

GREAT ENSEMBLE RECORDINGS START TO FINISH

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STAND-ALONE DIGITAL RECORDERS

- Hand-held recorder
 - MicroTrack (\$199)
- CD and Hard Disk recording
 - Superscope CD recorder (\$999)
 - Korg MR-1000 (\$1199)



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COMPUTER RECORDING INTERFACE

- Allows you to connect high-quality microphones directly to your computer.

- M-Audio Mobile Pre (\$149)



- Pro Tools Mbox (\$349)



- M-Audio Project Mix (\$1249)



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MICROPHONE TERMS

Pick-up Patterns:

- Cardioid
 - Responds to sound mostly from the front
- Bi / Figure 8
 - Responds to sound from the front and back but not the sides
- Omn
 - Responds to sound all around

Mic Types:

- Dynamic
 - Rugged
 - Good for close-miking
- Condenser
 - Requires a battery or Phantom Power
 - Good for miking an ensemble and close-miking
 - Crisp, clear, detailed sound
- Ribbon
 - Fragile
 - Expensive
 - Warm, mellow tone

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MICROPHONE OPTIONS

- Blue Snowball USB Mic (\$99)

- Condenser, Cardioid/Omni
- Good for almost anything but best for podcasting
- No interface required!



- Shure SM57 or SM58 (\$100)

- Dynamic, Cardioid
- Single Instrument, close mic



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MICROPHONE OPTIONS

- Shure KSM27 (\$200)

- Condenser, Cardioid
- Single Instrument or Ensemble (pair) - Excellent for strings/choir



- Audio Technica AT825 (\$375)

- Condenser, Cardioid x 2
- Ensemble - Excellent for band



- Earthworks TC30 (\$1700 pair)

- Condenser, Omni
- Ensemble



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ACCESSORIES

- XLR microphone cables



- Mic Stands

- Light Duty (\$30)
- Heavy Duty - QuikLok A-50 (\$150)



- Stereo Bar

- Generic (\$20)
- Shure A27M (\$70)



- Pop Filter

- Required for voice recording



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ACCESSORIES

- Headphones

- AKG K240 (\$99)



- Monitor Speakers

- M-Audio BX5 (\$299/pair)



- JBL LSR2325 (\$398/pair)



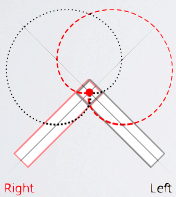
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SETUP FOR STEREO RECORDING

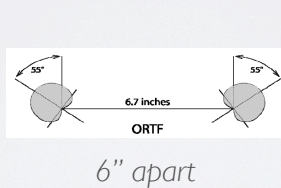
- **Distance** - a few feet in front of the ensemble
- **Height** - above conductors head

• 3 stereo mic techniques:

XY Technique



Near Coincident



Spaced Omni Pair



Stereo Recording Techniques and Pro Tools Recording Basics
by Marc Schonbrun

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Software Options

Stereo Software

MAC

- Peak LE (\$99)

PC

- Sony Sound Forge (\$54)



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Software Options

Entry-Level Multi-track Software

MAC

- Audacity (Free)
- GarageBand (\$79)

PC

- Audacity (Free)
- MixCraft (\$49)
- Sony Acid Music Studio (\$49)



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SOFTWARE OPTIONS

Professional Multi-track Software

MAC

- Pro Tools (\$149/\$349+)
- Logic (\$179/\$449)
- Digital Performer (\$395)

PC

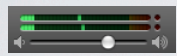
- Pro Tools (\$149/\$349+)
- Cubase (\$399)
- Sonar (\$99/\$399)



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AUDIO EDITING IN PRO TOOLS

- Check input levels and record



Too Soft



Good Levels



CLIPPING!

- Separate and Trim the regions

- Separate: ⌘-E
- Trim: Lower right/left corner of a region

- Fade in/out

- Open automation window
- Click nodes on the black line



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SIGNAL PROCESSING IN PRO TOOLS

- Equalization (EQ)

- Adjust the tone of the recording
- EQ III

- Reverb

- Add room ambience
- D-Verb

- Dynamic Controls (Limiter/Compressor)

- Reduce the volume of the loudest levels to increase the overall volume
- Dynamics III

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PUBLISHING

- Exporting/Bouncing

- The final process to export a multi-track audio file with edits/processing to a single stereo file ready to be burned to CD.
- AIFF or WAV, Stereo Interleaved, 16 bit, 44100 hz
- MP3 or AAC - compressed file formats

- This allows you to:

- Import into other software
- Add to iTunes library
- Burn to CD
- Email to a friend or post to the internet
 - Convert to MP3 first!
 - www.podomatic.com - free podcasting

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COPYRIGHT CONCERNS

- Teacher's Guide to Music, Media, and Copyright Law

by Dr. James Frankel

- How can I use audio recordings legally?*

- Use a PUBLIC DOMAIN work
- Contact the publisher
- Harry Fox for mechanical or digital licensing (www.harryfox.com)
- Fair Use - education, less than 10%, not avoiding purchase

**I am not a lawyer.

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