Audio and the Mac

Sound and Music
Listen, Create and Communicate

Standard Equipment

on consumer Macs

- **Hardware**
  - Microphone
  - Webcam (video)
  - Speakers
  - Line in & out
  - CD/DVD drive
- **Software**
  - iTunes
  - iChat
  - Garageband
  - QuickTime Player
  - Audio MIDI Setup

Freebies

- Media Players
  - RealPlayer, Windows Media Player, VLC
- Record & Edit audio
  - Audacity and Audio Recorder
  - Aria Maestosa MIDI editor
- Telephony & Chat
  - Skype, Yahoo Messenger & Adium

Listen

- CDs
- Audio files - QuickTime formats
- Internet radio - real time broadcasts
- Streaming media - programs, podcasts, etc.

QuickTime Formats

Supported File Formats - audio, video & graphic
Free Flip4Mac plug-in adds Windows Media formats

- 3DMF (Mac OS 9 & Windows)
- 3GPP
- 3GPP2
- AIFF
- AMC
- AMR
- Animated GIF
- AU
- Audio CD Data (Mac OS 9)
- AVI
- BMP
- CAF (Mac OS X)
- Cubic VR
- DLS
- DV
- FLC
- GIF
- GSM
- JPEG/JFIF
- Karaoke
- MacPaint
- MIDI
- MPEG-1
- MP3 (MPEG-1, Layer 3)
- M3U (MP3 Playlist files)
- MPEG-2**
- MPEG-4
- MQV
- M4A, M4B, M4P (iTunes 4 audio), M4V (iTunes video)
- PDF (Mac OS X)
- Photoshop*
- PICS
- PICT
- PLS
- PNG
- Quartz Composer Composition (Mac OS X)
- QCP (Mac OS 9 & Windows)
- QuickTime Image File
- QuickTime Movie
- SD2 (Mac OS 9 & Windows)
- SDP
- SDV
- SF2 (SoundFont 2)
- SGI
- SMIL
- Targa
- Text
- TIFF*
- TIFF Fax
- VDU (Sony Video Disk Unit)

iTunes

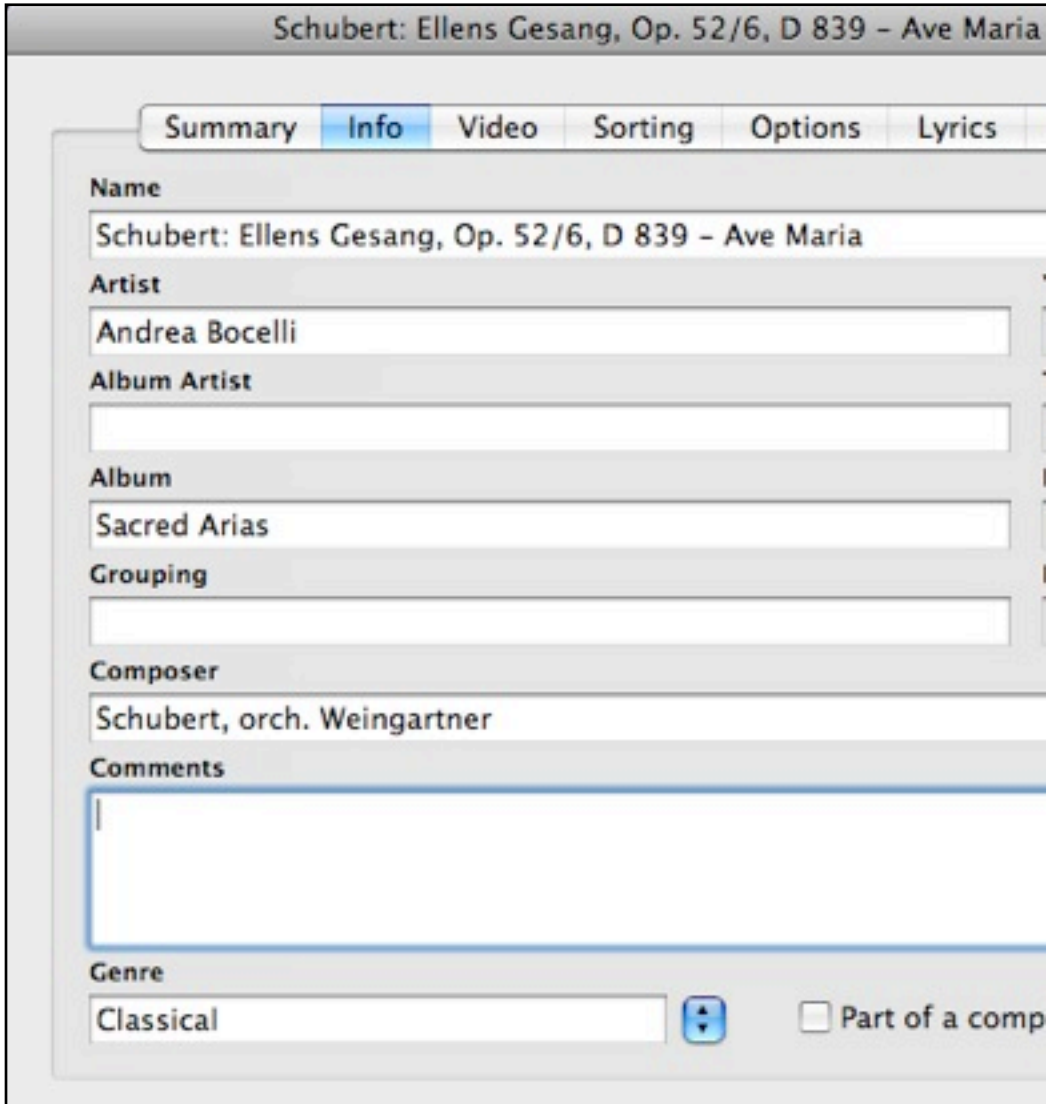
the audio centerpiece

- Stores your music library
- Uses tags to display, organize & search
- Play CDs
- Plays audio files (QuickTime formats)
- Access iTunes Music store
- Burn CDs (audio, MP3, data)
- Print CD inserts

What are Tags?

	Track #	Time	Artist	Date Added	Album	Genre	Kind	Bit Rate	Cor
ns Gesang, Op. 52/6, D 839...	4 of 16	2:33	Andrea Bocelli	7/9/09 3:57 PM	Sacred Arias	Classical	AAC audio file	128 kbps	Sch

- Hidden info
- Visible in many programs
- Import from the web (CDDB), or..
- Enter/edit manually



Internet Radio

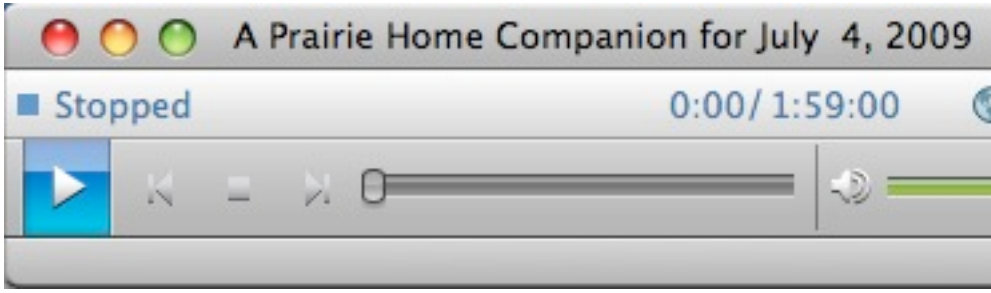
- Real-time broadcasts
- Access in iTunes
- Hundreds of stations
- Listen free

Stream	Bit Rate	Comment
▶ Alternative		
▶ Ambient		
▼ Blues (30 streams)		
Absolute Blues Hits(1.FM TM)	128 kbps	1.FM's ˆ Classic Blues and Rock blues channe
Bar Rockin' Blues (clubfmra...	128 kbps	As close to Chicago's blues clubs as you can
Bar Rockin' Blues (clubfmra...	64 kbps	As close to Chicago's blues clubs as you can
Bienvenue en Louisiane	64 kbps	All cajun, all zydeco, all the time
Blues Classics	128 kbps	American blues classics of the 30s to the 70s
Blues Classics	64 kbps	American blues classics of the 30s to the 70s
Cajun Fest	128 kbps	Cajun, Zydeco and Bayou favorites.
Cajun Fest	65 kbps	Cajun, Zydeco and Bayou favorites.
Chittlin Circuit Radio	64 kbps	The Chittlin Circuit is where The Blues and R
Chittlin Circuit Radio	32 kbps	The Chittlin Circuit is where The Blues and R
detour BLUES	128 kbps	handpicked selection of all styles of blues fro
GotRadio Bit O Blues	128 kbps	Blues, Blues...Nothing but the Blues!
HellHound Radio	128 kbps	Best of the 80s and below.
IcebergRadio.com - Blues ...	56 kbps	Blues greats new and old: BB King, Etta James
jazz89 KUVO	64 kbps	Jazz, Blues & Latin Jazz on Public Radio
jazz89 KUVO	24 kbps	Jazz, Blues & Latin Jazz on Public Radio
KSDS, Jazz 88.3	64 kbps	24/7 Straight-Ahead, REAL Jazz and Blues
Power Radio International (...	128 kbps	Playing music around the world, for you!
radioio Blues	64 kbps	Get your mojo juiced with blues music that s
radioio Blues	32 kbps	Get your mojo juiced with blues music that s
RoosterRadio.Net	64 kbps	Your Home For Classic Rock & The Blues
Size Blue 42 Radio	96 kbps	Over eight decades of blues fueled by audioc
Southern Fried Sounds	96 kbps	Playing the best of southern sounds!
Texas Broadcasting Network	128 kbps	Texas #1 Country Station
Texas Broadcasting Network	64 kbps	Texas #1 Country Station
Ultimate Blues	64 kbps	Hosted by Holly Harris, the Ultimate Blues of
THE VOID	128 kbps	Filling 'The Void' with the Best Rock and Blue
The World Net Radio - Blue...	128 kbps	Great Blues Music. Chicago, New Orleans, all
WWOZ 90.7	128 kbps	New Orleans' Jazz and Heritage Station
WWOZ 90.7	24 kbps	New Orleans' Jazz and Heritage Station
▶ Classic Rock		
▶ Classical		
▶ College / University Radio		
▶ Comedy		

Streaming media

programs, lectures and podcasts stored on a server

- Audio on demand
- Free media players, audio (and video)
  - RealPlayer, most popular
  - Windows Media
  - QuickTime
  - VLC



http://www.publicradio.org/tools/media/player/phc/2009/07/04_phc.ram

Create

- Digitize records & tapes
- Grab and edit anything you hear
- Live recording
- Garageband - a hybrid music studio

Recording Format

- Tradeoff between quality and file size
- CD quality - AIFF or WAV = 10 MB/min
- Compressed (lossy) - MP3 or AAC
  - music 128 kbps = 1 MB/min
  - speech 32-48 kbps mono = 0.3 MB/min

Digitize Records & Tapes

- Record/Tape player with preamp (Hi-Fi)
- USB Turntable

- Recording/editing software

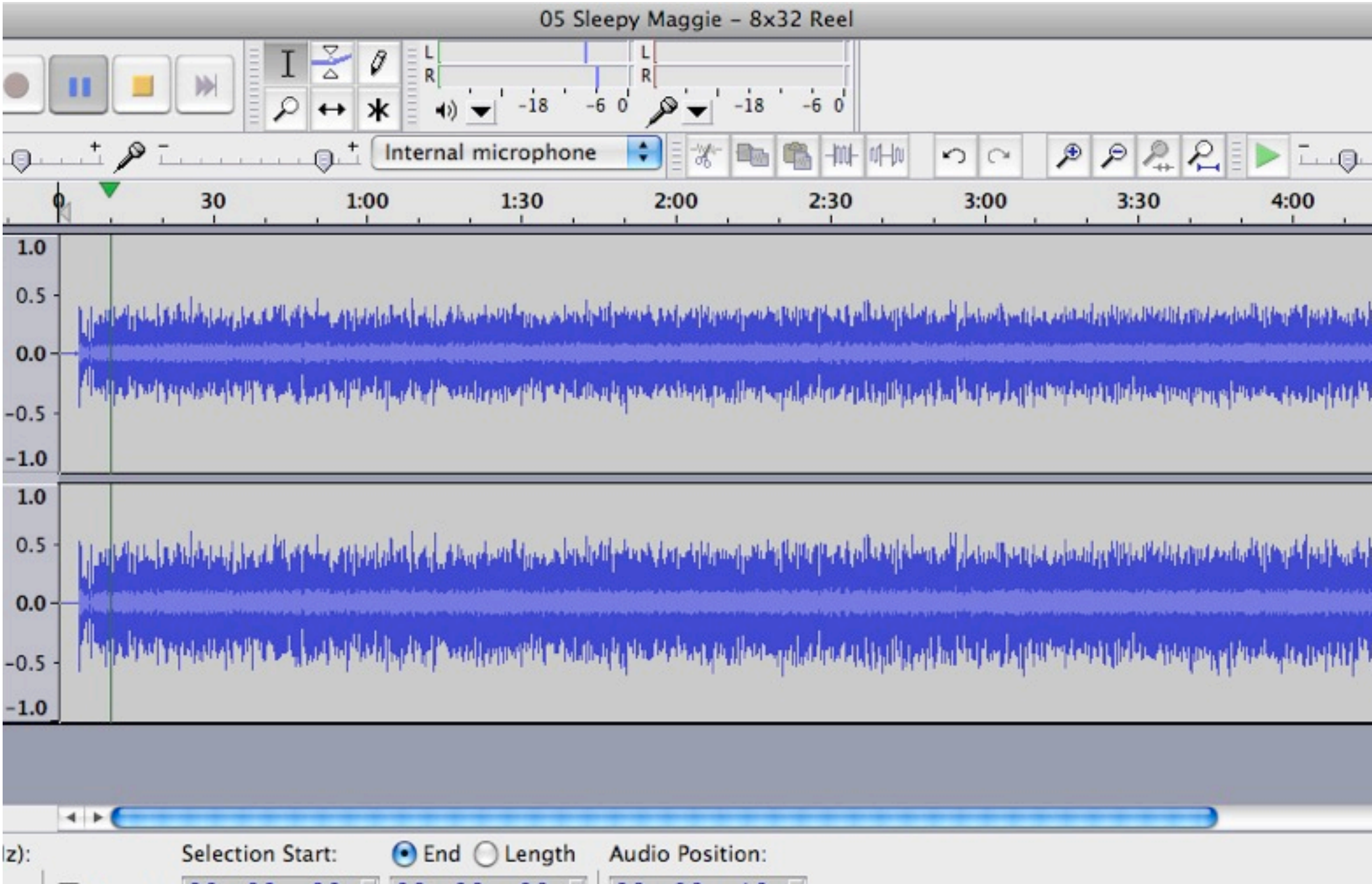
Record from the web

- Internet radio, YouTube, streaming media
- iChat, Skype
- Audio device: mike, line in
- Audio Hijack Pro, $32
- Wiretap Pro Studio, $69
  It's also an editor

Recording/editing S/W

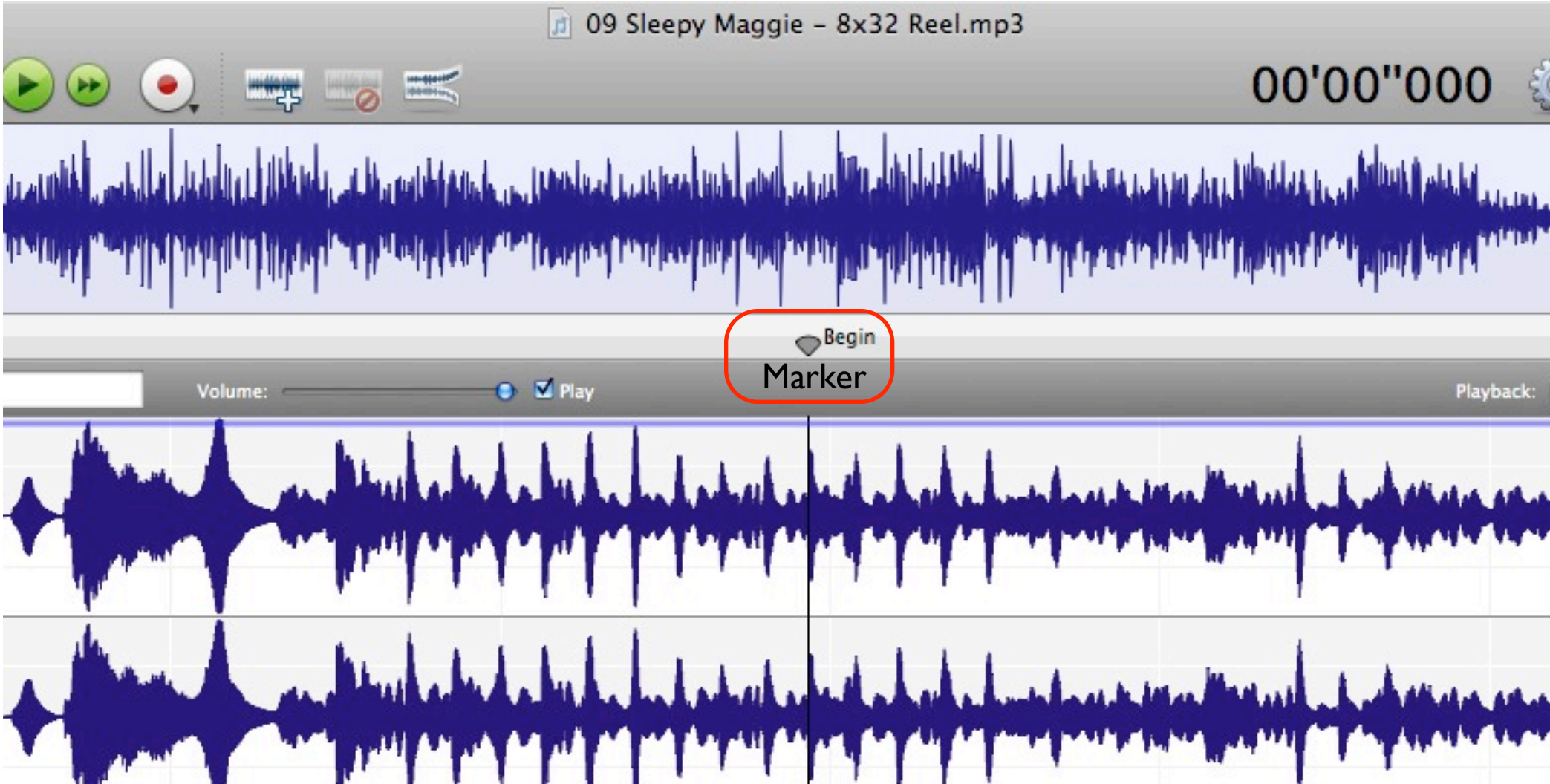
- Free
  - Audacity (open source)
  - Audio Recorder - limited
- Amadeus II $40
- Sound Studio $80
- Spin Doctor (w/Toast)

Audacity


05 Sleepy Maggie - 8x32 Reel
Internal microphone
0
30
1:00
1:30
2:00
2:30
3:00
3:30
4:00
1.0
0.5
0.0
-0.5
-1.0
Selection Start:
End
Length
Audio Position:

Amadeus II

- My favorite, full-featured audio editor
- Reads and saves many formats



Communicate

- Share iTunes library on a local network
- Stream wirelessly to your Hi-Fi with Airport Express, $100

- Instant Messaging (IM)
  - Chat, Skype, Yahoo Messenger

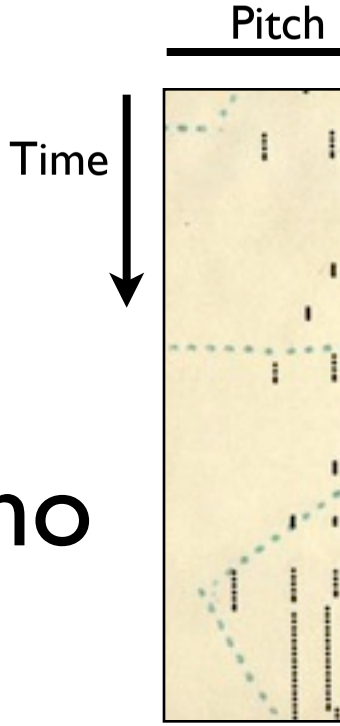
nstant Messaging = Cha

- iChat - Mac only
- Yahoo Messenger (free) - Mac & PC
- Adium - multiple IM networks
- Skype (free) - Mac & PC
  - Call landlines (2-3¢/min)

MIDI

Musical Instrument
Digital Interface

A segue into Garageband



It's totally different.

- It doesn't store the audio wave
- It stores commands, like a player piano

Music created by a synthesizer

- Software, e.g. QuickTime Player, Garageband
- Hardware, e.g. external keyboard/synth

Advantages

- Files are extremely small - 8 KB/min typical
  - Millions on the Internet - 4,600 Piano rolls
- Easily change tempo and pitch
- Edit notes
- Convert to music notation
- Multi-track recordings (orchestra)
  - Assign instruments to tracks

MIDI Sequencer

Software

- Record, edit and play MIDI files
  - Garageband
  - Most sequencers are for Pros $$
- Aria Maestosa player/editor - free
- MIDI players
  - QuickTime & iTunes
  - Q-Midi

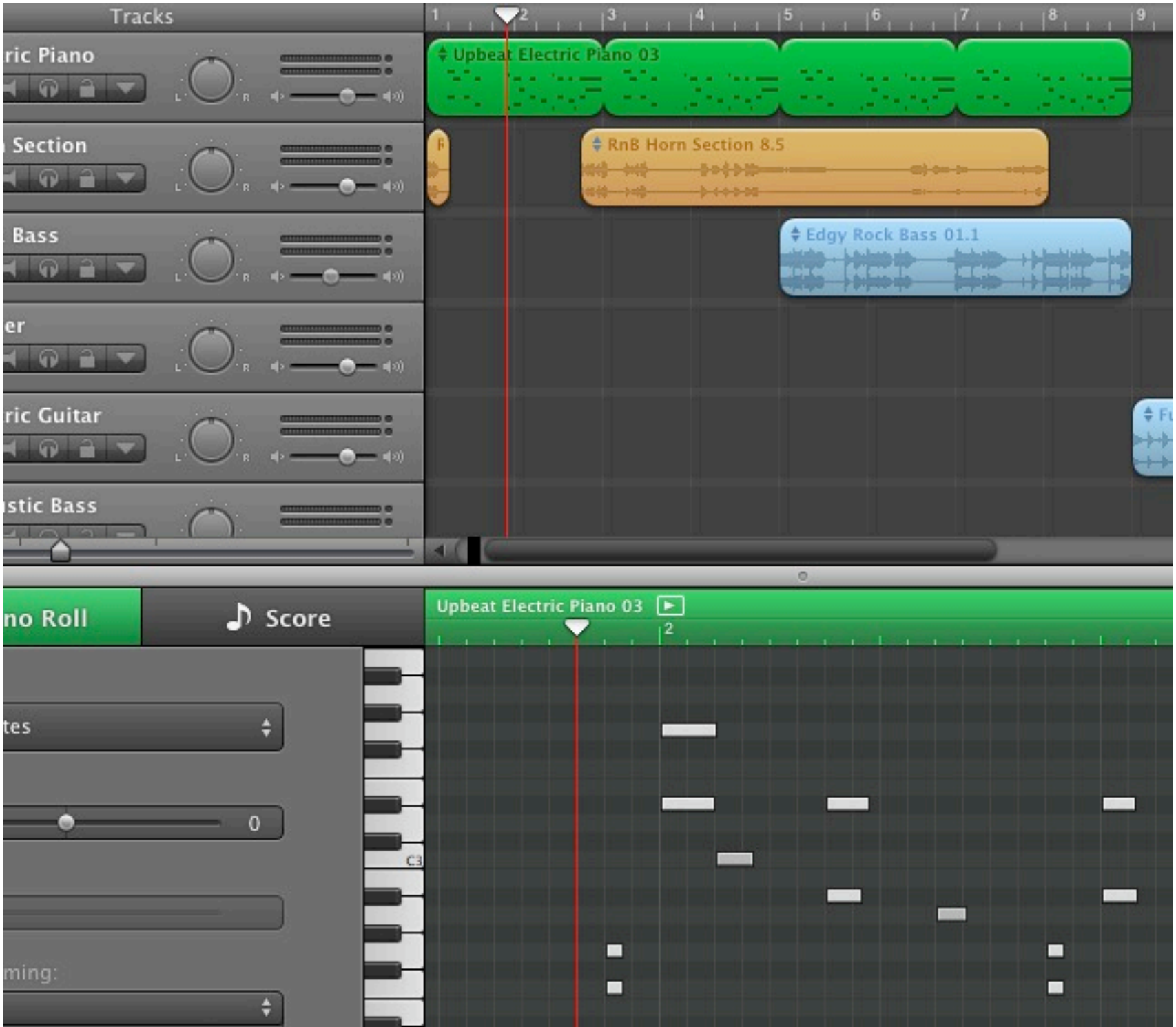
Garageband

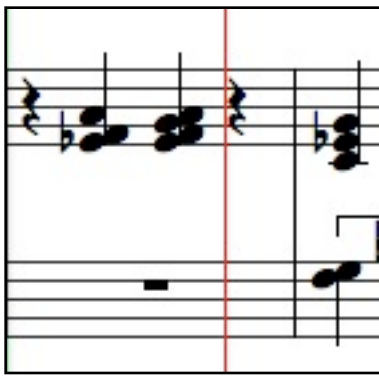
A Hybrid Music Studio

- Digital audio (Real Instruments) sequencer
  - Live audio (microphone)
  - Sound files (e.g. iTunes)
- MIDI (Software Instruments)
- Loops - includes short, prerecorded snippets

GarageBand – 01-Garage Doors
Tracks
Upbeat Electric Piano 03
MIDI Piano Loop
RnB Horn Section 8.5
RnB Horn Section 8.9
Audio
Edgy Rock Bass 01.1
Audio Loops
Funky Electric Guitar 06.2
Funky Pop Drum 08
Funky ...rum 07
MIDI Drum Loops
Funky Latin Drums 06.1
ment Tracks
Garageband

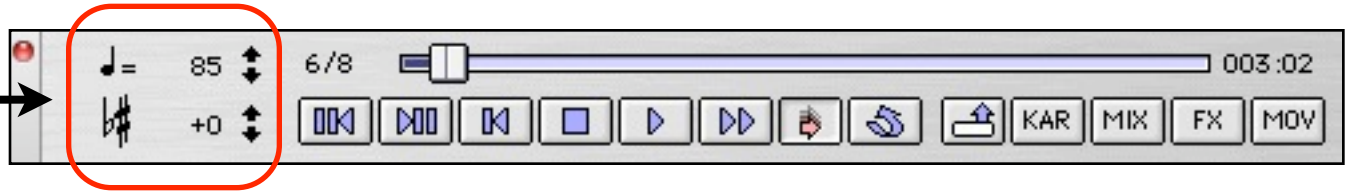
Editing Mode



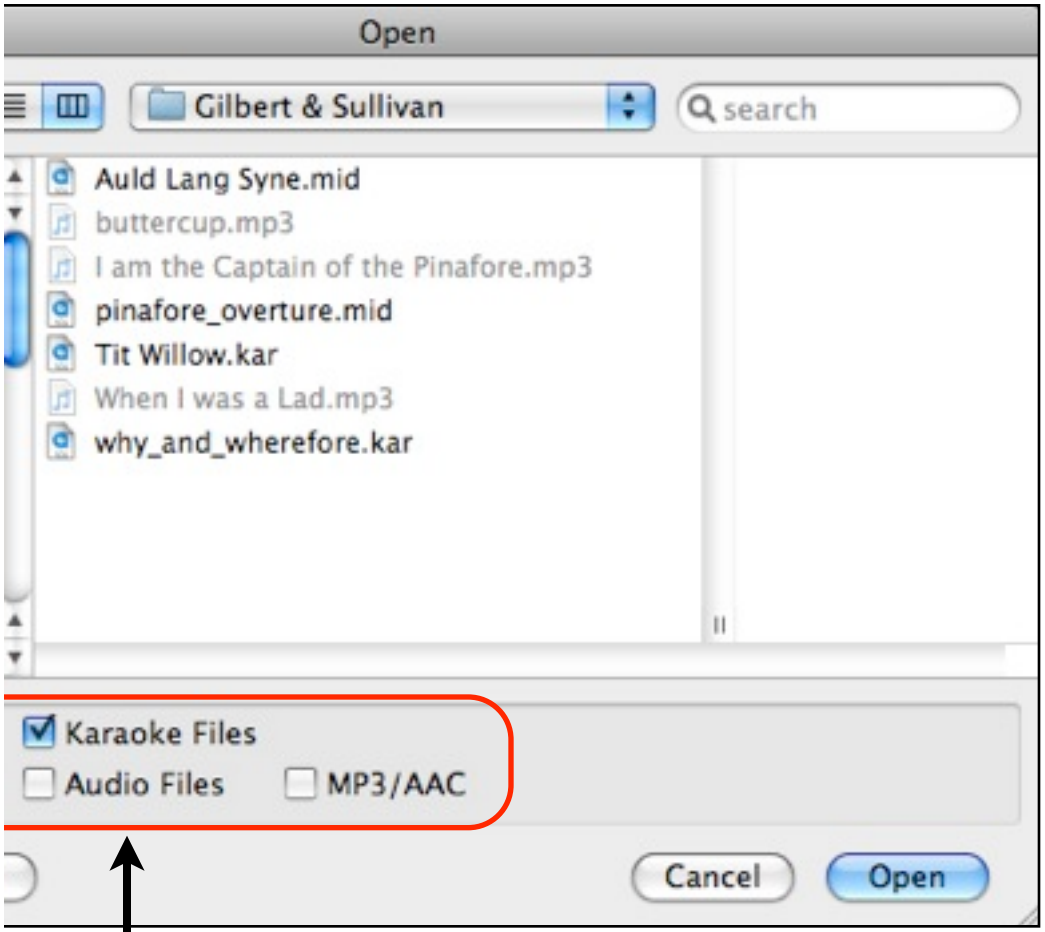


Q-Midi Player, $12 Sof

Pitch
Tempo



Controller



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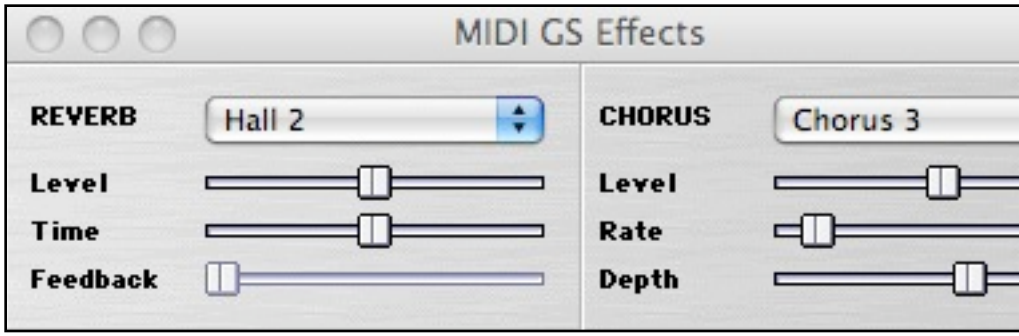
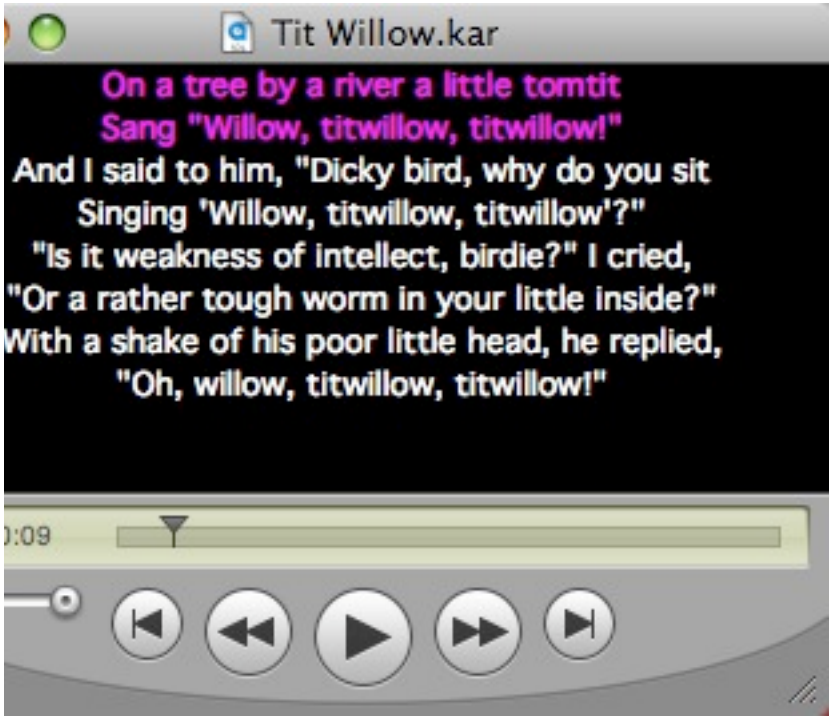
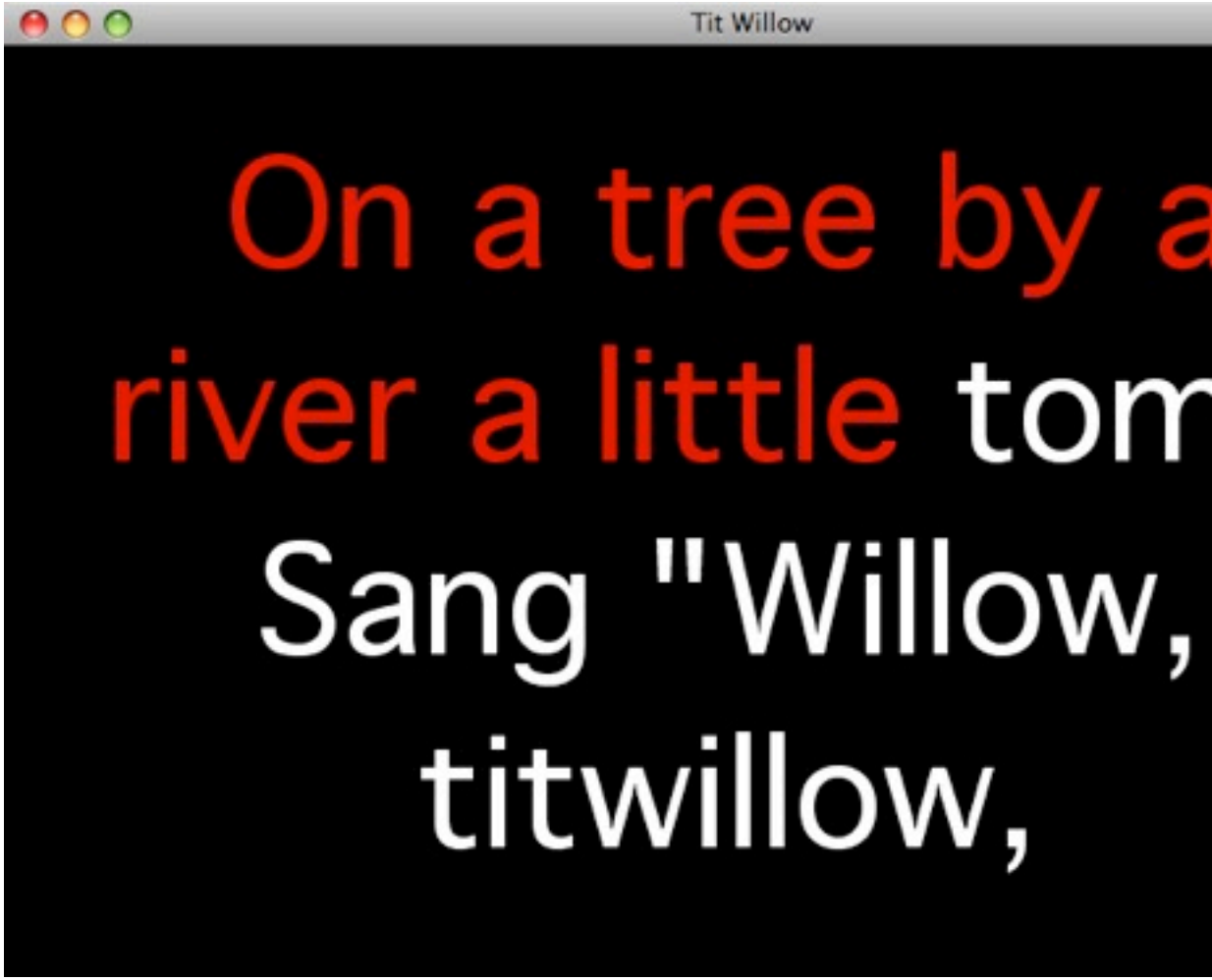


Karoke

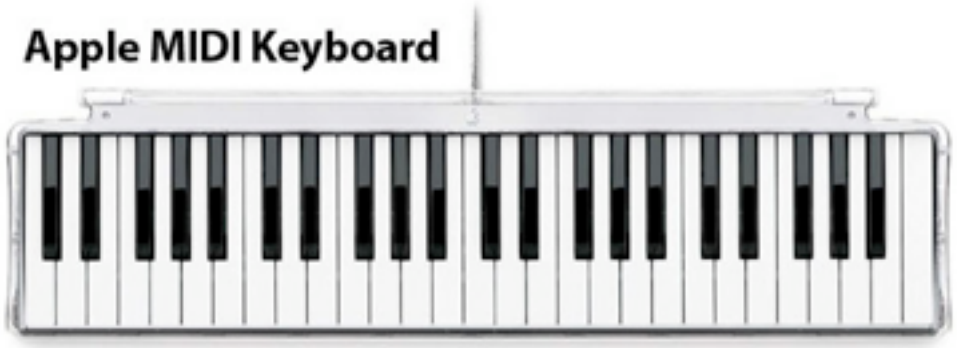


QuickTime Player



Q-Midi

External MIDI Device



- USB Interface. Apple's Audio MIDI Setup
- Play MIDI files - superior sound →
- Send MIDI data to the Mac ←
- Training: Ear training, Learn-to-play CDs
- Notation entry (sheet music)

Speech

Macs talk &
listen (control)

Visually Impaired

Voice Recognition

Dictation Software

- MacSpeech Dictate, $150
- MacSpeech iListen MX , $45
- IBM ViaVoice, $46
- Dragon NaturallySpeaking, currently not available - engine licensed to MacSpeech

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