DIGITAL SOUND FOR BEGINNING USERS
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How does one get started?

First you must find out what is needed to record music from your turntable to a laptop or desktop. There is an excellent CD that is sold by Palomino on Digital Recording. The CD contains a 70-page document with screen cuts much like this presentation. You are taken through every step of the process. Many people ask for help from someone they know that is already using digital music. This approach gives them someone to talk to when they have questions. Today we will get you started.

You will have to have a computer and turntable.

A) The turntable can be a Hilton 201,501,205, which are the best of the Hilton series. The best turntable is probably your home stereo turntable.

B) You connect the turntable to the computer through the "Line In" Jack of the computer. Most all desktops have a "Line In" to the sound card. Laptops will differ between manufactures. If you do not have a Line In on the computer, you may want to purchase a device that will give a line in although many people record their music through the "Microphone Jack" with satisfactory results. For a reasonable price the Ion turntable can be purchased in most stores that sell electronics. The Ion turntable has a USB connector to plug into a Laptop or Desktop computer which creates a line in for recording. It comes with software to edit music. The software is Audacity.

C) You will need software, such as Cool Edit 2000 (or even CoolEdit 96), Adobe Audition, Gold Wave or Audacity. Some are shareware (meaning they are free downloads) and the others will cost you a few dollars.

Audacity Free Download: http://www.download.com/Audacity/3000-2170_4-10058117.html

Once you have the hardware hooked up and you have the software in place, recording is now simply a matter of time. We will be using CoolEdit 2000 software for this presentation.

Let's get started.

Set the Software parameters. Once these are set they will remain the same until changed. See the Example below in Figure 1.
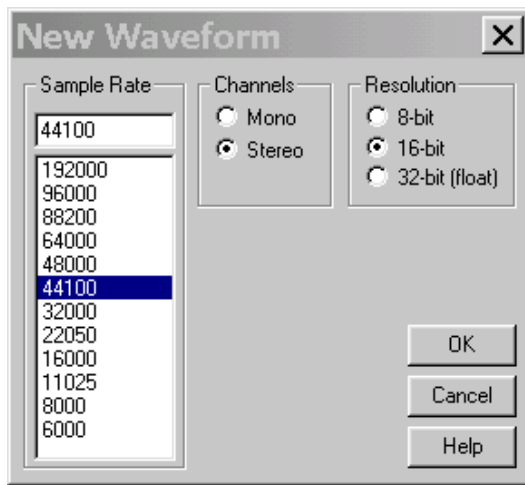

Figure 1

These settings equal CD quality. The Stereo setting will create a file two times as large as the Mono setting. The Mono is quite adequate because our vinyl records are produced in Mono. Using the Mono will show a single waveform. Using the Stereo will show two waveforms, right and left channel.

When you record the music from the turntable into the computer using the software, a music Waveform is created. Below in Figure 2 is an example of the music waveform.
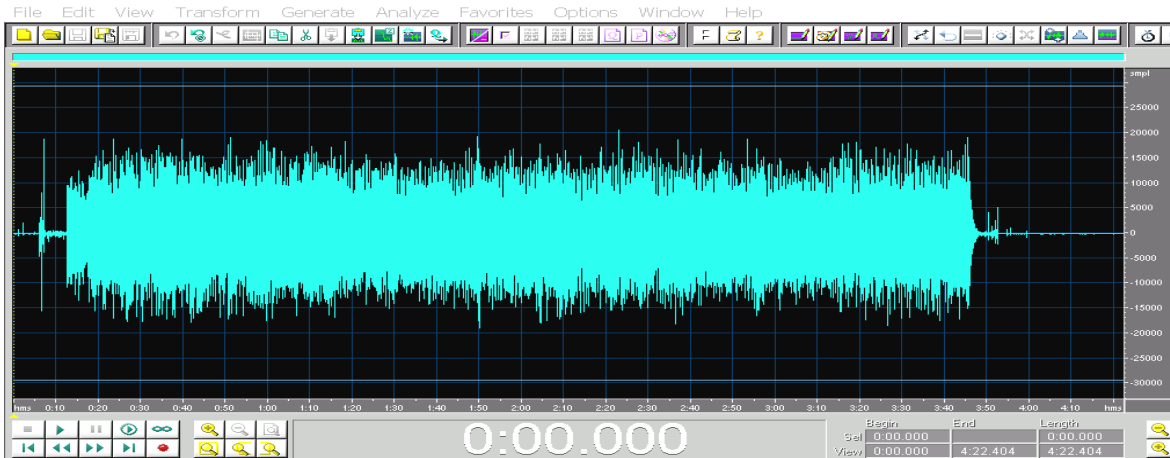

Figure 2

Figure 2A shows a tool bar in which all programs have to access the functions of the software such as, save, save as, click pop removal, noise reduction removal, silence and many other functions.

Figure 2A

Once the recording is complete, save the recording by its original name, example below in Figure 3. In Figure 2A click on File, then click on Save As.
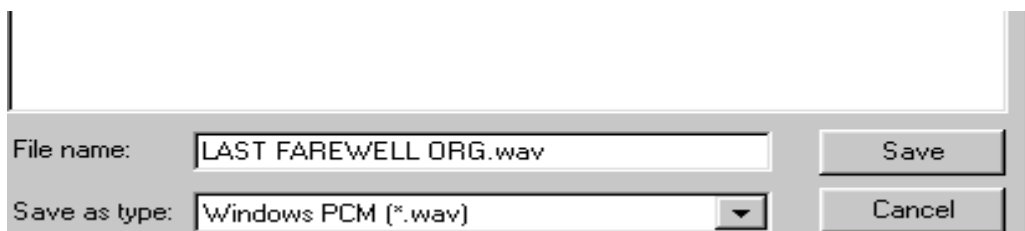

Figure 3

Notice this is saved as "LAST FAREWELL ORG". The ORG is for me to know it is the original recording from start to end with all the pops clicks and noise. Once the clean up process has been completed I will save that selection as "LAST FARWELL". Now you have two wave files, the original waveform and the cleaned waveform. Figure 4 is the waveform recorded into the program and saved. Let's take a look at what the waveform shows us.
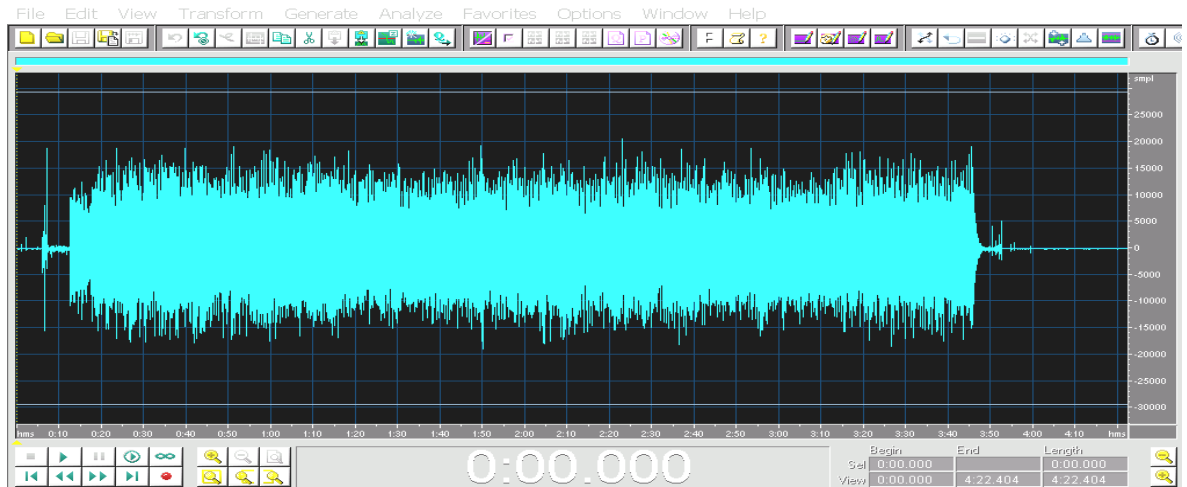
Figure 4

At the beginning of the music sample, there are spikes and a thickness before the music actually starts. These are pops and hiss noise picked up by the needle.   The pops and hiss are on the vinyl and the more the vinyl is used the more enhanced the pops and hiss will become. The pops and hiss actually are throughout the body of the music waveform, which is all blue. When the music is playing you may hear some of the hiss and possibly some of the pops on occasion. The waveform that was just recorded into the computer has all of the sound components of the record, both music and noise. With a vinyl record you cannot take out the hiss, pops or crackle sounds. Figure 4 displays the complete copy of a vinyl record.

The beauty of editing software, and the tools that are available in it allows us to clean the pops and hiss from the recorded worn vinyl record. Using this technology restores the music to the quality of a brand new vinyl recording. Below in Figure 5 is an enhancement of the beginning "Leader" of the recording so you can see what the pops and hiss look like.
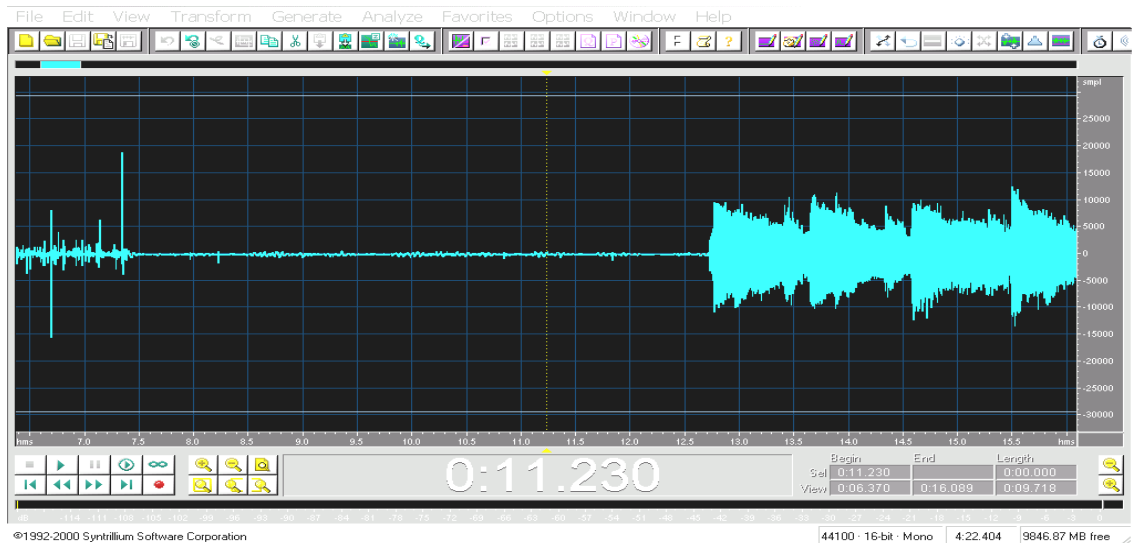

Figure 5

Notice at the very beginning of Figure 5, there are high and medium spikes. These are the pops from the vinyl that were picked up through the needle. Notice after the high and medium spikes there's a thin blue line with some small spikes and small wavy like noise before the actual music begins, which is the large solid blue mass called the music waveform (.wav). In the CoolEdit 2000 software, that we are using today, is an option called "Click Fix Pop Removal".

This option when selected will go from the beginning of the recording to the very end and take out all of the clicks and pops. There is also an option called "Noise Reduction". This option, once a sample has been taken, will take the noise or hiss out of the entire music waveform. The result is like having a complete new vinyl recording no one has ever used. Figure 6 below shows the wave file once the software has cleaned it and two seconds of silence have been added to the beginning and end of the file.
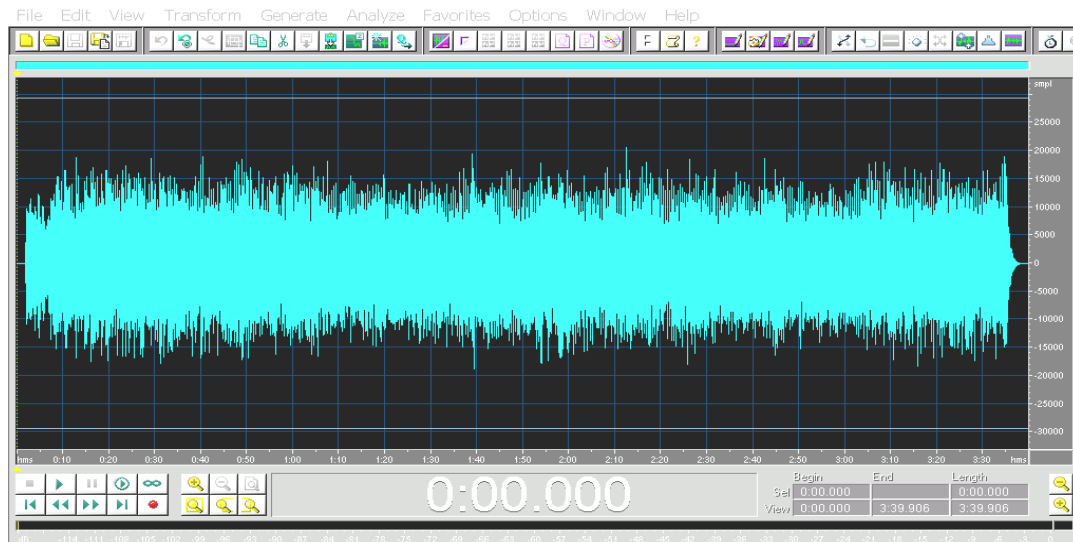

Figure 6

The last step is to convert the music Wave File into an MP3 File format. Basically the MP3 File is a smaller version of the music Wave File. The MP3 conversion process compresses the music Wave File to save space. Example: if the music Wave was equal to 1 mile, converting to the MP3 format would produce the same music wave but equal to 1/20 mile. Making this conversion will do no harm to the music wave yet it saves lots of space on the hard drive of the device that is chosen to play the music.

There are many ways to play the MP3's. There are software programs developed by our own callers. These players are designed for the caller. They have functions to speed up and slow down the music, functions to change the pitch without changing the speed selected. They will auto loop the patter just like setting the needle back on the vinyl record. They have functions to display the cue sheets to the song playing and many, many more very useful tools. These programs are very reasonably priced and some are free downloads. There are some downloadable FreeWare products that will play the

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MP3's from the laptop even allowing you to vary the tempo and pitch while the music is playing.

Devices such as CD players, Mini Disks, inexpensive MP3 players or I Pods may not have the capability of speeding up or slowing down the music. But, the editing software you used to record your records has tools to make permanent changes to the music, so that it will always play at your desired tempo and key regardless of the device you are using. The Tempo or Beats Per Minute should always be a consideration. A simple way to address the issue is to record your music into the computer, initially, at the same speed you would use at a dance. Just remember that devices other than the Laptop Computer will simply play your music at the tempo it was recorded.

We have tried to provide you with a few reasons to consider using Digital Music and give you a better understanding of the process to move to the Digital Music format. We tried to show you that with a little practice you can restore or preserve the quality of the music on your records. Freeware and Shareware programs can keep your investment to a minimum. You can keep hundreds or even thousand of pieces of music at your fingertips and they are all organized for you. We showed you that there are several ways to play your Digital Music. A laptop computer is not necessary. CD and MP3 players a being used by many callers and an inexpensive MP3 player can be used as your backup. Digital Music also helps to bring our activity into the 21st Century in they eyes of the public. Hopefully we have answered some of your questions and given you some direction in the process.