

# Senior Honors Capstone

By Laurie Adlington

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## Sound Design Development

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Sound Effects Library & Documentation

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## Cinematic Sound Design Development

by: Laurie Adlington

To accompany my Capstone I wanted to include an explanation of how Sound Design and the capturing of sound effects works, how it's used, it's importance, and where it reaches limitations. As a Sound Designer whether you're working on Television commercials, Television shows, or full length films, having a large and diverse sound effects library is your strongest tool. The more unique sounds, the better work you produce and the more sought out you become. Going into a field where I work with sound creation, having a personal and unique library is the first stepping stone to becoming a great Designer in the field. Any given Post Production studio or freelance Sound Designer will have a library of thousands of sounds and not all of these sounds are unique; a lot of them are purchased from other sources, but making your own may be necessary for a project.

For my library, I created a few design scenarios with certain sounds in mind for capture. For other sounds I simply went out and captured what was around me. A sound set is generally a platform for getting sound effects that you create yourself. For one section of my Capstone, I aimed to capture "horror genre" sounds so I went out and bought a variety of fruits and vegetables. I set up a shotgun microphone in a sound isolation booth, covered the floor in plastic, and went to town ripping apart and squishing the various foods. For each different fruit I tore apart, I had to take input levels for the volume of the sounds I was creating. If my input levels were set too high, my sound effects would peak and distort and not sound as crisp as I wanted them too virtually deeming them as useless. Some sounds, like squishing a banana, are very quiet and have a low decibel level so the input level on those sounds had to be set very high or I wouldn't have been able to hear the sounds after they were recorded.

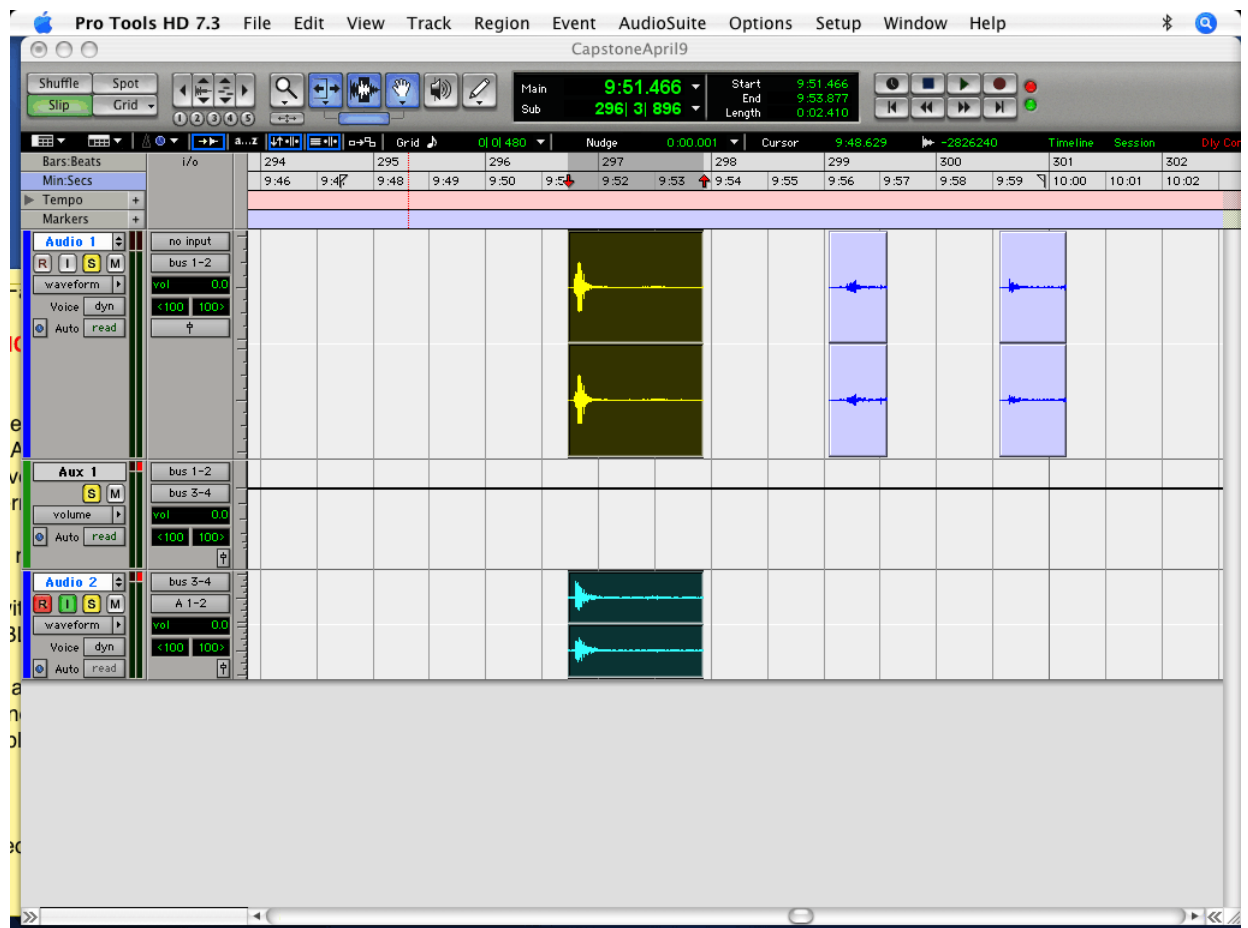
The sounds are captured to a memory card and loaded onto the computer and then

reloaded into Pro Tools, an audio editing software. From this stage, each individual sound file is listened to and then cut apart into useful “Effects” to diversify the one long stream of sound. This way, what sounds I’ve made can be used for a variety of applications and can be edited in numerous ways. Also, it’s easier to catalog singular sounds. Once cut into multiple smaller audio files, each sound effect is edited for quality. Every file is compressed to make each sound louder or perhaps quieter as needed. Compression also brings out the nuances in sounds making each one seem more detailed and accurate to what the human ear would naturally hear. Along with being compressed, each file is equalized. Equalization needs to be done to balance out the sound of each file. If there is a hum, a high pitched squeak, or too much low rumbling sounds, equalization will correct that, making the sound seem completely isolated and free of any undesirable audible artifacts. This editing process can take hours and the final edit of the four hundred and fifty sounds I captured took over thirty hours to edit.

When capturing sound, many things have to be considered. The limitations of sound design are encountered when you consider what you’re trying to capture and where. If you stand in a room, before recording any effects it’s important to make sure that no noise is present. Everything makes noise: computer monitor hums, air conditioners, florescent lights, sounds from outside, wind, planes, etc. All of these sounds can make an effect unusable if not accounted for during recording. Because of outside noise sources it was often times hard to find a place to gather sounds. Houses usually had too many noises to get a large amount of clean sounds and living in or around Washington D.C. makes capturing sound outside almost useless due to all of the air traffic and large amount of cars and buses. My best sounding effects were done in isolation booths either at work or in the McKinley studio at school.

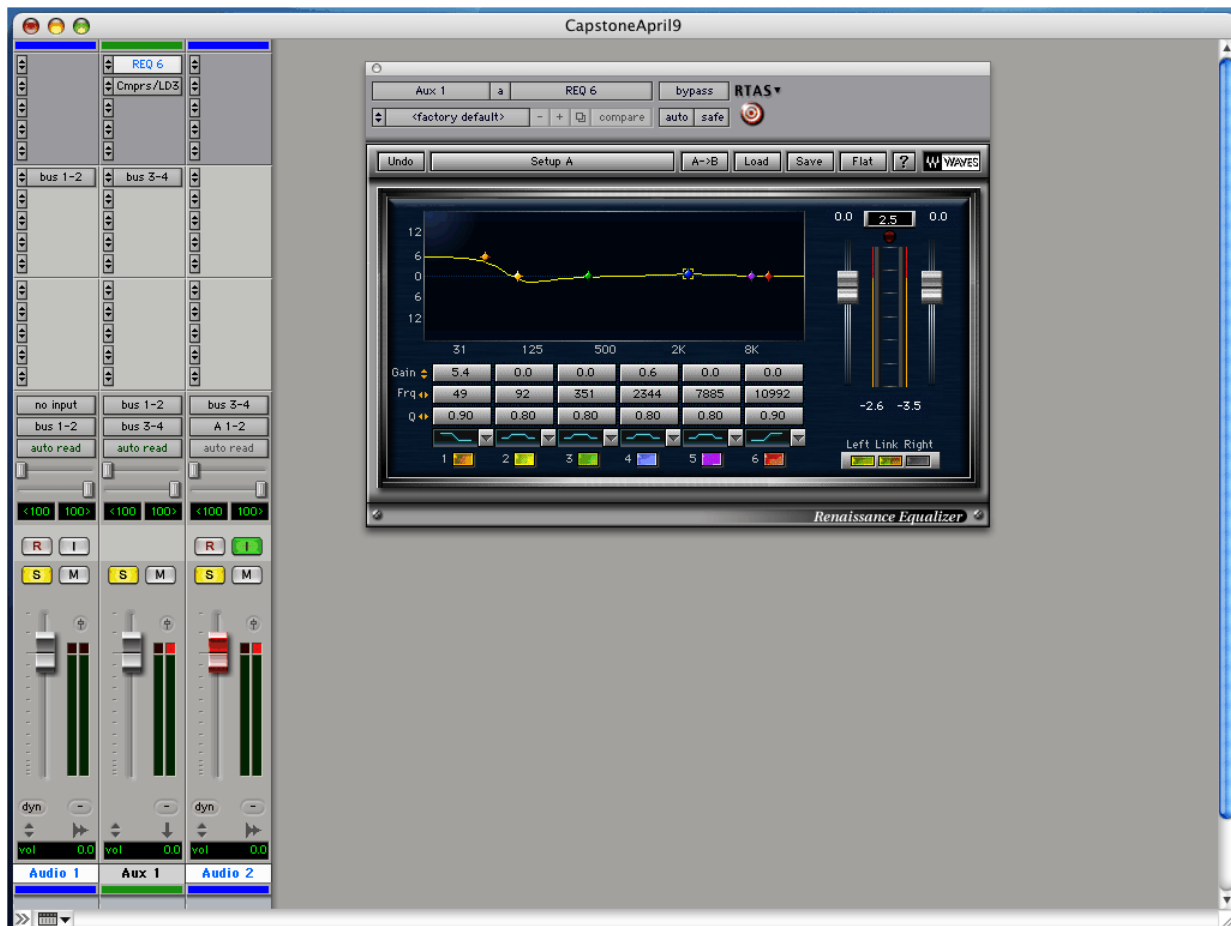
After all of the capture and editing is done, there still remains one large part of the process. The organization of the sounds into a library or catalog is perhaps the most important step. Without accurate and useful file names and metadata, the library is disorganized and finding the right sound in a mess of files is impossible. A good amount of time went into relistening to these files and naming them with words that would best describe their sound. These sounds are not yet formatted for a large cataloging program such as Sound Miner, but once they are, they will be labeled with data that describes what each effect could possibly be used for. This way, when a designer searches for sounds that sound like “clunk”, every possible “clunk” sound comes up in the finder. Knowing the right words to describe sounds is also part of the challenge, but generally gets easier with the more sounds you create. Ultimately, the archiving data needs to be detailed so the sound is found for every application it could be applied to.

Creating the library turned out to be much more work than I had anticipated hence the reason that my variety of sounds captured wasn't as diverse as I had originally planned. But despite the difficulties, I put a great amount of effort into the start of my sound effects library and I am quite pleased with the result. I achieved a great deal and learned an incredible amount about the world of sound effects and I am now better prepared for performing this type of work in a professional setting. I gained knowledge not only on how to capture the sounds, but what to look out for and how to create a sound that may be needed for a specific project. Being able to adapt the process is the most important part of the job and I definitely achieved all that I wanted to with this Capstone project.



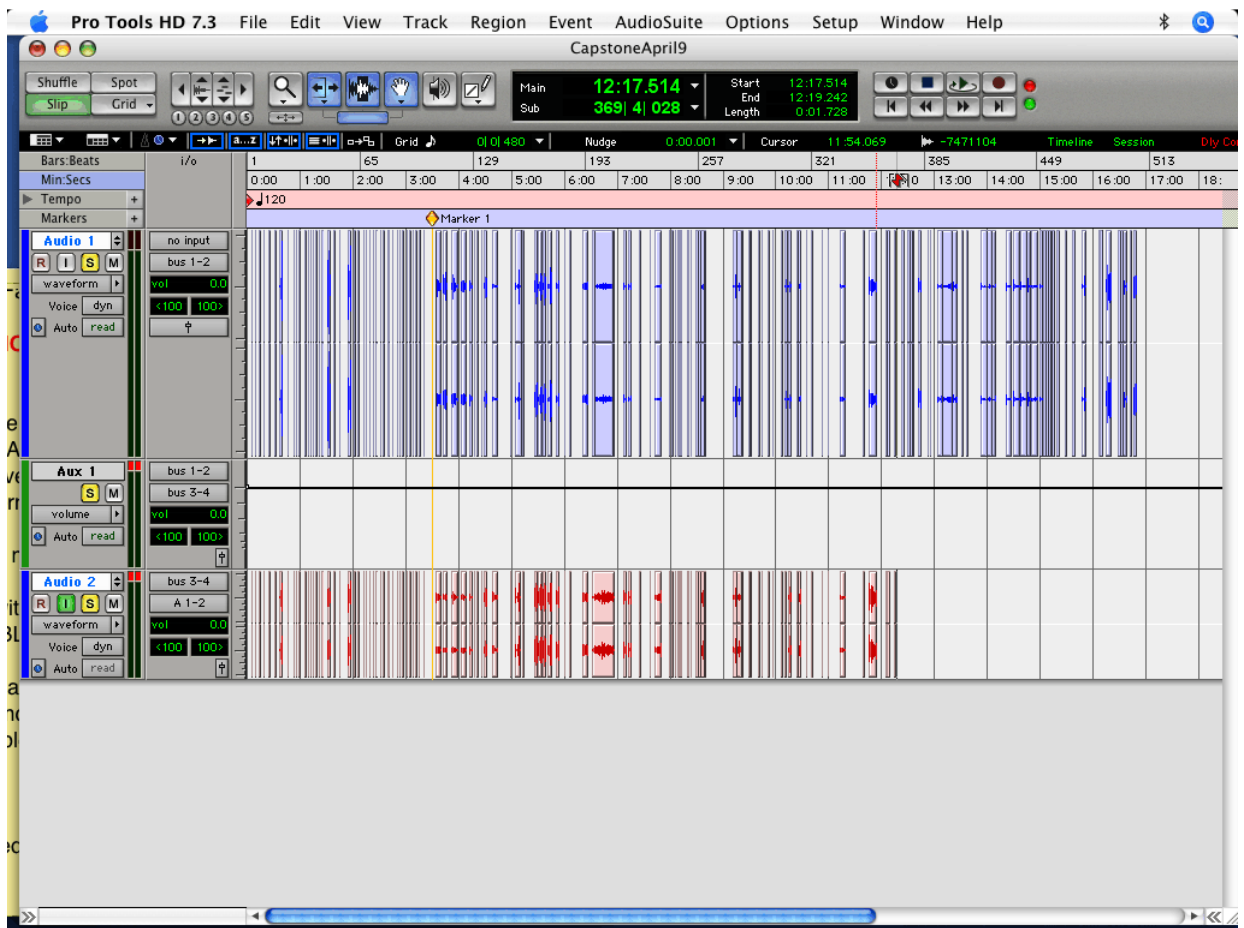
Pro Tools Session Screen Shot:  
Edit Window View

The yellow sound wave is the original sound effect cut to the appropriate length. It is placed on an Audio Track labeled "Audio 1". All the files are sent to a second track labeled "Aux 1" where the sound is edited (compression/equalization processes). It is then re-recorded on the track labeled "Audio 2" in its final form. The black sound effect has been edited and completed. The two blue sound effect files to the right have not been edited.



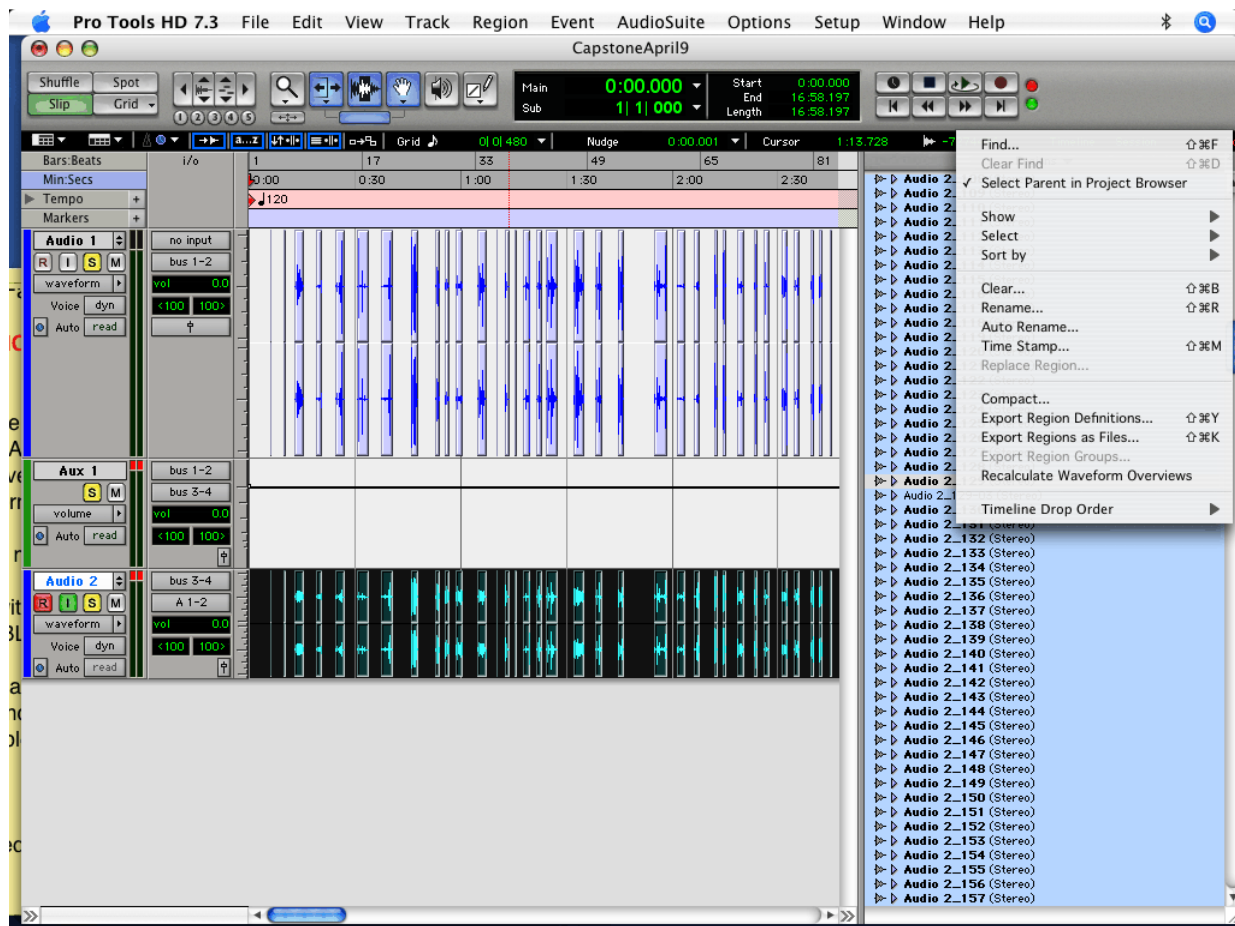
## Pro Tools Session Screen Shot: Mix Window View: Equalization

This is an alternative view of the three tracks described above. They are labeled below the volume faders. The open window beside the mixing channels is a Plug-In Equalization software window. It's a graphical representation of what is happening to the sound before it is re-recorded. Each of the colored balls in the window represent a different frequency (or pitch) range of hearing. By moving the different frequency markers up and down you can add or remove certain tones in the sound. Maybe all of the low end or high end needs to be removed, that can be done in this step.



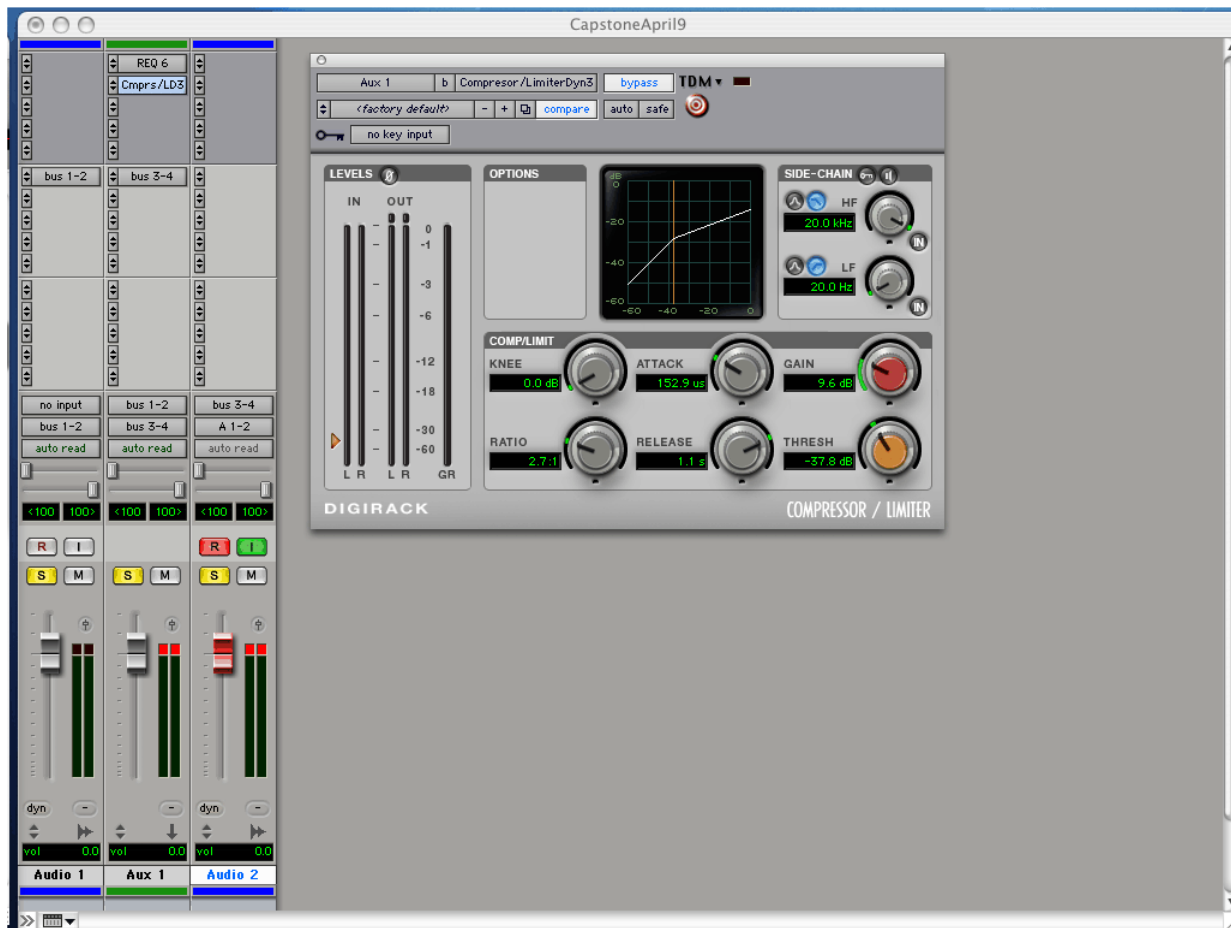
## Pro Tools Session Screen Shot: Edit Window View

Here we have a view of hundreds of finished files. The audio track with blue files are the original files as they were captured. The row of red files are the re-recorded files after they had been edited. The view is zoomed out to see the length of work done. If you look at the Min:Sec time ruler at the top of the screen you can see that the effects scan about 16:00 minutes worth of time.



## Pro Tools Session Screen Shot: Edit Window View: File Naming

This shot shows how the separate sound files are originally listed. Each file is named “Audio 2\_\_” with a different take number for each sound. It’s easy to see that navigating a library with these file names is impossible. There’s no visual way to tell a “crunch” sound from a “snap” sound. The Export and Rename options under this menu are what were used for cataloging close to five hundred sounds.



## Pro Tools Session Screen Shot: Mix Window View: Compression

Like the view of the Equalization view, this is an alternative view of the three audio tracks. They are again labeled below the volume faders. The open window beside the mixing channels is a Plug-In Compression software window. Compression is an automatic reduction in dialog at certain volume thresholds. Once the sounds loudness reaches a threshold of my choosing, it is forced to get quieter by a specified amount. Then, the overall sound is turned back up, keeping levels more consistent and bring out nuances in the sounds.