



# **The Art of Drum Layering**

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## **Contents**

### **i. How to use this book**

- 1. Introduction**
- 2. Back To Frequencies**
- 3. Choosing the Right Sound To Layer**
- 4. Using Tones In Layering**
- 5. Some Hip Hop Snare Techniques**
- 6. Layering Tracks & Beats**
- 7. Do's & Don'ts**
- 8. Final Word**

## **i. How To Use This Book**

To use this book correctly, please first extract all the audio files contained within the zip file you downloaded using a program such as Winzip.

All the files should be automatically placed into their correct folders. So when you are reading chapter 2, make sure you look for your samples in the 'chapter 2 folder'. These files are the actual files used when creating the tutorials and screen shots, so you should be able to follow all examples perfectly. All files are highlighted in bold red.

I recommend you use standard professional audio editing software to follow the examples in this book – I've used Soundforge for most examples, and also Cubase, but you could also use software such as Wavelab, Adobe Audition, Logic and Cakewalk etc as all the main editing principles are the same.

You can download a trial of Soundforge from the following URL

<http://mediasoftware.sonypictures.com/download/step2.asp?DID=461>

And the Adobe Audition trial is here

<http://www.adobe.com/support/downloads/product.jsp?product=92&platform=Windows>

## 1. Introduction

So, you're ready now. You kick back on your swivel chair. Get into the right posture so that your ears are perfectly central between the studio monitors. You have a smile on your face. You know what's coming. It's 4.00 am. You hit play on your sequencer. Those orchestral strings just wash over you, giving you a tingle down your spine. Yep, they sound perfect. The B-line, well, it's shakin' your nuts and you can feel it all the way from your bowel to your ears. The hook is perfect, dropping by exactly when it should and completely in place. The Spit. Oh, now that's just ill. And the backing vocals? Hell, they make the Spit sound like sugar. The harmonies are tight and provocative. Everything seems just right BUT...you know the drums ain't sayin' nuttin'. Oh man. You've spent hours on the drums. You have tried all your EQ plugins. You have tried every type of compression known to man....BUT....they're not right. So you hit this site called Samplecraze and read all you can by that insane ethnic dude, Zukan,....man that guy keeps going on about frequencies. Frequency this, frequency that....You do everything he dithers on about. You even messed with the other sound components in the track to bring out the drums....NOTHIN'!

Sound familiar?

Whether you are a Hip Hop producer or a Trance producer, your music's drive and energy is governed by two factors: The drums and the bass-line. This is known as the 'Drive'.

Without it, you just have a song. With it, you get the record label 'thank you Ferrari'.

Whenever I give a one-to-one tutorial to a student who wants to be either a sound designer or a producer, I always spend the first couple of hours on establishing one thing.

*Music without frequencies is like painting with no colours.*

It's still there, but nothing is happening. The old 'canvas' analogy is always drawn when music is talked about.

*'The producer is like an artist, the song is his canvas and the tools are his paints and brushes'.*

All very nice and poetic but only helpful to those that like love stories and pink things....

If you got hair on your back and your pants are 8 sizes too big for you, then you need this version. Without understanding frequencies and the tools to master them.....you're stuffed! A bit heavy, but to the point.

So, if you don't want to understand or accept the fact that frequencies govern everything in music, then don't read this anymore. In fact, don't read any of my tutorials. Go back and spend money on useless text books that just tell you to EQ and compress and that that's the answer to production. Those are simply two of the countless tools a producer has at his disposal and, possibly, the last two tools that a good producer would use.

The first and foremost task a producer has on his agenda is to make sure he has clean and dynamic recordings with enough headroom so he *CAN* apply dynamics or effects, like EQ and compression, without compromising the dynamic integrity of the material.

Next up on his agenda is the choice of instruments used on the recordings. They must compliment each in the overall concept of where the track is going. Shared frequencies must be respected and sensibly mixed so as to output clarity and separation, along with depth and dynamic movement. Next up, the producer has to have as many takes of all the components as possible, notably for vocals and instrumental solos. This is where arrangements are conducted. Are you following all this? I could go on but you get the picture. EQ, compression etc. comes later, much later.

So, using the above, you can see what a producer would do next with a drum beat. He is where you are. He has the clean recordings, he has the great separated and harmonically rich vocals, in fact he has the lot. It's time to produce the DRUMS. As a last ditch attempt at mastering the drums, he has tried EQ and compression and, as good as those tools were, he was left wanting.

This is where layering comes into the world of audio frequencies... This is also where I see the same question appearing in every forum and every newsletter:

*'How do you know which drum sounds to layer with?'*

There is the 'grope in the dark blind' technique which incorporates you going through a few gigs of drum sounds and trying to layer each and every one till it starts to sound good. Yeah right, the paying customer is really going to chill in your studio for the next 7 months while you find your 'vibe'. That's not going to happen, unless of course, you don't want any more clients and you want the industry to think of you as a 'Oh that dude...yeah he's a deep chiller man, takes forever to cook a beat!'

I take it you don't want to be the 'chiller'? Good. Let's storm ahead...

## 2. Back to Frequencies

We're back to frequencies. You might think that you do not understand all this business about cycles and hertz and distance and space, and that trying to learn all that is useless and headache guaranteed. Ok, up to you. You can learn and progress or stay where you are and look for quick fixes over the net.

To understand layering you do not need to have a PHD in frequencies. You need to understand low, mid and high. You need to understand cut and boost, filter and ADSR. Basically, you need to read my Synthesis tutorials on ADSR, frequencies, filters etc. Get to grips with that and I won't have to explain everything I write in this tutorial. When I say 'you need to roll-off 30 Hz off that kick, or you need to take the attack up so you are left with the body and tail', I expect you to at least have a clue as to what I'm on about. However, most of what you need to learn is in this tutorial, and explained as I go with my flow.

LET US BEGIN!

Every sound has the following, ADSR. Read my Synthesis tutorial Part1 (<http://www.samplecraze.com/audio-tutorials/synthesis1.htm>) for an in depth explanation of this. However, here is the condensed version.

Every sound has an attack, a decay to the attack, sustain and a release. Drum sounds have these characteristics in abundance, and these characteristics can determine the success of a sound in a beat, or the whole beat itself. Slight changes in any component of the ADSR of the drum elements in a beat can have a dramatic effect on the overall perception of the beat. A funky example that you should understand, and if you don't, then take up cooking or crochet, is that of a snare sound. As you know, a snare has an attack that makes it distinctive as a snare sound. This is the 'snap' that you hear on snares. The speed at which the attack reaches its maximum point and then drops is called the 'decay'. The body of the snare, past this point of attack and decay, is called the 'sustain' and the 'release' is when the snare stops, or rather, the way it stops.

To make life easier, let us take a clip snare as an example (**Clip Snare 01**). You can hear its distinct attack and quick decay. It has a very small sustain (body) and a sharp release. A good example of a long release on a snare might be that of a flam snare (**Flammy Snare 01**) that dies slowly and gives the impression that it is being played as



opposed to a sample being triggered. Think about it. A drummer hits a snare and the snare takes time to be hit then released. This is why we like drummers, because they sound real and fluid and because they bring the strongest beer to the gig.

Let us look at more examples. A kick being used in Trance, and at 140bpm, cannot spend hours 'tailing' (dying) off as it would interfere with the next sound, notably, the next kick in the beat. So, we keep the release of that kick very short, so it tails off immediately and the next kick note can start again. This keeps up the momentum of the track. The same thinking can be applied to the attack. By adjusting the attack to exhibit a softer character, it will allow the bass attack to sound more pronounced. This can be used in reverse. The attack on the kick can be accented and the attack on the bass note softened, so we have a more percussive dominant feel, with the bass complimenting the kick instead of dominating it.

We can even accent both attacks and have the monster kick/bass lines that have made Trance so distinctive. But to achieve any of these vibes, you need to understand frequencies. In this way, the accented kick and bass will not clash but join to form a solid and distinct attack on every measure or beat. If the frequencies clash, then you could have a muddy attack, or distorted attack...You get the picture

Hip Hop has seen some great changes over the years in the way the drums are presented. Back in the 80s, kicks were far looser and less pronounced, giving that almost live feel. In fact, they were played live and layered with more pronounced percussive elements. Today there is far more emphasis on the presentation of the kick drums and snares in this genre. Kicks now have a strong, pronounced attack, a deep resonating body and a short tail off. If anything, kicks are substituting bass lines, as they are now deeper and multi layered and offer a stronger content. (**Bass Kick 01**)

Snares have moved away from the woody, flabby feel, to crispier and dirtier feels. In dem days (80s), snares were either, and tragically, gated reverbs a la Phil Collins, or weak and woody sounding with little body. The drive of the Hip Hop tracks of the 80s was the musical content, primarily the bass line and more musical content. Today Hip Hop is far more sparse and haunting and is very drum based with more vocal harmonies being structured in for the feel. Tracks like L.L.Cool Js 'I need Love' brought forward the clever use of the cabasa in R&B music. Conflicting and interweaved percussive sounds began to take dominance in all genres.

The genre progressed from the live kit sound of, say, Clyde Stubblefield of Funky Drummer fame, to the more programmed feel of the modern day drum machines. Sure, we still have the live drum beats in Hip Hop, but invariably, they are then layered and programmed with sampled sounds.

Let's not forget our Dance dudes out there. I recall the House tracks of the 80s. I remember that percussive sounds were far more dominant than just the kicks and snares. Cowbells and triangles played a big part in 80s House music. The kicks were less pronounced and layered with more percussive elements that went to form the classic House sound. Almost every track had the mandatory shaker loop. Snares were less pronounced and snare rolls and fills were very common.

Today's House has advanced dramatically with more emphasis on a hard and deep kick, married and closely interlaced with the bass line, almost symbiotically, with more variety in snares and percussion. In Trance music, the Hi hat is not just a simple Hi hat, but a very detailed and selective sound that livens and brings the drive of the track forward. The placement of the open and closed Hi hats is crucial to this genre. Trance programmers and producers have to know their timing. I can honestly say that House, Trance and Hip Hop have advanced more than any other genre in the past 20 years, in terms of percussive elements and techniques.

I do not want to go into the history of genres or long explanations about styles and techniques pertaining to the genres over time. I wanted to give you a little insight into how our tastes have changed and how our perception of the 'drive' of a genre has progressed. This progression and perception merits the use of advanced techniques.

So, we are back to where we were. How do you recognise which drum sound to use as a layer?

### **3. Choosing the Right Sound to Layer**

There is an area of thought and education that I would like to take a walk in. This is an area that deals with you on a personal level. It is the art of listening. What you listen to and what you hear determine your tastes and perceptions about how a sound should be presented. You may think this to be wildebeest droppings, but I assure you, it's not.

Like a studio with bad acoustics, how you hear a sound has a direct relationship to how you think it should be portrayed. The same is true for the quality of the production of a given track that you listen to. If a track is produced badly, your ears will accustom themselves to that track, and you will then try to mimic those qualities in your music. I always recommend that my students listen to well produced music, even if it's not their taste or preferred genre. Attuning your ears and mindset to the right frequencies is crucial to a good mix. It is the same as growing up listening to R&B. You will develop a feel for the timing. This is true for all genres and styles. I may sound like a revolutionary underground thinking kind of guy, making bold statements like that, but I strongly believe in that thinking.

In life we can only achieve a goal by having a reference point. That way we know if we have surpassed it or equalled it. Music is the same. If you listen to well produced music, your ears will attune themselves to the qualities inherent in the production and your mindset will automatically take in reference points everywhere. This will help you enormously in understanding what your sounds need, and in determining the types of frequencies that will be used in layering sessions.

We now come to the next most important factor in layering. Understanding what the original layer needs and is lacking.

Let's work off some examples here...

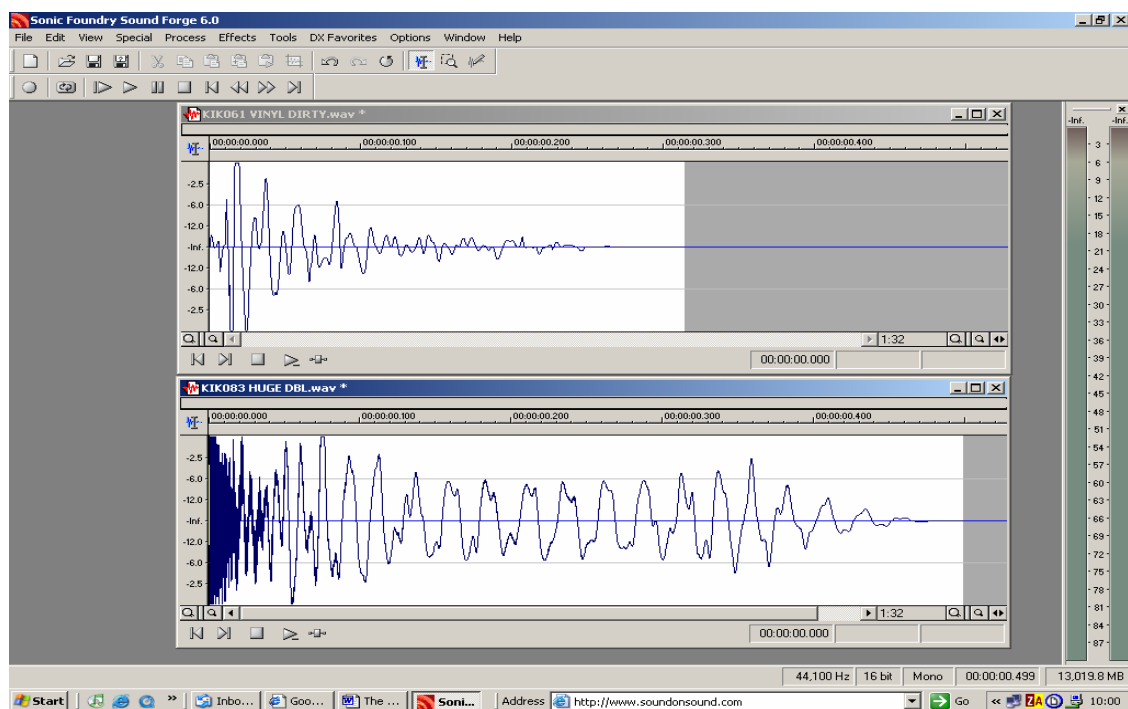
If you have a kick that has the body but is missing the attack, you simply need to layer the original layer with a layer that has the attack.

Agreed?

Well, it's wrong. The correct procedure is to layer the attack of the second layer with the body of the original layer. This takes a couple of processes.

The first process is to remove the body of the second layer, so you are only left with a small section of the sample and that would be the attack of the sample. You then need to make a decision about the original sample. Are you intending on 'adding' the attack of the second layer to the whole of the original layer, or are you intending on 'substituting' the attack of the original layer with the attack of the second layer? If it's the latter, then you need to cut the attack of the original layer as well. Let's look at this visually. Check out Fig 1.

**Fig 1**

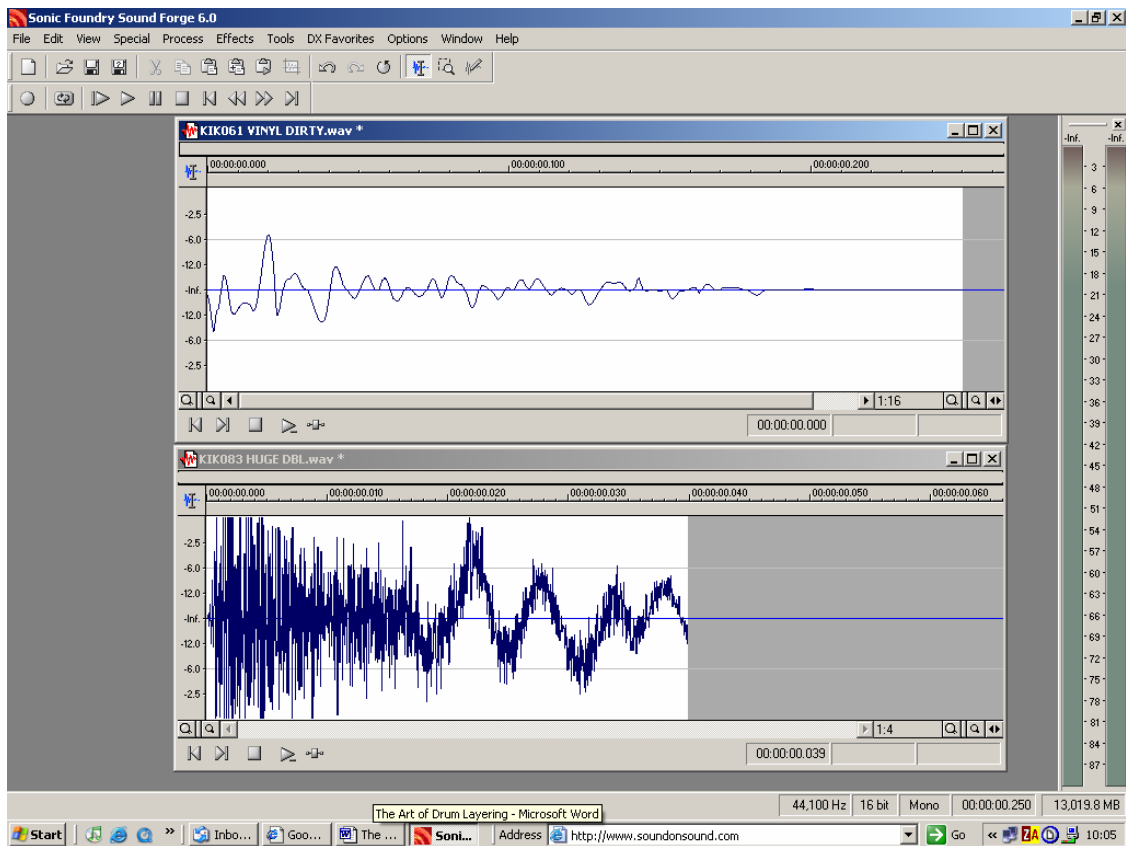


As you can see, I have opened up two kick files in Sound Forge. I am thinking to myself 'Whoa, nice attack on the second kick (below)'. So, I decide to cut the attack off the second layer (Fig 2) and the original layer and substitute the attack of the original layer with that of the second layer (Fig 3). I am now left with the body of the original layer and the attack of the second layer. I have even left the line of 'cut n' paste' of the two layers in Fig 3 so you can see where I have made the joins.

**(Kik 061 Vinyl Dirty)**

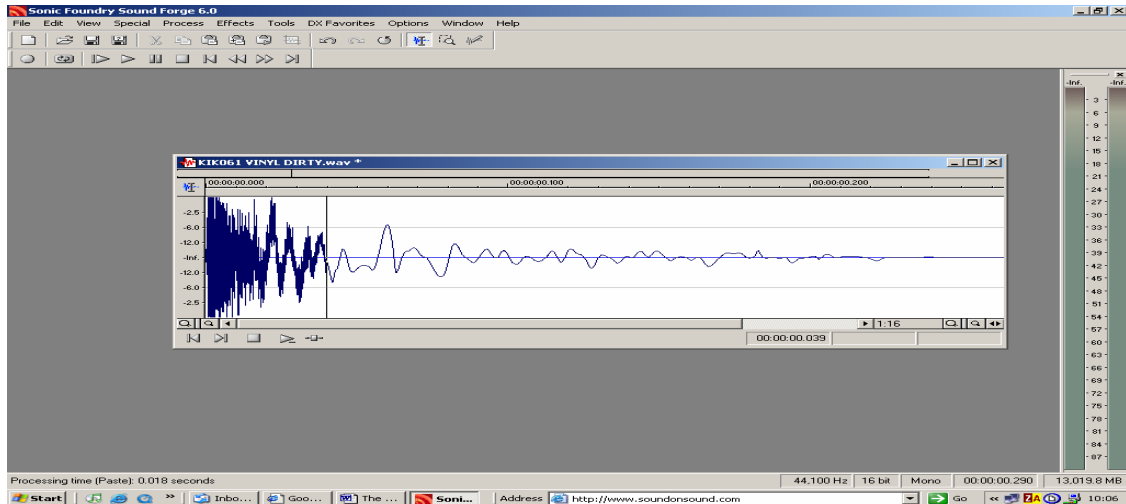
**(Kik 083 Huge Dbl)**

**Fig 2**



**(Kik 061 Vinyl Dirty Body and Tail)**  
**(Kik 083 Huge Dbl Attack)**

Fig 3



### (061 and 083 combined)

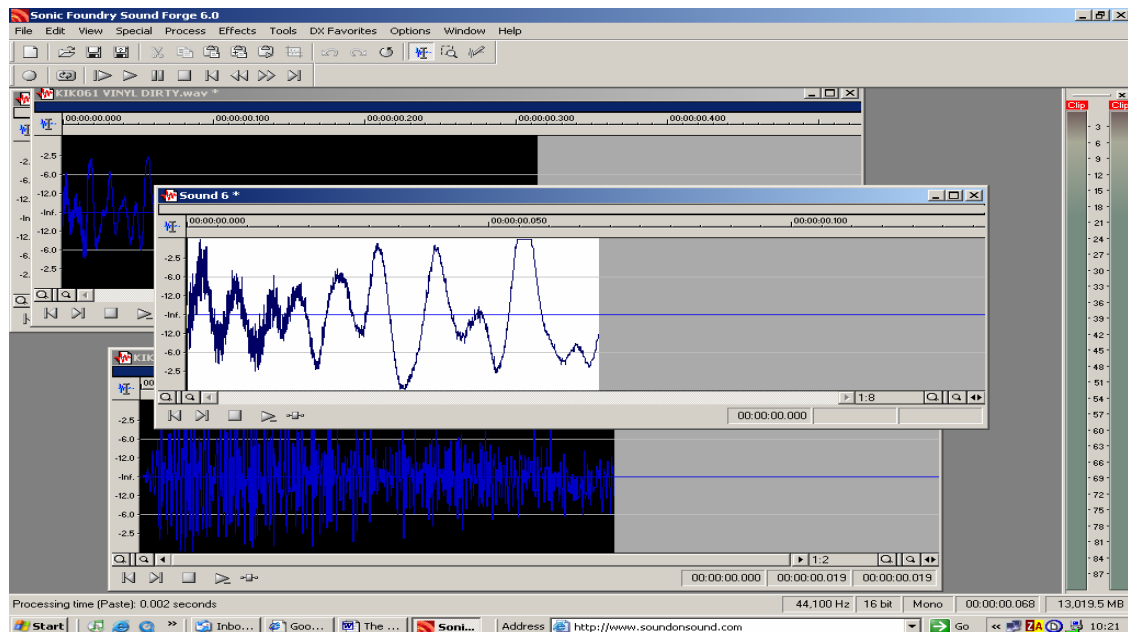
However, this method of cut n' paste is only useful if you need to completely remove the original attack and sub it with another. With layering, we pretty much know that our original layer is close to what we want and all we want to do is to 'beef' it up.

So let's take two layers and layer the body of one layer onto the whole content of another layer. For this, we will use the same two layers (Fig 1). But, this time we will cut the attack from the second layer and layer it on the complete original layer. (Fig 4)

**(Kik 061 Vinyl Dirty)**

**(Kik 083 Huge Dbl without Attack)**

Fig 4

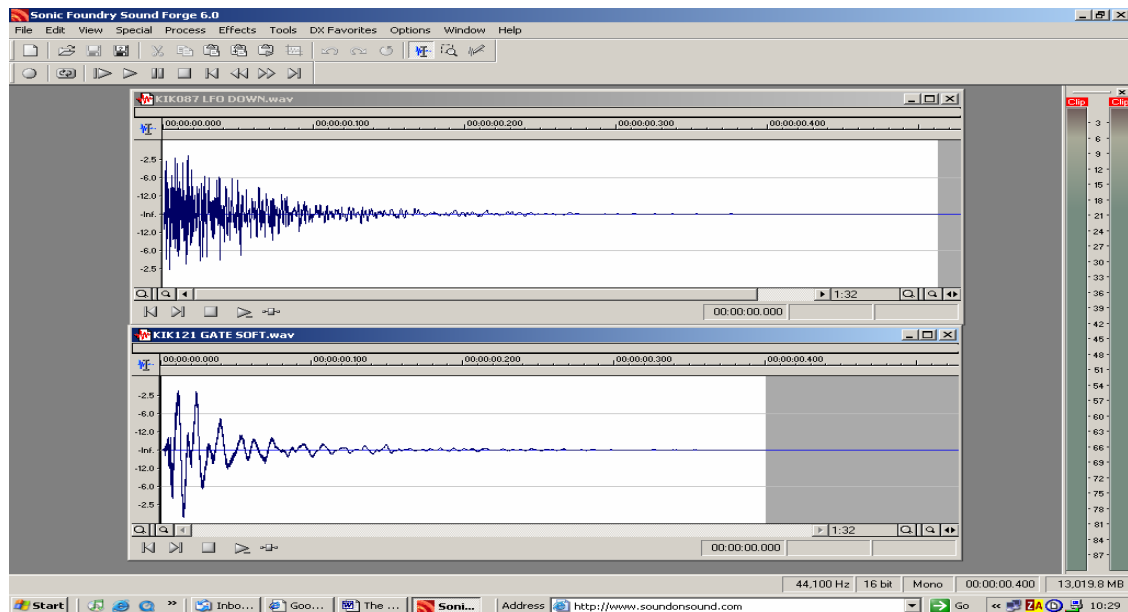


### (061 and 083 Body combined)

This next example is a simple two layer affair, but on this one I am layering the two layers together, with no cuts of any sort (Fig 5). (**kik 087 Lfo Down**) (**kik 121 Gate Soft**) This is what most programmers do until they get the right sound. I must stress how important it is to understand what is being layered.

The advantage of Sound Forge is that I can audition a sound before I open the file. Always make sure you can audition sounds before you start the layering process. Don't just randomly open files and hope to layer them and they will be spot on. What is a better process is to be able to use a sampler and assign the layers to the same key note, that way you are actually playing the layers before you even start to think about any processing.

**Fig 5**



As you can see from the fig, both files are not normalised. They are both a few dB below the digital peak of 0dB. There is a reason for this. One of the most important aspects of audio processing is what is known as 'summing'. Short of going into a deep explanation, the best way to understand summing is by example. Whenever you have opened up audio or instrument channels in your software sequencer, and recorded data, I am sure you have noticed that the stereo output of the sequencer always reads well above the maximum levels of the signals you have recorded. This has always confused beginners. The idea that the audio channels are, for example, kept at -4dB and yet the stereo outputs always clip and distort, peaking above 0dB and sounding so much louder than the individual recorded or played components. This is summing. I do not want to confuse or bore you with the mathematics, I simply want you to understand that there is a dynamic process that takes place and sums signals to a final output.

So, going back to our layering example, it makes good sense to always leave a few dB of headroom so that when two audio files are mixed/merged they will not peak above 0dB when summed. To briefly explain headroom: headroom is the space between the highest peak of the audio signal and the ceiling, the ceiling being 0dB in a digital domain. If you look at fig 5 you will see that the opened files have good headroom. In both cases, I have left 2dBs of space. This is the headroom.



Make a habit of always leaving headroom in your audio files so that when you need to apply any type of dynamics, or to layer audio files, you are not left with horrible clipping or distortion. Never forget that in a digital domain 0dB is max. Anything above this will clip or distort. There is a huge difference between analogue and digital. There is a method that most engineers adopt, when using analogue mixers. It is called 'gain riding' or 'channel riding'. This means that the faders are peaked beyond 0dB. On an analogue mixer, this will have the result of 'driving' the sound or, to put it in layman's terms, give the mix some 'oomph'. In the digital domain, and this is a great tip if you want to be a good engineer or producer, remember to always leave ample headroom in your audio tracks, so that when you come to mix and master the stereo output, you have a good dynamic mix.

Effects and dynamics also add gain, or perceived gain, to an audio file. Perceived gain is actually a good thing. It means that the file sounds louder whereas it isn't. A good compressor achieves exactly that, making audio 'sound' louder without actually possessing the dynamic properties of making an audio file louder, examples being normalisation or gain boosting. Effects and dynamics, that are used to colour a sound, not only alter the shape of the audio signal but can add additional dynamics and frequencies.

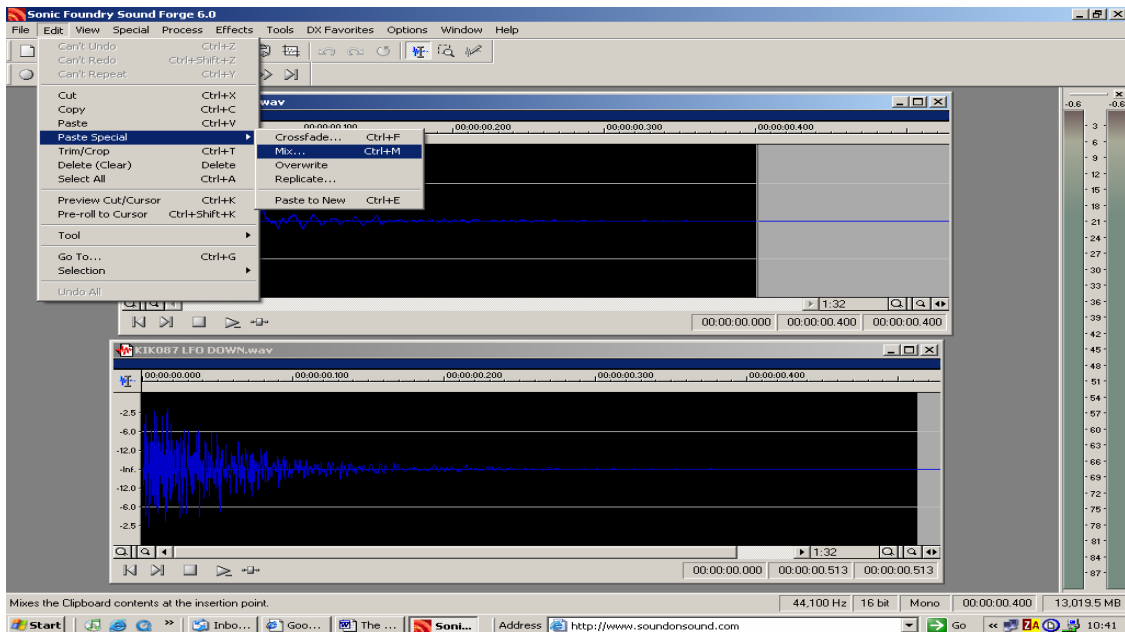
Understanding the above is a major asset if you intend on being a good producer. Even if you have no aspirations to be a producer, but want to be good at any audio application, you need to have a basic understanding of the principles above.

### *Back to layering*

The first layer is a hard hitting kick with a short decay (**KIK087 LFO DOWN**). The second layer is a deeper and softer kick with a longer decay (**KIK121 GATE SOFT**). The two together will make a deep and crisp kick (Fig 6) (**087 and 121 combined**).

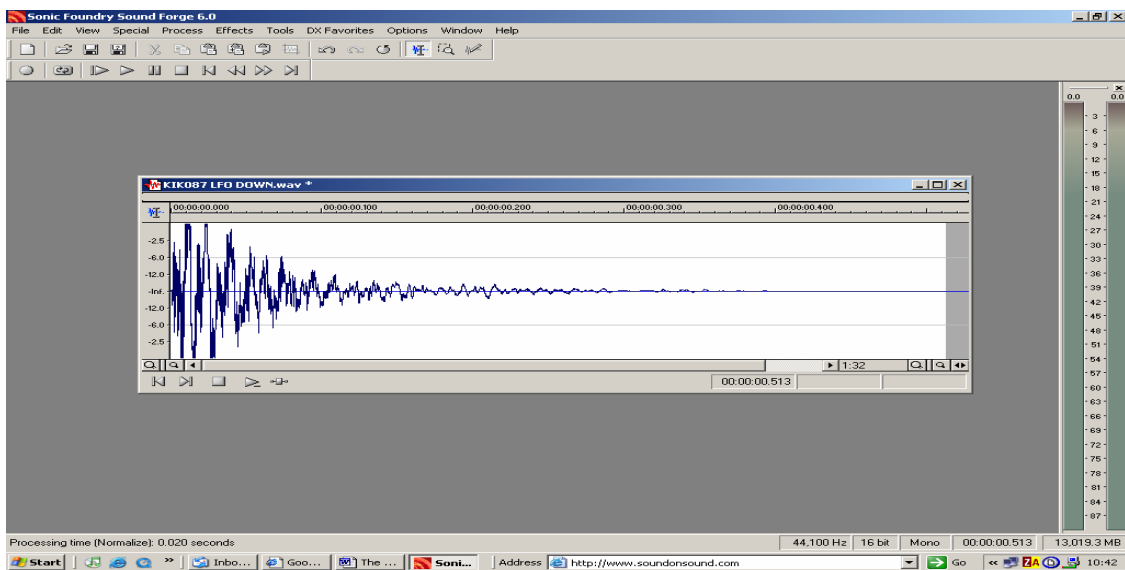
Highlight both layers, copy them, and use the special copy function/mix.

Fig 6



And now we have the final layered file (Fig 7) (**087 and 121 combined**).

Fig 7



This method is very simple and I am sure you know how to layer, but it's knowing which layers can be layered together to give the resultant sound that is playing in your head.

Layering is a technique that is used more frequently in Trance and Hard House, as huge hard hitting kicks and short open/closed hi hats are essential in attaining 'that sound'. The art is in the choosing of either whole layers, or components in a layer, to give a result that is close to the goal.

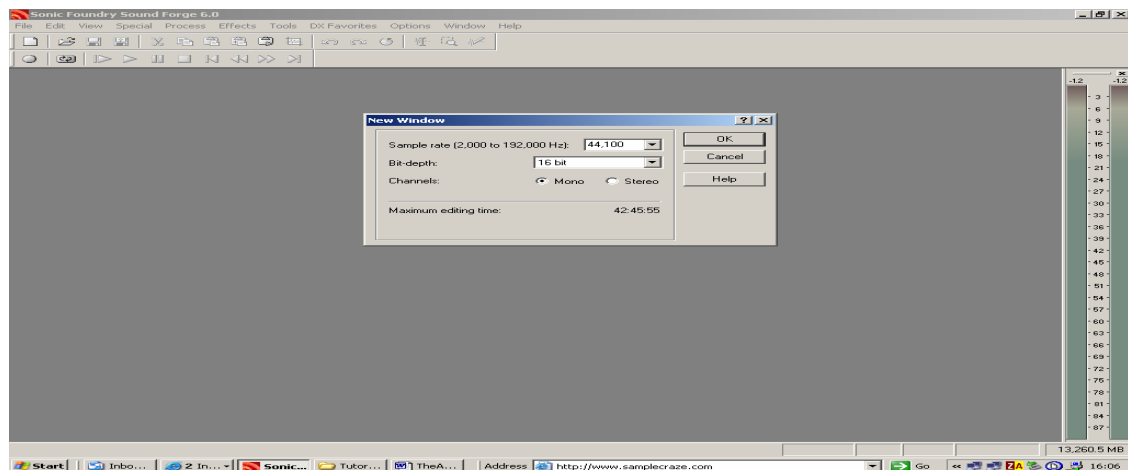
## 4. Using Tones In Layering

Another example I would like to offer here is that of using tones in layering. It is very common to use tones in layering kicks, and in particular, sine waves. This offers a really deep bottom end to the kick and is a favourite of programmers of all genres. Another great tone to use is noise. This tone, or waveform, is used most extensively in snare and hi hat layering.

A nice little trick, and one I am sure you will like, is in using a noise layer on a hi hat layer. How many times have you heard a Hip Hop track that has dirty sounds and thought to yourself: 'Where did they get those sounds from?' I know you think that it's simply a case of bit crushing the sounds, and you would be right to a certain degree. But that is not always the case. The reason is that the minute you lower the bit rate or depth of a sound, you furnish it with additional frequencies and transients, notably noise. The real trick is in getting that dirty sound without compromising the integrity of the sound itself.

Eyeball Fig 8...

**Fig 8**

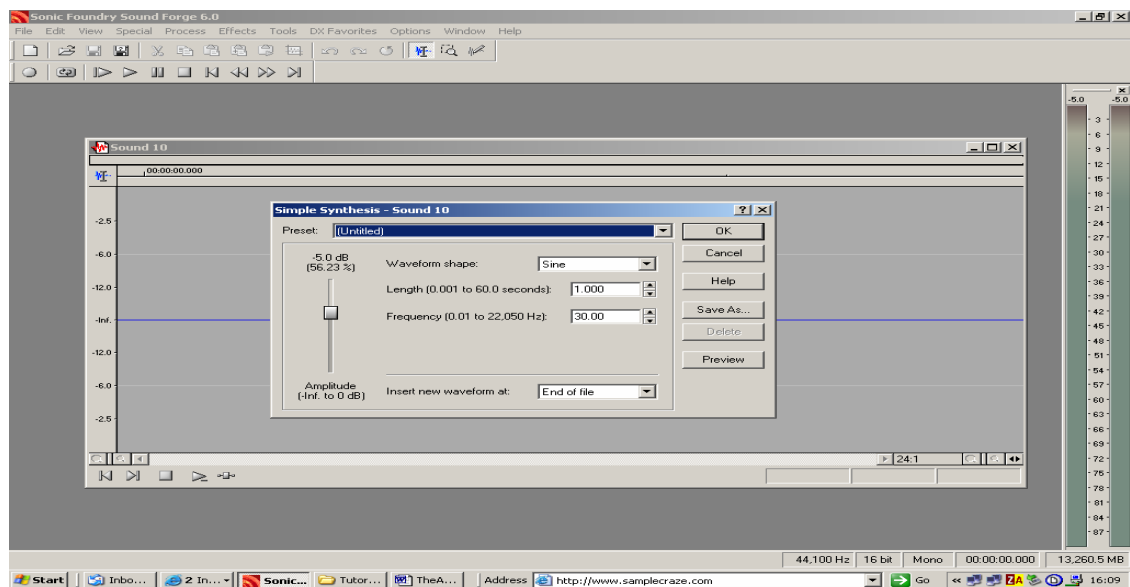


In this example I have used the 'create new file' in the main menu and it asks me what type of file I would like to create. I have specified a mono file at 16 bit, 44.1 kHz.

Now let us create a waveform from that file (fig 9). By using 'tools-synthesis-simple', I can generate a sine wave of any frequency I want. For this example I am going to create a sine wave at 30 Hz.

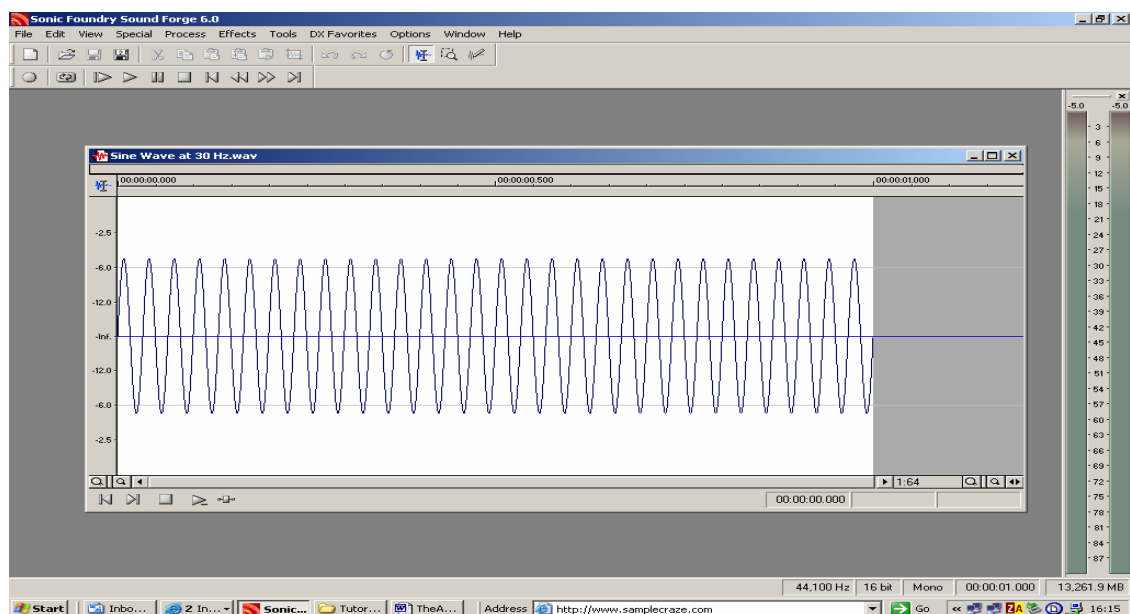
**But**, remember the summing topic. I am being careful here and giving the file a peak value of -5dB. I know that I am going to layer this audio file with another one, so I am making sure that the two files will not sum to beyond 0dB.

**Fig 9**



Sine wave at 30 Hz, -5dB (Fig 10).

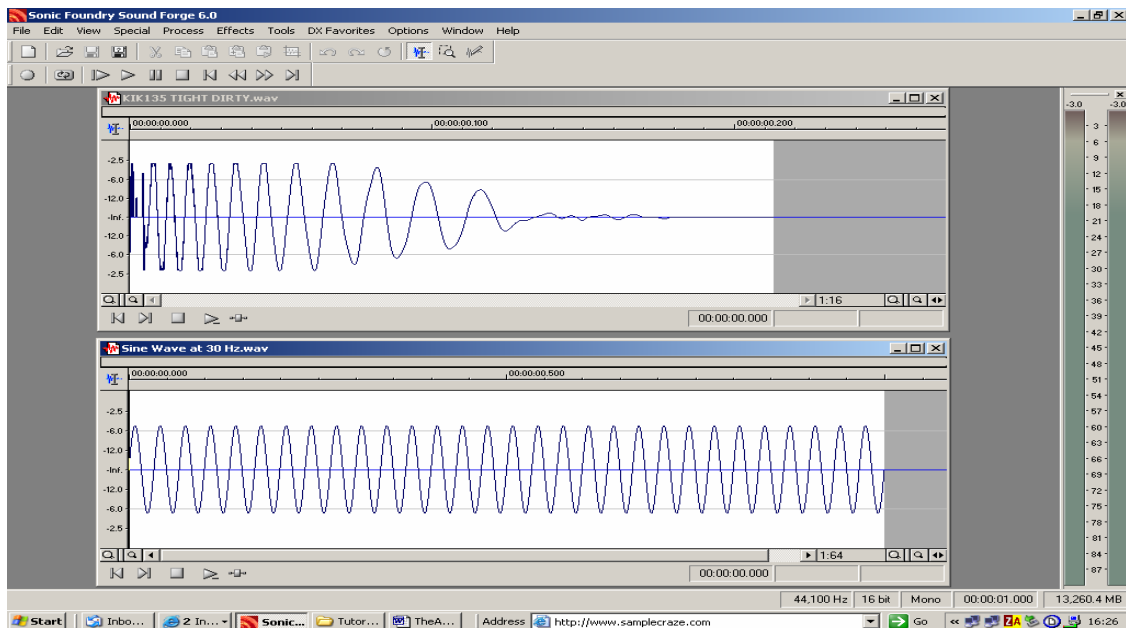
**Fig 10**



## (Sine Wave at 30 Hz)

Now I am ready to open another file, and for this I have chosen a hard attack kick (Fig 11). **(KIK135 TIGHT DIRTY)**

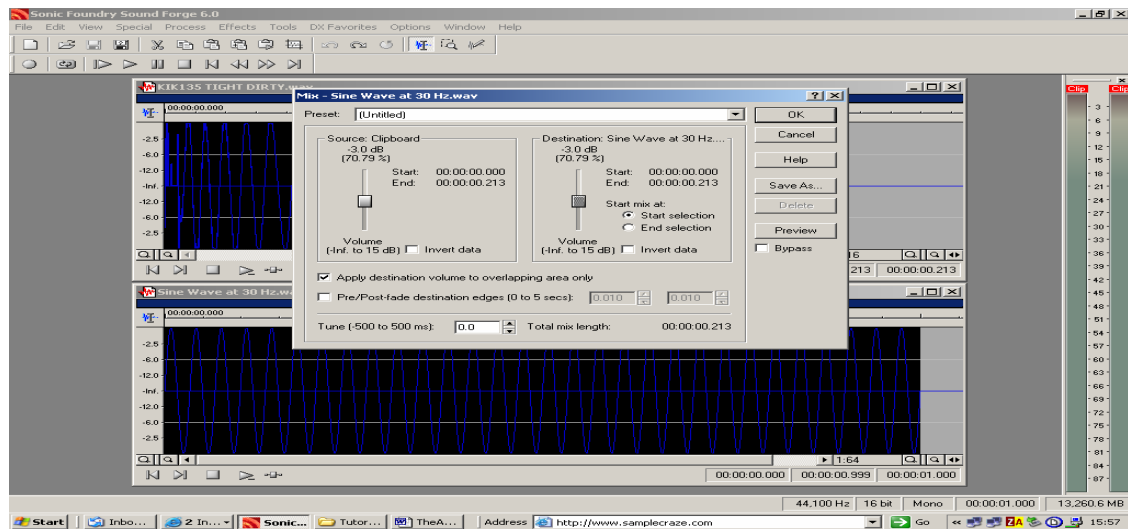
**Fig 11**



I have again been careful to make sure that the file I have just opened is a few dB below 0, in this case -3dB. I am always thinking about summing. In this case, the file was actually at just below 0dB, so I lowered the gain/volume of the file to -3dB.

Before I show you the process and resultant file, let me first show you what happens if both files are at 0dB and mixed together (Fig 12).

Fig 12



As you can see, from the above file, I used the special function mix and the resultant file clipped. You can see this from the stereo peak meter. It is in the red. I have snapshot this so you can have an idea as to what I was discussing earlier about summing.

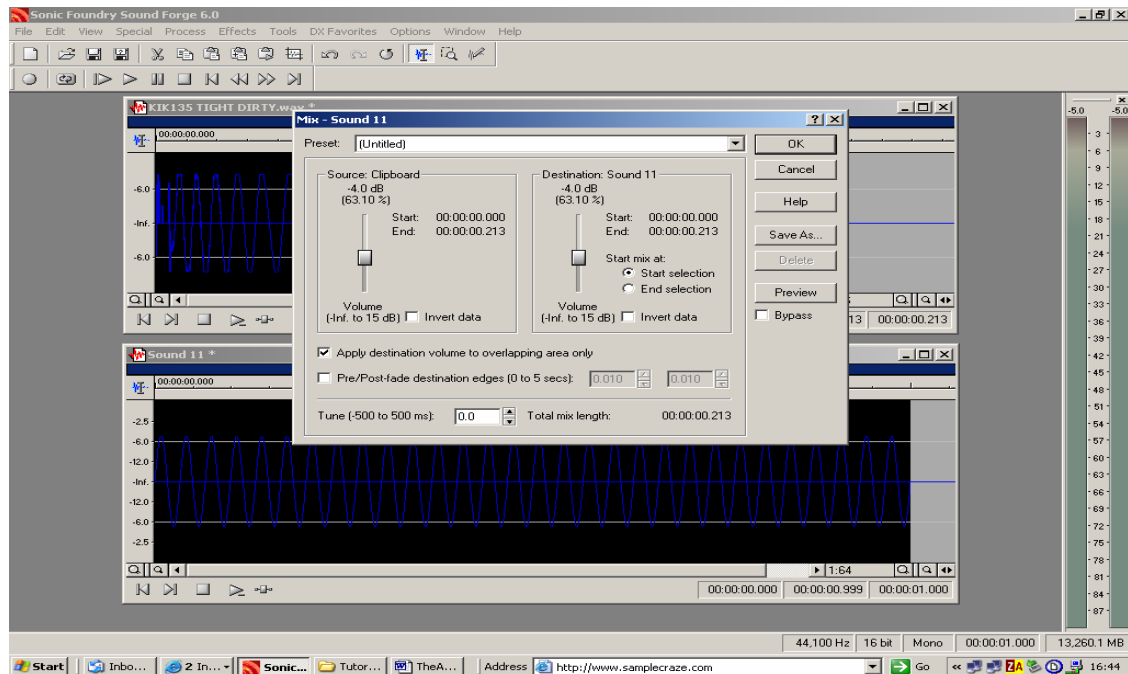
So, to remedy this, I have given the 'mix' function certain information. I have told the software to mix the two files and reduce the volume of each while mixing. This is a very cool feature. Why? Because when you are using audio files, they are not always peaked at a few dB below 0. Most will peak at 0, so when you combine two files, you sum to above 0, and we now know that that means, we have a clipped file.

I wanted to show you the above method of 'saving' a layer of two audio files. This is one way around the problems associated with summing two files. It is much better to work with files that are a few dB below 0, but if the source material you are layering is peaked near to 0, then this method is a good workaround.

Let us go back to the layering example in Fig 11.

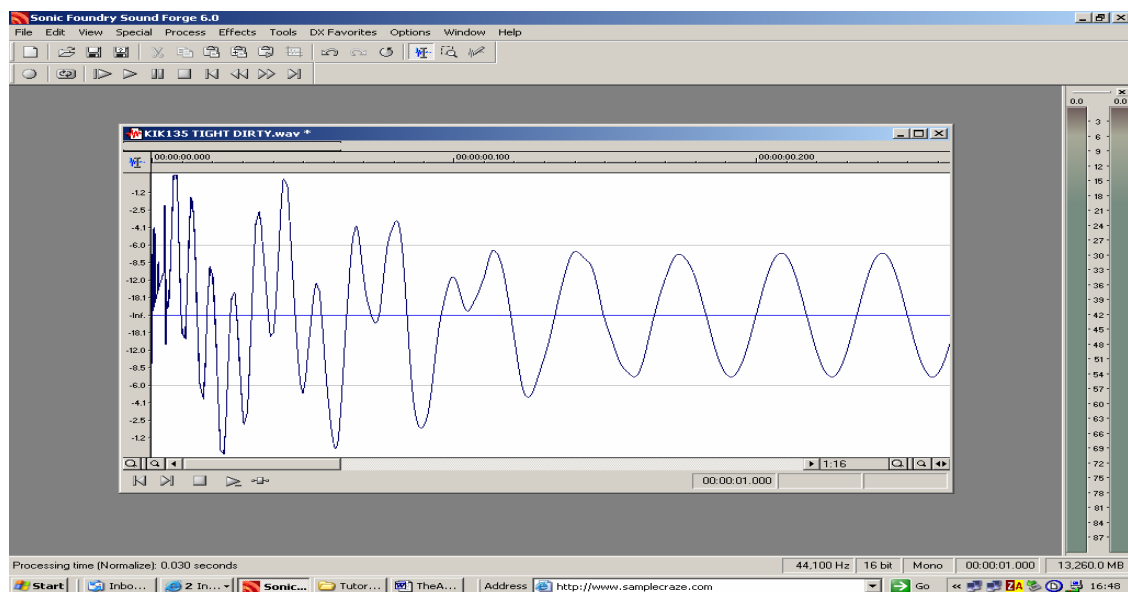
I have still maintained a -4dB ceiling in this process, making sure that both the source and destination files will mix at the predefined levels (Fig 13).

Fig 13



And the result (Fig 14).

Fig 14

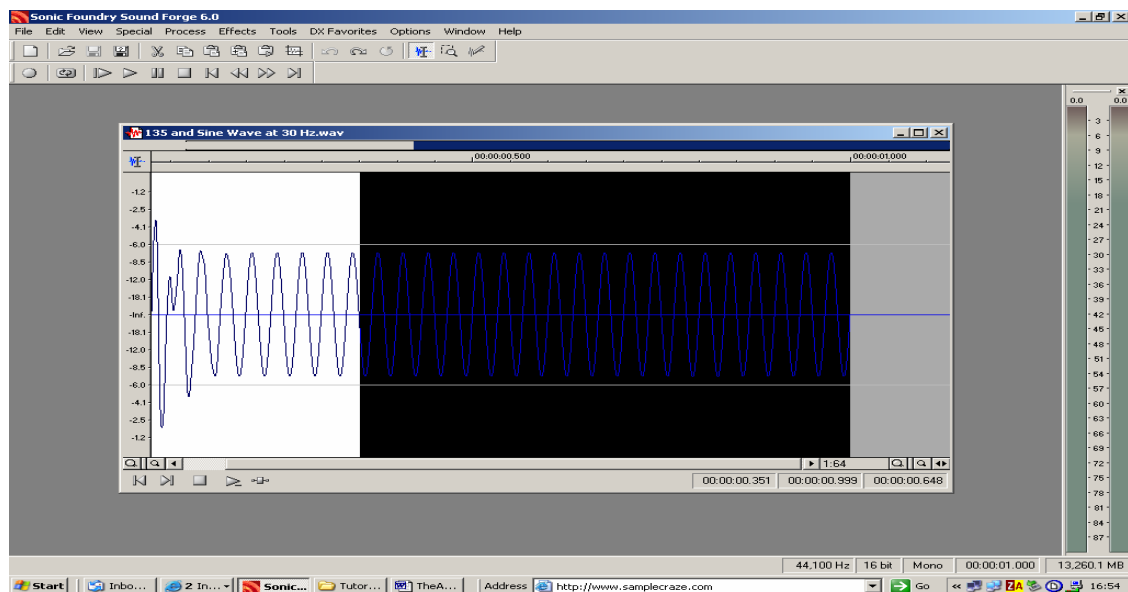


(135 and Sine Wave at 30 Hz)

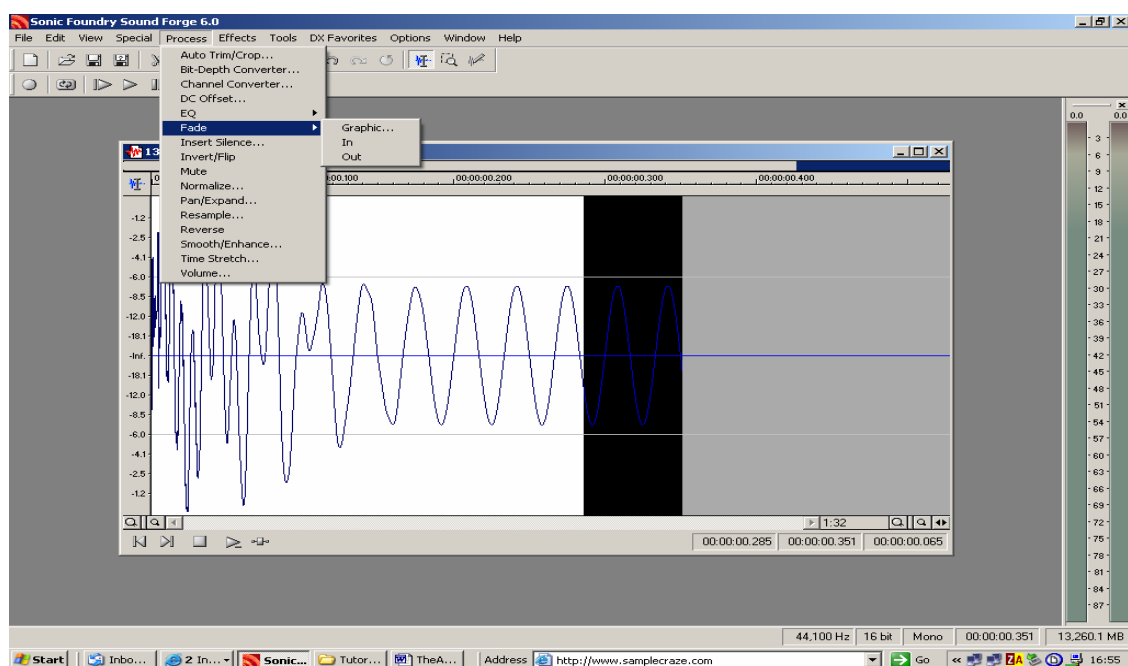


As you can see, I have a very deep and crisp kick layer, but the sine wave is too long and lingers for a long time. So, let's edit that so it becomes a fat, deep kick with a sensible release (tail off). For this I have first cut the body that I do not want (Fig 15) and then used the 'fade out' facility in Sound Forge (Fig 16).

**Fig 15**

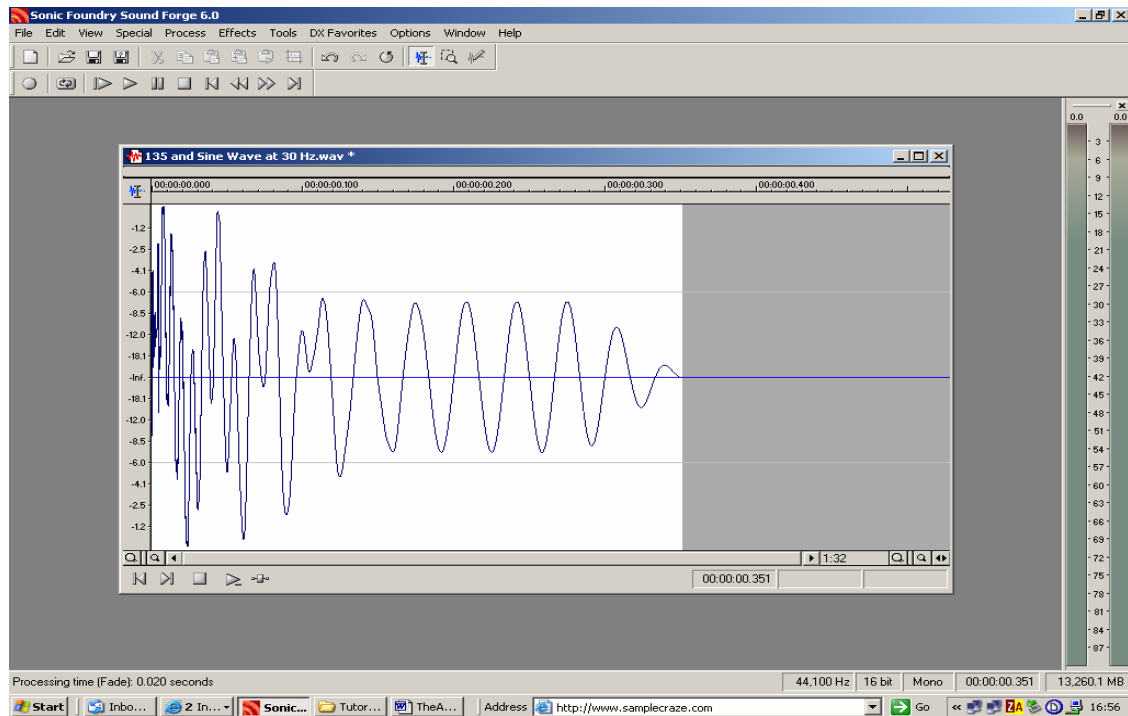


**Fig 16**



And voila, the final layered file (Fig 17)

**Fig 17**



**(135 and Sine Wave at 30 Hz tailed off)**

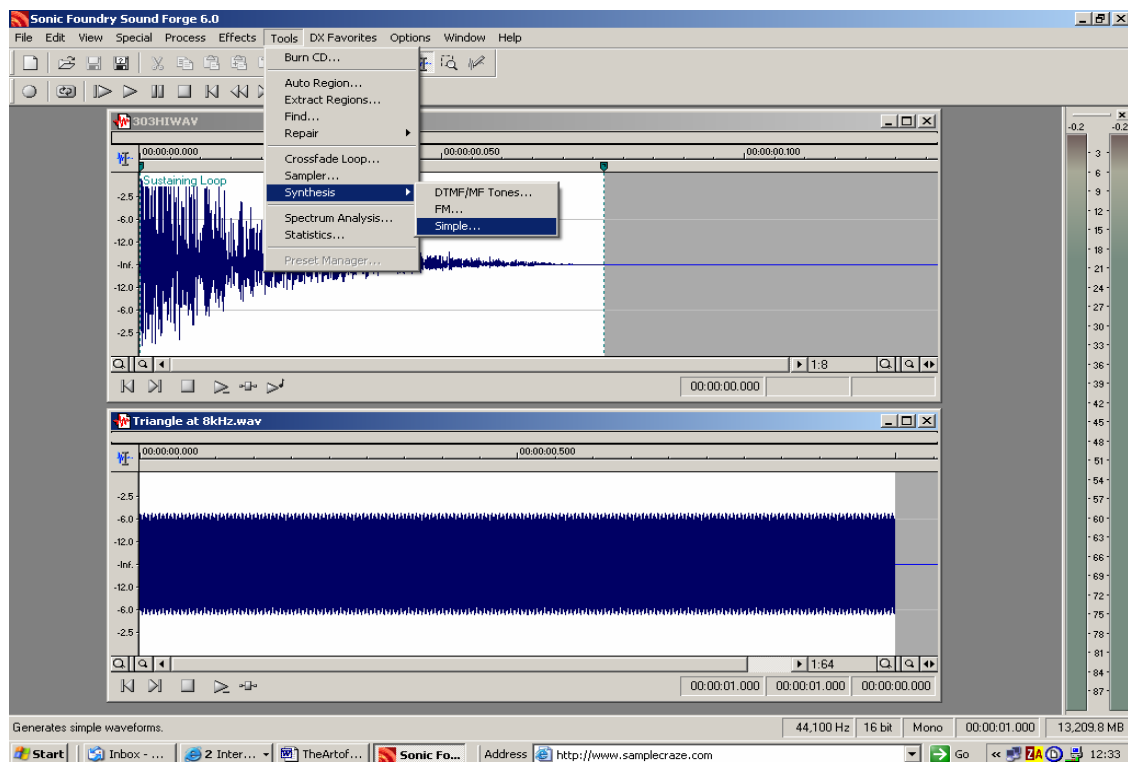
*Now let's look at another example.*

In Fig 18, I have opened a hi hat file (**HH083**), and created a new file using the synthesis-simple tool in Sound Forge. The waveform I have created is a triangle at 8 kHz.

As we did with the previous example, we are going to layer these two files to create a third. The reason I am using a triangle waveform is that the triangle has a nice metallic edge to it.

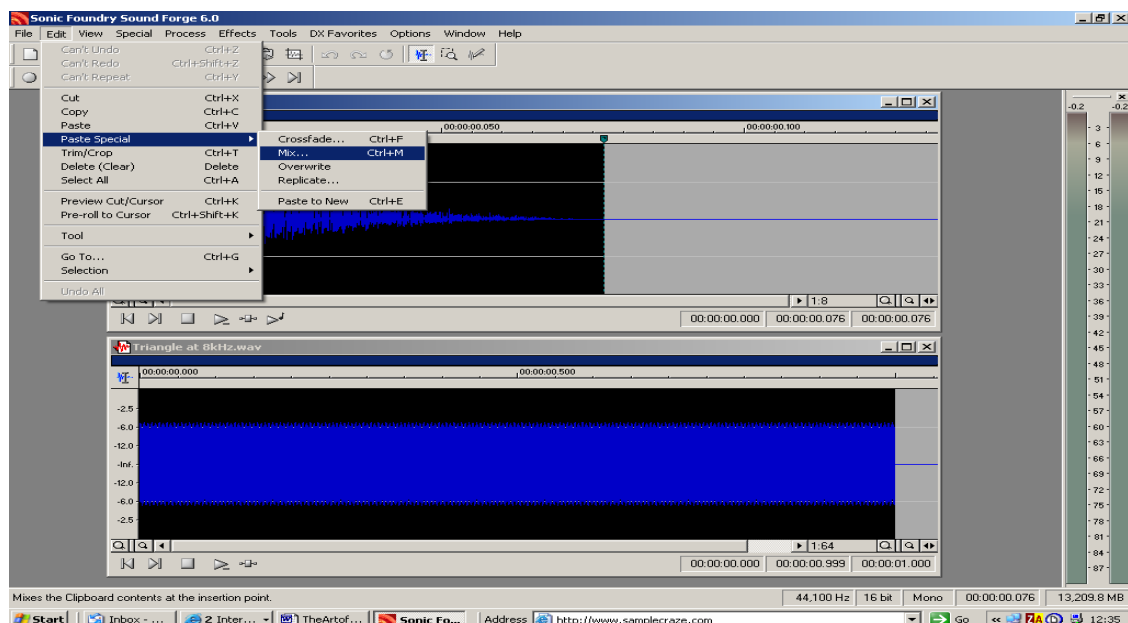
**(HH083)**  
**(Triangle at 8 kHz)**

Fig 18



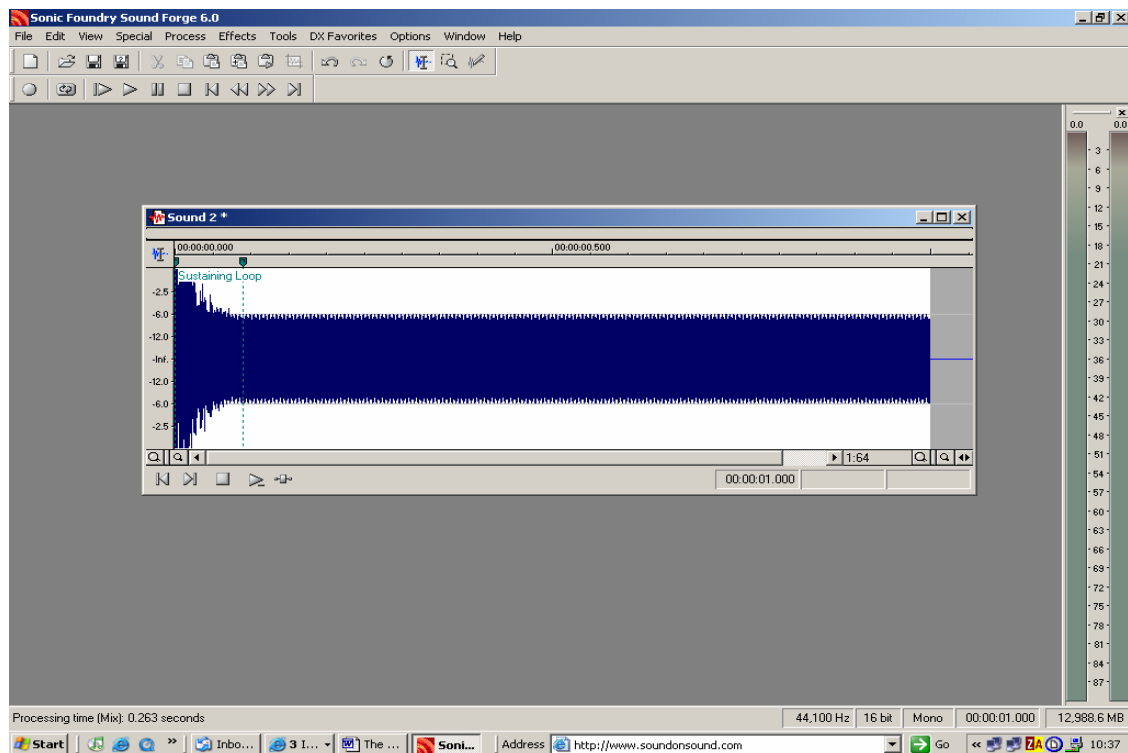
I then layer these two files together into a new file using the paste special-mix (Fig 19).

Fig 19



I am left with this (Fig 20). (**HH083 and triangle 8 kHz combined**)

Fig 20



Obviously, the length of the new sound is too long, so I shorten it, then fade it out (Fig 21), and end up with a nice metallic hi hat with the tone of a triangle, excellent for Trance and House music (Fig 22).

Fig 21

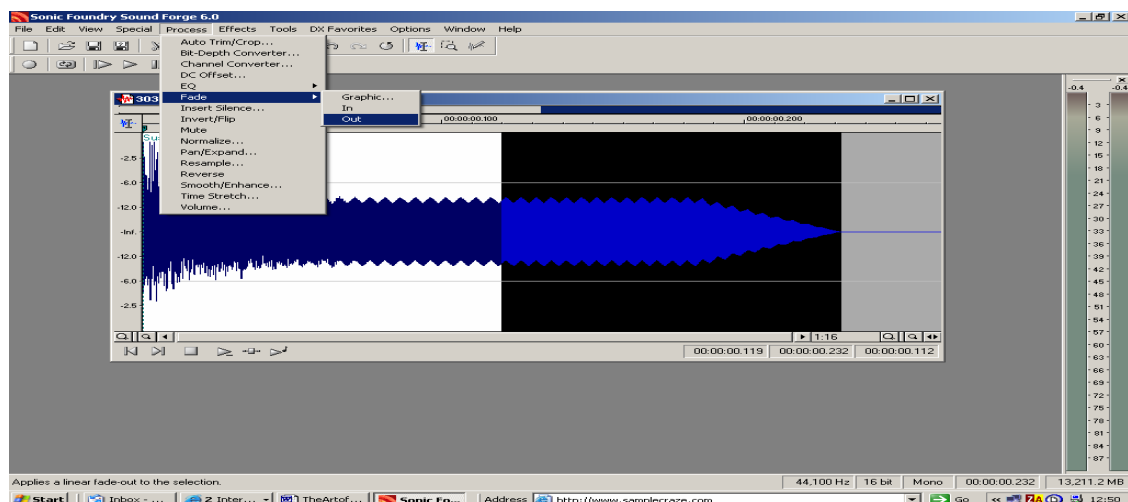
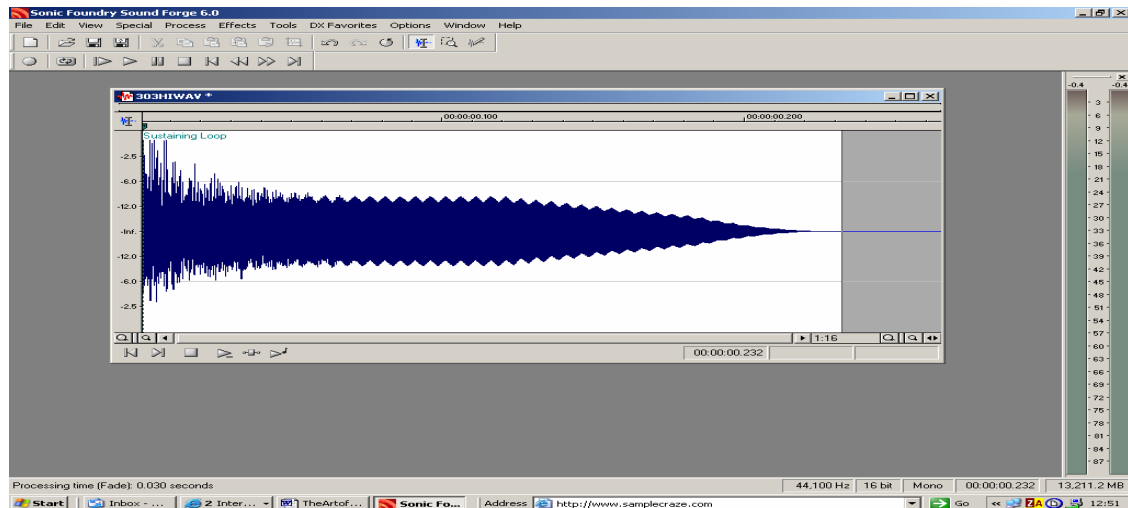


Fig 22

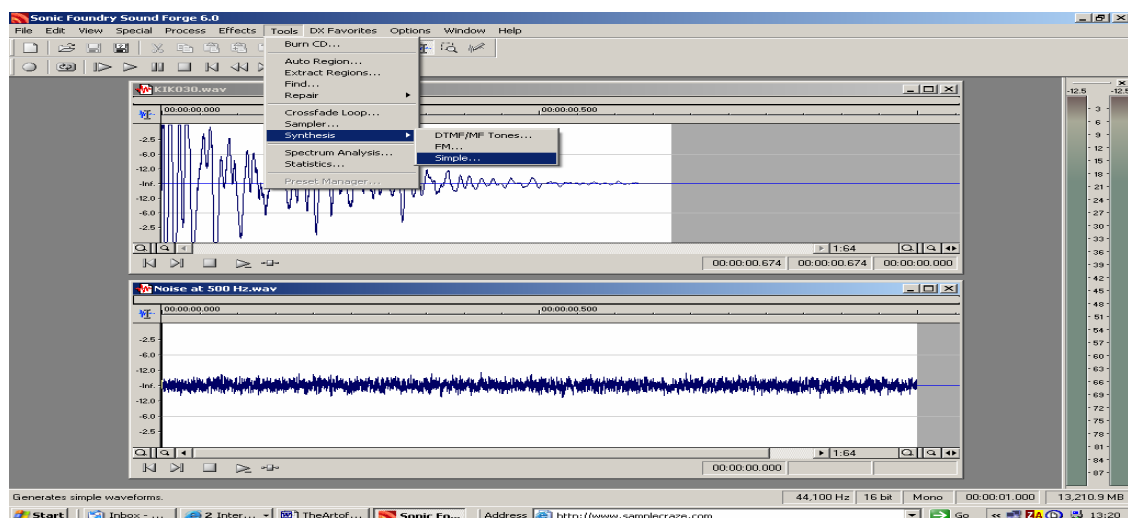


(HH083 and triangle 8 kHz combined and faded)

Let's try another one. This one is particularly good for Trance and House, whereby you have the mandatory, ambient huge kick or tom that reverbs on for ages.

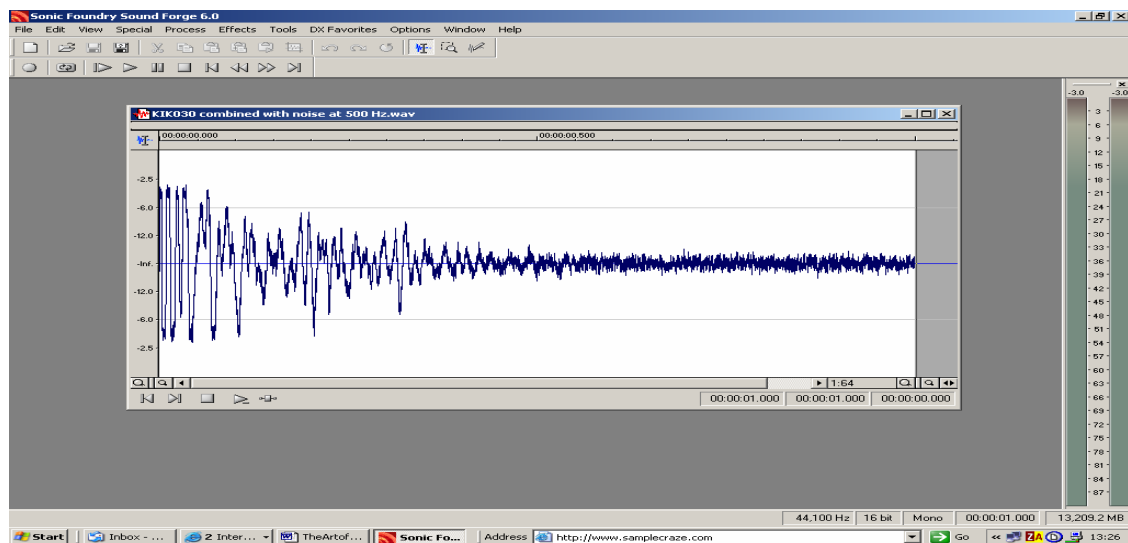
What I am doing here is taking a kick sample (KIK030) and mixing it with a noise waveform (Noise at 500 Hz) that I have generated using Sound Forge's synthesis-tool-simple, same as I did above. (KIK030), (Noise at 500 Hz)

Fig 23



We are again left with a long body. In this case the body of the noise waveform. So, we need to trim that and fade it out. Use your ears until you feel the noise adds to the file and doesn't dominate it and sound a bit silly (Fig 24).  
**(KIK030 combined with noise at 500 Hz)**

Fig 24



I am now going to trim the body and apply reverb to the whole file, so that I can be left with the big reverb kick (Fig 25). Check the settings I am using for the reverb effect.

Fig 25

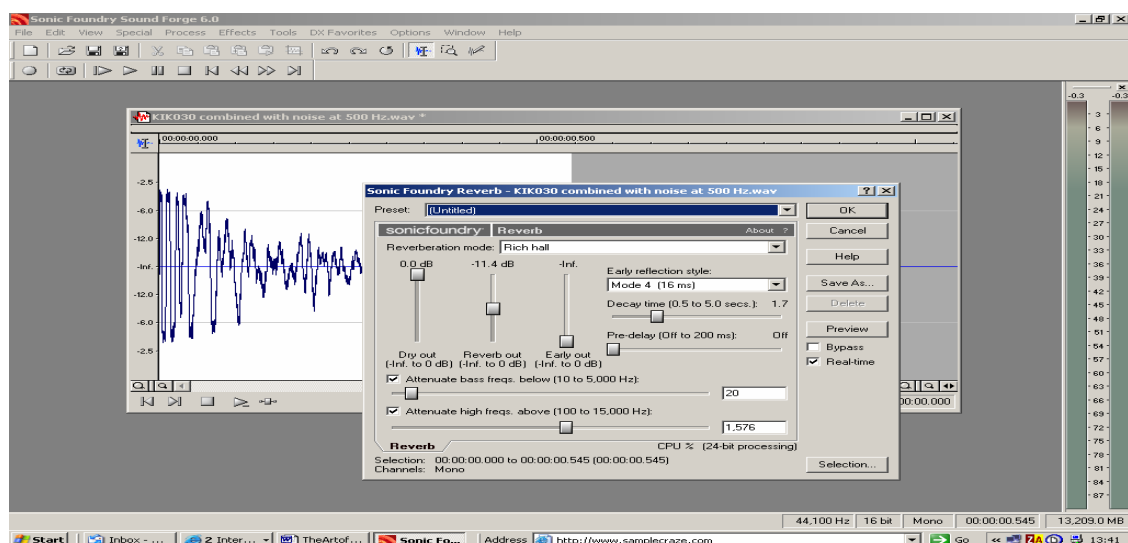
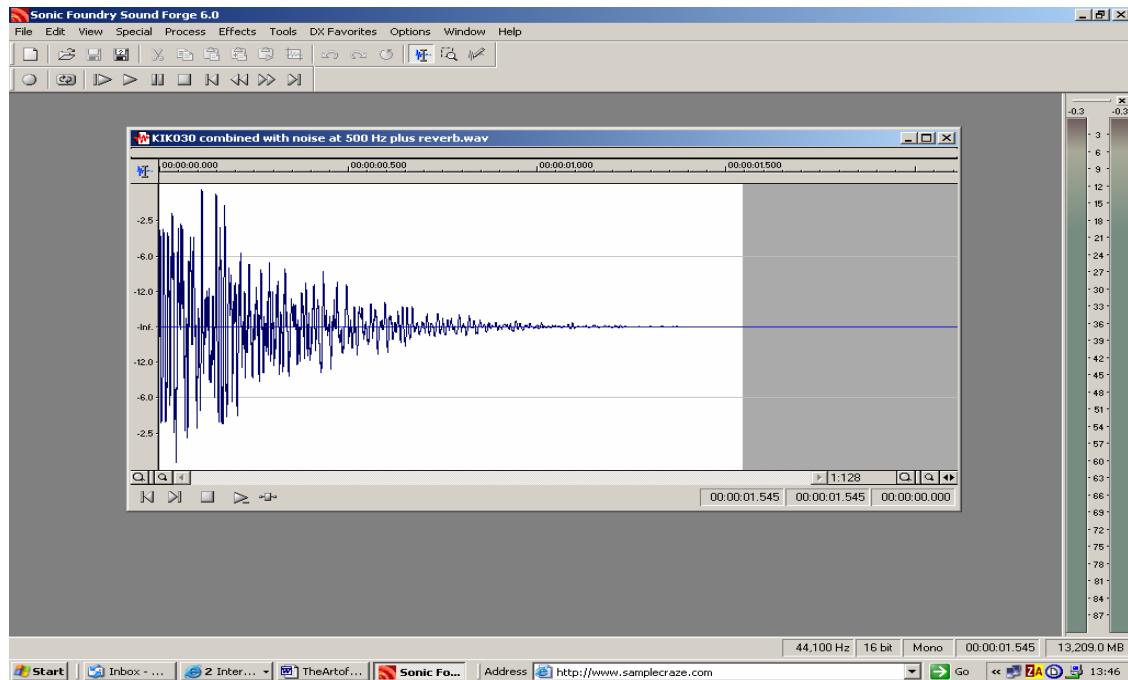


Fig 26 shows the resultant file. I have faded the reverb tail out so that I am left with a nicely balanced file.

**Fig 26**

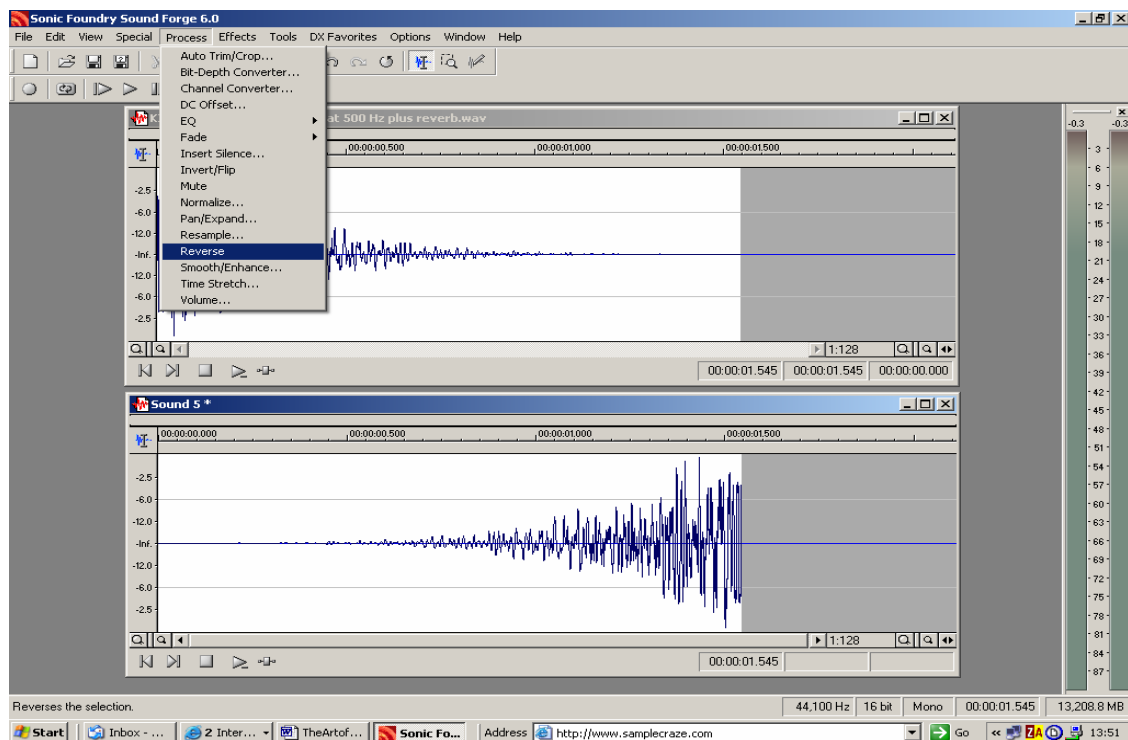


### **(KIK030 combined with noise at 500 Hz plus reverb)**

For our next example, I am going to use the layer we just created. What I am trying to achieve is a long reversed intro, building and swelling into the main kick, and then tailing off with a long reverb (Fig 27).

To create the reversed copy, I am using the process-reverse menu option in Sound Forge, as you can see below.

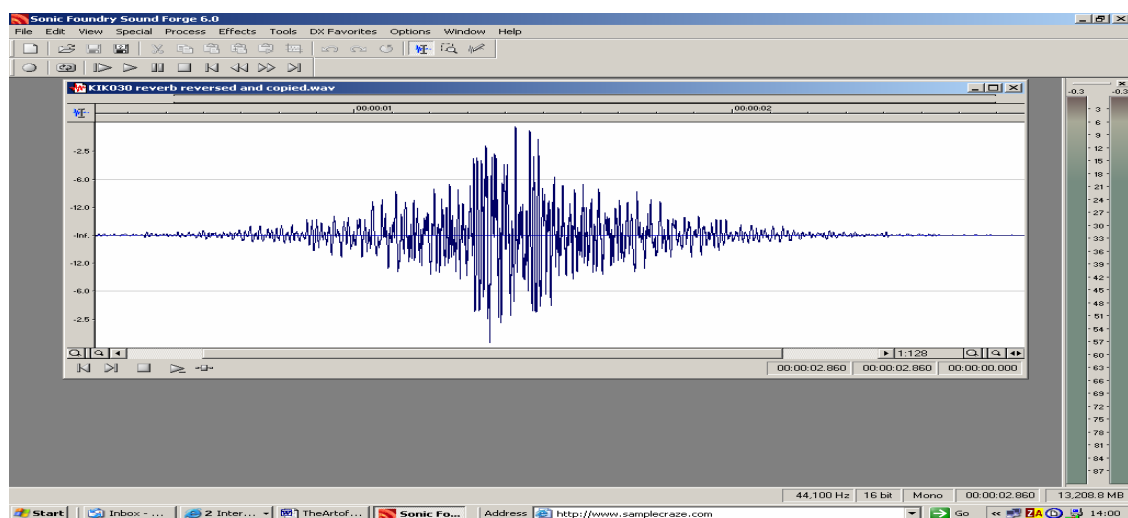
Fig 27



In Fig 28 I am taking the reversed layer and copying it to the start of the original layer. This way I get a reversed intro, then the kick with the reverb noise tail off. Cool.

**(KIK030 reverb reversed and copied)**

Fig 28





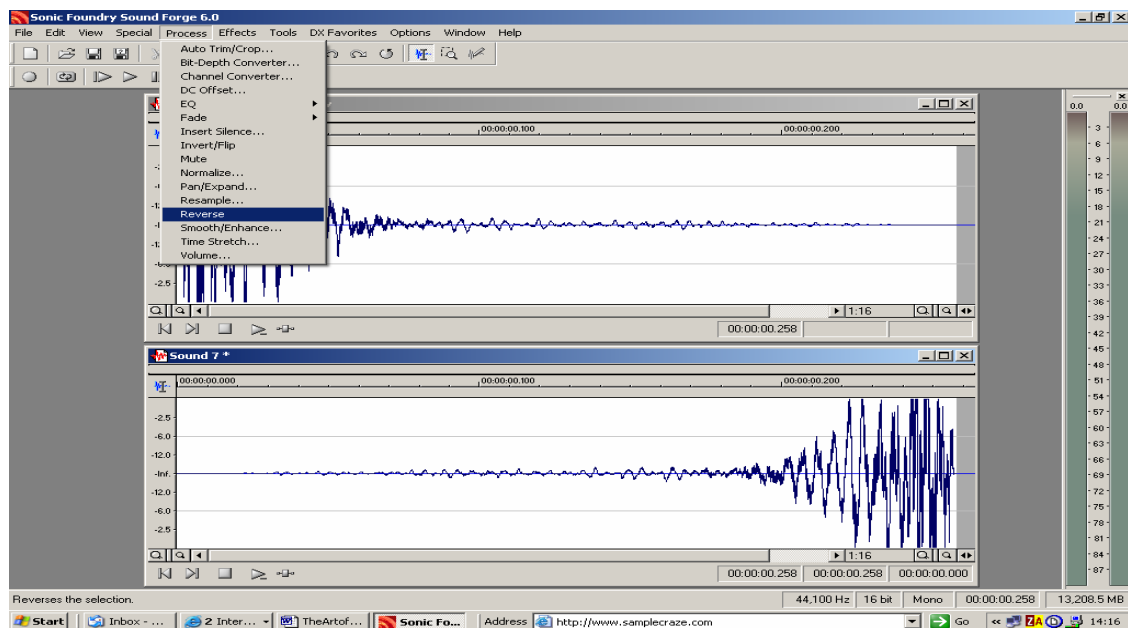
Experiment with copying and reversing audio files, and then layering them. It is quite amazing the variations and textures you can create. This is a tool that is so widely used amongst programmers and producers. It's a tool that you now know about, so use it and enjoy the results.

## 5. Some Hip Hop Snare Techniques

Here is a really neat trick that Hip Hop producers use to get that nice snappy and reversed percussive sound. Let's use a snare as an example (Fig 29).

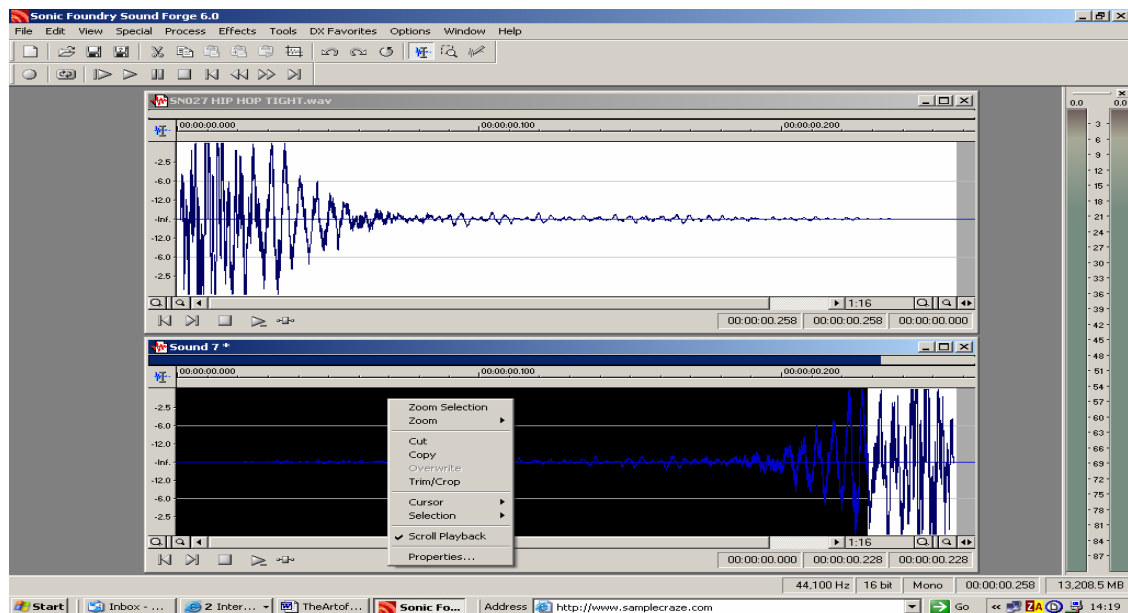
**(SN027 HIP HOP TIGHT)**

Fig 29



Same as we did before. But this time we will add the layer just after the original snare's attack. But first, we will crop the reversed sample so we only have a tiny bit of the reversed element (fig 30).

Fig 30

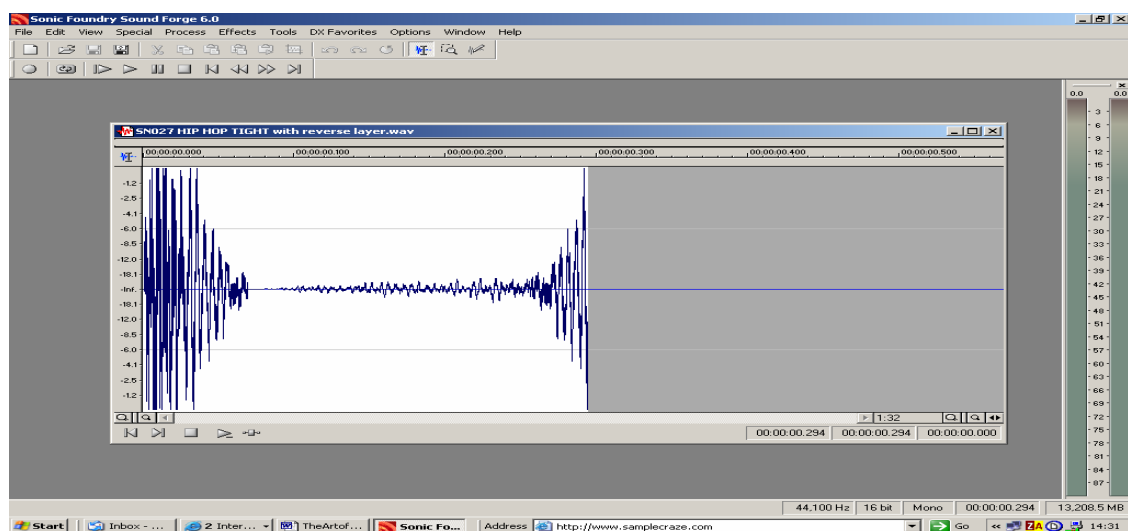


### (SN027 Reversed)

Now, we add the cropped reversed layer onto the original sample at the point I specified, and we end up with this (Fig 31).

### (SN027 HIP HOP TIGHT with reverse layer)

Fig 31



Continuing from the above example and using the resultant file, we can do the following.

I have highlighted the mid-section, the area being shared by the two files, and cut it (Fig 32). This is the end of the attack of the original snare, and the start of the reverse copy that we cropped earlier.

**Fig 32**

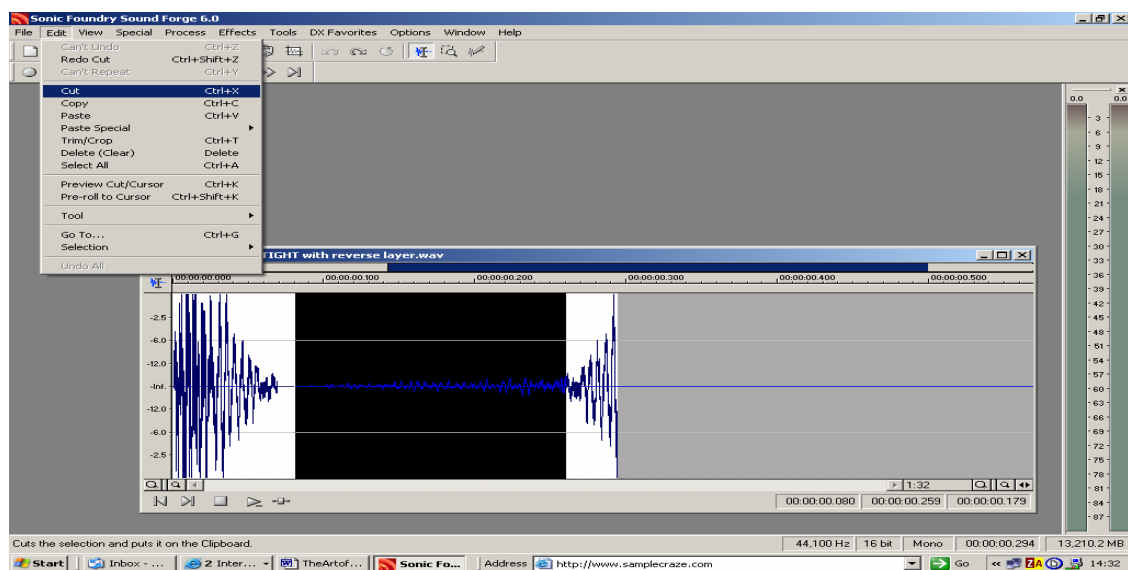
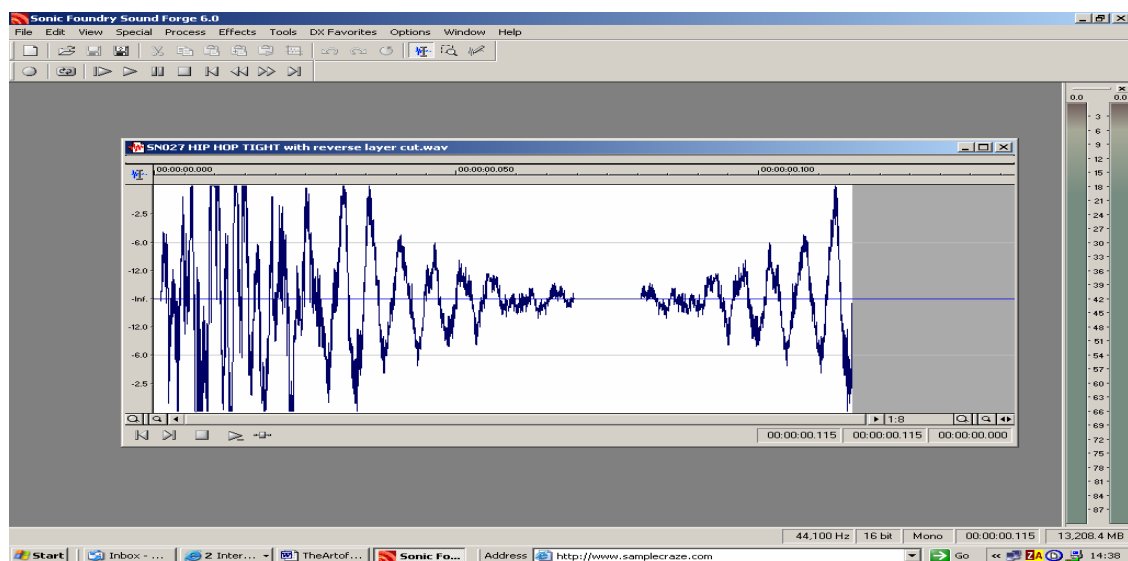


Fig 33 shows what is left when I cut this area.

**Fig 33**



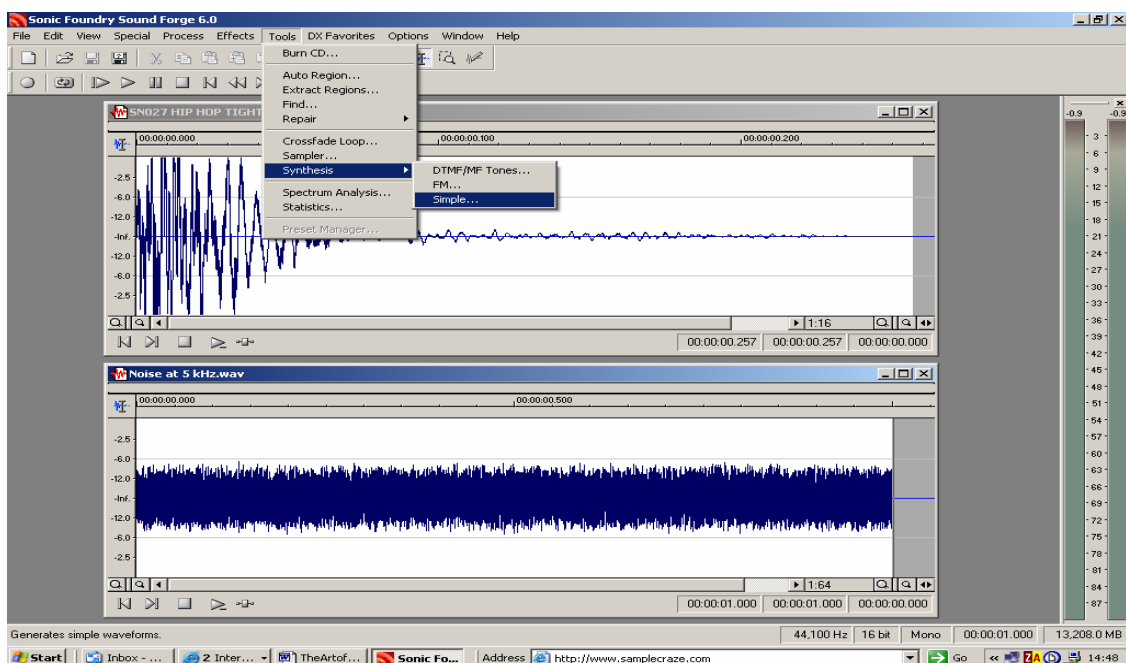
### (SN027 HIP HOP TIGHT with reverse layer cut)

You can experiment all day long, layering waveforms, other percussive samples, or even sustained instrument samples, to create new layers.

In this next example (Fig 34), I have used the same snare and this time created a noise waveform at 5 kHz.

### (SN027 HIP HOP TIGHT) (Noise at 5 kHz)

Fig 34



So, let us do what we have been doing for the past few examples, and layer the two files (Fig 35), by using the mix special, cut the long section off the end, by highlighting it and using either the cut function from the drop down menu or the scissors icon on the toolbar at the top, and fade out, by highlighting the area that needs fading and using the fade out function from the drop down menu (Fig 36). And, finally, we are left with a nice and dirty snare, that sounds as if it has been bit crushed (Fig 37).

Fig 35

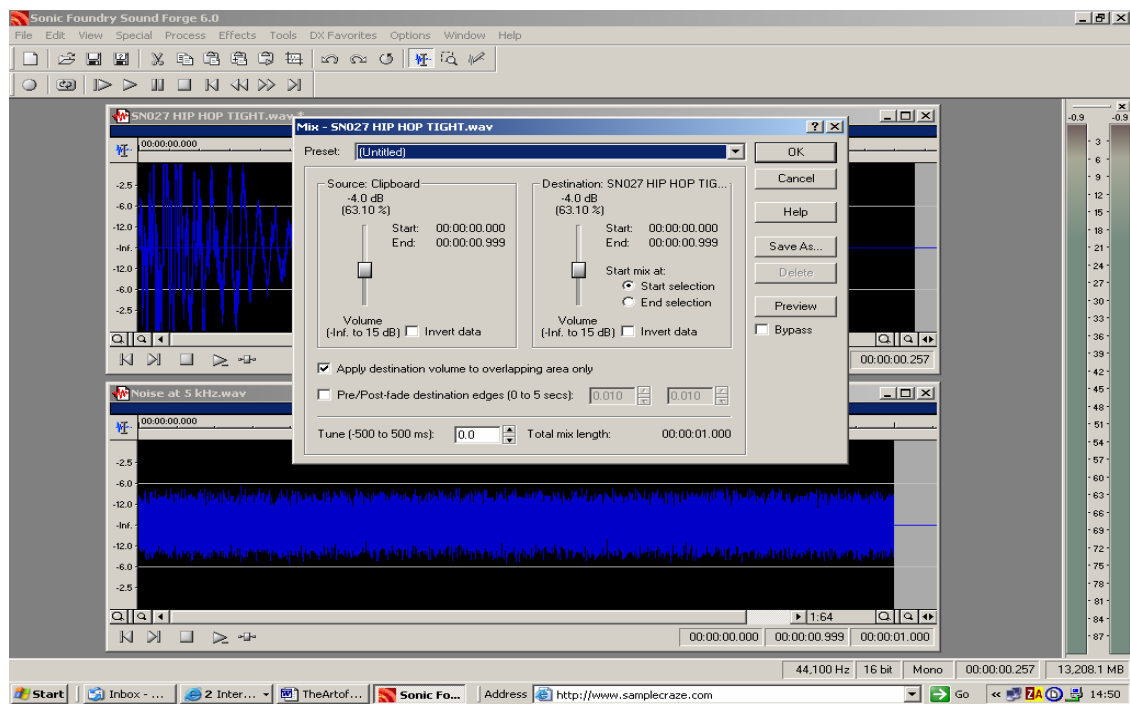
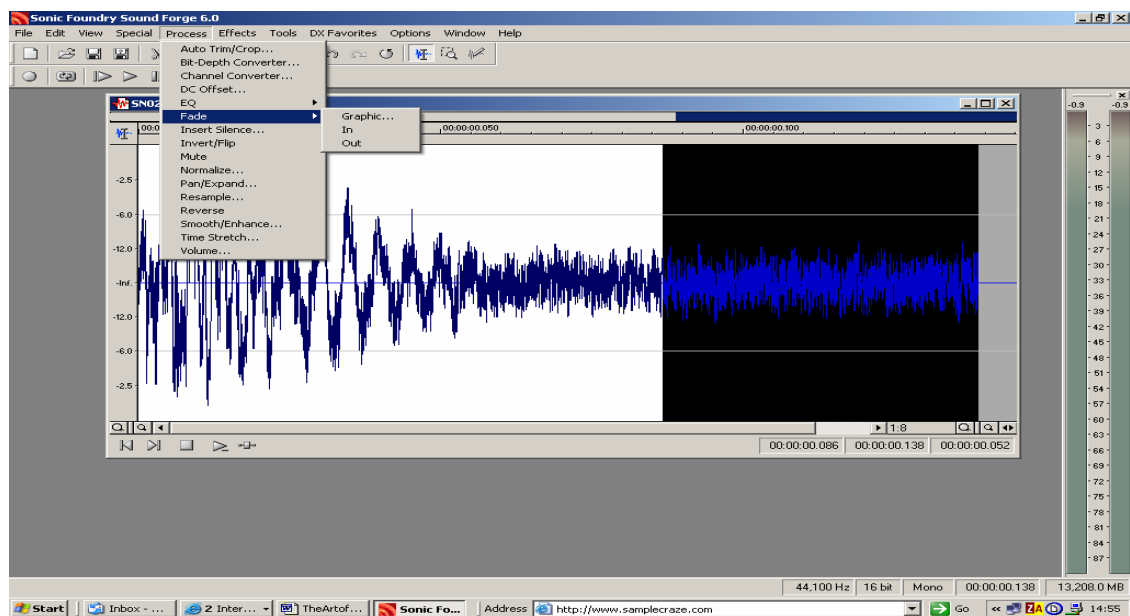
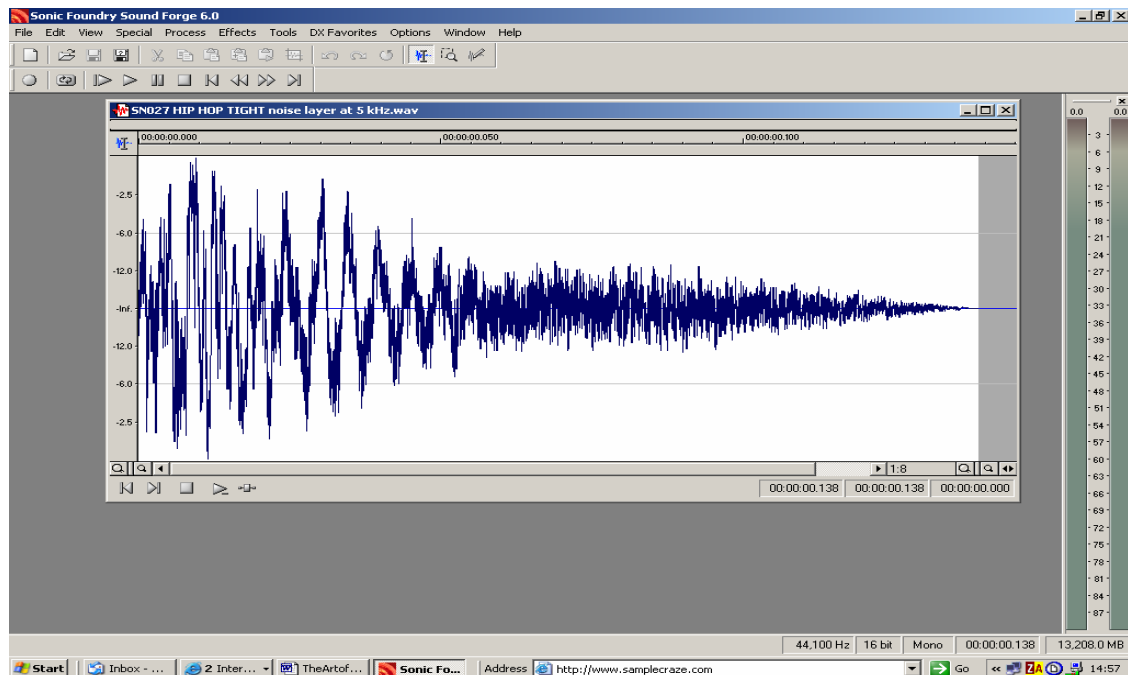


Fig 36



**Fig 37**



### **(SN027 HIP HOP TIGHT noise layer at 5 kHz)**

Keep experimenting with noise layers. They make for some great effects. Remember that you are not confined to use the noise layer exactly as it is, when created from the tools option. You can pitch it right down to a rumble, pitch it up for a slap effect, or even add reverb or delay, or any effect for that matter, to it and layer it with snares and kicks, or any sound that you want.

The whole art of layering is about understanding frequencies, the source material and the layering material. If you still have problems envisaging the resultant file in your head, then experiment. The examples here should be enough to give you a head start, and for you to get your ears accustomed to the varying effects that certain tone files give. Once you recognise what these layers sound like, then it should become easier to locate and layer any file you want.

## 6. Layering Tracks & Beats

So far, we have looked at the simple cut/paste and layer methods, but only on individual samples. What we have not addressed is the layering process on drum beats, or simply accenting certain components in a beat. You can use the following technique to create one final layer or a combination of layers. The technique that I am talking about here is layering within a sequence, or, layering with individual audio tracks, as opposed to just audio files.

I generally open the audio file of a kick or a whole beat in my audio sequencer, like Cubase or Logic. I will then open another audio file of the component I want to layer into the already opened file, be it a single audio file or an entire beat sequence. I now have two audio tracks opened in my sequencer, one above the other. I then play the files together and check for the frequency qualities. If the two files clash, then I ditch one and load another. If they sound like they could work together, I then go back and work on the layers as explained before.

So, let us work off an example here, as it will make it much easier to understand this whole concept.

In this example we will work with two separate beats and then layer the two.

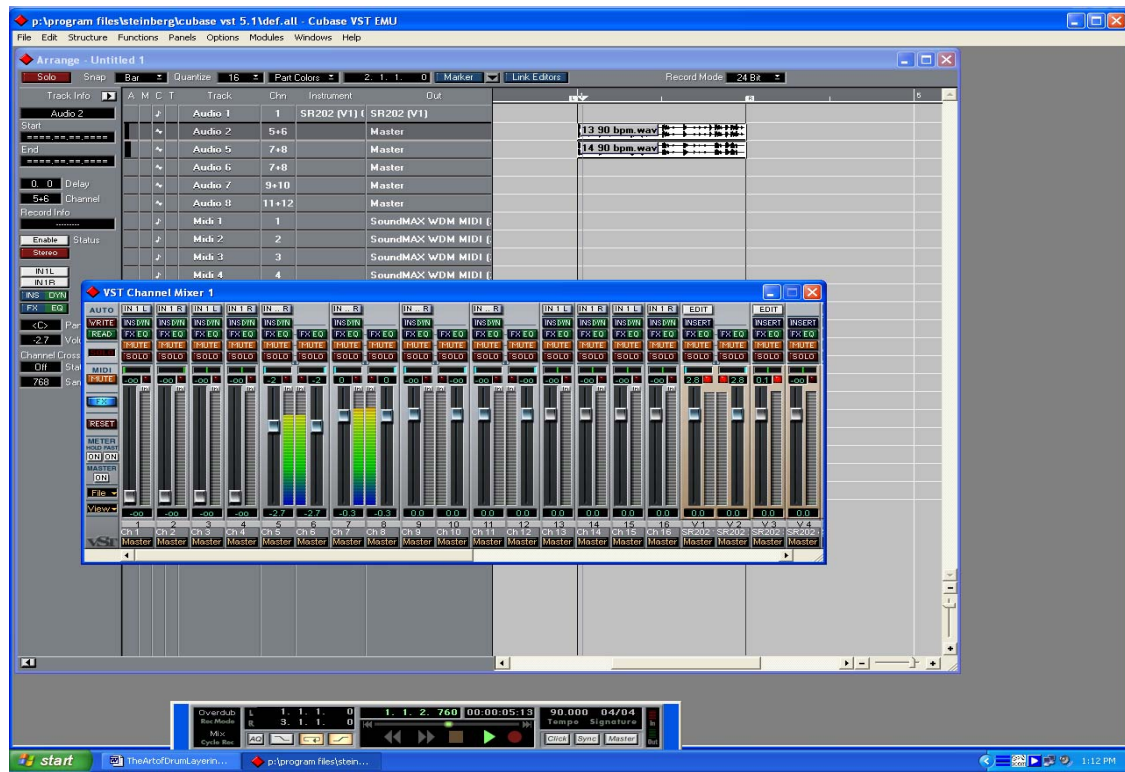
**Beat 01 90 bpm**

**Beat 02 90 bpm**

In figure 38, I have opened both audio files in Cubase, and am now going to play around with both files using Cubase's tools, until I get one layer that sounds how I want it to sound.



Fig 38



As you can see, Fig 38, I have two audio files, one above the other, and both audio files show healthy levels on the channel mix page in Cubase.

I am going to use a delay effect with a little filter on one of the beats and heavy compression on the other and then output the two layers as one audio file.

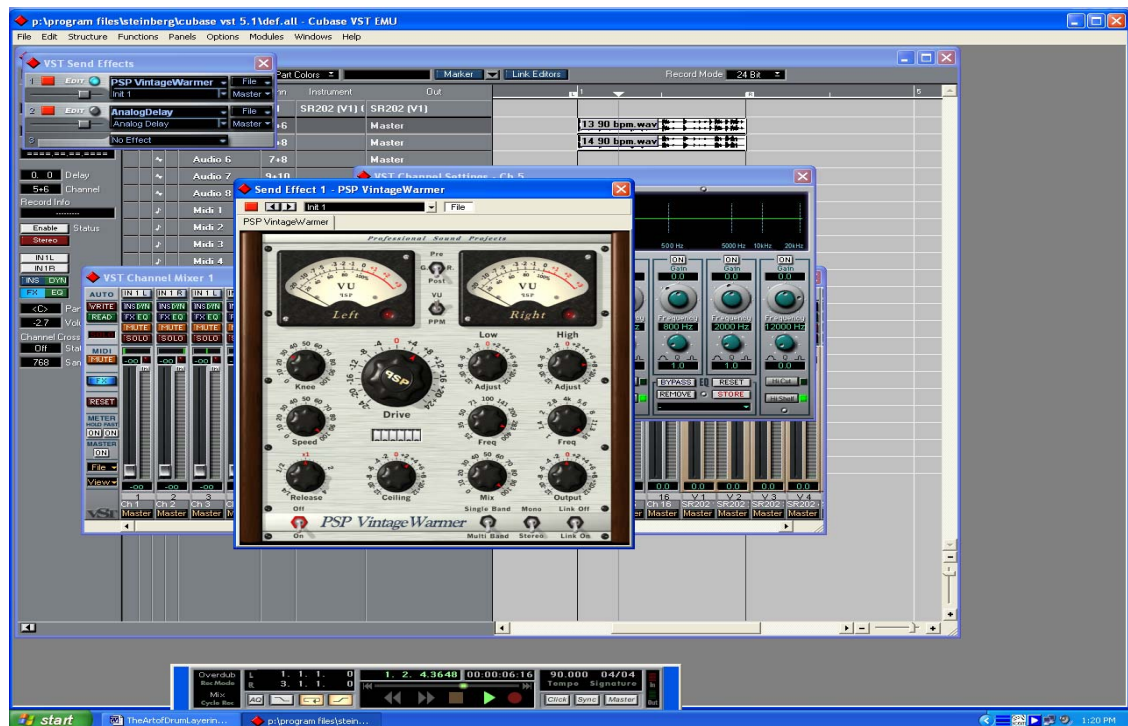
Fig 39 shows the effects' windows I have opened in Cubase and one of the effects I use on one of the beats, in this case, the delay effect.

Fig 40 shows the dynamic effect I use on the other beat, in this case, a compressor.

Fig 39



Fig 40



And the result:

### **Beat 01 and 02 effected**

I know that you have used this technique many times, without even knowing it, when you layer two drum beat samples, of the same tempo, in your sampler, and check to see if they work. You now have a third beat that is all your own, but layered from two drum loops. You have also used chopping techniques (more about this in my Chopping tutorial at <http://www.samplecraze.com/audio-tutorials/chopping.htm>) to mix and match drum loops into a new loop.

In my method, you simply substitute the sampler for the audio editing sequencer. The advantage of this is that you can move either of the files forward or backwards, checking if the two files 'fit'. This is particularly important if you are using a drum beat in a given tempo and you want to find a nice kick to accent the layer, or a snare to work into the new beat.

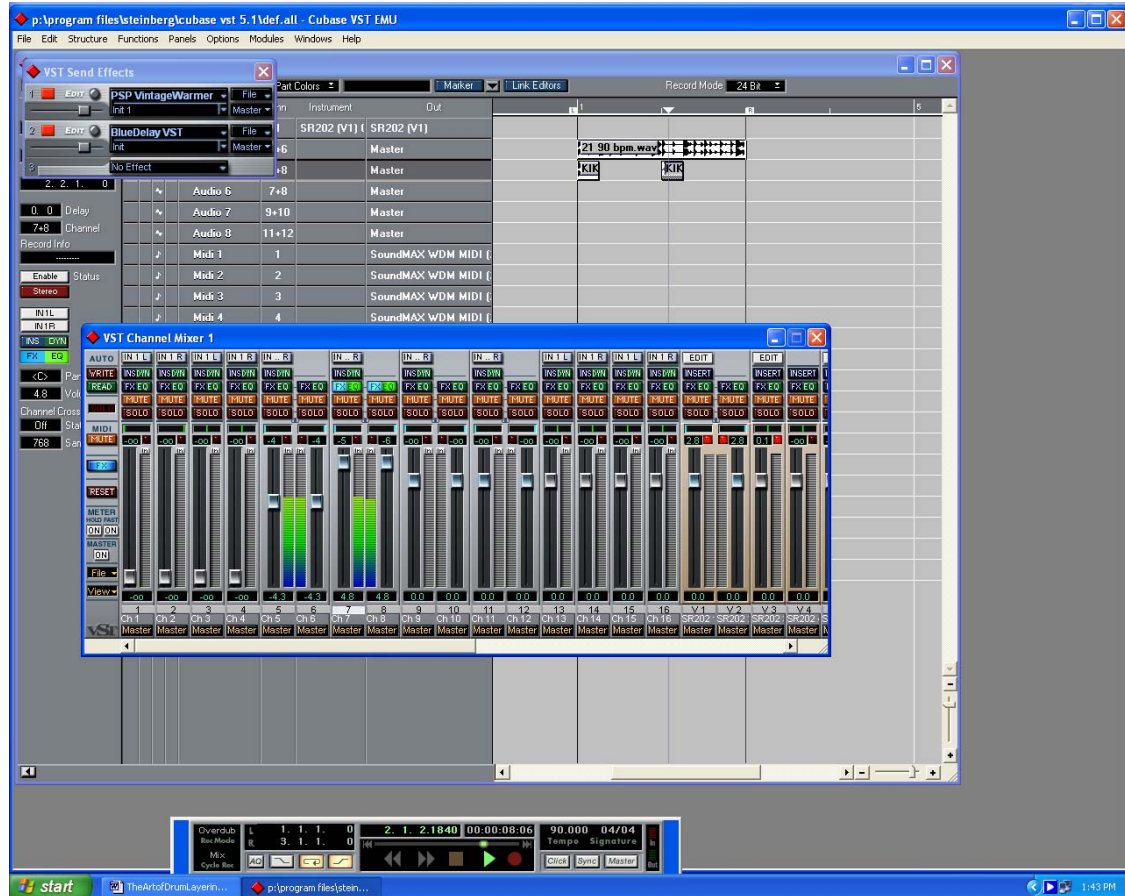
All you have to do is to load the beat, then load the kick, or snare, onto another track and play the whole sequence (Fig41). If the kick, or snare, is out of time, you can always move it forward or back until it fits into the beat. If the sound does not work, then open another file until you find one that sounds good with the beat that you are trying to layer. Once you are happy with the components, you can use the audio editor to create a new beat, or just keep things as they are.

This also gives you the freedom to drop the file into any part of a sequence without having to alter the beat.

For this example I am going to use a drum loop that does not have a big or deep kick, and try to layer it with a kick that will compliment the beat.

### **Beat 03 90 bpm KIK 01 Heavy**

Fig 41



As you can see, I have loaded the beat (Beat 03 90 bpm) and the kick (Kik 01 Heavy) just below it.

I have placed the kick on the start of each bar to accent the beat. You can place the kick anywhere you want. In fact, it is a good idea to move the kick around and listen to what the whole lot sounds like. You might be surprised to find that you have created a nice beat by accident.

And here is the result.

### Beat 03 and KIK 01

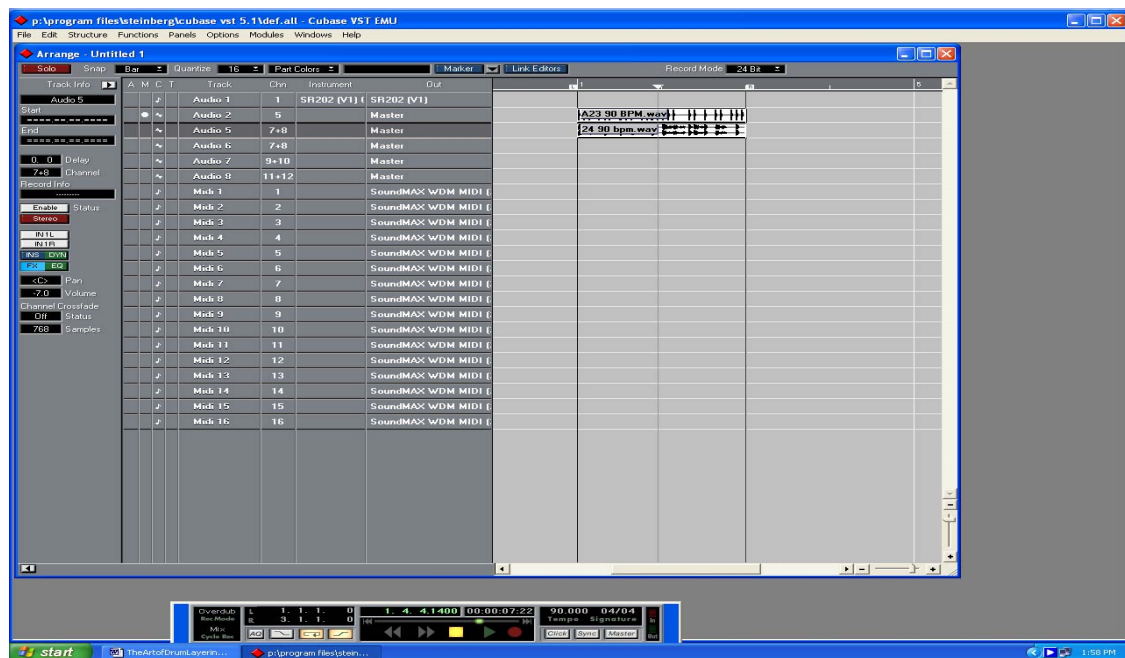
The same is true when it comes to layering complete sequences. You can open your beat file, then open a hi hat loop and layer the two in your sequencer (Fig 42). If the beats are out of time, you can then make a decision to time stretch or compress one of the files so that they both fit into the tempo.

This technique works because it is quick and you do not have to understand frequencies at a deep level. It's a simple mix n' match technique

Layering is not just about mixing two audio files of single shots. It can be layering of entire sequences.

**Beat 04 soft hi hat**  
**Hi Hat big**

**Fig 42**



And the result

**Beat 04 and Hi Hat big**



## 7. Do's & Don'ts

Now let us delve into the dos and don'ts, and also how to recognise if you are wasting your time with a layer or if it's a definite 'must use'. A few more tips n' tricks.

*Do not EQ or compress a file until after you have concluded all layering.*

This type of process is what we call destructive. In other words, it is not something that can be reversed. I am not talking about the undo function in your software editors. I am talking about applying EQ to one layer and compressing it and then trying to layer it with another layer. Don't! If you EQ and compress one layer and then come to EQ and compress the resultant two layers together, then you will have audio problems. EQ and compress right at the end of the layering session.

*Try to avoid normalising of a layer.*

Always leave a little headroom on each layer as the very nature of summing will boost the final gain. If you need to know what headroom is, then read my tutorials on Sampling -

<http://www.samplecraze.com/audio-tutorials/audio-tutorials.htm>. By leaving enough headroom on layers, you will allow dynamic processing to take place without the resultant file clipping or distorting. You can always normalise at the end.

*Filter Out Offending Frequencies*

If a layer is very close to what you are after but has a little too much low or high frequencies, then use a filter to filter out the offending frequencies. Rolling off, or boosting, certain frequencies can make all the difference to a sound. Like I said earlier in this tutorial, it would help you if you read my other tutorials as all these terms are defined. I have a whole tutorial dedicated to Filters at <http://www.samplecraze.com>, so have a read.

*Archive Archive Archive*

Always archive your drum sounds sensibly and with clear definitions. I cannot stress how important this is. You could end up spending hours looking for a drum sound, if all you have is a name that says 'Hip Hop Kick 1'. Be inventive and sensible. Naming samples according to the

way they sound will always help you. Names like 'Deep kick, hard attack, boomy' will mean something and ignite a vision in your head.

### *Decide what you need from each layer*

If two layers have the same type of body, then use the component parts of the layers. There is no point in layering a middle rich layer with another middle rich layer, if all you are after is the attack of one of the layers. This will muddy, boost, or phase the mid range of the final layer. Think about what it is that you are after from each layer.

### *Keep it Simple*

If you can use simple ADSR methods in changing values of layers, then do so, as this will allow you to have countless alternatives of the same sound.

Example: layer the two layers but do not mix them into one file yet. Adjust the attack of one layer and listen to how the whole file sounds. If you like it, then save it to your computer's hard drive, and go onto the next adjustment. Maybe this time, you change the release of one layer while cutting the attack of the other layer. If you like this sound, even if it's not what you are after, then save it as there might come a time when these files will become very useful.

### *No Limits*

Don't limit yourself to layering sounds of the same nature. No one said that you have to layer a kick with a kick. I often layer a kick with a bongo, tom, or the attack of a snare, or any sound that I think will add to the tonal quality of my final layer. I have even used kitchen utensil sounds, attacks of a spoon hitting a table and being pitched down. Be inventive.

### *Sample Everything*

The sounds will always come in handy when it comes to creating new textures. Dead sounds can be excellent percussive sounds. Hitting wooden tables, dropping pillows or crunching up paper, they can all be used. With a few clever tricks, like pitching the sample up or down you can create some amazing percussive sounds.

### *Experiment*

Hi hats and cabasas make good layering partners. They make for some really soft or hard type of percussive fills. Use any of the ethnic percussive sounds and layer them together, giving attention to component parts as opposed to whole layers. I find maracas make for some great snare attacks, as finger snaps, slowed down, make for some great ambient snares.

### *Reverse It*

Try using the reverse of the same sound and layering the two together, a great producer's trick. If you take a kick and reverse it and layer it with the original kick, then you will have a great Hip Hop kick, especially if played in a beat just after the snare, another producer's trick and favourite.

Do the same with snares and hi hats.

### *Fills*

Take a hi hat and copy it. Take the first copy and cut the attack. Take the second hi hat and boost the body. Layer the two and you have a hi hat that starts off soft and gets thicker. These make for great filler hats.

### *The Delay Trick*

Take a clap and make a copy of it. Delay the second clap by a few milliseconds and layer the two. Now you have a doubled up clap, great for Hip Hop. This 'delayed' trick is a favourite of most producers. It is true that you can just use a delay effect and save that file, but it is not the same as a file that is layered with a delayed component.

### *Dance Hats*

Take an open hi hat and a closed hi hat. Cut the tail off the open hi hat, layer it with the closed hi hat. Now you have a House hat. If you want to be really funky, then take an open hat, cut the release off, reverse it and layer it with the original. Now you have a Trance hat.

### *Pitch It*

A good trick to use in attuning your ears to varying drum frequencies, as we talked about earlier, is to take kick and snare samples, and pitch



them to varying frequencies. Not too much that they start to distort but enough so you can hear what is happening when a sample is pitched down or up. Look at the frequency data in your software. Your ears will now start to embed these frequencies in your brain and you will not only have developed a recognition system but also reference points.

### *Filter It*

Filters are seriously cool weapons. I like to take one layer, raw and untouched, and make a copy and filter the copy. I then layer the two and listen for areas I can cut or boost. The difference in the two layers gives the resultant layer dynamic movement. The more subtle the filter effect, the more fluid the final layer will sound. Sometimes I use filtering extremes. I will take a snare and copy it, filter the copied layer till it is almost 'bending' back into itself (resonance and sweep), then cut the attack off it, layer it back with the original snare layer and I will now have a funky thwacking type of snare. How many times have you heard this snare in R&B? Countless times. It's even used on claps and sticks.

### *Use Percussive Instruments*

Percussive instruments, like pianos or guitars, have great attacks that can be used on drum layers for fierce snares or heavy attack kicks. Sometimes, I even use orchestral sounds in my layering sessions. I find the attack of any plucked instrument, makes for great attacks. I love using oboe attacks on snares, man they're dark.

## **8. Final Word**

Most people find drum layering complex and confusing. It isn't. So long as you understand the basics of frequencies and have followed the examples in this tutorial, then there is no reason why you should not be layering beats, sounds and pretty much anything else, with ease and fluency.

You have the most potent of all weapons, your ears. Use them and let your ears decide what ultimately sounds good. Everything else contained in this tutorial are simply tools to help you master the art of layering.

So, you're kicking back in your swivel chair, listening to your track and your drums don't sound right. What do you do? Hell, you know what to do.

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Samplecraze