

Capturing Audio

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Capturing Audio

- Why capture audio on a computer?
- What do I need to capture audio?
- How do I capture audio?
- What do I do with the audio once I've captured it?

Why?

- To convert from one form of audio media to another - ie. to convert from audio tape or LP record to CD
- To edit the audio or to use it with something like a slide show or a video
- Because you can...

What do I need?

- A computer with a sound card and a line-in or microphone input
- An analog audio source, like a tape deck or a stereo receiver, a turntable or a VCR
- A cable to connect the analog audio source to the sound card
- A program to capture and/or edit the audio

Computer/Sound Card

- Most computers of recent vintage (last 3 -5 years) have a sound card built-in
- If not, sound cards are relatively inexpensive, ranging from about \$20 to over \$200
- For audio capture purposes, the \$20 card will work as well or better than the \$200 card

Analog Audio Source

- Most stereo receivers have AUX out or tape out jacks
- Most tape decks can be connected using the tape out jacks
- Turntables require either a pre-amp or a connection via a stereo receiver - due to the need for RIAA equalization for LP records

Cables

- Most sound cards use a 1/8" stereo mini jack
- Most audio equipment uses separate RCA or phono jacks for the right and left channels
- Radio Shack sells mini jack to RCA cables and adapters, they usually cost between \$5 and \$12 - depending on length and quality

Audio Capture Software

- Commercial – Roxio Easy Media Creator or Nero 6 Ultra Edition both include programs for capturing/editing audio
- No Cost/Low Cost – Audacity (open source)

Demo

- Install and configure Audacity
- Hook up the CD/Tape Deck to the computer
- Capture one side of an audio cassette
- Split the audio into tracks and save as files
- Burn the tracks to an audio CD

Audio File Formats

- Uncompressed
 - .wav or .aiff
- Compressed
 - .mp3, .aac, .ogg

wav or aiff files

- CD-quality sound
- Sampled 44,100 times a second
- Each sample represented by a 16-bit number
- 1 minute of audio \approx 10 MB of storage

mp3, aac, ogg-vorbis

- “Psycho-acoustic” compression
- Removes frequencies that most humans can't hear then compresses the remaining ones
- Bit-rates from 56K to 320K CBR and VBR
- 1 min of audio \approx 1 - 2 MB of storage at common bit-rates, 128K to 192K

Editing Audio

- Sound editors allow you to cut, copy, duplicate and paste audio – just like text
- Use editor to remove unwanted noise or dead air at the beginning or end of an audio track
- Save captured audio in various file formats
- Mix audio tracks (beyond the scope of this presentation)

Recommendations

- Save as .wav files for best audio quality, although you will need lots of disk space
- Most compressed formats are “lossy” - you will lose some of the audio information
- Use higher bit-rates for compressed files, 160K minimum with 192K preferred
- Use variable bit-rate for best sound vs. size

Limitations

- Captured audio can't sound any better than the original source - ie. tape, LP or video
- Even if you burn it to CD, it won't be "CD-quality" if the audio came from an analog source
- Hiss and rumble can be accentuated by compression

Links for More Info

- http://www.dak.com/reviews/Tutorial_LP.cfm
- <http://www.angelfire.com/vt2/tommymc3/LPtoCDR.html>
- <http://www.delback.co.uk/lp-cdr.htm>
- <http://audacity.sourceforge.net>