

## ***Tools of the Trade***

### **Audio File Formats**

*By Christine Wilfinger-Free, TnT Paranormal Investigators LLC*

Computer and technological advances have made leaps and bounds over the past two decades. The Audio file format has also made some great advances too. But there is an unending quest to create the perfect program that not only gives you great studio quality sound but also takes up very little space on your computer. Because of this, there are a whole slew of Audio File Format choices out there for you. We will hit upon a few of the more popular ones in this article.

Your average Audio CD takes up roughly 5MB -10MB of space on your computer for every minute of playing time. That equates to a lot of space on your computer hard drive. Audio CD's, like your store-bought CD of your favorite band, is a form of an uncompressed audio file format. Formats that are not compressed will give you the highest quality of sound, but at the risk of having large files on the computer. WAV audio format is another form of an uncompressed audio file format. WAV is a common file format that has been around a long time and was jointly created by Microsoft and IBM. WAV started out as just simple sounds like a beep or a ding of a bell for your computer's operating system, but has since then evolved into much more. Because WAV format stores things uncompressed, it is the preferred format for the storing of original sound tracks. Other uncompressed audio formats are AIFF and AU. AIFF is the same as WAV but is used on the Apple computers. AU is the standard audio file format used by Java, UNIX and Sun Microsystems.

Audio formats come in three major groups: Uncompressed audio formats (mentioned above), Lossless compression formats, and lossy compression. Lossless audio files are little copies of the original audio file, but are compressed. They take up less space than that of an uncompressed audio file would. Lossless audio file will still give you studio-quality sound. They achieve this by eliminating unnecessary data. In an uncompressed audio file, silence takes up the same amount of space per unit of time as sound would. So naturally, silence is one of the things that is eliminated in the Lossless compression. Lossless audio files will also play gapless, which is a great thing to have when you are creating a playlist. FLAC (Free Lossless Audio Codec), ALAC (Apple Lossless Compression), WavPac, and Monkey's Audio are examples of Lossless audio files. FLAC is the only free lossless audio format that has any hardware support. ALAC is an Apple product, which they have recently in the past few years made it an open source and royal free format.

The last form of Audio files is the Lossy audio format. Lossy audio files have the most compression in them. They will take up less space on your computer than Lossless or an Uncompressed file would. The drawback to Lossy audio files is that there is a loss of data, which means, a loss in quality. The loss in data may not always be noticeable to the average listener in a casual listening environment. The MP3 format is the most popular format in the Lossy category. MP3's are popular because it can be played on almost any portable device. MP3 achieves its compression by eliminating the sounds that are hard for the average human ear to hear. MP3's takes up roughly one twelfth of space than an uncompressed file would. Other popular Lossy file formats are the AAC (Advance Audio Coding) format, WMA (Windows Media Audio), ATRAC (Adaptive Transform Acoustic Coding), and OGG Vorbis, among others. AAC format is an Apple product that you will find in the iTunes Store. Whereas WMA you will find on a Windows computer and is a competitor of the AAC format and a close rival to the MP3. ATRAC format is an older style Sony product and is used on their audio players such as the MiniDisc audio. To open these on your computer, you'll

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need to install an ATRAC3 driver onto your computer. Sony also uses DVF (Sony Digital Voice File) which is used for compressed voice files, commonly used by voice recorders, or voice dictation devices that Sony makes. Many state that OGG Vorbis is one of the best Lossy audio file format out there. It isn't as popular as the MP3 format but it can deliver equal or better sound quality than the MP3. OGG is a completely open and free source audio. It seems to have the right mix of audio quality and file size for a lossy format. However the music industry is veering away from using OGG due to the inability to prevent piracy from happening like the MP3 format. WMA and AAC both have the safeguard in place to prevent piracy.

With technology constantly changing and constant advances being made, audio file formats will be making advances too. Hopefully someday soon, we will see the perfect audio file format that will give us the studio sound quality with very little space being taken up on our computer. Until then, we will keep on searching.

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