

Opening Students' Ears with Digital Audio Recording

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Digital Audio File Terms and Definitions

AIFF – Apple Interchange File Format. CD quality audio, uncompressed.

WAV – Windows Wave file . CD quality audio, uncompressed.

MP3 – MPEG (Motion Picture Experts Group) 1 Audio Layer 3. Compressed audio. The quality of the compression is expressed by the bit rate. The lower the bit rate, the lower the sound quality and memory requirements. A bit rate of 160 is an average to high quality recording. The most universally compatible compression format.

AAC – Advanced Audio Coding. Compressed audio. Typically used by Apple's iPod.

Ogg Vorbis – Open source compressed audio format. Quite uncommon

Digital Recording Requires

Sound Source	Microphone	AD Converter	Storage	Software
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Notes:

The Recording Process

Pre-Performance	Performance	Post-Performance
<ul style="list-style-type: none">• Make Connections/Configure• Position Mic• Set Levels	<ul style="list-style-type: none">• Press Record• Perform• Press Stop	<ul style="list-style-type: none">• Save• Edit• Share (Compress and Distribute)

USB Microphone

Pros	Cons
<ul style="list-style-type: none"> • Easy to use. • Inexpensive • Works with multiple computers 	<ul style="list-style-type: none"> • Short Cables • Can not connect to analog board. • Sound quality for price

Pre-Performance	Performance	Post-Performance
<ul style="list-style-type: none"> • Connect Microphone • Map Audio in Audacity • Position Mic • Set Levels 	<ul style="list-style-type: none"> • Press Record • Perform • Press Stop 	<ul style="list-style-type: none"> • Save • Edit • Share (Compress and Distribute)

Notes:

Audio Interface

Pros	Cons
<ul style="list-style-type: none"> • Allows use of regular microphones • MIDI capability • Multi-track simultaneous recording • USB, Firewire, or PCI 	<ul style="list-style-type: none"> • Requires Desk or Rack space • Cable Management

Portable Digital Audio Recorder

Pros	Cons
<ul style="list-style-type: none">• Ease of Use• Portability• Spontaneity	<ul style="list-style-type: none">• Battery/Power Source• Expense

Pre-Performance	Performance	Post-Performance
<ul style="list-style-type: none">• Position Recorder• Set Levels	<ul style="list-style-type: none">• Press Record• Perform• Press Stop	<ul style="list-style-type: none">• (Save)• Transfer• Edit• Share (Compress and Distribute)

Notes:

Distribution

Consider the following File Delivery Options

- Flash Drive/ Thumb Drive
- SD Card and Card Reader
- Email
- Podcast

Applications

- Addition Performance Opportunities
- Critical Listening
- Ensemble Rehearsal/ Rehearsal Tracks
- Ear Training
- Archival

Notes:

Fruitful Internet Searches

Software	USB Microphones	Audio Interfaces	Digital Audio Recorders
<ul style="list-style-type: none">• "Digital Audio Editor"• "Audacity"• "Acid Pro"• "Mix Craft"• "Cubase"	<ul style="list-style-type: none">• "USB Microphone"• "Blue Snowball"• "MXL 990 USB"	<ul style="list-style-type: none">• "USB Audio Interface"• "Digidesign Mbox 2"• "M-Audio FastTrack Pro"	<ul style="list-style-type: none">• "Portable Digital Audio Recorders"• "Edirol R-09"• "Zoom H4n"• "Sony PCM D-50"• "Olympus LS-10"

To view demonstration movies and tutorials for Audacity and GarageBand go to:

<http://www.public.iastate.edu/~mconklin/1>

Feel Free to Email your questions! mconklin@iastate.edu