all other signals. Its purpose is to avoid assignment conflicts, since Bitwig's MIDI mapping function listens for any and all incoming CCs.

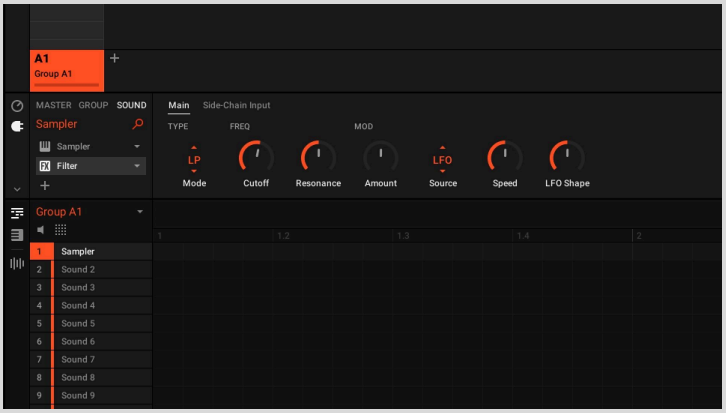
4. Right-click the plugin instrument or effect parameter you want to control in Bitwig's Device area, and select 'Map to Controller or Key'. The parameter will be assigned.

5. Once the assignment is made, turn MidiShaper's **Teach** function 'Off'**.** Now you can control the assigned parameter via MidiShaper's modulation matrix.

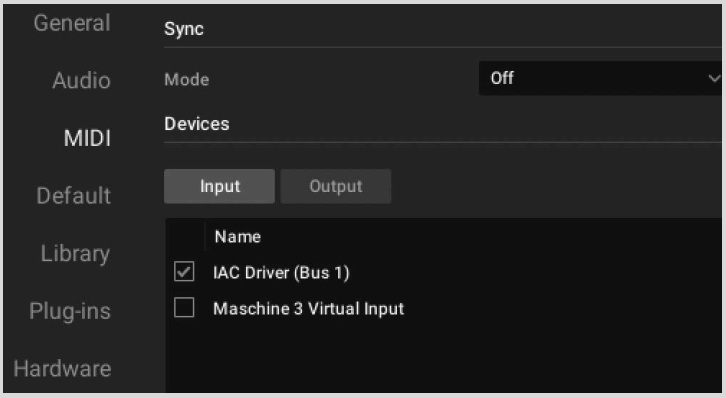
Native Instruments Maschine

To use MidiShaper with Maschine 2, you first need to set up a virtual MIDI port, as described at the start of this chapter. This enables MIDI signals to be routed from MidiShaper to plugins and internal devices running in Maschine 2, as well as mixer controls and anything else that can be accessed via Maschine 2's central Control Area. With your virtual MIDI port set up, follow these steps to modulate Maschine's mixer and devices, or any third party plugin.

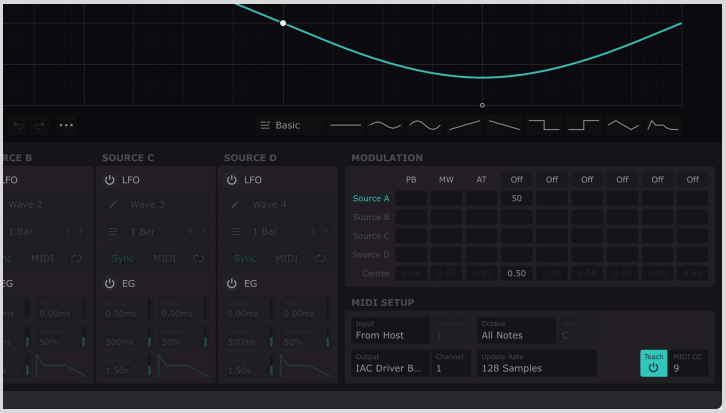
1. Insert the software instrument or effect you want to control into a Pad, Group or the Master bus. In this example, we want to control the cutoff frequency of the Filter device. Insert MidiShaper as an effect on any Pad in your project.



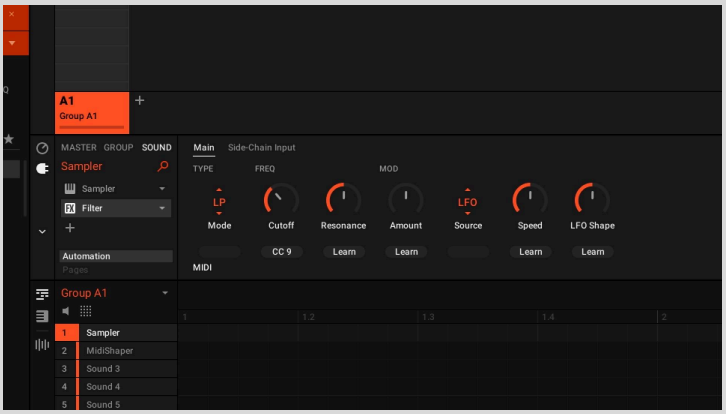
2. Open Maschine's Audio and MIDI Settings Preferences page and make sure the input of the virtual MIDI port you want to use (ie, 'IAC Driver (Bus 1)') is turned on.



3. Select the virtual MIDI port as the output in MidiShaper's MIDI Setup panel, and set MidiShaper's Teach menu to a MIDI CC of your choice (eg, CC 9). This prevents the MIDI learn process in the next step from getting confused if MidiShaper is outputting multiple CCs, by bypassing all other signals and outputting only the selected 'Teach' CC



4. To assign the Teach CC to any device or mixer parameter in Maschine 2, simply click the the **Learn** button underneath it in the Control Area. If you can't see the Learn buttons, click the downward arrow at the left-hand end of the Control Area to reveal them.



5. Finally, set MidiShaper's **Teach** function to 'Off' and assign the MIDI CC (ie, '9' in our example) to a source via the modulation matrix.