

Mashing For Beginners - Tracktion Tutorial.

Thanks to Phillip Meehan, I've been lucky enough to bring you this tutorial covering 'how to create mashups' using Tracktion.

Overview

The term "mash-up" or "bootleg" (or, more commonly, just "boot") describes the result of mixing together two or more records to create a whole new track. Though originally performed live using turntables and DJ mixers, recent advances in sequencing software have taken this art-form to a whole new level. This document outlines how mash-ups can be made using the software package [Tracktion](#).

Introduction

The first step in creating a mash-up is... to have an idea... Though it is certainly possible to simply start intercutting and overlaying two favourite tracks, you have to ask yourself "why?" The best (and most successful) bootlegs to date have cleverly juxtaposed two records that should not even be in the same record collection, let alone the same mix, which are then combined to sound like a totally original piece of work.

One of the finest examples of this is Freelance Hellraiser's "Stroke of Genie-us" which combined a home-made instrumental of The Strokes' "Hard to Explain" with an acapella vocal track from Christina Aguilera's "Genie in a Bottle". The end result made a great dance track, made the listener smile, and - to my ears at least - sounded a whole lot better than either of the original tracks.

Okay, so you've got an idea of which tracks you want to start cutting together. Ideally, one of them should be an acapella (a vocal-only version of that track) which you can often find on vinyl releases of singles, or as bonus tracks. The internet is a great way of digging out these versions of songs - spend just a short time browsing around and you should be able to find unmixed, unprocessed vocal tracks from records by a huge number of artists available for download. File-sharing programs such as [Soulseek](#)* are a great way of seeing 'what's out there', too.

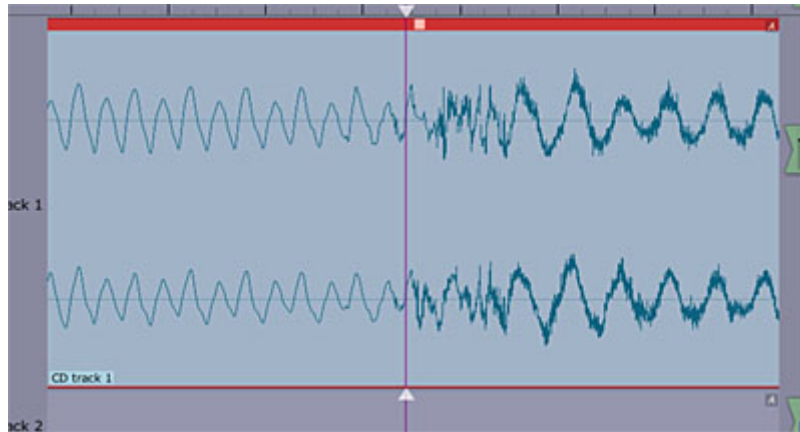
The other useful element is an instrumental version of one of your tracks. Again, instrumentals are often available as bonus tracks on singles, but can also be created by processing the vocal version in Tracktion - more on this later. First things first, let's get that tempo going:

1. Setting a tempo grid

Trying to edit/remix complete mixes without first making an accurate tempo grid is like going hiking without a map. Not only will it take much longer and you'll get lost, but you might stray onto a firing range and get shot.

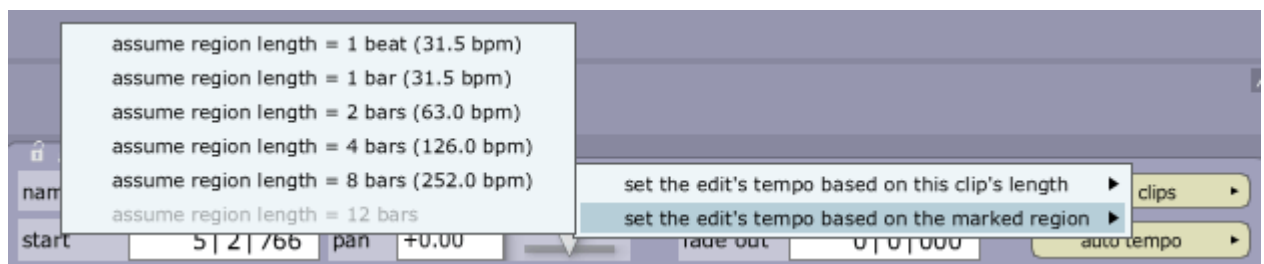
Start with an empty edit and either import your stereo file onto track 1, or import the song directly using Tracktion's "import from CD" option. First of all, cut any intro or lead-in off the clip so that it comes in at the start of a verse or chorus, and on a drumbeat (you'll see why in a moment).

Tip: Tracktion has lots of ways to cut a clip on an exact drumbeat. You can double-click the clip to preview it, then click-and-scrub with the mouse and press the backslash [/] hardkey when you're on a drumbeat, or - my preferred method - double-click and mouse scrub to find the drumbeat, press the spacebar TWICE to stop playback, use the mousewheel to zoom in on where you stopped and simply use the waveform display to cut the clip just before a drumbeat.



Mark the start of the clip by tabbing to it (using the **[PgUp]** and **[PgDn]** hardkeys) and pressing the **[i]** hardkey to define the in-point of a region). Now, play for 4 or 8 bars and mark the out-point of the region using the **[o]** hardkey). To make sure your region is spot-on, put Tracktion into "loop" mode and listen carefully - if the loop seems slightly 'out' then you can zoom into your out-marker, drag it slightly and listen again.

Once you've set your region to be exactly 4 or 8 bars (or as close as you can get it) click on the **auto tempo** button in the Properties panel and select **set the edit's tempo based on the marked region**. A pop-up list of tempos will appear, and yours should be the one next to **assume region length = 4 (or 8) bars**. As a guide, see what the expected tempo in brackets is - if it's roughly between 80 and 140 bpm then that's probably correct, if it's a lot more or a lot less then perhaps your marked region is either longer or shorter than 4 or 8 bars - either click a different bar length to give an appropriate tempo, or remake your region to be exactly the correct number of bars and try **auto tempo** again.



Here's the first exciting moment... turn on Tracktion's click track and press play - with luck, the clicks should be exactly in time with your imported track. Listen for a minute or so, as the click will very likely start to drift very slightly. Don't worry, this is normal!

If your tempo is drifting out after 10-20 seconds or so, simply press **timecode** and **change tempo/time signature** and see what the bpm was calculated as. If it's a number like 125.92 or 118.06 then try rounding it to the nearest whole bpm - a lot of modern music is created on sequencers where the composer typed in a whole number to begin with! Before playing it back against the click to see if it's more in sync, remember that changing the tempo will have moved the clip's start point, so click on the clip and set its start point to be **(anything) | 1 | 000** (now that's why you cut the beginning off the clip earlier!) Press play and see if the click is tighter - if not, continue to nudge the tempo (and start time) until it remains in sync for 30 seconds or more.

Tip: Don't bother spending a whole day 'tweaking' your tempo - get it about right and simply put cuts in the clip every verse/chorus and pull it back in sync at those points. Trust me, if your tempo was close to start with, you'll never hear these little resync-edits when you play it back!

When you've established your tempo grid, trim the beginning of the track back out so that your base track is now complete (and in sync with bar/beat gridlines and the click track). This makes editing/syncing up of material against your base track much easier - just turn on snap and everything will just, erm, 'snap' in sync.

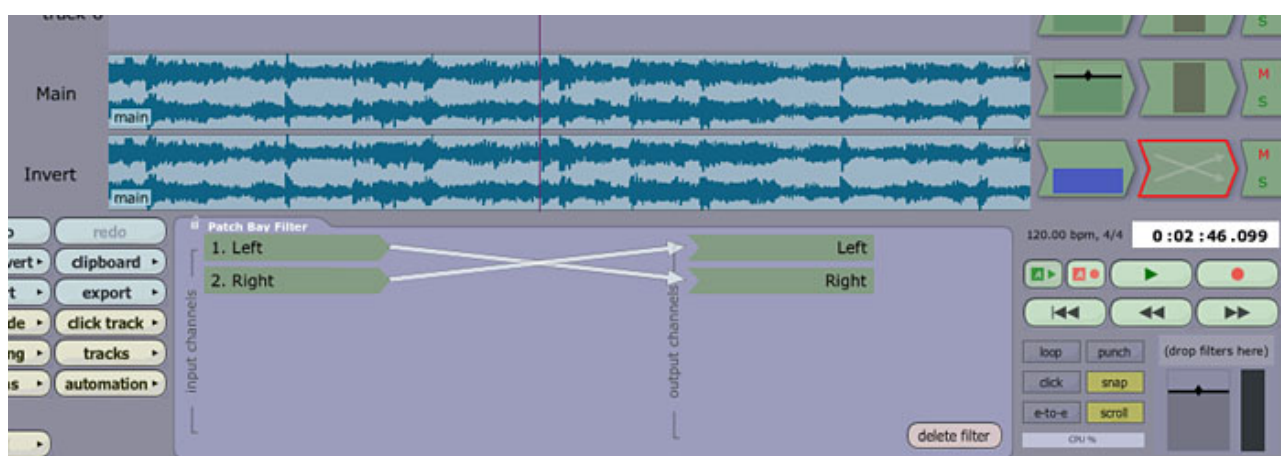
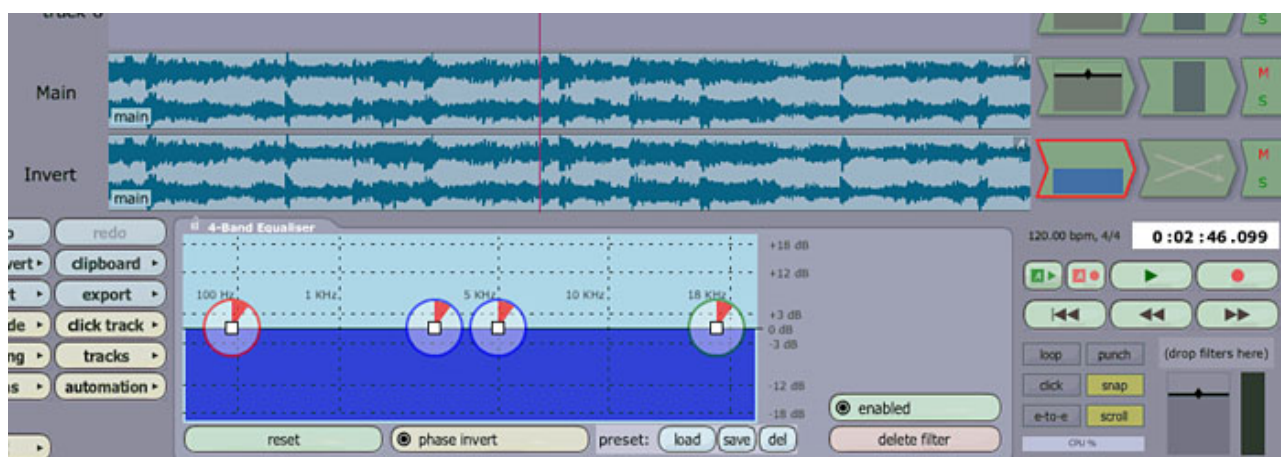
2. Removing vocals

As was mentioned earlier, the best base track for a mash-up is an instrumental version of a well-known song, but if you can't find one, and it's too much work to construct it from re-edited middle-8s, intros and outros, it is sometimes possible to remove (or at least attenuate) the original vocal track - here's how, but first, concentrate - here comes the science part:

Normally, the vocal part of a song is (a) mono and (b) panned centre (this is, of course, a massive generalisation, but still holds true for a large amount of recorded material). With a stereo recording, there is no 'centre channel' - if you want to pan something into the centre of the stereo image, you simply add the same amount of it to both the left and right channels. A centre-panned vocal track, therefore, is on both the left and the right channel, at exactly the same level and with the same EQ etc. So by inverting the phase of the left channel and adding it to the right, this will effectively cancel out any centrally-panned mono component of the song and leave just the rest of the stereo image.

Phase-reversal is a tried and tested technique that can actually give surprisingly good results. Where it falls down is when there are stereo effects (particularly chorus and heavy reverb) applied to the vocals. Phase-reversing the track cancels out the mono vocals, but will leave the stereo reverb 'wash' uncanceled, which may be too obtrusive in many cases. Here's how to phase-reverse in Tracktion:

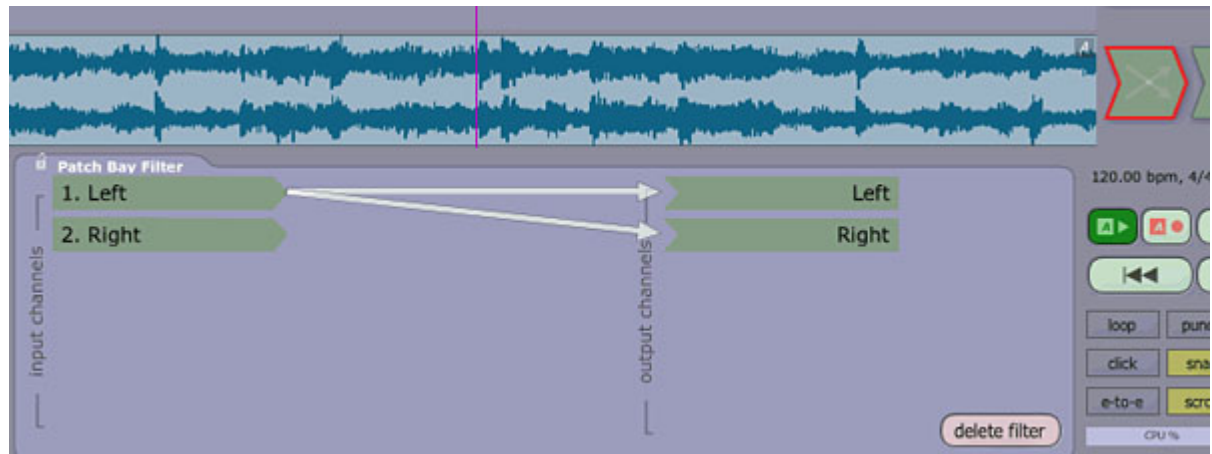
Copy your base track (on track 1) to another parallel track - the easiest method for doing this is to select Track 1's name field at the left of the screen, and simply press **[Ctrl]-[C]** then **[Ctrl]-[V]**. On this parallel track (track 2), drag down a Tracktion EQ filter, followed by a Tracktion patchbay filter. Click **phase invert** on the EQ filter and swap the left/right channel assignments on the patchbay filter (as below):



For this to work successfully, both tracks should be at an identical level and with no other EQ or effects. If you change the volume of one of the tracks, you'll notice the vocals creeping back in. As was mentioned earlier, this technique can give very good results on some recordings and

particularly poor results on others, and, because it relies heavily on phase-correlation between the Left and Right channels, might give unexpected results with tracks that have been previously-compressed using a compression system such as MP3 or Ogg-Vorbis.

Note: Though this may not be of great concern to most people, it should be pointed out that the technique described above produces stereo tracks that are 180° out of phase, and therefore disappear completely when played in mono! If mono-compatibility is a problem, another patchbay filter can be used to turn the vocal-less track into a mono signal, as shown below:



3. Acapellas

As was mentioned earlier, a surprising amount of unaccompanied vocal tracks of famous songs have found their way onto the internet. These are generally referred to as "acapellas", which I believe is Greek for "in the she-goat" (though I might have got that wrong).

Unfortunately, whilst the section above dealt with the removal of vocals from a complete mix, the reverse is sadly not true - there is simply no easy way to isolate the vocal track from a complete mix. One method which may be worth trying (but will almost certainly fail!) is if you happen to have a full version and an instrumental version of a track. Using a similar phase-reversal technique as outlined above (but without the Patchbay channel-swapping), you can turn the instrumental track out-of-phase and add it to the full track, which - in theory - will result in the total cancellation of everything except the vocals, leaving you with an acapella. In practice, it's virtually impossible to align the two recordings accurately enough, which just leaves you with a big, phasy mess, but you could give it a go...

Assuming you've come by a vocal-only mix of a record, the next thing to do is to try it up against your shiny new instrumental, which you created earlier. A lot of these "unofficial" acapellas are MP3s - which Tracktion currently doesn't import - so first you have to turn them into WAV files. Strangely, not all audio software packages let you do this, but if you have a CD-writing program, have a close look as MP3-WAV conversion is actually built into a lot of CD burning packages (or you could just make an audio CD of your MP3 acapellas, and import them directly using Tracktion's import from CD feature).

Once you've imported your acapella into Tracktion, simply "chuck it in" anywhere and start playing, simply to get a 'feel' for whether this will work or not. If it feels like there might be some mileage in getting this to work, we need to sort out both the tempo and the pitch of the acapella... and this is something Tracktion does very nicely indeed...

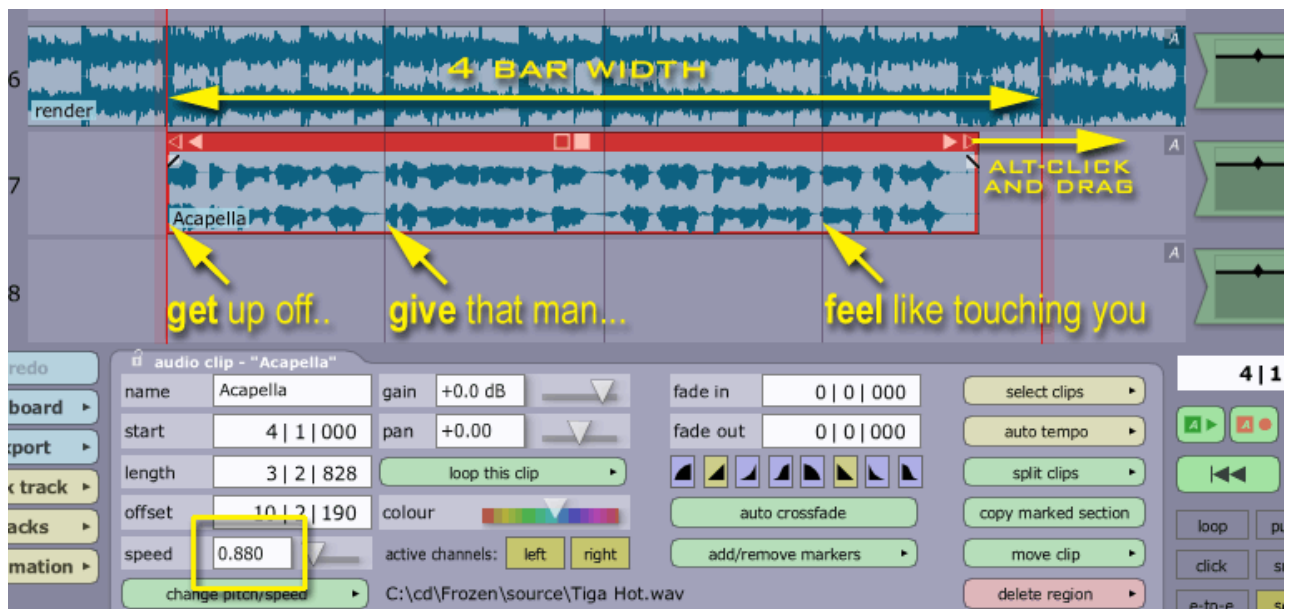
Before stretching or pitch-shifting, the easiest thing to do is to trim the acapella so it's a neat 4 or 8-bar length and - most importantly - cut it and fit it so it starts on an exact beat. Here's an example:



If you play the example above, you'll hear that although the acapella section starts okay, it soon drifts out of time - coincidentally, the pitch seems fine, but we'll worry about this later. On the diagram above, key words in the acapella that should fall on the beat have been highlighted. As can be seen from their waveform, they are all early, which means the acapella clip needs to be slowed down.

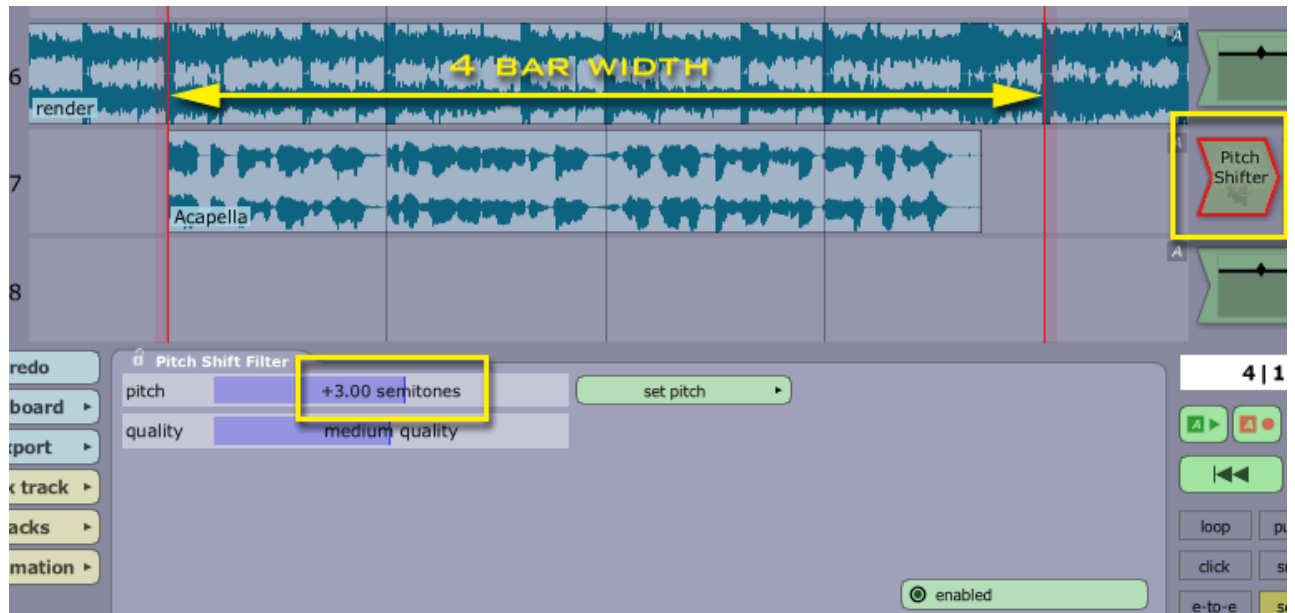
To do this, simply hold down the **[Alt]** hardkey, and then click-and-drag the outline triangle at the top-right corner of the Acapella clip. This will stretch the clip by slowing it down, and you can see the three key points in the waveform line up with the barlines (and the waveform of the instrumental track above it). When it looks like it's in sync, play it and have a listen - you can always nudge the **speed** property of the clip by dragging the little triangle next to it:

*Tip: For more accurate nudging of any Tracktion parameter (such as the speed amount) hold down the **[Ctrl]** hardkey whilst click-and-dragging the parameter's slider.*



As can be seen above, the waveform of the Acapella clip now lines up with the edit's barlines, so it's now in sync. As you can see from the speed property (highlighted in a yellow square) the speed of the clip has been slowed down to 0.880. THIS NUMBER IS IMPORTANT, AS IT'S THE VARISPEED FACTOR FOR THE WHOLE OF THE ACAPELLA TRACK, NOT JUST THIS ONE CLIP.

Finally, we need to sort out the pitch of the Acapella clip - by dragging down Tracktion's Pitch-shifter and trying out different pitch-shift amounts by ear until we get something that sounds good.



...and there you have it - if you click the diagram above you'll hear a (preview-quality) MP3 of the Acapella clip varispeeded and pitch-shifted to match the instrumental clip we made earlier! We can even extend this Acapella section by simply dragging out more from the original clip at the beginning or end - it'll all remain in sync and at the correct pitch.

Adding more clips from this acapella is now relatively straightforward - we know that each clip we add to this edit has to be varispeeded by 0.880 and pitch-shifted by +3 semitones, so it's just a matter of cutting lines up and sliding them around until they feel right!

Now get mashing...

This was written in 2004.

To hear mp3 samples used in this tutorial, and the mashup created with the tutorial click [here](#).

All credit for writing should go to **Phillip Meehan** - <http://www.paintingbynumbers.com>

*Edit by BCC - from KaZaa to Souseek.