

SAMPLECRAZE



MIXING SIMPLIFIED

THE DEFINITIVE GUIDE FOR PRODUCERS
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Mixing Simplified: Demo Chapter

This is an excerpt taken from Eddie Bazil's book, '**Mixing Simplified**'. To download the complete book with all audio examples, please go to:

<http://www.mpc-samples.com/product.php/64/mixing-simplified/>

12. Using EQ at the mix stage

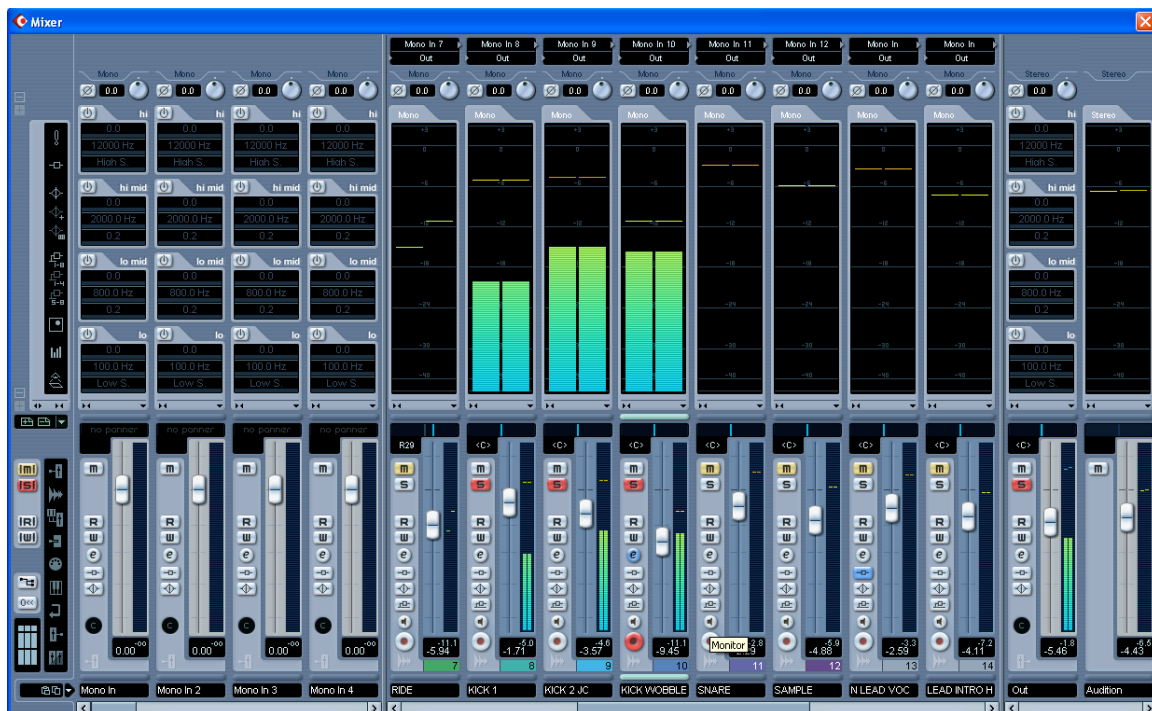
As we discussed in the last chapter, I am going to EQ the drums first. This will set the drive of the mix in motion. The genre has dictated that I follow this process first, as opposed to using EQ for the vocals. As the genre is Hip Hop, the drums are crucial to the 'feel' of the mix.

So, let us begin.

The best way to EQ drums is to solo the drum channels that represent similar frequencies. I always start with the lowest frequencies and work up from there. I have 3 kicks to EQ in this mix.

I also need to consider any other drum sounds that fall in the same frequency range as the kicks. Normally, the bass sound would also be soloed with the kick sound so that the EQ process does not end up creating frequency clashes.

The image below shows how I have solo'd the 3 kicks together.



Remember when I said to group the necessary instrument sounds together?

Well, here is a perfect example as to why grouping relevant and complimentary sounds together and next to each other is so important.

It makes for easy navigation and editing.

I am now going to select a certain EQ module and also decide on how I want it to appear. Some people like dials, others prefer numerical representation etc.

I like dials....pah!



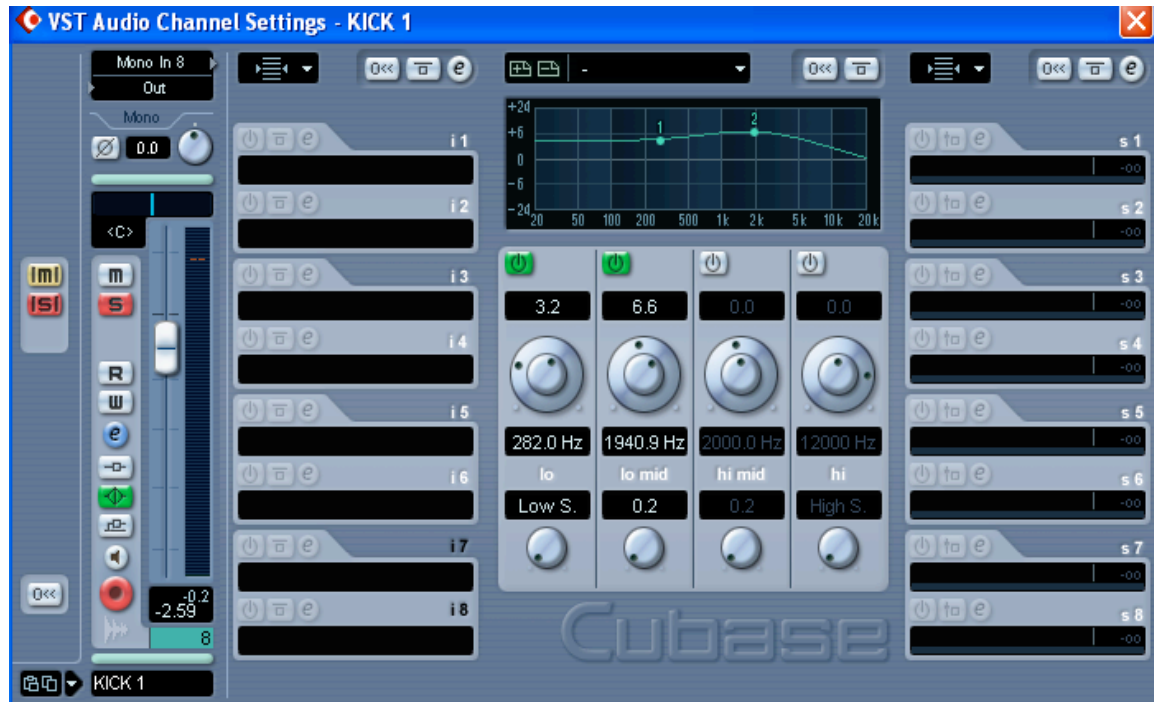
There, dials everywhere! I am joyous. The image above shows that I have applied some EQ to the first kick drum sound, predominantly in the low to lo-mid frequency ranges. Now, this might be hard for you to digest, as figures are being used, so I will use the audio channel editor to show you how these parameters look in graphical form. Sometimes, the graphical display can give you a lot more information that a numerical display, as you can see the shape of the EQ curve on the sound being processed.



The image above shows the audio edit window that I have opened. I have placed the graphical representation of the EQ settings I have applied next to the same dial settings in the mixer window.

The graph clearly shows where I have applied boosts.

The image below is a magnification of the EQ section in the audio editor.

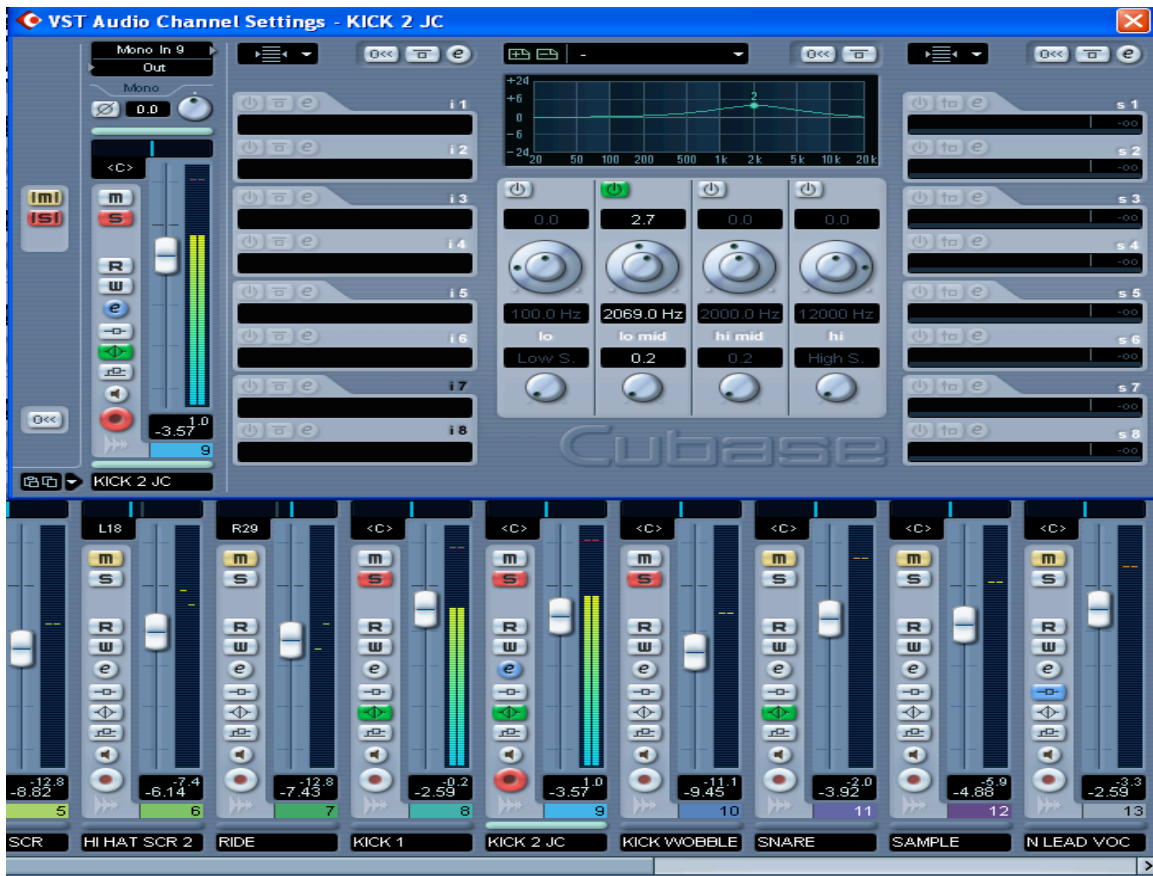


The figures at the bottom of the graph represent frequencies and the horizontal figures on the side represent the dB boost (gain). The 1 and 2 represent the EQ modules I have selected from the mixer window, starting from Low (1) to High (4).

The curve that I have created shows that there is a boost at 282 Hz of around 5 dB (low shelving filter) and this is maintained till the next boost stage at 1940.9 Hz with a Q factor of .2 and a boost of 6 dB.

Q, in this instance, denotes a range from Low Shelving Filter when set to minimum at the Low modules, and Low Pass Filter when set to maximum when using the High module. Of course, there are varying stages of this at each module.

Below, you will see that I have applied an EQ boost around 2069 Hz at .2 Q for the second kick. This has afforded me a nice variation on the 2 kicks, the first one being a deeper and harder kick and the second one being a looser and distorted type of kick.



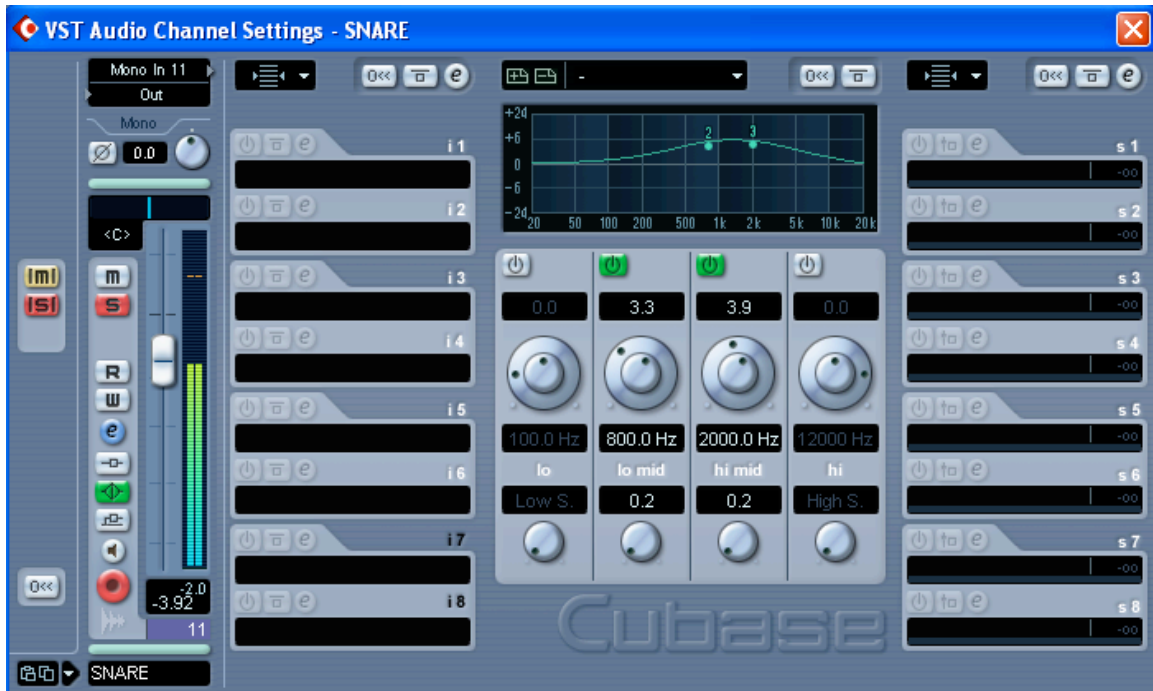
EQ Kicks.wav
Kicks no EQ.wav

So far, I have kept the EQ curves quite simple and boosted well above the very low end frequency range of 80 Hz plus. I have also used the EQ lightly because I know that I will be using compression later and this will further define the frequencies.

There is another reason why I have kept the kick EQs around the 1-2 kHz mark. This is to do with separation. EQ is a great tool for separation, and you can clearly define the edges of a sound and boost or cut from the body. In this instance, I have chosen to define the edges and low-mid frequencies more than boosting the bodies of the kicks.

If I chose to boost the low frequencies then I would have had conflicts between the two main kicks. At 200 off Hz, I am applying a small boost but not pushing the energy frequencies. This allows me the room to play around with these settings later, when the mix starts to really take shape.

The snare is next, and the image below shows small boosts around the 800 Hz – 2 kHz (both at .2 Q) range.



Snare no EQ EQ Snare

The snare sound was quite nice to start with and all it needed was a nicely peaked EQ curve at the usual snare attack/body frequency range. I have left the high end alone and not concentrated too much on the lower end. I have tried to accentuate the snare's attack and part way into the body, to give it that dirty snap whilst maintaining it's attack.

Unless it's called for, I generally try to accentuate and define the existing sounds. Only in extreme situations will I substitute a different sound for an existing one.

Remember that the song has already been written and those particular sounds have been chosen. Only if you are producing the mix and have a say over what needs inputting/changing etc, will you be able to change things around. You need to keep within the boundaries set up between you, as the person entrusted with the mix, and the paying customer, who has entrusted you to mix as professionally as possible.

Your job is to fulfil all the criteria we have been discussing until now. If the client has given you a snare you don't like, it is not up to you to ditch it and use one that you do like. If you are a producer and given this latitude, then by all means do as you feel is required.

In this instance, you can suggest to the client that a different snare be used. Note the word 'suggest'. Being a paid entity entails diplomacy, not just technical skills and knowledge. Brush up on those skills as much as the music technology ones if you want to make a living in this industry.

Right, let us go back to the mix.

We are now left with the percussive sounds minus the kicks and snare. I think hihats and ride should come next. When working with percussion, use a sensible sequence of processes. If you have effects or oddball percussive sounds being used in a mix, treat them last in the percussive food chain.

Get the damn beat kicking and right, then worry about kick drops or reverse scratches. Because I know that the ride has more in terms of frequency content than the hihats, I have chosen to EQ this next.

When working on the metallic percussive sounds, always work low frequencies upwards, much as we have done with the kicks etc. The more frequencies covered by a sound, the more you have to be aware of it's place in the stereo field. Applying EQ to dominant sounds like these will have a major impact on the more frequency diminutive sounds like the hihats.

We know that a ride will always be longer and fuller than a hihat, that's a given. So, let's work on the 'frequency fillers' first and then make our way to the thinner and more diminutive sounds.

With a mix of this nature, the ride plays a dominant role in the drive of the beat. Do not ignore that. Use the solo function and solo the ride with the snare and make sure they are not clashing in the frequency domain. If the ride is particularly full, then solo it with the kick as well as the snare and edit it to provide a good frequency spread amongst these particular sounds.

I love rides, but hate badly sampled ones. Often the life is lacking from them and the tails always end abruptly because the person sampling them has not considered the merits of long sustains, or has simply compromised on file size, or is just bad at what he/she does.

I also find that too many rides used in music nowadays sound very artificial. Either they have not been recorded well, with consideration to space, ambience or the acoustical tonal qualities of a ride, or they have been programmed to death thus squeezing the life out them through too many dynamic processes.

Sounds like rides need to be respected and brought into play in a mix for the sake of realism and frequency spread. The ride that I am confronted with is not too bad but lacks real body and sounds a little too metallic. I will be concentrating on the lo-mid to hi-mid frequency range for the EQ application.

I am not too bothered with it's attack as there are other percussive components in the beat that will enhance it nicely by layering themselves onto the attack. The decay is adequate and does not need to be too long as the BPM of the mix is a good enough BPM that decays do not sound cut-off. Had this been a slower tempo and more jazz orientated, then the tail would have had to be extended. However, it's not in the 'short' domain and is workable.

It is the body I am hoping to define and accentuate. This is why I have chosen those particular frequency ranges to work with.



 **Ride no EQ.wav**
 **EQ Ride.wav**

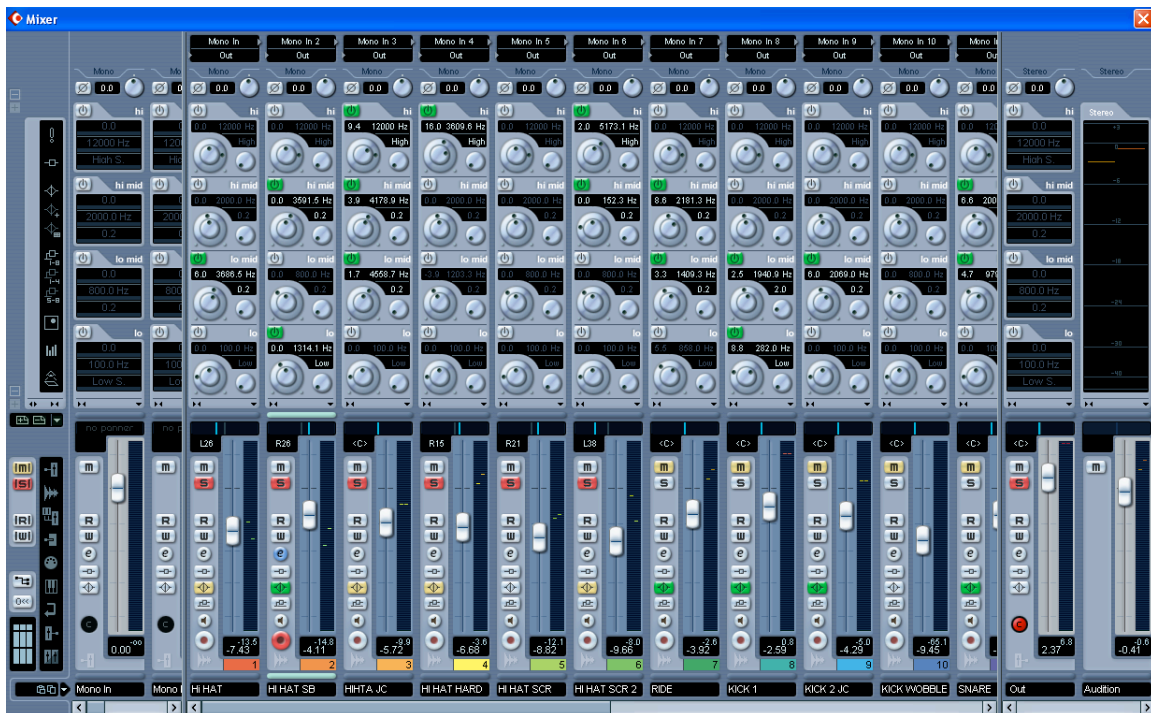
If you listen carefully to the two audio files above, you will hear the differences in the tonal qualities. They are very subtle, but are enough to add body to the ride. Sometimes, it's these small changes that make the difference between a good a sound and a bad sound.

Next up, we have the standard hihats, dirty hihats and small open hihat to consider. I will treat all the 6 hihats together and then solo all of them, along with the ride, and listen to them collectively. I am not going to go into individual EQ settings for each but will include the image for all of them in the mixer window, so you can view the settings for yourself.

Settings EQ curves for hihats is very dependent on the way the whole drum beat sits and what focus the writer or producer takes for the overall feel of the beat. Some producers like to have the hihats in your face and up front. Some like them sizzling and panned all over the place. Others like them hard and behind the snare etc.

There are so many variations that you can use. The main goal should be to make the hihats sound as natural as possible and to use them to enhance the body of the overall beat. The only instances that I really concentrate on hihats as dominant sounds is when they are used sparsely, and in particular Hip Hop mixes where the hihat presence is essential and quite often as forward as the snare..

In this instance, the hihats are there to form the body of the beat, more as fillers than anything else. They give the beat bounce, and a little variation that keeps the listener interested.



Hihats no EQ.wav **EQ Hihats.wav**

As you can see, the only hihat sound not affected by EQ is the hihat scratch. All the others have boost and cuts. The aim is to find a rounded and full frequency spread across all the individual hihats so that, together, they form a unified feel.

If you listen to the hihats together you will notice subtle changes and no dramatic processing has taken place. You will also notice that I have accentuated one of the hihats that sist on the same beat as the snare. I have done this to add some snap to the attack of the snare sound when played together.

Ride and Hihats together.wavr

Now we come to the vocals. The vocals are the most complicated of sounds to EQ as they cover such a vast frequency spectrum, and each voice is unique in tonal characteristics and delivery (how a singer sings) also needs to be taken into consideration when processing.

The procedure is quite simple, but a little more complicated in application. You need to concentrate on getting the lead vocal absolutely right, because, if the lead vocal doesn't sound right, then all the other vocals will also sound wrong as they will be processed relative to how the lead vocal sounds.

Most producers have more problems in this department than any other. The most common being: how to express the delivery of the vocals and how to fit them in the frequency spectrum without encountering clashes or masking.

The vocals I have here are a combination of the 'spit' (rap), the backing vocals, harmonies and intros and outros. The problem I am faced with is that the recording of the vocals was not very good and there are some quite distinct level changes across each channel, so I will either need to automate the gains or run a compressor across the channels that have the level problems.

The other problem I am faced with is that each track has been recorded with a combination of different vocal lines, meaning that not only is there the spit on a track but also harmonies. This has happened because the person performing the spit and some of the harmonies has decided (or the engineer has) to record right through the whole song and add bits in on the same track as the song is progressing.

This is poor recording technique. A good engineer would make sure that the spit is on one track, separate from the harmonies and backing vocals.

You must always keep these elements separate on different tracks.

If there are adlibs, then have one track dedicated to the adlibs. If there are backing vocals, then keep those on a different track, unless there are more than one backing vocals, then you must use more tracks. I could go on, but I believe you get the picture.

It is better to have more tracks of vocal recordings than to try to put them on a couple of tracks. This makes mixing a nightmare. Think when you are recording vocals. I have come across engineers that will record separate drum parts across multiple channels but devote 2 channels for all the vocals.

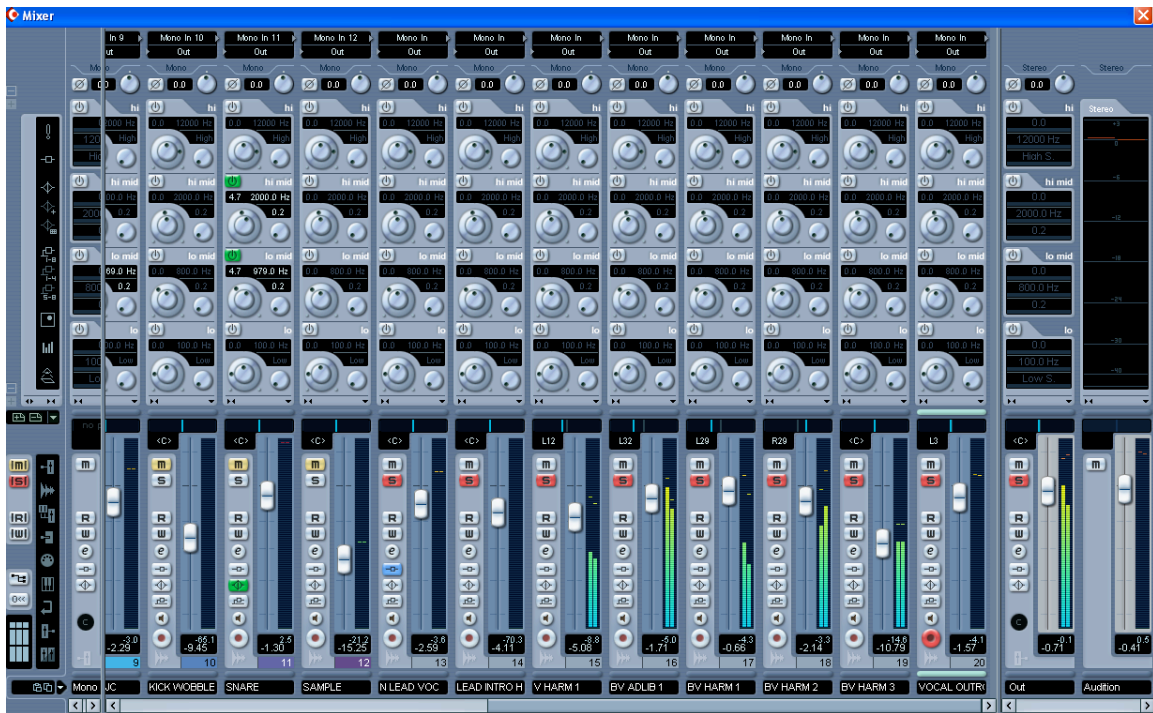
It makes perfect sense to separate the styles and techniques on separate channels. I might need to use a certain reverb on the backing vocals but not on the lead. If both vocals have been recorded on the same track, then I have a problem.

Of course, I can edit each track and assign separate tracks to each part within that track, but had the recording been done sensibly then this would not be necessary. I could also choose to automate the effects and gains, but this would require considerably more time and effort than necessary had the vocals been recorded sensibly.

As we discussed earlier, your job is to mix already recorded material, but if the material is so badly recorded, then that leaves you having to correct errors and restore quality. That makes the project far more time consuming and inevitably costly. I often reject mixes because of poor recordings and multiple error files.

Back to the mix.

As with the drums, solo the vocals and listen to them.



Vocals panned and levels.wav

The audio example above shows; the corrective noise removal we performed earlier, the levels between all the different vocal parts and light gain settings for all the parts. The vocal section above sounds well balanced with the lead spit standing dominant and the harmonies not dwarfing the spit. The backing vocals are also set to add just the right gain to the rest of the vocals without washing them over.

The pan settings have helped to provide just enough width and have helped in positioning the vocals in their correct places in the stereo field. These are:

Lead vocals - central.

Backing vocals - behind and to the sides.

Harmonies – used in layering the lead, and also placed to the sides when layering the backing vocals.

Now let us use EQ to further define the vocals.

There are 2 areas of process here:

The first entails using EQ to thicken and layer harmonies and backing vocals
The second entails separating vocals and using extreme EQ to create harmonies of an existing vocal part.

In this instance, I am not going to use EQ to create harmonies as I already have the recorded harmonies. But if you had very little in the way of vocal harmonies, then you could, for example, create 2 copies of the lead vocal and apply low end EQ to one layer and high end EQ to the other and add all three together. You could even

offset (delay) the two copies ever so slightly to give a slight phase effect. This will give the perception of thickness and more naturally sung vocals, than a dead-on accurate layer.

For this mix, I have enough vocal parts to play with. However, I will use EQ to add a bit of definition to the parts. Let's start with the lead vocals.



The top image shows that I have soloed the lead vocal along with all the drum parts. I have done this because I am working off a beat driven genre (Hip Hop) with the spit being integral to the mix. So, with this thinking, I have made sure to work out all the frequency spreads between these two crucial elements.

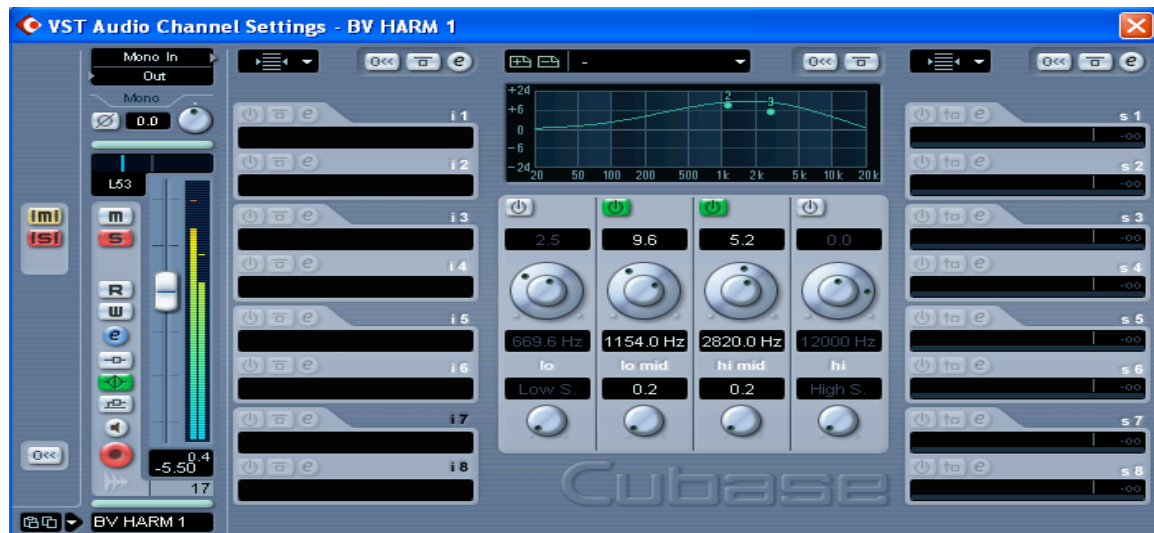
The image directly above shows the EQ curve I have set. It is a gentle curve that does not boost or cut any specific frequency range. The vocal file provided had adequate frequency spread and did not need too much treatment. However, it does need a little definition, and this is due to the drum beat's frequency spread. The boosts have been centered on the low-mid to high frequency ranges, and have been limited to no more than 5 dB.

The sequence of images below show the EQ curves I have set for the processed vocals.

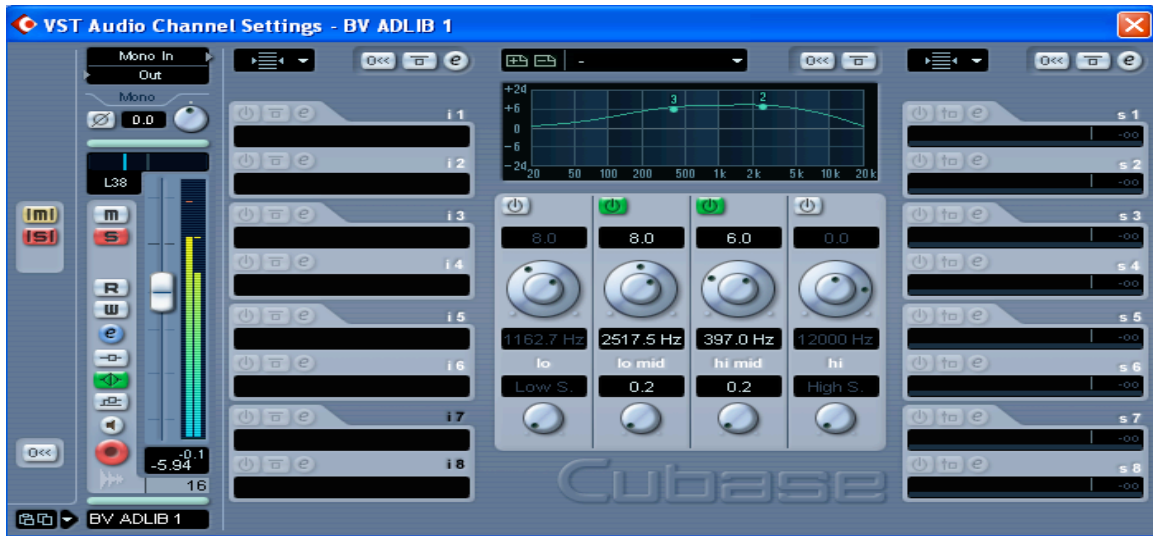
Outro Vocals



BV Harmony 1



BV Adlib 1



I am not going to go into any detail regarding the above. The EQ curves for the vocals have all been set to compliment the lead vocal line. I have taken the drums as my reference point for the vocal EQ curves and I not have a relatively full and well spread frequency spectrum.

Have a listen to the vocals and drums together.

 **EQ Vocals and Drums complete.wav**

And finally, we are left with the sample. This particular sample is troublesome, as mentioned earlier, and there is a vocal line within the main sample that needs to be heard in the mix, and the main sample has a string hook that covers the frequency of the vocal line, so if I try to EQ the string, I end up processing the vocal line as well.

The main sample is also low frequency heavy so any adjustments at that frequency range also affects the vocal and string frequencies. I am going to try to use a few EQ modules to accent the vocal line and abate the rest. Check the image out below.



EQ Sample.wav

As you can hear, I have tried to keep the vocal line as prominent as possible in the main sample.

The strings have been strongly peaked (over 20 dB) at around 1 kHz but with a strong drop down to nearer the 10 kHz range. The image shows a 17 dB drop from 1 kHz down to 10 kHz. I have done this to take the edge off the higher frequencies in relation to the mid and lower frequencies. The EQ curve clearly shows this.

By processing the main sample this way, I have afforded the lower frequencies to be taken up by the vocals and the drums. This sounds cleaner than the deep and muddy bass sound that exists in the main sample.

Of course, when it comes to completing the mix, I am sure that certain frequencies will get boosted again, predominantly after I use compression. I have accommodated for this with the way I have sculpted the EQW curve across the main sample.

Now, let us move onto compression.

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