

SHORTCIRCUIT DRUMS TUTORIAL for REAPER

written by, Tedwood

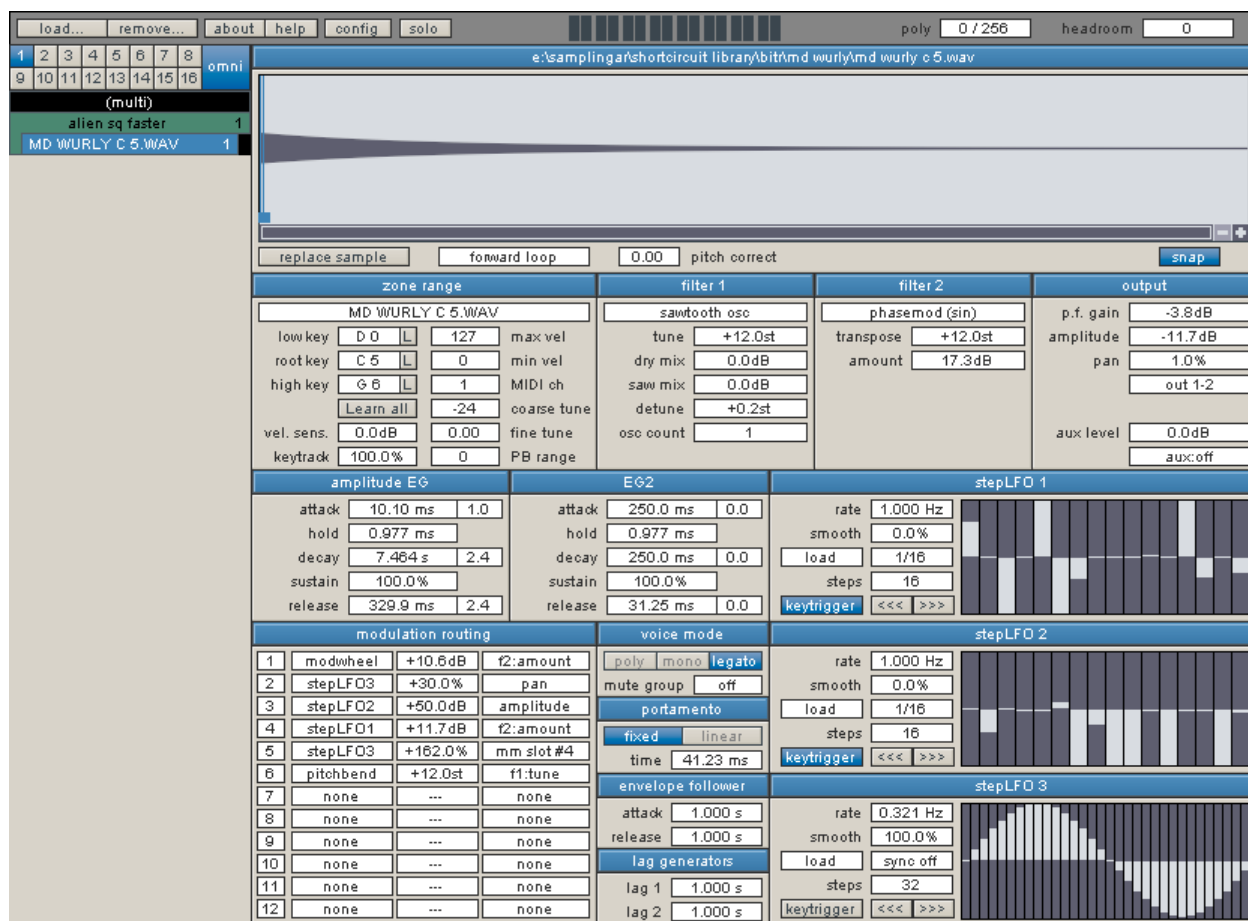
I have seen lots of posts about drum VSTs, samplers, EZ, AD, BFD etc and questions on how to get started with drum VSTs. I thought maybe it would be good if someone did a tutorial on how to set up a powerful drum sampler with your own kit pieces.

I am no expert on samplers by any means but I did make my own GM drum sampler about a year ago with which I was, and still am very impressed. It will take a bit of effort but I think this is valuable education for me as well, and hopefully we can all get something out of it.

This will be based around Shortcircuit 1.1.2. This sampler has filters and oscillators I haven't even explored yet, because I really only wanted a drum kit to sound like a drum kit, depending on the genre you might want to get in to some that at a later date but for now I would like to introduce you to the concept of high quality multi layered drum sampling on the cheap.

A word of caution here, this tutorial may not be suitable for the total newcomer to digital audio, and it assumes you have a basic grasp of Reaper and you have set up your ins and outs etc. However it's not going to be rocket science either and you can learn in a few pages of text what took me several months of trials and error

The first thing you are going to need is Shortcircuit 1.1.2 so go and download it now - here:
<http://vemberaudio.se/shortcircuit.php>



The next thing you are going to need is some drum samples. Sure I could upload a bunch of samples for you to use but for one thing you might not like my taste, and for another it's good to learn how to make your own.

There are lots of ways to do that, you can record them, there are probably thousands to download if you don't mind searching, and you can cut, paste and edit in your favorite audio editor from audio loops and takes of your choice, but I don't want to get too hung up on that side of things right at this moment, perhaps we can address some of these things a bit later on if need be.

Edit: Smurf has made some links to some great samples in his post here:
<http://forum.cockos.com/showpost.php?p=48&postcount=5>

So, if you have downloaded Shortcircuit and you have it in your VST folder and Reaper can see it, we are ready to go to work.

Before you do anything with Shortcircuit, if you don't want to be pulling your hair out because you forgot where you put your samples etc you should make a directory on your audio drive specifically for this work, call it Shortcircuit or similar and then make another folder inside that called samples, this will be your repository for all of your samples.

Right, if you have installed Shortcircuit (from here on I'll call it SC) and you have a few samples we can get busy.

Open SC with the FX button on a Reaper track, record arm the track, and set your MIDI keyboard or input device, if you don't have a MIDI keyboard you can use Reaper's virtual keyboard, but you will

have to keep selecting with the mouse before you can hear anything. Now you have the track set up you might want to save this as a template to make life a bit easier.

Now first of all you want to configure your samples folder so it's easier to find your samples, just click on the config button, then enter the path of your samples folder. It is very important to check "store samples in project directory" otherwise you will have to search for them. More about this later

In the top left corner is a panel marked 1-16, select midi channel 1 and we will start to build our drum kit.

Now when you press the "Load" button SC should go straight to your samples folder. Hopefully you can find a decent kick drum in there, insert it and you will see it appear in the left hand column and the wave form appears in the top window.

While you are here take note of the boxes below the waveform - "replace sample" "external editor" and then the window which will have "forward" in it, if you leave this when you play a note it will mute the sample as soon as you take your finger off the the key, we want it to continue after we let go so click on here and select "forward shot".

Now what we have to do is take a close look at the Zone Range window. WE are building a GM kit which starts at C1, so that means our Kick drum goes on the C1 key.

We are mostly concerned with the top three rows of options:

Low key: is the lowest key your keyboard will play the note

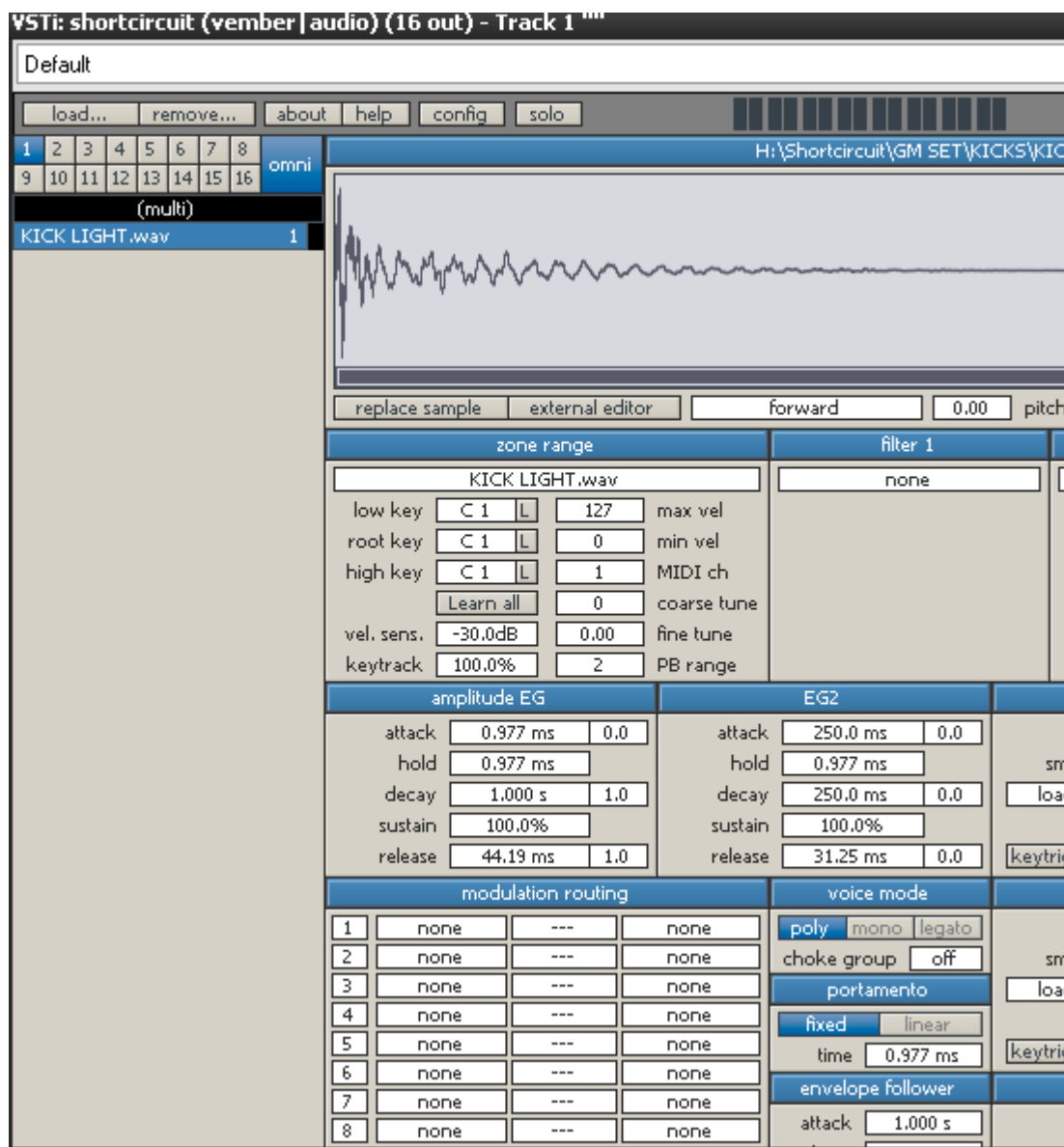
Root key: is the key which will play the note without any pitch shift

High key: is the highest key on you keyboard that will play the note

Below these three is a very useful function indeed for us:- Learn all

If you have a keyboard connected press the "Learn all" button hit your C1 key and SC will save you fiddling here and enter C1 in all three boxes, which is what we want. The only other thing to do is make sure the MIDI ch is set to 1.

You should now hear your Kick sample played on the C1 key and no other key.



Now before I go any further I need to explain about saving in SC. This is quite complicated but it will be fine once you get the hang of it

You want to right click in the left column and select the option "save channel and samples". Hopefully it will default to the samples folder you set earlier, if not you should browse to that and save there. Your channel will then be saved as a .scg file and a subfolder of your samples will be created with the name you choose for the channel - I call mine GM Kit.

Now save your project.

Note:

there is some oddness when you reopen the project it does not find the samples first time and SC will put up a window for you to enter the path of your files - in my case Shortcircuit\GM Kit however once you have done this it will remember it next time. so I Suggest you do this now before you forget.

Layering

You should have been able to open your project with everything working, if not you can reload the channel from the load button. Now we are going to layer the kick drum, for a really good kit in the traditional sense you would want samples of the same drum hit soft through to hard. To keep things simple and to demonstrate other possibilities I am just going to use the same sample in different ways. I will only do two layers, you might not even want different samples and layers for your genre, but this will demonstrate the principals.

Depending on your level of experience you may find this a little confusing, if so I would urge you not to be too hasty and give up, just take your time and go through it methodically and it becomes quite simple once you get past this stage

You have one kick drum in your channel, now right click on the sample in the channel window (left column) and select the option "clone (same key range)", and you get an identical sample with the same settings as your first. Now look at the Zone Range settings, both your samples are set at 127 max vel, and 0 min vel. This needs changing.

This is how you want them to look

Kick 1: min vel: 0; max vel: 90

Kick 2: min vel: 91; max vel: 127

Note: easy way to enter vel value is to double click, type value - press Enter

Now you can see our first sample will be triggered up to a velocity of 90, thereafter the second sample will be triggered, of course 90 is just an arbitrary figure I chose and a multi-sampled kit might have many more layers, you will be surprised at what you can do with just a couple of layers though.

If you followed my simple suggestion and used the same sample we need some tricks to make them sound like one is being hit harder than the other. It's not just a matter of volume, there is eq, pitch and attack involved too, probably all kinds of other stuff like harmonics as well, but I digress.

So with sample one we want softer, duller sort of tone. This work is best done with midi keyboard input because you need to feel the velocities and hear the results, if you don't have midi keys the best alternative is to use a midi item on your track with alternating soft and hard notes and set it to play repeat.

Now make sure you are working on your first sample, hit your C1 key with varying degrees of velocity and it gets louder and that's all, now we are going to change the value in the vel sens, you can experiment but I am going to set mine at -50db instead of the default -30db. You should immediately notice you can get softer hits and better dynamics on your kick drum now, if not make sure you are working on the right sample (easy mistake).

Now we will change the pitch a little, set the "coarse tune" to -1.

Next some EQ. In the filter 1 box select either of the EQ options. I chose the parametric and made the following adjustments to give a slightly softer sound, you could also use the graphic EQ or experiment with any of the other options of course:

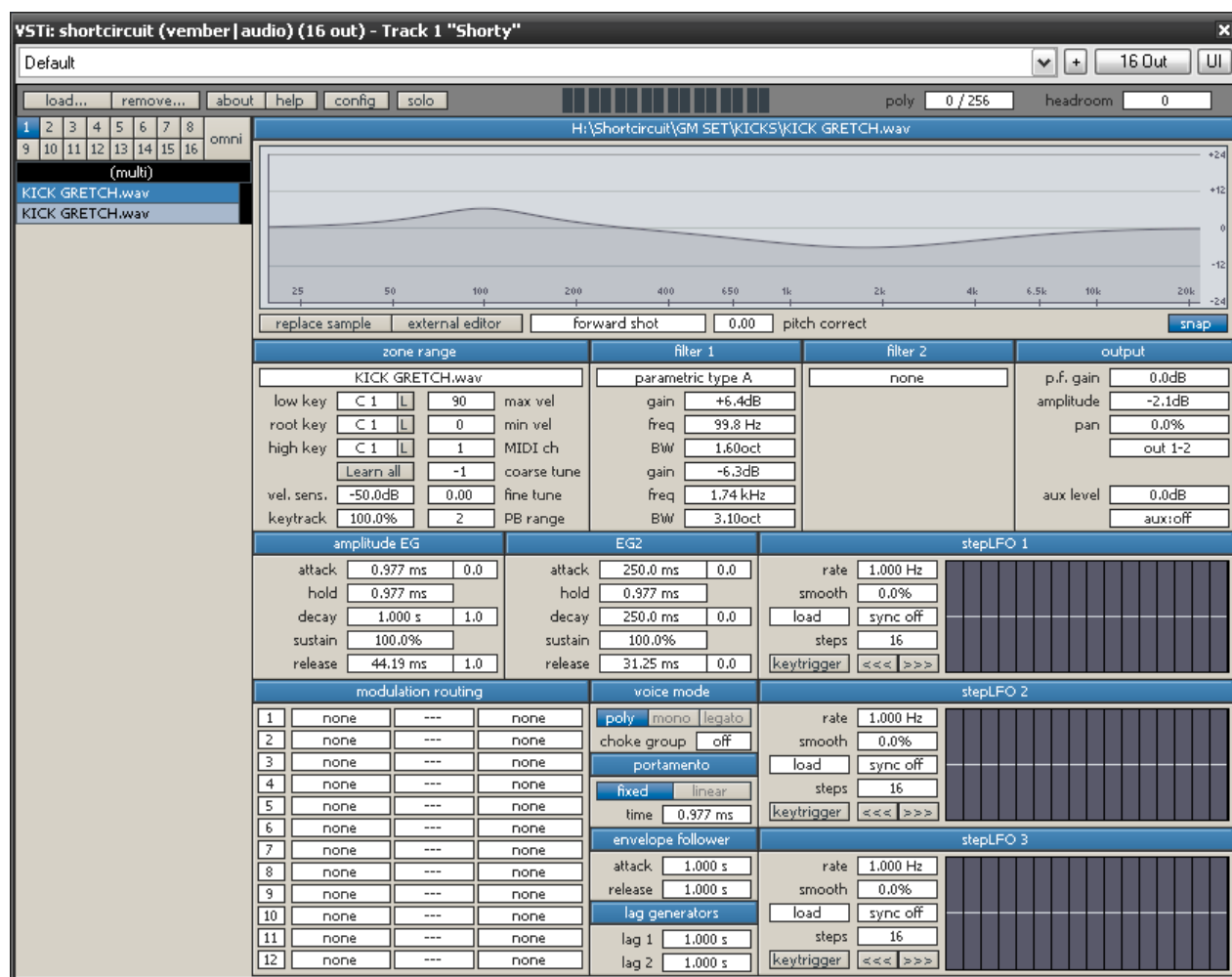
gain: +6db
freq: 100Hz
BW: 1.6
gain: -6.3
freq: 1.7Hz
BW: 3.1

I also compensated slightly for the overall boost by changing the "amplitude" setting in the "output" box to -2db.

Of course I have no idea whether this will suit your samples but it works a treat with my Gretch Kick sample

That's it for sample 1. Now is a good time to save your channel again as before (right click, save channel+samples)

This is how the sample looks showing the EQ graph -



Sample two.

From now on it starts to get easy, but it also gets fiddly, you will pick up speed surprisingly fast though

This is really just a few simple tweaks, now you know what these do I will just give a simple list.

Makes sure sample two is selected, the vel should already be: min 91 and max 127, so just a few changes in the zone box.

This time I don't touch the vel sens at -30db

I set the coarse tune at 1

I select the graphic EQ this time and carve a little scoop out of the middle and add a little to the top to give me more attack, and I have to adjust the amplitude in the output box by ear until the transition between both samples sounds natural when I hit the C1 key.

Now that's it for the first sample, save it as before and save your project.

So now I'll try to explain a good feature we can use. SC does not have to load a whole drum kit in one go, that's handy for us because it gets confusing when you have a hundred samples. What we can do is build a layered snare and then save it as a channel, we could do that with all the pieces and save them as individual drums, I think I will save all the snares which fall on keys C#1 - E1 though, and I will also save all my toms as a channel too (on GM kit there are 6 toms). Then when it comes to loading I can choose kit pieces instead of having to choose a whole kit. you can see the benefits of being able to change your kick drum easily.

So now i am going to show you what I think is the quick easy way to do a multi layered snare, once you know this you can go back and do a proper layered kick drum instead of the cheat one I showed you earlier.

To simplify matters I have attached seven snares from the Custom Works kit for you to use here:

http://shup.com/Shup/108207/Snare_D1.zip

So put you snare samples in your SC folder open your project,

BTW I have saved a Project template for SC which saves the kit, but I didn't have the same luck with the Track template.

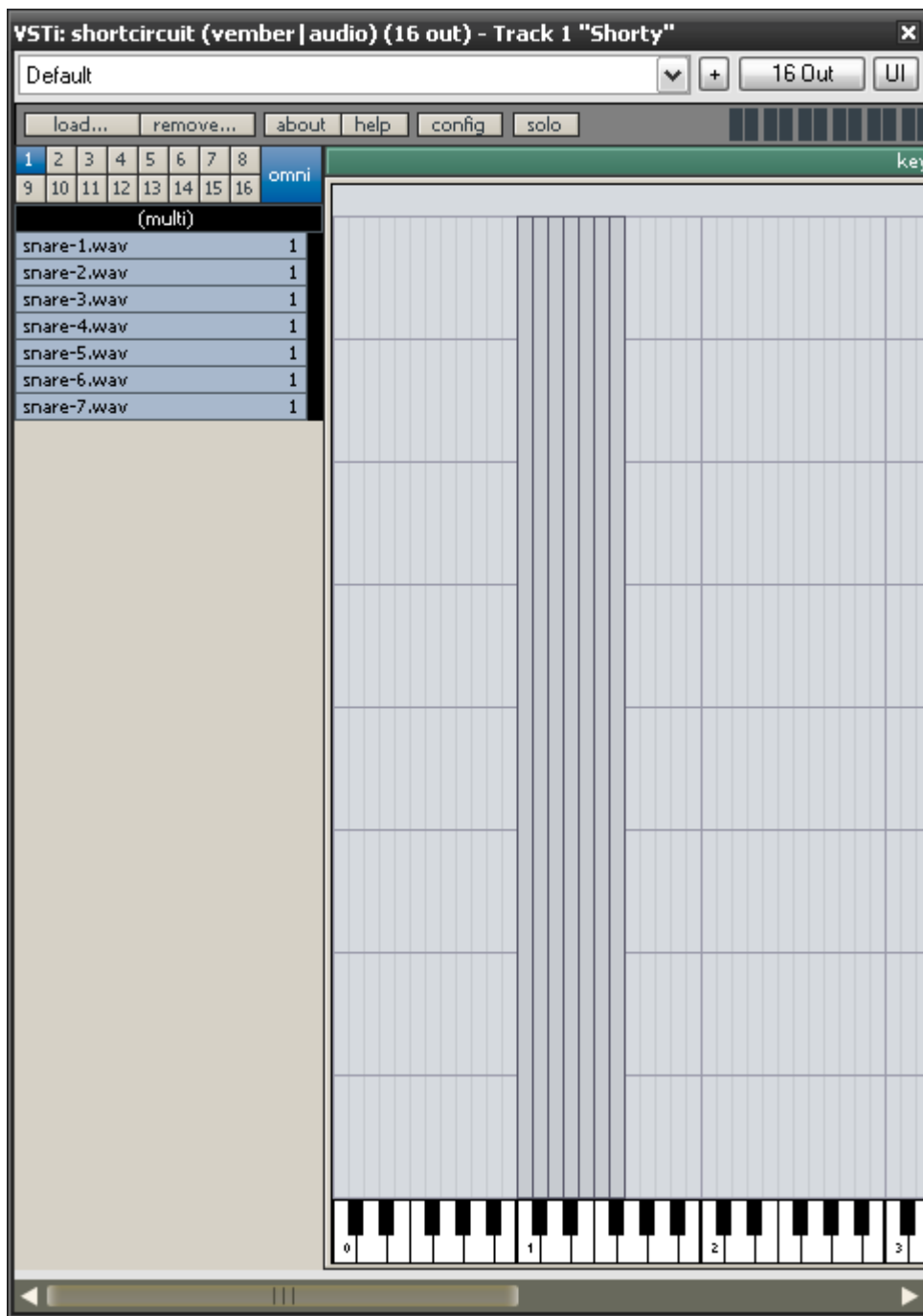
Now click the load button browse to the snare files folder and select all seven of them and open them. You will notice they are in order, I-7 in the stack, the quietest being the first, this is good naming convention

Now you should have all you samples on different keys C1 - F#, play the notes on your midi key board to check they are all present and correct and playing soft to loud. Now is a good time to edit them if you don't think they sound right; that's one of the reasons for having them on different keys, the other one is just coming.

When we did the kick drum we changed the min and max velocities by typing values in, there's a better way than that 😊

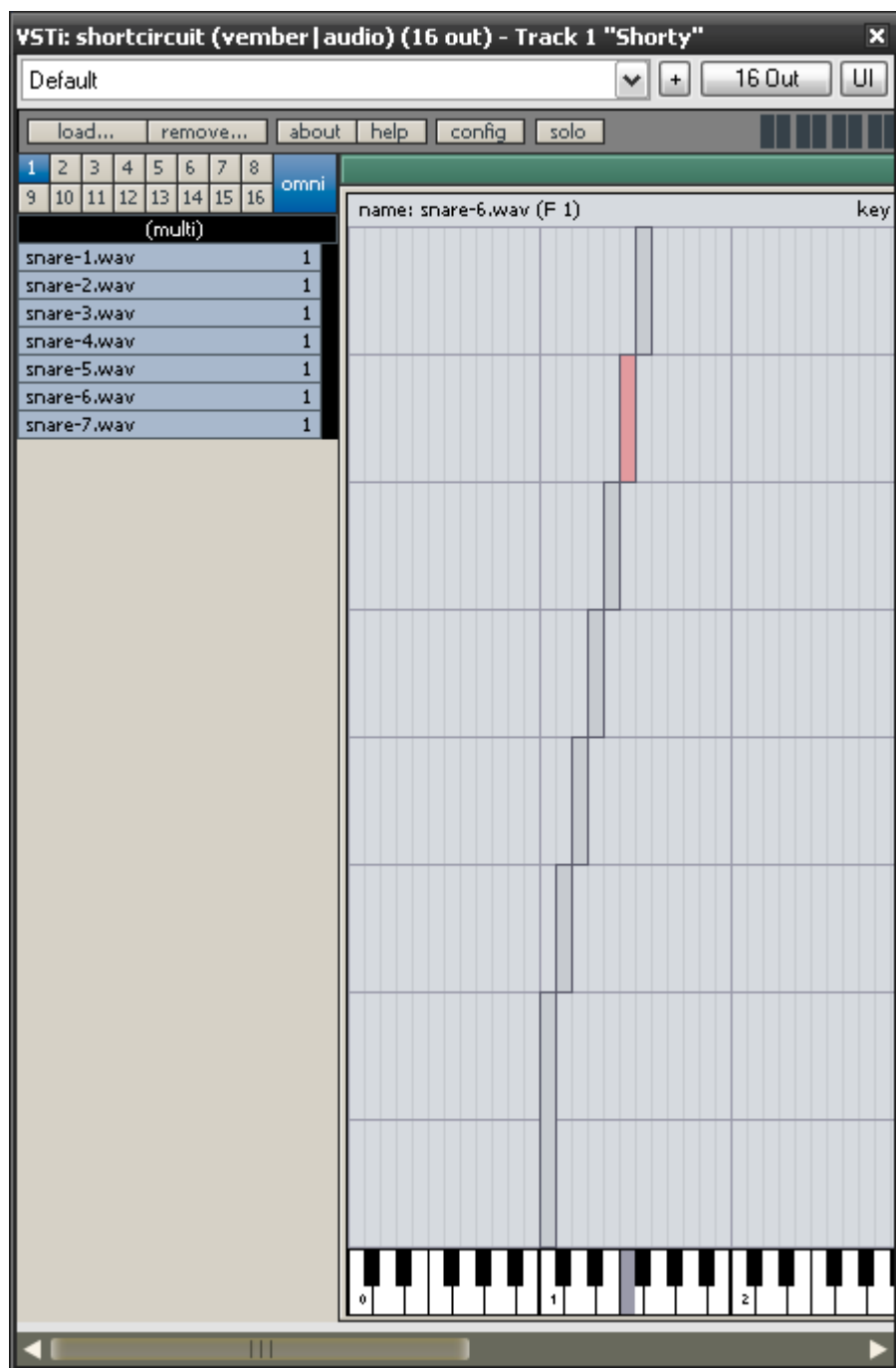
click where it says "multi" at the top of your channel and the Zone window opens looking something

like this:



At the moment they are all full length ie. velocity: 0 - 127.

By dragging the ends with your mouse you want them to look more like this



That's the velocities done but they are still spread across keys so now go back to the other window by clicking on a sample in the left pane, select all the samples by clicking the the top one, hold Shift, click bottom. The sample pane tell you Multiple Zones are selected - any changes we apply will affect all samples, that's very useful to know for other things as well. Now click the "learn all" button and hit the midi key that will play the snare, and now they should be all on the same key, in this case probably D1.

Nearly done, I just noticed I didn't change play mode to "forward shot", we could have done that at the start and it would have been copied, however if you select all again now the change will affect all samples anyway so nothing lost really.

Great that's your seven layer snare done. Save it as channel + samples - call it Snare_D or something so you know which key it's for

Top tip

For another drum you can kinda use this a template if you want to save yourself fiddling with the velocities just by replacing the samples and moving them to another key with the "learn all" function. Unfortunately it's not easy to audition the samples though.

Now you have that done that there is nothing to stop you from doing all the other drums, it's quite fiddly to do full seven layer GM kit with percussion and everything and I don't have much use for the GM standard but it's there if you want it. Personally I think I will use smaller kits, and percussion kits and put each instance on a Reaper track of it's own.

Thanks for all the help with the links and stuff, any questions and other supportive drum sampling stuff. Hey why not upload a loop of your first beat made with SC to encourage others

Routing Groups

In this session we will look at making a multi with "**groups**" in SC and routing them to separate audio tracks in Reaper.

Open an empty instance of Shortcircuit

Now right click in the list pane and choose "new group", a new group appears with a new "**keygroup view**" on the right. At the bottom in the "group pane, where it says "**new group**" you can change the name to "Kick"

Open Reaper's media browser and select a soft and a loud Kick drum, and drag them both onto the "Kick" group, you will see they land on separate adjacent keys, so you can resize the velocities as you like. Click on the **Keygroup tab** on the right and edit the velocities by dragging the ends of the samples up and down, so your soft one is at the bottom and the loud one is at the top.

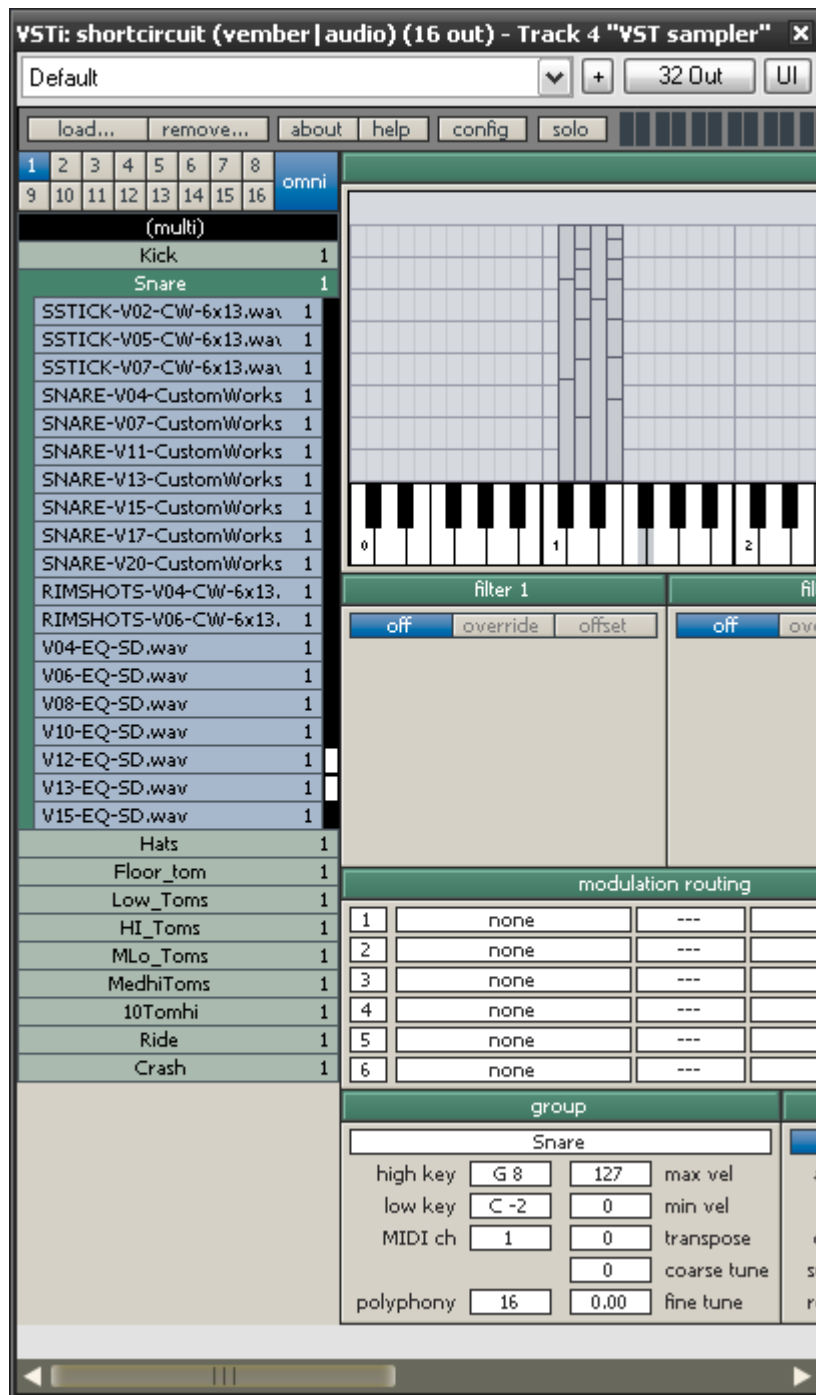
Now select both samples by **click - Shift - click**, SC warns you we have multiple samples selected, good! Now click the "learn all" button in the zone range pane and hit your **C1 key** on your midi keyboard - (you need to have your track record armed BTW). Now is a good time to change the playmode to "**forward shot**" otherwise the notes will be cut off when you let go of the key.

If you click on the "Kick" group now you will see them lined up nicely on the same key.

Okay, that is how to make a group, of course most of your groups will have more samples than this. In fact you may have more than one drum in a group; I have my stick, snare, rim and clap in the same group, and my toms are grouped too.

For this exercise we will use a Kick, Snare and Hi-Hat, so now you can go ahead and build another two groups for the snare and the Hat exactly the same way as you did the Kick. **You have to save this as a "multi"**, if you save it as a channel it won't save the groups 😞

Here's one of mine with groups



ROUTING

Now it starts to get really interesting

In the bottom right of the keygroup view is the output pane where you can set volume and pan for the whole group. You also get a choice of outputs. for your Kick, just choose the default 1/2, for the snare choose 3/4, and for the Hi-hat choose 5/6. Make sure the **"group mixing"** button is enabled or you

won't hear it.

That's it for SC, now it's time to do some routing in Reaper.

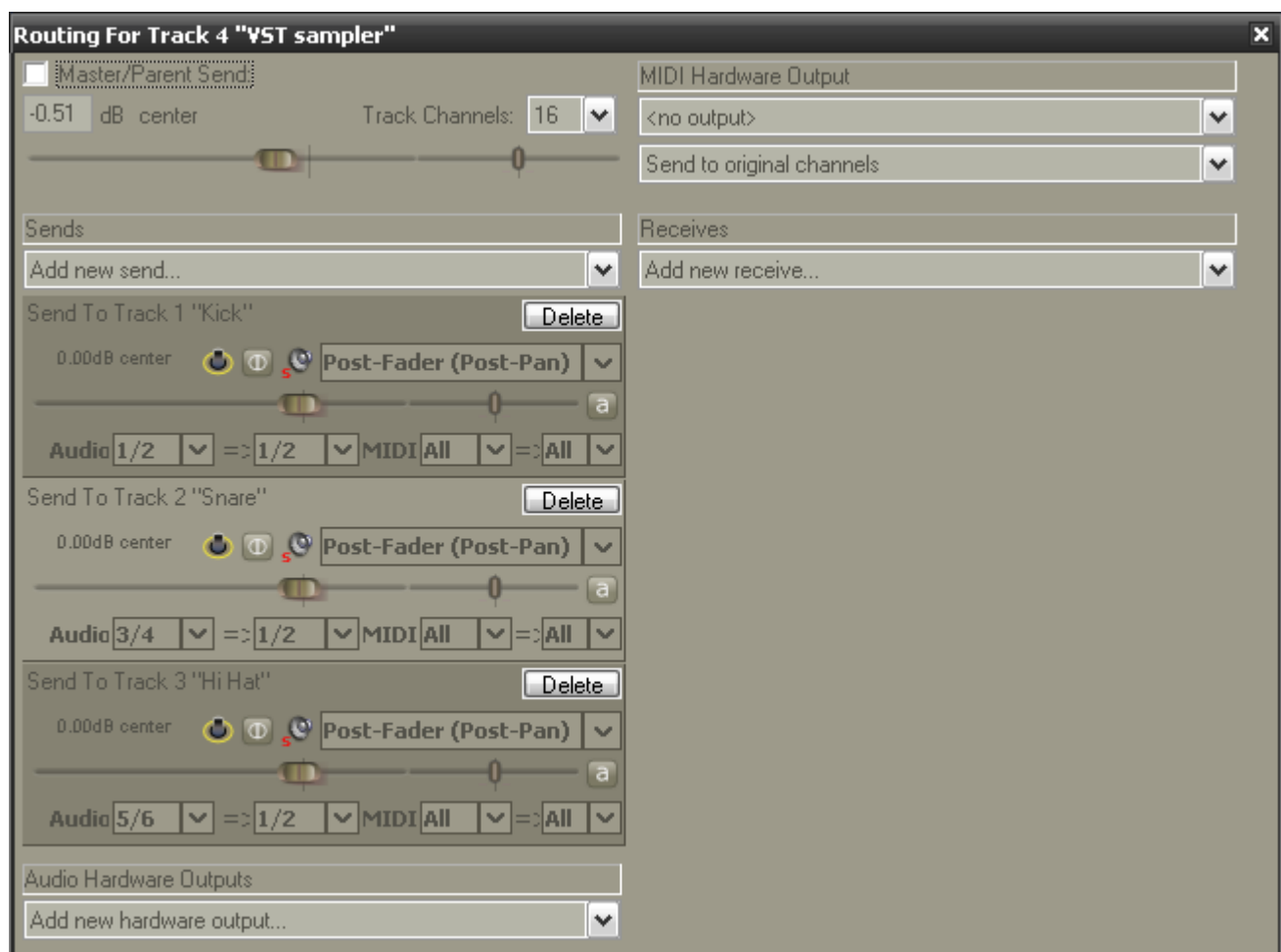
You need three new audio tracks for your drums, name them Kick, Snare and Hat and make sends to each of them from your SC track.

Now to make sure the tracks receive on the right channels, in the SC track "io" window:

Disable the Master/parent send box

Set the number of channels to 6 (in this case, 16 if you are feeling ambitious)

Set the audio channels to 1/2, 3/4 and 5/6 for Kick, Snare and Hat.



Now try it out and see what fun you have mixing with it.

Drum Folder

I think a full kit will need putting in a folder, so this what you need to do to folderize your drums

- * In the TCP (track control panel) Make sure the sampler is at the bottom, drag it there if necessary.
- * Insert a new track above all of the drums and make it a folder track by clicking on the folder icon
- * Make the sampler the "end " track - by clicking on the folder icon

You will now be able to mix the whole kit and the folder track will be the Master for the drum mix

Happy drum mixing

<http://forum.cockos.com/showthread.php?t=31282>