





Audio Files – Formats & Encoding

Frank Maher November 2010

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- Introduction of the CD reader
 - Release of CD reader/writer
 - Allowed CD Ripping
 - Exposed Hardware Limitations

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- Typical ripped CD is 700mb
 - Typical wav. rip is 10.5mb/minute (Red Book)
 - Typical hard drive capacity is 375mb (approx)
 - Murphy's Law strikes again
 - Audio Compression

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- Two types of audio compression
 - Lossy – mp3, wma, aac, ogg vorbis
 - Lossless – flac, alac,ape
 - The storage issue develops the lossy solution

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- Lossy codecs use psychoacoustic algorithms for 90% compression
 - mp3 files at 128kbs regarded as the audio standard
 - Newer codecs (wma, aac, ogg vorbis) claimed to be better
 - Bit rates & quality increase with hard drive capacity
 - Maximum bit rate for lossy codecs is now 320kbs (generally)



➤ Lossless codecs are audio zip files

➤ Compression varies from 0 – 40% (0% is wav.)

➤ Flac. & ape. are about 40% typically

Size	Type	Compression
39,270kb	wav.	0%
25,222kb	flac.	36%
24,313kb	ape.	38%
8,935kb	wma.	73%
8,906kb	mp3.	73%
5,493kb	ogg.	86%
4,222kb	aac.	89%
3,563kb	mp3. (128kbs)	90%

GENERAL USAGE

- PMP – wav, mp3, wma, flac, ogg
- iPod – wav, mp3, aiff, aac, alac (m4a)
- CAR – wav, mp3, wma[via Cd] anything via PMP
- Hi Fi – wav, anything via aux. input
- Torrents – mp3, flac

FILE CONVERSION

- Common formats – mp3, wav ???
- File Converters – change any format
- Convert from mp3 to wav, flac, etc or aac to mp3 etc
- Free converters are available on the web