X-TRANSLATE

MANUAL + USER GUIDE

X-Translate

Obligatory Legal Stuff

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X-Translate

Important Info

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This device requires Live 11 Suite with Max for Live installed; we strongly recommend Live 11.1.x or higher with Max 8.3.x or higher.

X-Translate is an audio effect, which means it must be placed on audio tracks, or after instruments on MIDI tracks.

However, it does not process audio on its own. Once placed on an audio or other track, that track must then be selected as the MIDI From source of your desired recipient MIDI track(s) via Live's In/Out routing matrix. Finally, the Monitor setting on that track should then be set to In; alternatively, you can arm the track for recording.

In any case, the audio signal of the track on which X-Translate is placed passes through unaltered.

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Installation Instructions

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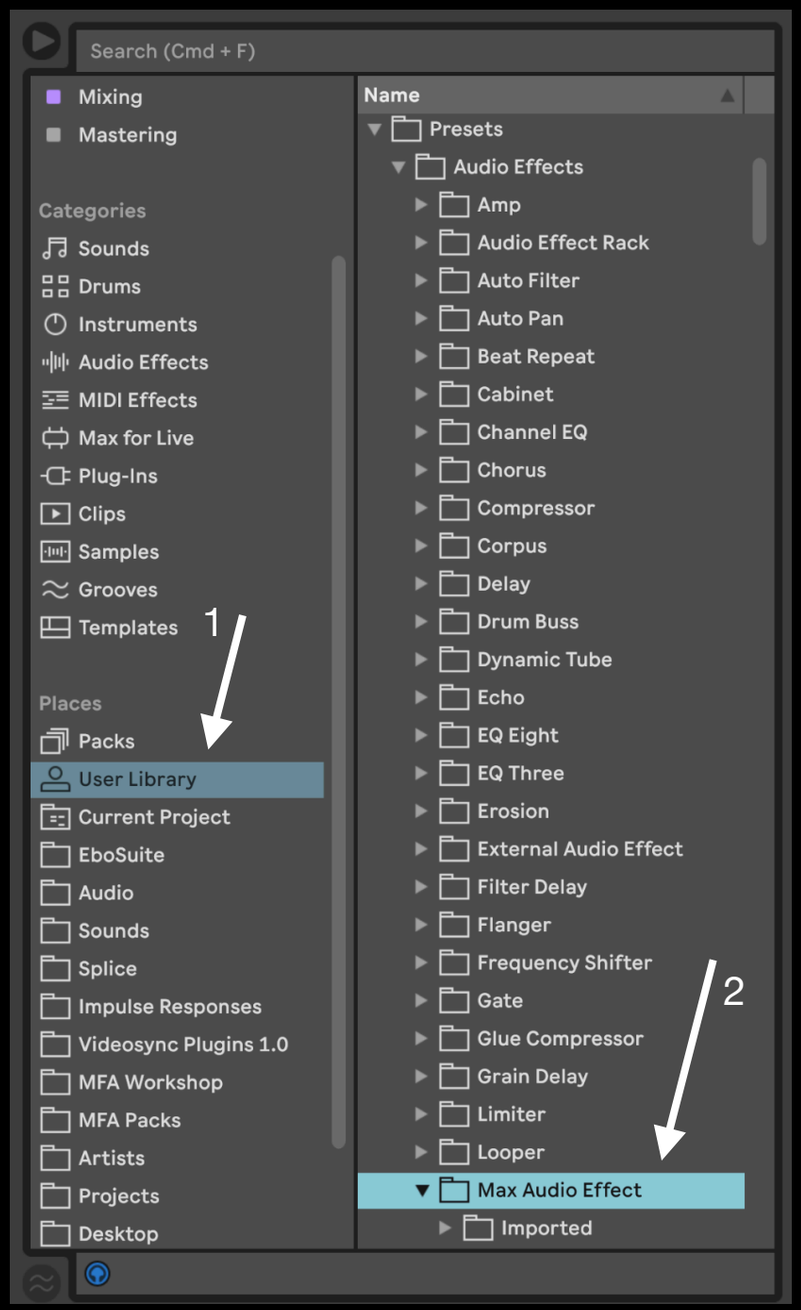

To install X-Translate, first double-click to decompress the ZIP archive it arrived in. Presumably you've already done this, because you're reading the manual, also included in said ZIP — good job!

From Finder (Mac) or Explorer (Windows), drag the X-Translate 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 Audio 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.

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Device Overview

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A unique generative MIDI device, X-Translate is designed to easily and instantly convert audio from any source — audio clips or live input — into MIDI note data that can power any virtual or hardware instrument at your disposal.

While Live features offline audio-to-MIDI conversion, it's not useful in a performance setting. It also lacks the sort of fine-tuning needed to obtain optimal results in context — let alone the option to quantize output rhythmically or harmonically.

In default Melody mode, this device works best with monophonic material — or with strong transient impacts in Drums mode. The more complex the harmonic material you feed the device, the more likely you are to confuse the note detection algorithm on which it relies; that said, if you're looking for experimental results this might be just what you seek.

A variety of input controls allow adjustments to better harness the audio signal for MIDI conversion without changing the actual audio output. Gain boosts the signal, threshold specifies the minimum signal above which translation occurs, while minimum and maximum range controls exclude low or high frequencies that could interfere with the translation process.

Sensitivity and resolution further refine the interpretation in Melody mode, while Drums mode simply triggers a specified MIDI note whenever the threshold is exceeded. In both modes, output can be quantized rhythmically via base metric note value rate with a multiplier and optional reset in bar intervals, and harmonically via Live 12's scale awareness or Global Hub-compatible scale and key.

Finally, output velocity can be boosted or reduced, pitch can be transposed within the selected scale and key, and output can be delayed in milliseconds or in BPM-sychronized base metric note value with multiplier rates for uniquely staggered real-time call-and-response.

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Visual Guide

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1 · These are the **Input Gain** controls. **Gain** boosts or reduces the input signal prior to threshold detection. **Threshold** then sets the value above which signal will be translated to MIDI.

2 · These are the **Mode Switches.** In **Melody**, melodic audio signal is translated to melodic MIDI output based on a root note detection algorithm. In **Drums**, strong rhythmic transients trigger a specified MIDI note when signal exceeds the **Threshold** value. Switch to a modern algorithm with a confidence control on the DAW-only version; not available with the Push 3 version.

3 · These are the MIDI quality dials available in **Melody** mode. Higher **Sensitivity** values will interpret smaller transient and pitch changes as new MIDI notes. Higher **Resolution** values check for new pitch data in shorter windows. Neither are guaranteed to automatically produce better results at higher values — they are both context dependent and should be adjusted until you're happy with the results. In **Drums** mode, you'll see an output **Note** dial and note **Duration** slider, in milliseconds, which specify the pitch and length of triggered MIDI notes; velocity remains signal-dependent but can be altered at output.

4 · These are the frequency **Range** controls. **Ceiling** sets a limit on high frequencies, above which they will be ignored for translation, while **Floor** sets a limit on low frequencies, below which they are ignored for translation. These help focus translation on an optimal range for more accurate results. You can also set whether MIDI output will polyphonic or monophonic with last, low, and high note preference modes for monophony.

5 · The **Quantize** section allows you to specify a fixed timing rate pattern at which new pitch and velocity values will be detected, translated, and output. Once engaged via the Quantize text toggle, the default BPM-syncrhonized mode provides a metrical **Base Rate** with a **Multiplier** and **Divider**: a rate of 16n with a multiplier of 5 will update and output new values (when detected), every five 16th notes. A **Reset** option resets the cycle pattern in bars for more interesting patterns; the default of zero never resets the cycle. Click the **Note** icon to toggle into **Time** quantize mode with seamless takeover to control the update rate with an unsynchronized millisecond rate dial.

6 · The **Display** area shows the waveform in real-time with input **Gain** applied. Along the top we can see the detected incoming frequency in Hz and MIDI note at left, and the scale and key quantized output MIDI note more brightly at right. Along the bottom we can see the detected incoming amplitude in decibels and velocity at left, with the post-processing output velocity again more brightly at right.

7 · Delay the translated MIDI output for staggered canon-style response to the original signal. Delay time is set by a base metrical rate with a multiplier, divider, and then optional millisecond addition.

8 · Here we have the output adjustments. The slider on the left, denoted by the V, allows you to adjust output velocity by +64 or -64, while the semitone transposition slider adjusts pitch output up or down while remaining in the specified scale and key.

9 · Finally we have the **Pitch Quantization** area. Quantize translated MIDI pitch output within 68 scales in any key via the two selection menus. In the default Global mode, X-Translate will follow the scale and key set by Live 12 or any instance of Global Hub, if one is present in your set. To ignore Global Hub or Live 12's scale and remain in a scale and key of your choosing — including Chromatic — switch to **Local** to pin the settings to the specific device. Unpinning will automatically adopt the scale and key from Live 12 or Global Hub, if present.

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Examples

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EXAMPLE 1

X-Translate has been placed on an audio track, 1 Audio, with an SM58 microphone connected for real-time input — though in this case it's translating a pre-recorded vocal audio clip.

The audio track it was placed on, 1 Audio, has then been set as the MIDI From source on a MIDI track, 2 Synth. 2 Synth has Monitor set to In to always receive this input regardless of record enable status. Meanwhile, the originating audio track has been muted so we will only hear the resulting synth's MIDI interpretation but not the original audio.

This instance is using a vocal sample, so X-Translate is in Melody mode. Threshold is set to -50 dB to ignore low volume noise. Sensitivity is up at 65% to pick up more subtle glissando in the vocal performance, while Resolution is down at 30% to avoid updating more often than necessary. The Ceiling is all the way up at 10 kHz, but the Floor is up at 42 Hz to remove any low rumble.

Rhythmic quantization is off and there is no Delay applied, so the MIDI notes should play more or less concurrently with the audio, so long as your latency is set low enough in Live's preferences. Velocity is boosted by 23 and the pitch is transposed one octave up at +12 semitones. All MIDI output will conform to an A# Aeolian (Minor) scale.

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Examples

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EXAMPLE 2

X-Translate has been placed on an audio track, 1 Audio, with an SM58 microphone connected for real-time input — though in this case it's translating a sampled drum loop.

The audio track it was placed on, 1 Audio, has then been set as the MIDI From source on a MIDI track, 2 Synth. 2 Synth has Monitor set to In to always receive this input regardless of record enable status. Meanwhile, the originating audio track has been muted so we will only hear the resulting synth's MIDI interpretation and not the original audio.

This instance is using a drum loop, so X-Translate is in Drums mode. Threshold is set to -11 dB so as to only be triggered by peak transient impacts. With Drums mode enabled, it will trigger C2 as the outgoing MIDI note with a rather short duration of 77 milliseconds.

Rhythmic quantization is enabled at 16th notes with a delay of one 8th note, so the MIDI will be quantized nicely but staggered from the original signal to work more nicely alongside it when playing together. Velocity is boosted by 42 while the pitch is left untransposed. All MIDI notes will play unaltered through the Chromatic scale, which has been pinned locally to ignore Global Hub (or Live 12's project scale and key settings).

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Tips

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The quality of the input signal directly affects the potential for X-Translate, or any pitch tracker, to guess the right pitch.

Some suggestions on how to improve input for pitch tracking:

- X-Translate wants a monophonic signal. It will be unreliable if more than one pitch is presented at the same time. When tracking a polyphonic instrument, be careful not to let notes overlap.
- Reverberation also creates an input with multiple notes at once. For best results, the signal should be as dry as possible. Usually, that means a closer microphone position is best.
- However, extra sounds, such as key clicks, breath noise, and fingers on strings should be minimized. If the input microphone has a low-cut filter, that would be helpful, as are wind screens and pop filters. If possible, a dedicated microphone for tracking might be wise, since the needs of recording or sound reinforcement are different than those of tracking.
- X-Translate handles broad-spectrum noise relatively well, but trying to improve the signal-to-noise ratio is still a good idea. Adjust the input level so that the signal to be tracked is substantially higher than the noise floor, and use the best available equipment.

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X-Translate FAQ

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Real-time output from X-Translate seems delayed — why?

Open Live's preferences, go to the Audio pane, and reduce the latency to lowest setting you can without straining your CPU — ideally 512, 256, or 128 — for real-time performance. Also, make sure X-Translate's delay time is set to 0.00 ms, or has a multiplier of 0 in synchronized delay mode. Finally, you can adjust Live's Track Delay for the receiving MIDI track to further compensate any remaining timing issues.

X-Translate doesn't seem to recognize all new incoming notes, how can I address this?

When using monophonic material with long decay or release times, you may want to increase X-Translate's Threshold value so it can better focus on the peak values of new note transients rather than ongoing sustain.

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

Due to internal clock settings, in some cases X-Translate output can be delayed by a tiny fraction. If this is the case, simply quantize it as desired in recorded MIDI clips, or quantize it via X-Translate's built-in quantization options. You could also adjust Live's Track Delay to try to compensate for this in real-time.

X-Translate's scale and key are not stored with my Live Set or saved presets — why?

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

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

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

X-Translate looks small — how do I make it bigger?

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

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