PULSE ENGINE

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Obligatory Legal Stuff

Thank you for purchasing this creative Max for Live MIDI effect!

PULSE ENGINE

Change Log

v2.0

- Pitch and Velocity Range Modes with Flip control

- Clip, Wrap and Fold Decay options for Length, Pitch, and Velocity

- Pulse Density Control

- Advanced Randomization Modes for Pitch and Velocity

- Global Swing Awareness

- Efficiency & GUI Improvements

v1.5

- Added a new playback mode called Fill in which new rate variations are triggered by note offs and pulses only play between incoming notes

- Added a new pulse note length decay that can progressively shorten or lengthen the note duration of each subsequent pulse within a cluster

- Added positive and negative values to the pulse velocity decay to both progressively increase or decrease the velocity of each subsequent pulse within a cluster

- Added an optional output display viewer to clearly see generated pulse activity (in orange) contrasted with MIDI note input (turquoise)

- Bug fixes, performance optimizations, and significant GUI improvements

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Important Info

Pulse Engine is a MIDI effect, which means it cannot be used on audio tracks, and must be placed before instruments.

The device requires Live Suite with Max for Live installed; we strongly recommend Live 10.1.x or higher with Max 8.1.x or higher.

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Installation Instructions
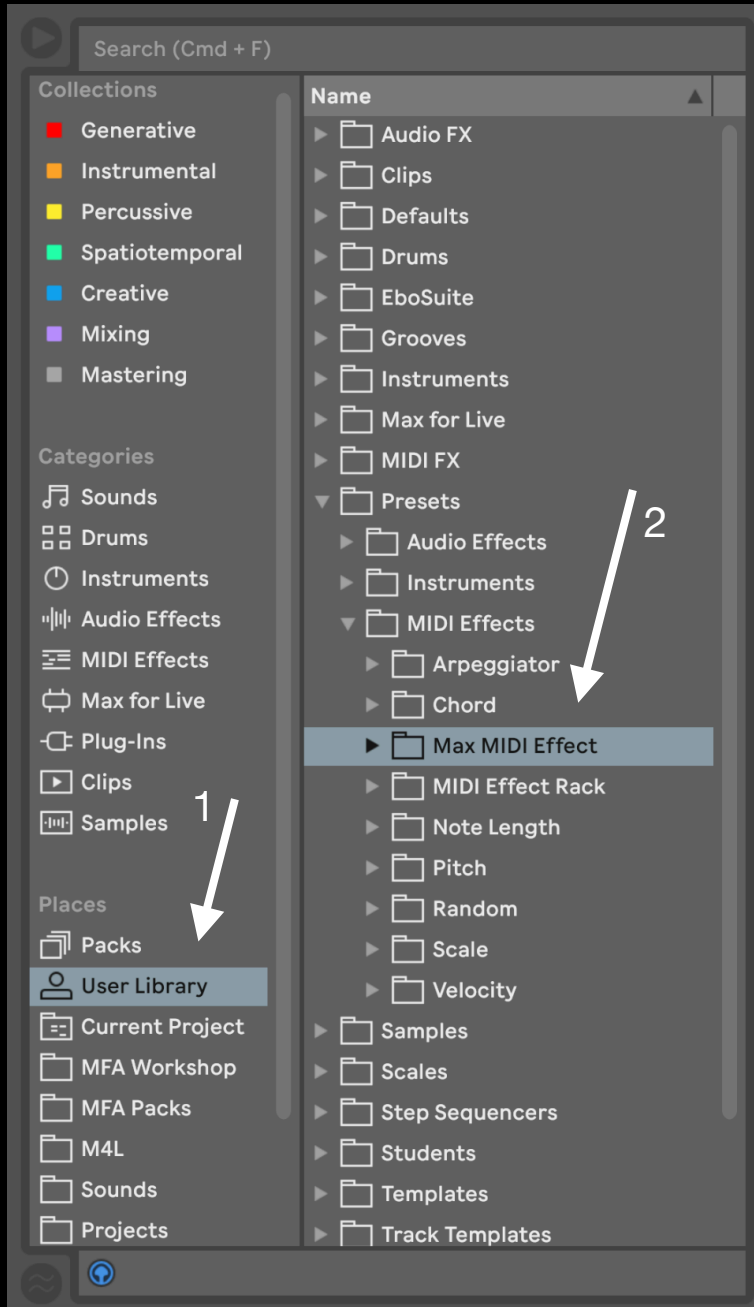
To install Pulse Engine, first double-click to decompress the ZIP archive it arrived in. Presumably you've already done this, because you're reading the manual, also included in said ZIP — good job!

From Finder (Mac) or Explorer (Windows), drag the Pulse Engine folder, including the Presets folder to the User Library in the Places section of Live's Browser (Arrow 1 pictured left). This will copy the required files to your User Library. We recommend dragging it to the Max MIDI Effect subfolder of the User Library MIDI Effects folder (Arrow 2 pictured left).

Once installed, we might humbly suggest adding it to an appropriate Browser Collection, if applicable.

PULSE ENGINE

Device Overview

A unique generative MIDI device, Pulse Engine is designed to easily produce melodic ornamentation or rhythmic augmentation of existing material — or complex musical expressions all its own.

At its most basic, you can think of it as not unlike Live's Beat Repeat device, but for MIDI. Incoming notes can probabilistically be triggered to repeat at randomized intervals within a variety of constraints. Triggered groups of note repetitions are referred to as Pulse clusters.

The pitch of these notes can be transposed manually or via incoming MIDI and optionally randomized to produce diatonic ornamental flourishes, with all notes filtered through the specified outgoing scale and key. Additive per-repeat transposition offers cascading note runs, with various behaviors available when boundaries are met. The base generated MIDI note pitch can also be guided along a contour by the built-in LFO.

That same LFO can be used to control outgoing velocity, with an adjustable Phase to desynchronize it from note pitch LFO control. Velocity can also be randomized, within constraints, while an optional decay fades repetitions out until a new repetition is triggered.

A variety of playback modes allow Pulse Engine to be used in parallel with incoming MIDI, in conjunction with external MIDI, or simply on its own as powerful MIDI production tool.

PULSE ENGINE

MANIFEST
AUDIO

MFA Pulse Engine — MPE

3 **4** 5 6 7

Timing ‖
Full Range ▼
16n ▼ ↔ 64n ▼
Rate 64n ▼
🔒 x 1 / 1
Ramp 0 %
Length Rate ▼
Factor 1.00
Decay ▼ 0 %
0.50 — 2.00

Pitch G8
C3 C-2
Internal C ▼
🌐 Minor ▼
Fold ▼ 12
Luck ▼ 100
Chaos 23 %
Max 24
Min -24
LFO 0 Ø 0

LFO R
Free ◀◀
Sine ▼
Frequency
0.10 Hz
Jitter
0 %
Smooth
0 %

Hold ▶
0 %
Velocity 127
100 1
Decay ▼ 0 %
Luck ▼ 100
Chaos 0 %
Max 127
Min 1
LFO 0 Ø 0

Note Input C3 0 Grid Off

Pulse Output D#2 100 23.5 ms

1
Blend Free ▼
Swing 16 ▼ 0 %

2
Chance 4n ▼
Pulse 100 %
Variance 100 %
Density 100 %

1 · These are the **Global Play** controls. The Blend mode toggle allows Pulse output to be combined with incoming MIDI signal in the default Blend mode, or switched to play only triggered Pulse Engine output in Solo mode, muting incoming MIDI as a result.

The play mode chooser includes four options. In Free mode, Pulses are triggered strictly according to internal settings. In Gate mode, Pulses will only play so long as an incoming MIDI note is triggered; in Side mode, Pulses only play between incoming notes and are muted by new incoming notes. Similar to Gate mode, Note mode also only triggers Pulses with incoming note on messages — but also takes the length of incoming notes to define the Span, described below, and triggers a new possible Pulse rate variation with each note on as well. Finally, Fill mode is triggered by Note Offs, filling the gaps between notes with possible ornamentation.

At bottom are the pulse swing interval rate chooser and amount, also governed by your set's global groove when not pinned locally.

2 · Here we have our **Chance** settings. Chance Span sets the interval at which new pulse clusters will be generated. This is disabled in Note play and Fill mode, with randomizations instead triggered by Note On or Note Off messages, respectively. Pulse determines the probability that pulse clusters will be triggered, while Variance determines the likelihood pulse clusters will be assigned new rhythmic rates. Density controls the probability of how many notes are emitted within each cluster.

3 · Here we find our **Timing** settings. Below the play/pause toggle, the top chooser defines the quantization range, with options to exclude or include nearly any combination of Straight, Dotted, or Triplet rhythmic values; selecting Manual here disables variance and gives full automation control over the Rate chooser. Pitch determines the output rate based on incoming note pitch, while Velocity harnesses incoming velocity values to do the same, both within ranges that appear at left with optional flip.

The Rate chooser defines the current rate of generated pulses, subject to randomization unless in Manual mode. Max and Min control the fastest and slowest rates that can be randomized to. Ramp applies acceleration or deceleration within each cluster.

Length determines how generated note lengths are calculated. In default Rate mode, notes are the length of the current Pulse rate, multiplied by the factor value below. Fix mode allows rates to be set at a separate metrical length value than the current Rate. Chaos randomizes note lengths per cluster.

Finally, pulse Decay determines whether new pulses within a cluster will increase in note length at positive values, or progressively shorten at lower values, within the factor range specified below. Decay can be clipped to that range, wrapped to the opposite range boundary, or folded the other direction.

4 · These are the **Pitch** controls. Up top we have a pitch dial which sets the base note for generated pulses in Internal mode. Switching to Receive mode, note pitch is transposed according to incoming MIDI, switching to a semitone dial to add or subtract from incoming note pitch accordingly. At right are the invertible output range restrictions.

Along with the scale and key choosers, we also have the Global toggle. In default Global mode, Live 12 or an instance of Global Hub elsewhere in the set will control Pulse Engine's Key and Scale, but if you want it to ignore Live 12 and Global Hub or save with a device preset, toggle it to pin scale and key settings locally.

Decay transposes subsequent Pulse repeats up (or down, at negative values) for cascading note runs, retriggered per cluster, with the chooser to clip within to the specified note range, wrapped to the opposite range boundary, or folded the other direction.

Chaos determines the degree to which note pitch values will be randomized, within the range constrained by the Max and Min pitch ranges below. Eight randomization options offer Luck, Drunk, Fluid, Periodic, Acyclic, Exhaust, Decide, and Pattern.

Bipolar LFO amount controls the degree and direction, in semitones, that note pitches will follow the internal LFO. Phase allows you to offset the note LFO from the Velocity LFO if you want to decouple them for more dynamic use of the same LFO curve.

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5 · Here we have the **LFO** settings. It can be toggled off or on to temporarily pause any assigned contours. R enables LFO re-triggering with each note on message — or use the rewind button to re-trigger the LFO manually.

The default Free mode can be toggled to BPM to switch from default Hertz rates to musical rates synchronized to Live's clock via the base rate chooser with multiplier and divisor. Use the shape chooser to select from seven LFO shapes; increase Jitter to add randomization to any shape, and increase smooth to ease sharp corners.

6 · These are the **Velocity** settings. Hold controls the likelihood of note output being sustained. The base Velocity dial determines the default output velocity of triggered pulses.

Increase Decay amount to ramp repetitions down to lower velocities at negative values or up to higher velocities at positive values until a new Pulse cluster is triggered, with the clip, wrap, and fold options when range boundaries are met.

Chaos introduces randomness with the same eight algorithms offered in the pitch section, within the Max and Min ranges below.

LFO controls the amount of LFO motion applied to velocity values; Phase allows you to offset the Velocity LFO from the Pitch LFO if you want to decouple them for more dynamic use of the same contour.

7 · This is the optional note **Display**, shown with the reveal toggle at the far upper right of the device.

Note input is displayed with a cyan line and corresponding MIDI note and velocity values along the bottom, with velocity corresponding to brightness: when no note plays, no line will display.

Generated pulse output is shown with an orange display line, with corresponding MIDI note, velocity, and length along the top; be advised extremely short pulses may not appear detectably.

At bottom right, you have the option to toggle an approximate octave grid off or on for pitch reference purposes.

PULSE ENGINE FAQ

Output keeps transposing when I play MIDI notes — how can I stop this?

Disarm record input for the MIDI track containing Pulse Engine, and toggle transposition off.

Pulse Engine's scale and key are not stored with my Live Set or saved presets — why?

By default, Pulse Engine is in Global scale and key mode, so it will inherit the scale and key from a Live 12 Set or any instance of the included Global Hub, which can be stored with your Live Set. To ignore Global Hub settings or to ensure scale and key are saved independently with older Live Sets or any presets, just toggle from Global scale mode to pin these settings locally.

MIDI output is ever so slightly delayed compared to Live's transport — how do I align it?

Due to internal clock settings, in some cases Pulse Engine output can be delayed by a tiny fraction, typically less than a 512th note. If this is the case, simply record the MIDI output to another MIDI track and quantize it as desired, or adjust Live's Track Delay to align it in real-time.

The rate control is unavailable for automation and Macro or MIDI mapping — why?

When a parameter is auto-randomized, as Pulse Engine's rate control is in all timing modes except for Manual, it cannot be seen by Live's automation system. To allow rate control automation, switch the quantization selector to Manual.

I don't want Pulse Engine to conform to Live 12 or Global Hub's scale and key — is this possible?

Any device that can be impacted by Global Hub or scale awareness has a Global toggle; click this to pin the scale and key to Local Pulse Engine settings. Toggling from Local back to Global mode will automatically force the device to inherit Live 12 or Global Hub settings.

The device is barely audible and seems to be playing super low notes — how do I remedy this?

In some situations, when in Receive pitch mode, Pulse Engine needs to be sent a MIDI note to play correctly, so you can simply trigger any MIDI note on that track via clip or MIDI input to get it playing back correctly.

Pulse Engine looks small — how do I make it bigger?

In the Look/Feel tab of Live's Preferences pane, simply increase the Zoom Display percentage slider to 125% or 150%.

I'm getting glitches and drop-outs in Live — how can I avoid this?

In the Audio tab of Live's Preferences pane, increase the Buffer Size to at least 256 samples; we recommend 512.

I'm getting errors attempting to load the included .adv presets — how can I fix this?

For the Presets to work, you must copy the included "MFA Pulse Engine.amxd" file to both locations: 1. User Library → Presets → MIDI Effects → Max MIDI Effects; and 2. User Library → Presets → MIDI Effects → Max MIDI Effects → Imported

Thank you for supporting us by purchasing this device — we hope it inspires your creativity!

For more information, video tutorials, and other devices, please visit us online at: **manifest.audio**

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