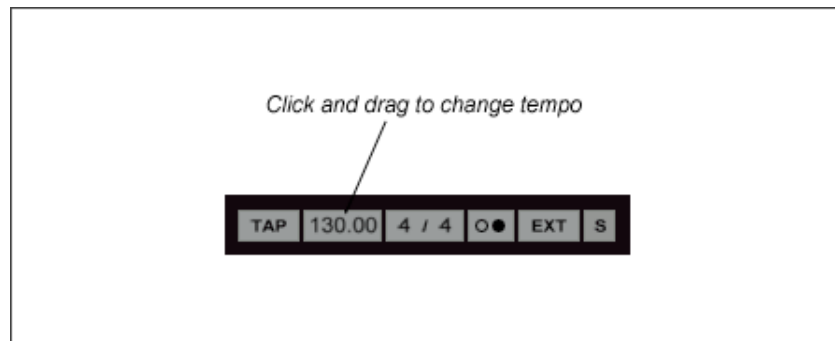


Live 3: Warp Markers 1 - An Introduction

By Chad Carrier

1. The Warp Principle

Ableton Live is built around an astounding real-time, pitch-shifting, time-compressing and -expanding audio streaming technology called the “warp engine.” This warp engine allows Live to play back audio files of any length and sample rate at any speed and any pitch. One of the first things that one notices when being introduced to Live is its ability to change the tempo of an entire song on the fly. If you haven’t noticed this yet, play the demo session and drag up and down in the Tempo field in the upper-left corner of the screen.

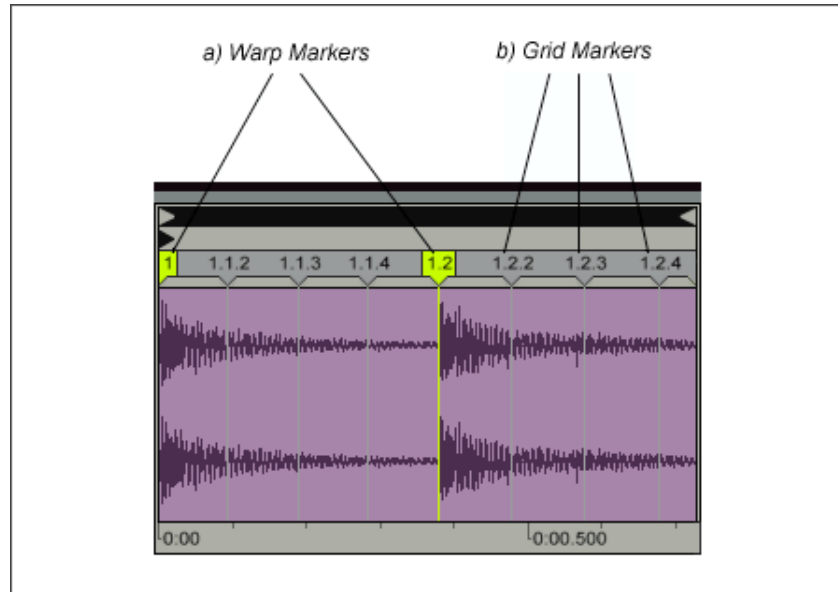


Hear how easily Live speeds up and slows down the audio? It’s Live’s ability to make changes with the warp engine *while running* that gives the program its true power.

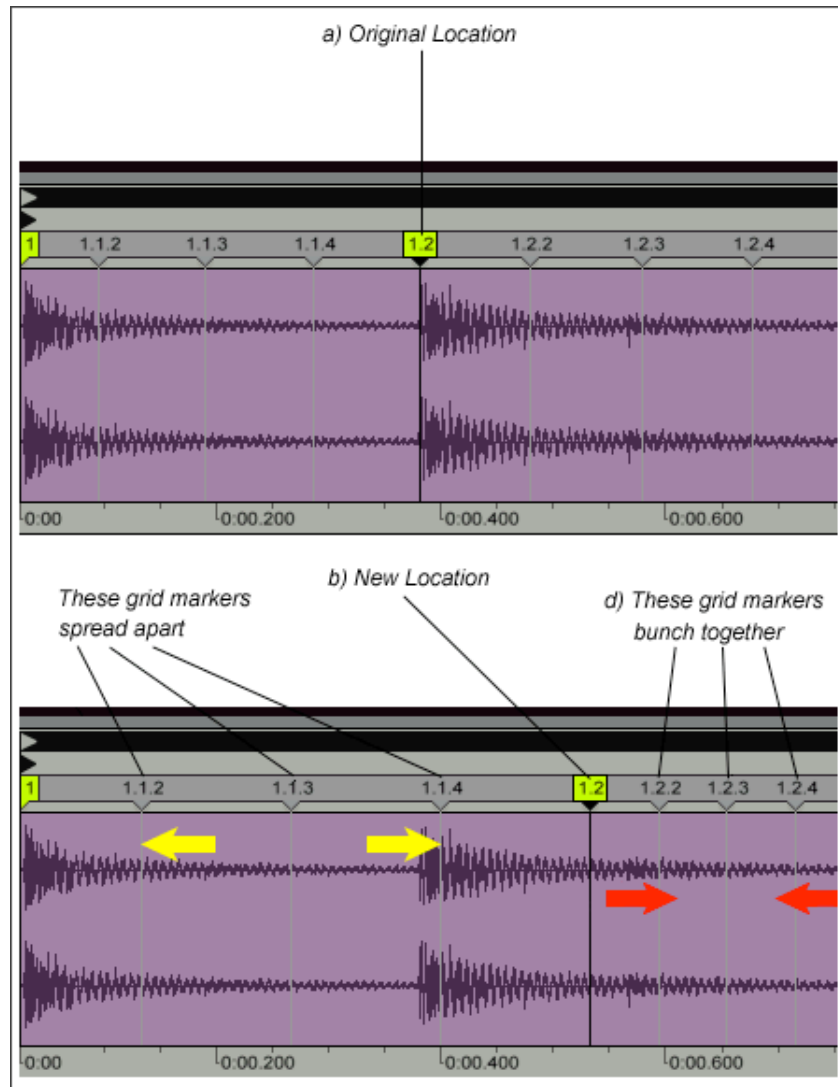
So, if the audio playback rate can be changed so easily, speeding up or slowing down only sections of the audio file should be possible, too. Indeed, these adjustments are easily made, and with only a few mouse clicks. Introducing: The Warp Marker!

2. Make or Break

Warp Markers are used to mark beats in an audio file. The Warp Marker system actually consists of two parts. In the illustration below, you’ll see (a) the green Warp Markers themselves and (b) the accompanying grid markers. A Warp Marker is actually a special form of a grid marker. A grid marker can be changed into a Warp Marker or vice versa. To see how this change is achieved, add a clip to the Session View and double-click one of the grid markers. It will turn green, thus becoming a Warp Marker. Double-click it again, and it will revert back to a grid marker.

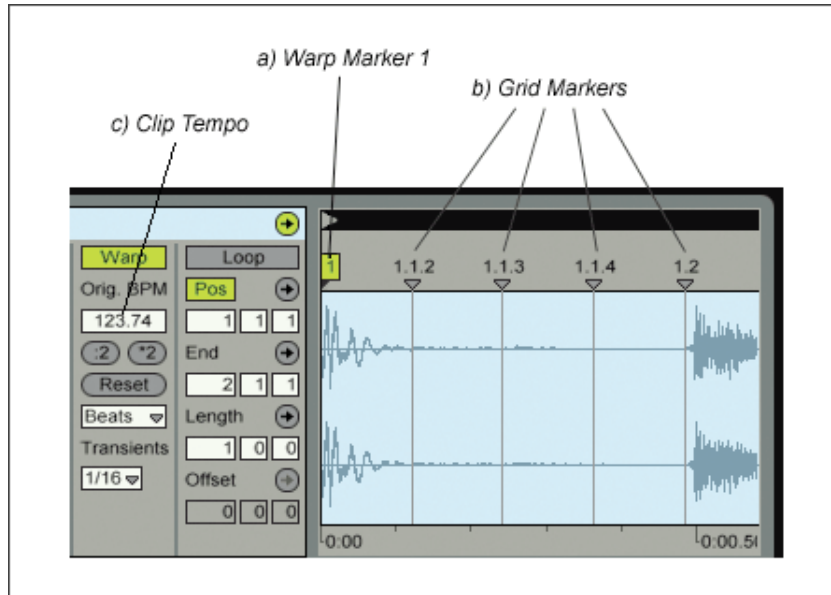


So what is the difference between grid markers and Warp Markers? Well, the main difference is that you can move the location of a Warp Marker, but the grid markers are automatically placed by Live. As you make and move Warp Markers around in your clip, the grid markers will evenly distribute themselves between those Warp Markers. As you can see below, when a Warp Marker is moved from (a) one location to (b) another, the neighboring grid markers (c) move (d) farther apart or (e) closer together. Try experimenting with moving these around to familiarize yourself with this relationship.



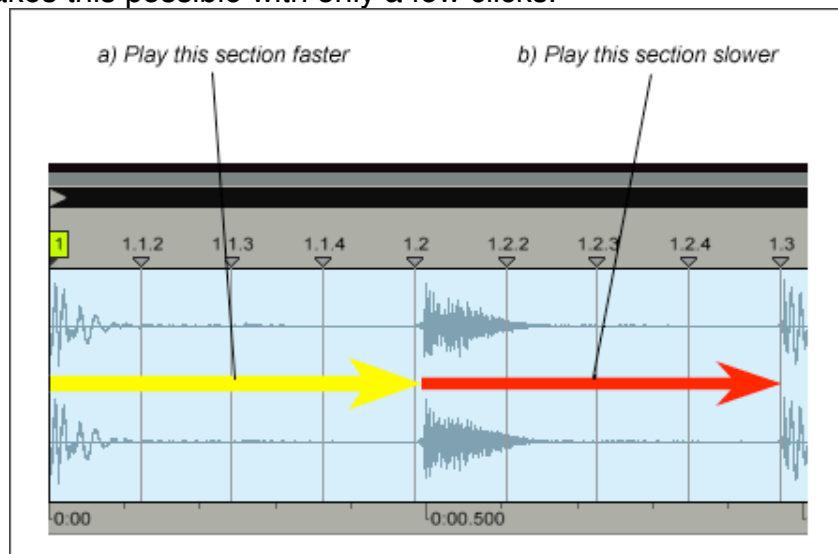
3. Mark Me Up

We've discussed what Warp and grid markers look like, and we know how to make, move and destroy them, but what is their purpose? Simply put, grid and Warp Markers are used to show the location of beats in a clip. The illustration below shows a simple drum loop with (a) Warp Marker 1 engaged (Marker 1 is always activated) and all the (b) grid markers falling where they will based on the (c) clip tempo. You can experiment with the clip tempo setting to see how the grid markers move accordingly. Note: If the clip's original tempo field is not active, click on Warp Marker 1 to activate it.

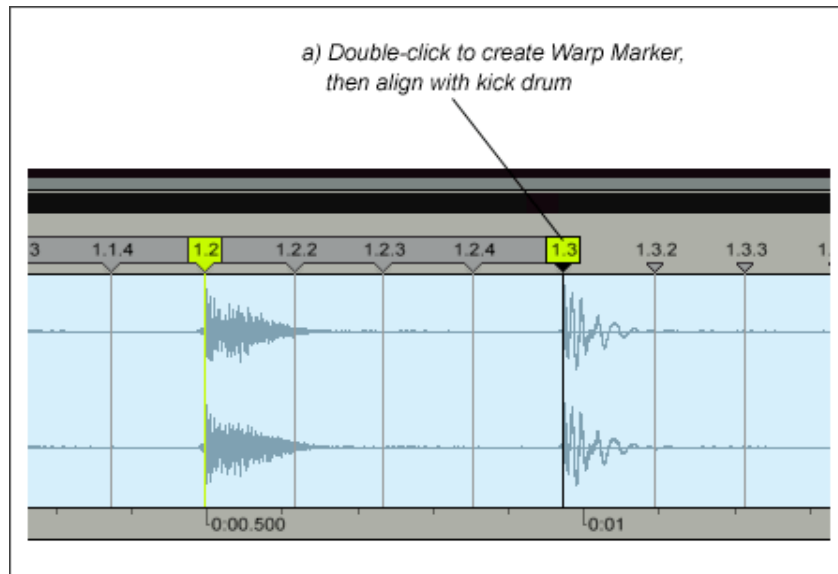


So, as we can see in the above illustration, the snare drum that was played on beat 1.2 is late. This rhythm was played by a real drummer, and he happened to hit the snare “in the pocket,” a term for playing a little late. While this beat feels great by itself, we will run into problems when we start layering other rhythms or clips with this one. The other clips will have their beats landing directly on 2, but this clip’s snare will be slightly late, causing a double-hit or “flam.”

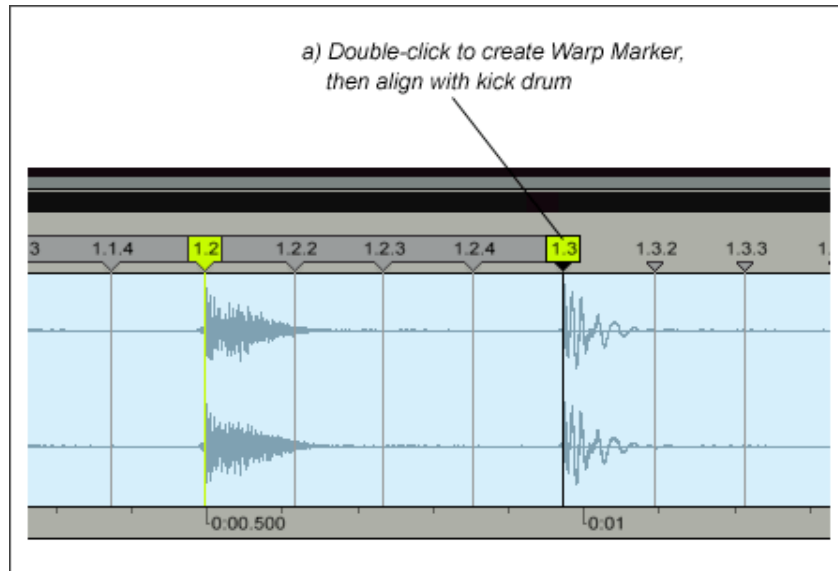
What we need to do is move the snare so that it plays just a little earlier. We can do this by speeding up playback from beat 1 to beat 1.2 (see (a) below), thus causing Live to arrive at the snare earlier, which will bring it into time. We will also need to slow down playback from beat 1.2 to 1.3 (see (b) below) to ensure that everything after beat 1.3 remains in the same location, which is already correct. While that may sound like a complicated procedure, the Warp Marker system makes this possible with only a few clicks.



If we double-click grid marker 1.2, it will become a Warp Marker and turn green. We can now (a) click and drag this Warp Marker to the right until it is lined up with the snare hit. By placing Warp Marker 1.2 in this location, we've indicated the correct position of beat 1.2 in this clip. Live will automatically play faster from beat 1 to beat 1.2, thus arriving at this new location at the proper time.



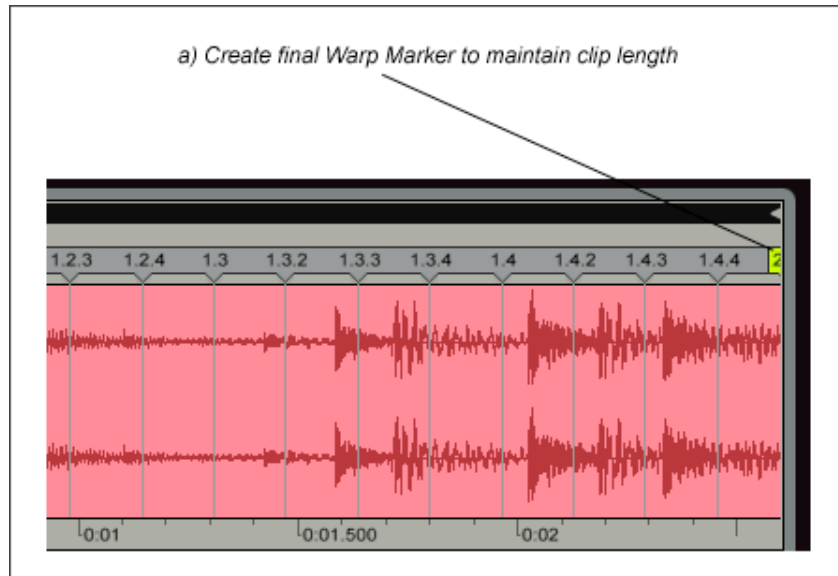
While we've now fixed the snare on beat 1.2, we've caused the grid markers after Warp Marker 1.2 to shift to the right (see (b) above). Now, the remaining beats in the clip are early! To fix this, we'll convert grid marker 1.3 to a Warp Marker and move it left until it's in line with the kick drum on beat 1.3 (see (a) below). This causes Live to play slower from beat 1.2 to beat 1.3, which brings the rest of the clip back into time.



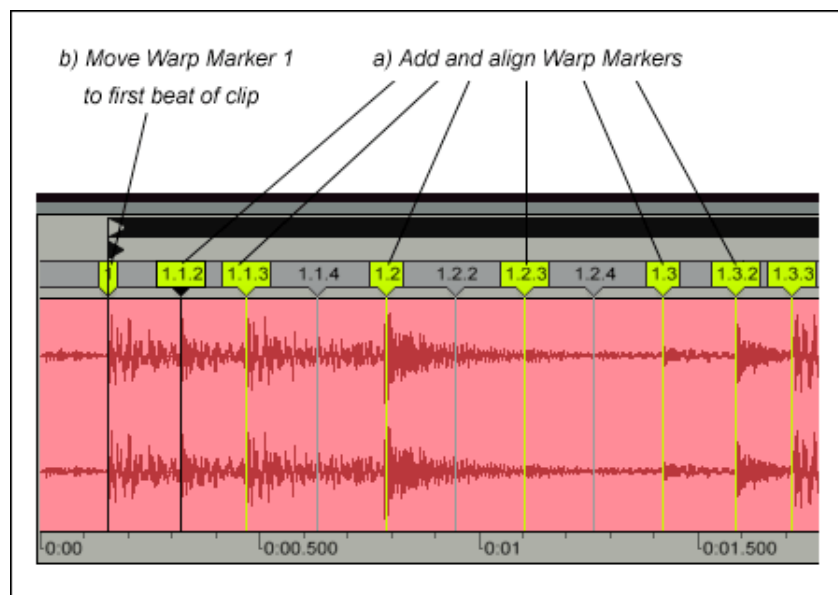
While fixing timing issues in a left-to-right manner may seem to be the most logical approach, there is still a slightly more efficient way of warping a clip. In the previous example, when we fixed the first timing issue at beat 1.2, we inadvertently caused another timing issue, since all of the grid markers after beat 1.2 moved when we placed our first Warp Marker. So, a more effective method would be to lock the grid marker at beat 1.3, which is already in the proper location, *before* fixing the timing problem at beat 1.2. This way, when we modify the location of beat 1.2, beat 1.3 and all of the following grid markers will stay in place.

4. Major Overhaul

The following example is a little more hairy. Below, we can see a great number of timing problems. Not only was the drummer playing with a very relaxed style, but the sound file starts before beat 1! To fix this, we will employ the right-to-left manner discussed above. We'll begin by marking the last beat of the file (see (a) below). Now, any changes we make will not cause the length of the file to change by grid markers being moved off the right side of the screen.



We'll now convert a few grid markers into Warp Markers and place them in their proper locations (see (a) below). Once those Warp Markers are in place, we'll move Warp Marker 1 (at the left side of the screen) to the downbeat of the drum pattern (see (b) below).



Voila! With only a few clicks, we've marked the start of the loop, the end of the loop and the various beats in between. This loop will now play in perfect sync with the loop from our first example.

5. Cleared for Warp Speed

So that's the way we use Warp Markers to bring our various loops into sync with one another. While the examples we've examined have utilized short drum loops, this Warp Marker procedure will work on clips of any length. This same procedure can be used to bring an entire song into correct timing. See the "DJing with Live 3: Fifty Turntables and a Microphone" tutorial on the Ableton website for an excellent example of this procedure.

About the Author:

Omsk Information is the collective works of Chad Carrier, an innovative electronic music producer and engineer. Besides creating hypnotizing minimal house and techno, Omsk Information also provides tools for production, including original Native-Instruments Reaktor and Cycling '74 Max/MSP devices, and is also involved in technical marketing and product development at M-Audio. Omsk Information uses Ableton Live for all live performances. Visit www.omskinformation.com for more details.