Creating Pseudo-Surround Sound with V.I.

About this guide

This guide will take you through the creation of a pseudo 5.1 channel surround sound mix from a stereo source using V.I. What is V.I. ?

V.I. is a collection of VST effects plugins that aid I the creation of the various channels required to create surround sound mix. You can download V.I for free from http://www.stevethomson.ca/vi/ , as well as read about how it does what it does. I suggest you read Steve's page thoroughly at least once.

As a VST plugin, V.I. can be used in a large number of audio editing applications. For the purpose of this guide, I will be using Sony Sound Forge 8. While this will mean the screen shots may differ from your application, the basic techniques will be the same, as should be the outcome. For the final 5.1 mix and encode, Sony Vegas 6c will be used.

A reality check

Have realistic expectations of what you are going to get out of this process. Your new 5.1 mix probably won't be as dynamic and immersive as the latest Hollywood blockbuster, however if done right, it will add depth to your mix. The author recommends it's use for music tracks, especially live recordings. I have used it on some feature length tracks, and it does work. It does enhance dialogue and produce a reasonable centre channel. It does build a rear stage, and for films with music interludes, it can be very effective. It won't allow you to select a sound and precisely place it in the sound field, but if you don't have the original elements to begin with, how precise are you really able to get ?

Starting checklist

An audio editor with VST capabilities
The V.I. plugins
A Dolby Digital (AV3) 5.1 capable encoder
A good stereo source.

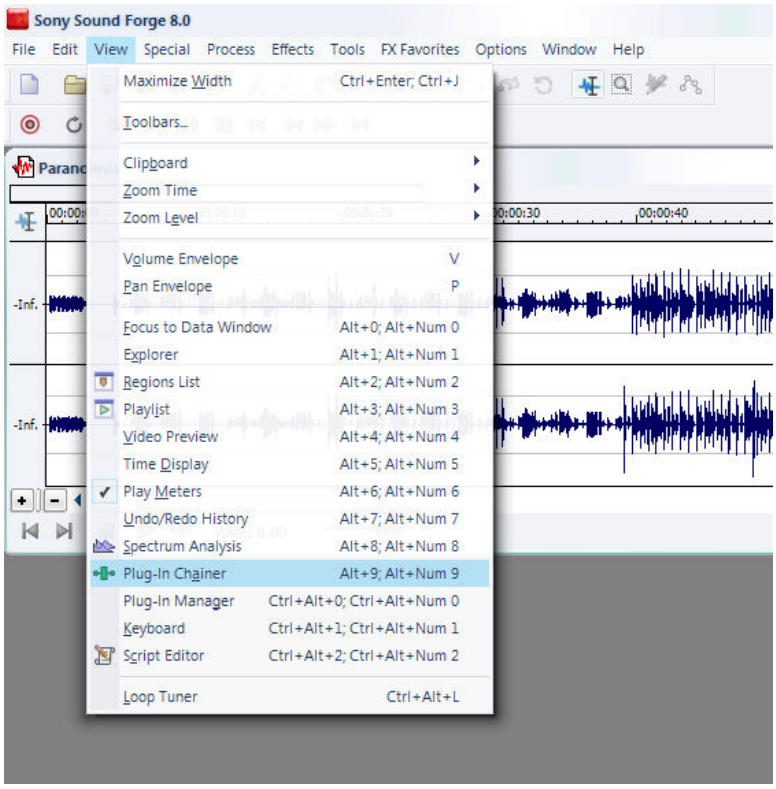
This last point is important. To give this plugin the best chance, use the best stereo source you can. Mono generally wont have enough range to work with. Neither will joint stereo. Try to avoid using anything that has been compressed using MP3 compression, as this can muddy the stereo separation.

OK, let's begin

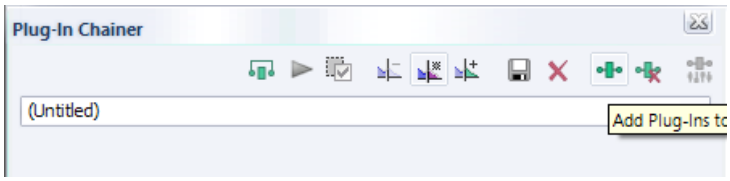
The Easy Part

Open you audio editor (in this case, Sound Forge) and load your source file.

Open Sound Forge's plugin chainer from the *View* menu.

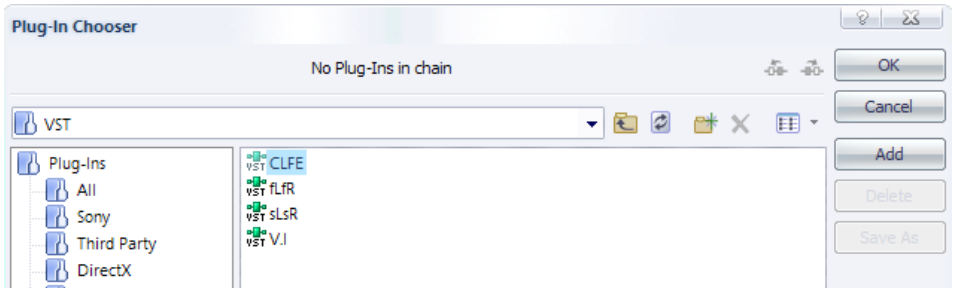


Now select a plugin by pressing the *Add Plug-ins to chain* button

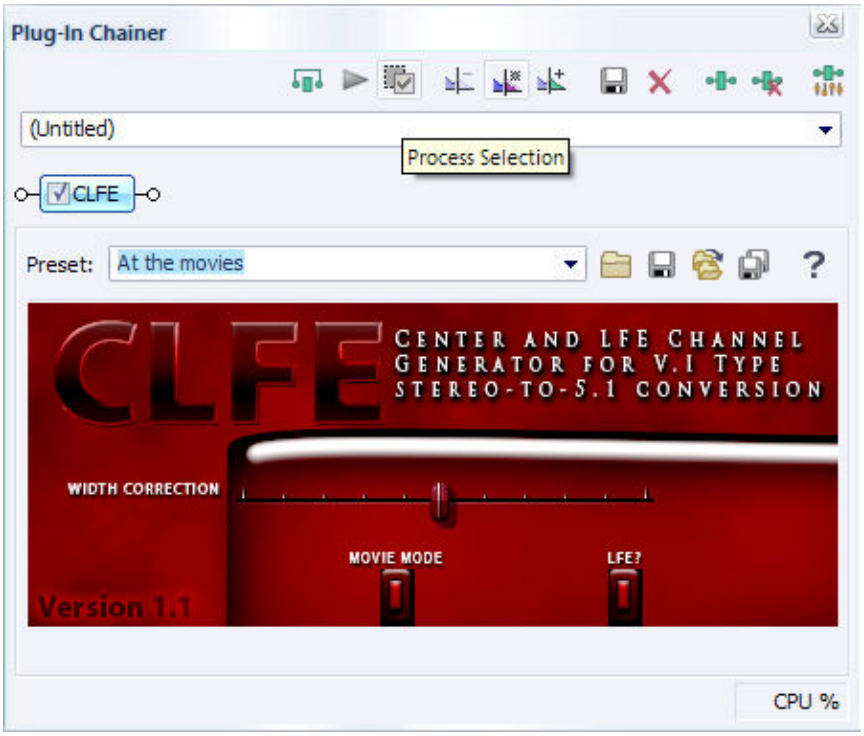


Creating the Centre and LFE Channels

For our first go, we will create the centre and LFE channels. Load the CLFE plugin from the chainer;

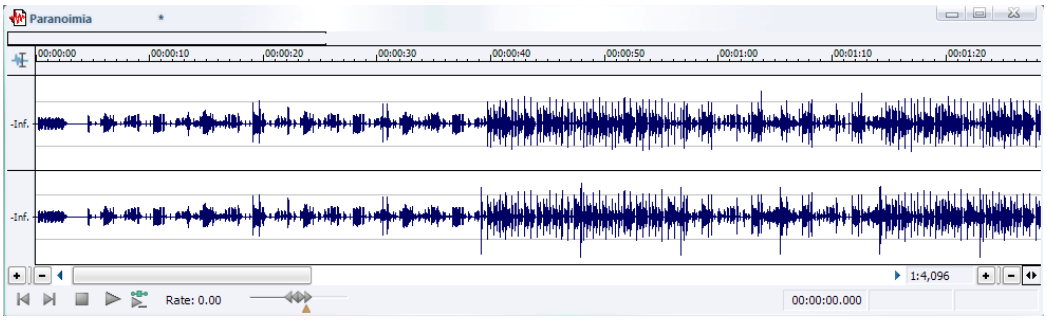


You should see the plugin configuration, looking something like this;

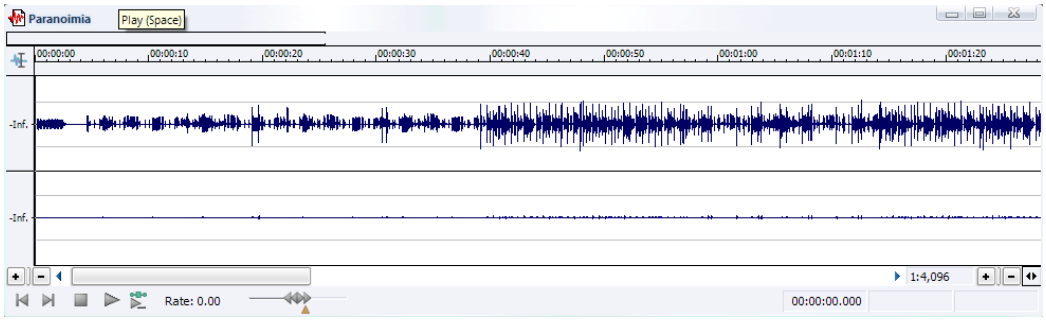


The plugin comes with a selection of presets. To simplify this guide, choose the *At the movies* preset, and click on *Process Selection*.

The CLFE plugin will process the stereo file, and will create a centre channel in the left channel of the original file, and the LFE channel will be created in the right channel of the LFE. The following two images show the effect.

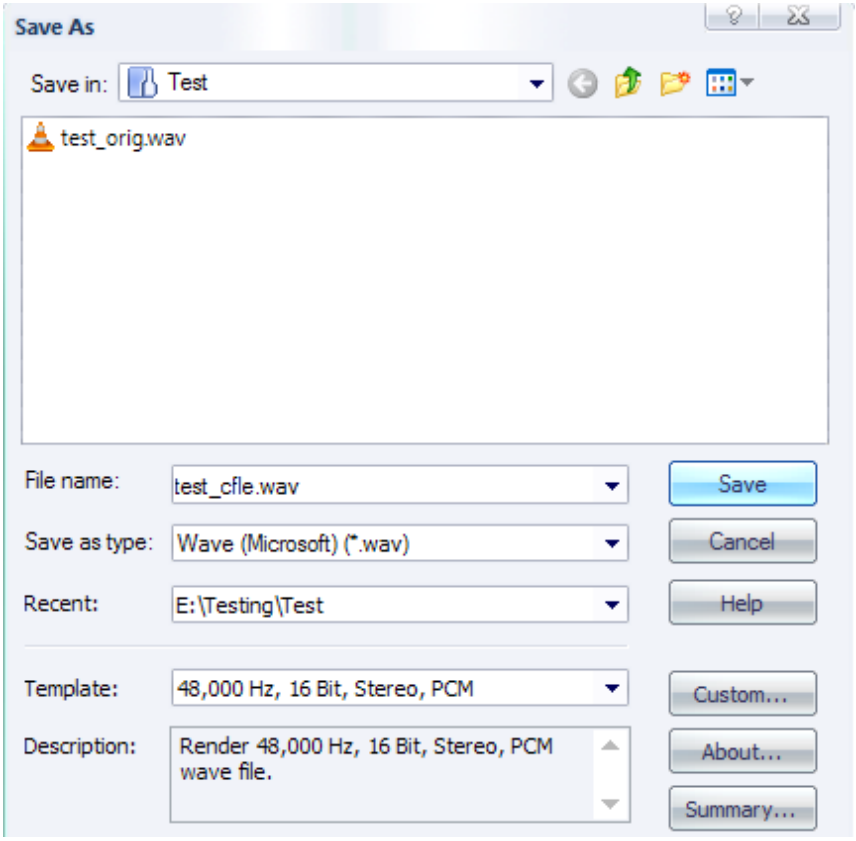


Original wav file before processing. Stereo field is complete.



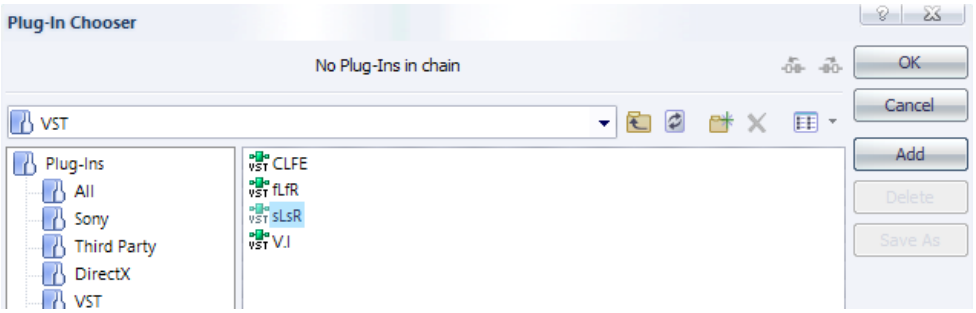
After processing by the CLFE plugin. Note the right channel now contains only the LFE frequencies.

Save the processed file back to disc with a suitable name.

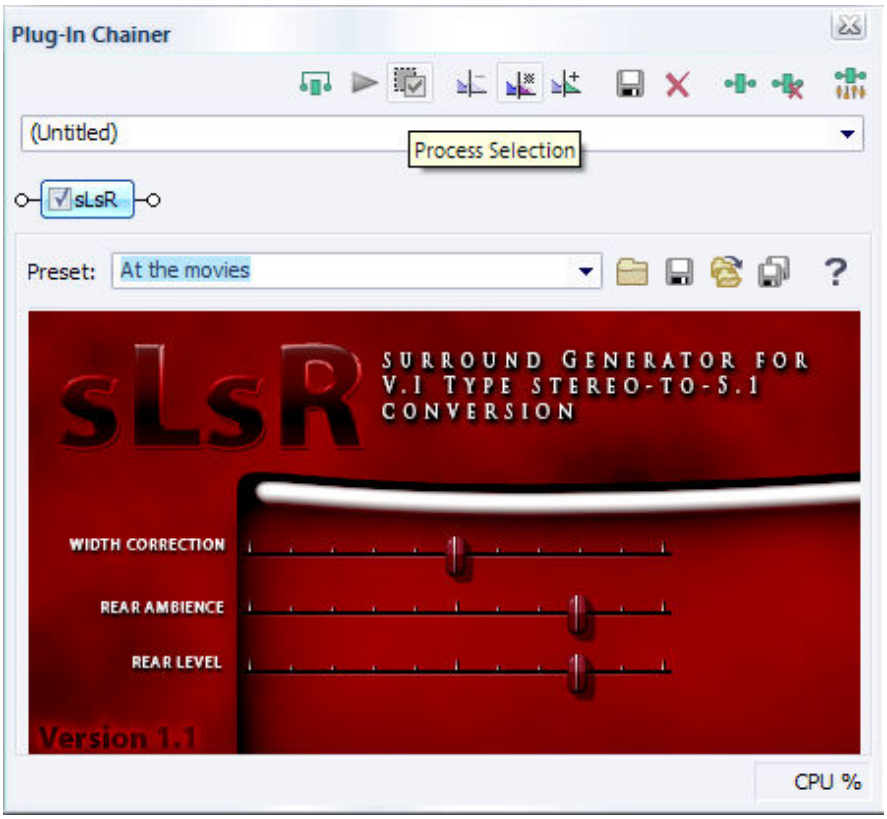


Creating the Rear Surrounds

Load a new copy of the original stereo track, and again click on the *Add Plugins to chain* button. This time select the sLsR plugin.



You should see the following configuration screen appear;

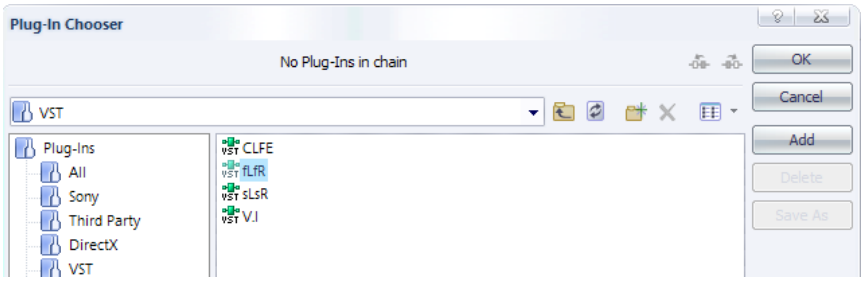


As before, choose the *At the movies* preset, and click on *Process Selection*. Let the plugin do it's thing, then save the results to a new file.

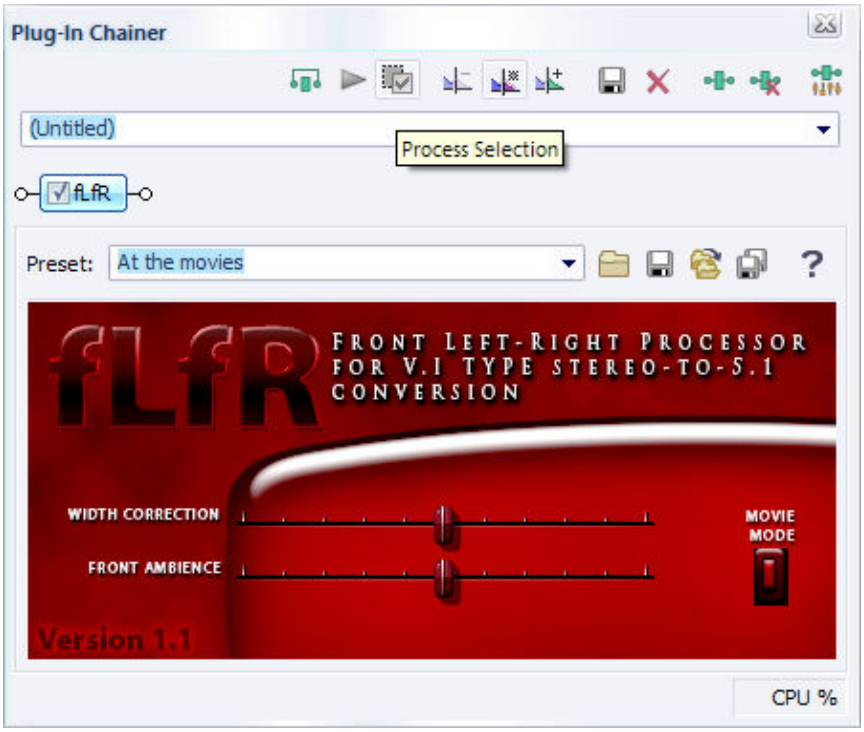
So far, so good. Only one set to go.

Creating the Front Channels

The front channels can be as simple as your original stereo track, if you so desire. However, the V.I. suite can also process the fronts to improve the separation (make it wider or narrower), and to make it better fit with the channels we have just created. Load up the final plugin, fLfR into the plugin chainer.



You should see the fLfR configuration screen appear.



Once more, select the *At the movies* preset, and click on *Process Selection*. Once the processing is complete, save to a new file. We are now ready to build our 5.1 AC3 audio track.

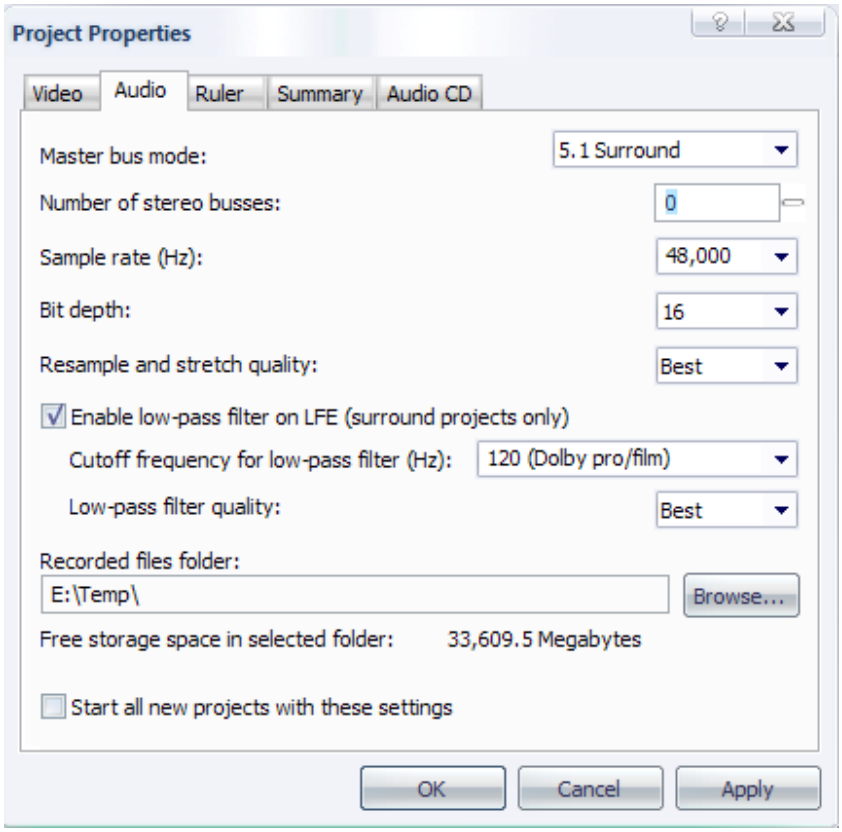
Before proceeding onto the final stage of mixing this down in Vegas, I would like to point out a few things to users of other software. If you use a standalone encoder, such as SoftEncode, Surcode or even ffmpeg, you should ensure you save out mono files during the previous section. This is best s\done by copying each channel into it's own mono file and saving it with an appropriate name. You can then skip the next section, as Vegas won't apply. Just use your encoding software as you would normally.

Vegas user will recognise that this could all have been achieved in Vegas, without the need for intermediate files. I agree that this would be the simpler route, however it would also reduce the usefulness of this guide. Adapt as you see fit.

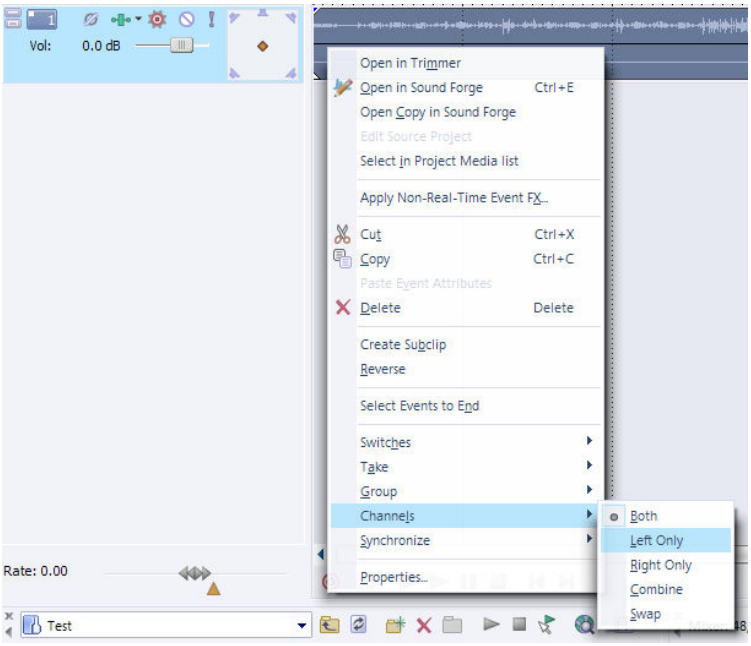
Finally, if you use software that recognises a multi-channel plugin, then V.I. also installs a plugin called (surprise !) V.I. that rolls all of the other plugins into one configuration screen. It doesn't get much easier.

Mixing down in Vegas

Begin by making sure your project properties are set for 5.1 surround audio, like so;



Drag the centre/LFE file onto the timeline, and name it Centre. Trouble is, of course, it isn't the centre – yet. We need to remove the LFE frequencies and position it in the surround field. Let's start by making the centre channel just the centre channel. The CLFE plugin created the centre in the left channel of our stereo field. To use just the left channel, and to mute the LFE frequencies, right-click on the wave form and select Channels -> Left Only (see image, below)

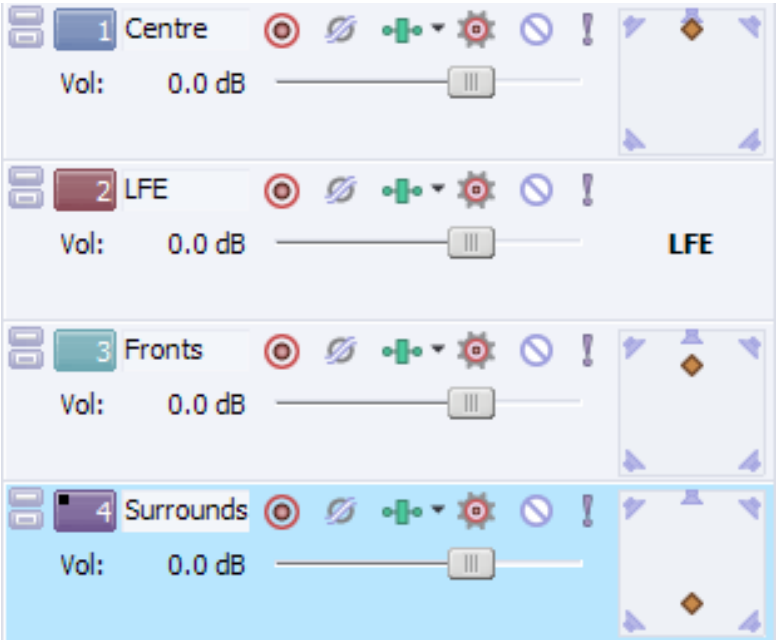


You can now position the centre channel in the surround field using the surround panner. It should look like this;

Make sure it is not offset from the centre.

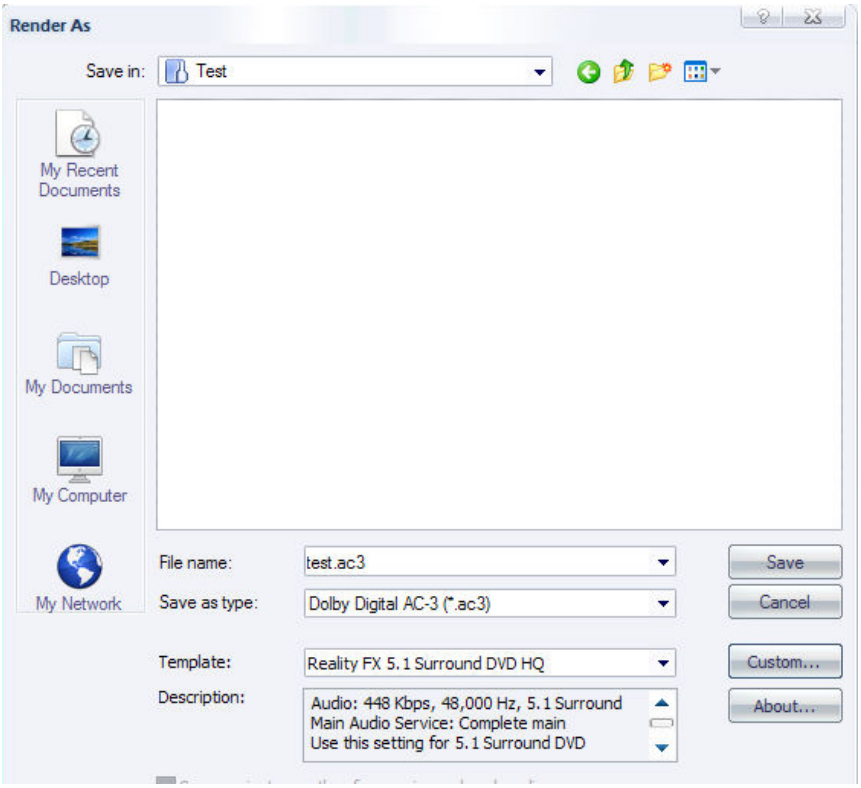
Now load the same file onto a new audio track. Name this track LFE. Right-click on the wave form, and select Channels -> Right Only. Now, right-click on the surround panner and select LFE only.

Now load the rear surround audio into a new audio track, then do the same for the front audio track. Both of these can be left as stereo, and we will use the surround panner to position them in the surround field. Exactly how far forward and backwards these need to go is up to you. In this instance I have put the fronts centred and approximately 68% forward of centre. The rears are also centred and approximately -68% from centre. It should look something like this;



If your PC has surround capabilities, you should be able to preview this from the Vegas timeline.

Now it's time to encode. From the main menu, select File -> Render As. When the *Render As* dialogue appears, select *Dolby Digital AC3* from the *Save as Type* dropdown list. From the *Templates* list choose *5.1 Surround DVD*. Enter a filename and click on Save.



That's it. Assuming everything has worked you should now have an AC3 file contain 6 channels that you can author to DVD.

Final Notes

This process may seem convoluted. It probably is. Some tools will make it easier, and I have tried to be as detailed as possible when writing this, which also makes it seem longer than it is in practice.

I was also going to write a couple of paragraphs on the philosophy of creating 5.1 mixes using a process like this. I know it's not how Walter Murch remixed *The Conversation*. But there are a lot of older films being released with 5.1 mixes where only stereo elements remain. Some are lovingly broken down and rebuilt (hell, *The Good, The Bad and The Ugly* went from a mono mix to full 5.1), but many are processed up to multiple channels. Are they more legitimate because they were done by engineers at a studio ? However I have reached the end of ten pages. If you have lasted this long, you don't deserve to be tortured any further.

Thanks for reading.