

## ***A Quick Guide to Digital Audio***

### **Audio File Formats**

The way you store your songs (data files) can drastically affect the quality of audio playback. While of a less concern the file type affects how much disk space is required. Audio file formats can be divided into four categories, from best to worst:

1. High Resolution Audio HRA
2. Uncompressed
3. Lossless Compression
4. Lossy compression

There are many formats available I will focus on the main formats in each category

#### **High Resolution Audio**

HRA can be broken into two categories PCM based with sample rates and word lengths greater than CD's 44.1 kHz/16-bit and Sony's Direct Stream Digital (DSD.) DSD files can be DSD-64 or DSD-128

#### **Uncompressed**

WAV Waveform Audio File

AIFF Audio Interchange File Formatted – developed by Apple

#### **Lossless**

FLAC – Free Lossless Audio Codec

ALAC – Apple Lossless Codec. File extension .aif or .aiff

WMA-losses – developed by Microsoft

#### **Lossy**

MP3

AAC

WMA

MP4 - **MPEG-4 Part 14** or **MP4** is a digital multimedia format most commonly used to store video and audio. The only official filename extension for MPEG-4 Part 14 files is **.mp4**, but many have other extensions, most commonly **.m4a** and **.m4p**. M4A (audio only) is often compressed using AAC encoding (lossy), but can also be in Apple Lossless format. M4P is a protected format which employs DRM technology to restrict copying.

### **Music Management Software:**

#### **MAC based**

- iTunes
- Amarra
- Audrivana
- Channel D Pure Music

#### **PC based**

- J River: Media Center
- Foobar 2000

### **Ways to acquire Music**

1. Physical Media: CD or SACD; Blu-ray
2. Download: either HRA or lossy
3. Stream: lossy compression only

### **High Resolution Download sites**

- 2L
- Blue Coast Records
- Channel Classics Records
- Cybel Records
- Download Now!
- HDTracks.com
- HighResAudio
- iTrax
- NativeDSD
- Premonition Records
- Prostudio Masters
- SuperHirez.com (from Acoustic Sounds)

### **Sonos Supports the following files**

- MP3 (compressed)
- WMA (compressed)
- AAC+(compressed)
- Ogg Vorbis
- Audible (format 4)
- Apple Lossless ALAC
- Flac (lossless)
- WAV (uncompressed)
- AIFF (uncompressed)
- Amazon Cloud

### **Ripping**

If you have a collection of CDs that you want to convert to a digital form I highly recommend TerraSan.com. Please see their website for details.

### **Summary**

Since many people are familiar with and use iTunes as the music management software and Sonos is the leader in multi-room distributed audio. I recommend using ALAC since it can be played by both Apple's iTunes and Sonos. This gives you excellent playback quality while reducing disk space by 40 – 50%.

Please note for your portable devices that you sync with iTunes you can have iTunes downres (convert) the file so it can all fit on your portable device.

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