

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
- 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)
- Virtual Reality (VR)
- Wave (WAV)

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?

Name ▲	Track #	Time	Artist	Date Added	Album	Genre	Kind	Bit Rate	Composer
☒ Schubert: Ellens 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	Schubert, orch. Wei...

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

Schubert: Ellens Gesang, Op. 52/6, D 839 – Ave Maria

Summary Info Video Sorting Options Lyrics Artwork

Name
Schubert: Ellens Gesang, Op. 52/6, D 839 – Ave Maria

Artist
Andrea Bocelli

Year
1999

Album Artist
Track Number
4 of 16

Album
Sacred Arias

Disc Number
1 of 1

Grouping
BPM

Composer
Schubert, orch. Weingartner

Comments

Genre
Classical

☐ Part of a compilation

Previous Next Cancel OK



Internet Radio

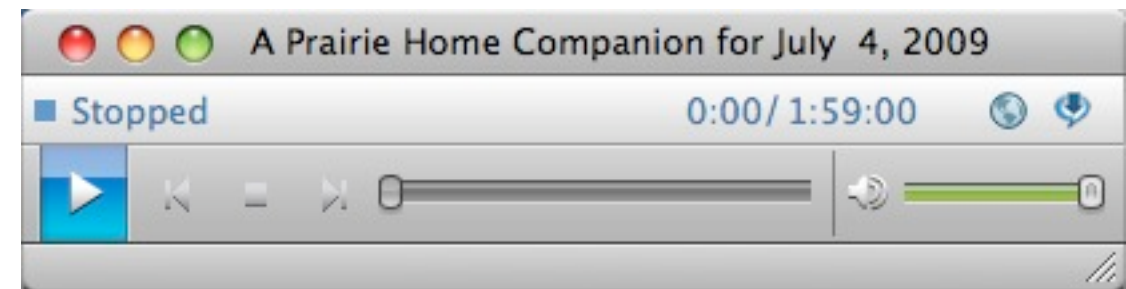
- Real-time broadcasts
- Access in iTunes
- Hundreds of stations
- Listen free

Stream	Bit Rate	Comment
► Alternative		
► Ambient		
▼ Blues (30 streams)		
📶 Absolute Blues Hits(1.FM TM)	128 kbps	1.FM's * Classic Blues and Rock blues channel
📶 Bar Rockin' Blues (clubfmra...	128 kbps	As close to Chicago's blues clubs as you can get without bein...
📶 Bar Rockin' Blues (clubfmra...	64 kbps	As close to Chicago's blues clubs as you can get without bein...
📶 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&B all began and ...
📶 Chittlin Circuit Radio	32 kbps	The Chittlin Circuit is where The Blues and R&B all began and ...
📶 detour BLUES	128 kbps	handpicked selection of all styles of blues from worldwide art...
📶 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, Downchild, Ro...
📶 jazz89 KUVU	64 kbps	Jazz, Blues & Latin Jazz on Public Radio
📶 jazz89 KUVU	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 started in the 1920s...
📶 radioio Blues	32 kbps	Get your mojo juiced with blues music that started in the 1920s...
📶 RoosterRadio.Net	64 kbps	Your Home For Classic Rock & The Blues
📶 Size Blue 42 Radio	96 kbps	Over eight decades of blues fueled by audiocandy.com
📶 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 offers listeners 20 ...
📶 THE VOID	128 kbps	Filling 'The Void' with the Best Rock and Blues
📶 The World Net Radio - Blue...	128 kbps	Great Blues Music. Chicago, New Orleans, all the best with a ...
📶 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		
► Country		
► Dance		
► Eclectic		

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

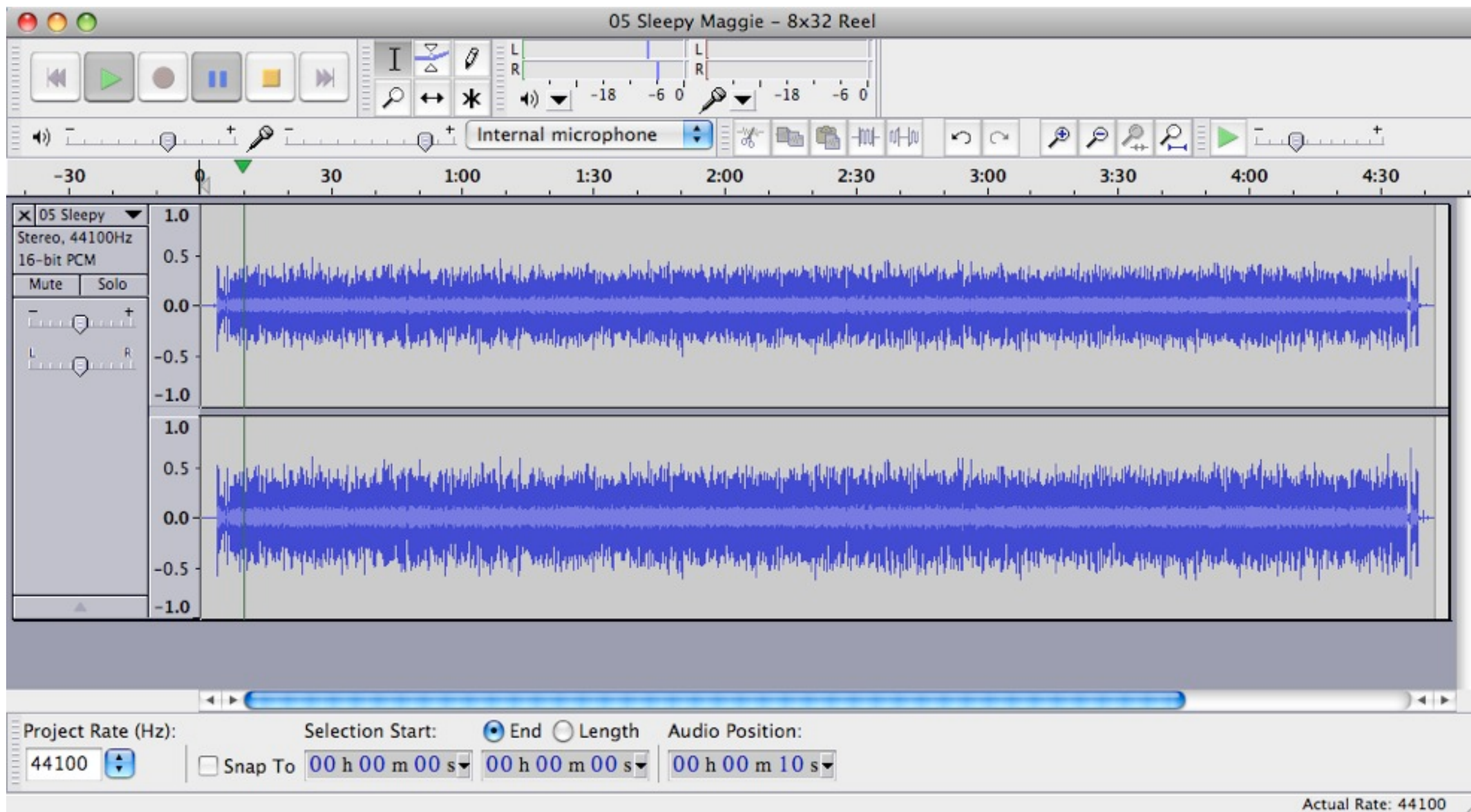
- Internet radio, YouTube, streaming media
- iChat, Skype
- Audio device: mike, line in
- Audio Hijack Pro, \$32
- Wiretap Pro Studio, \$69
It's also an editor



Recording/editing S/W

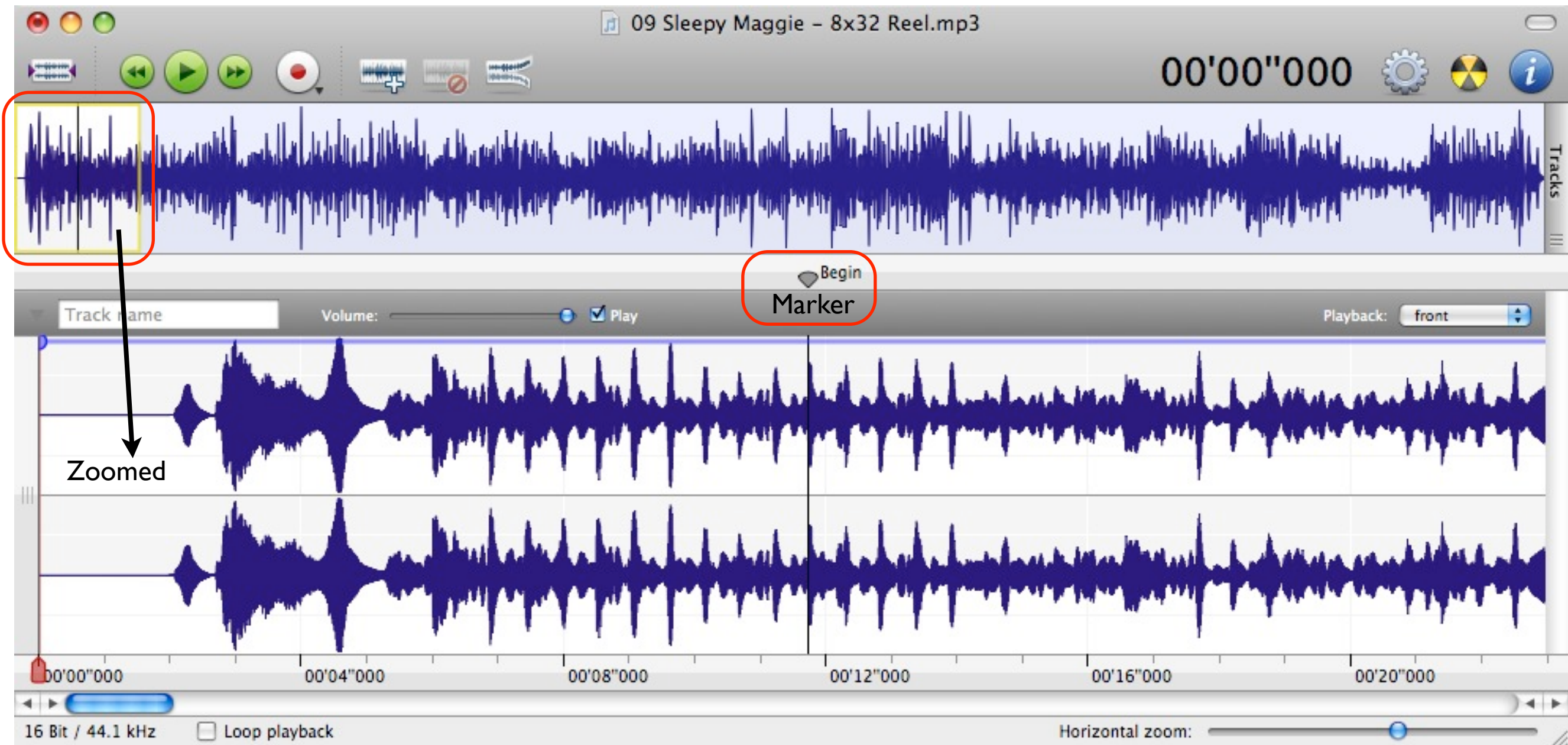
- Free
 - Audacity (open source)
 - Audio Recorder - limited
- Amadeus II \$40
- Sound Studio \$80
- Spin Doctor (w/Toast)

Audacity



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



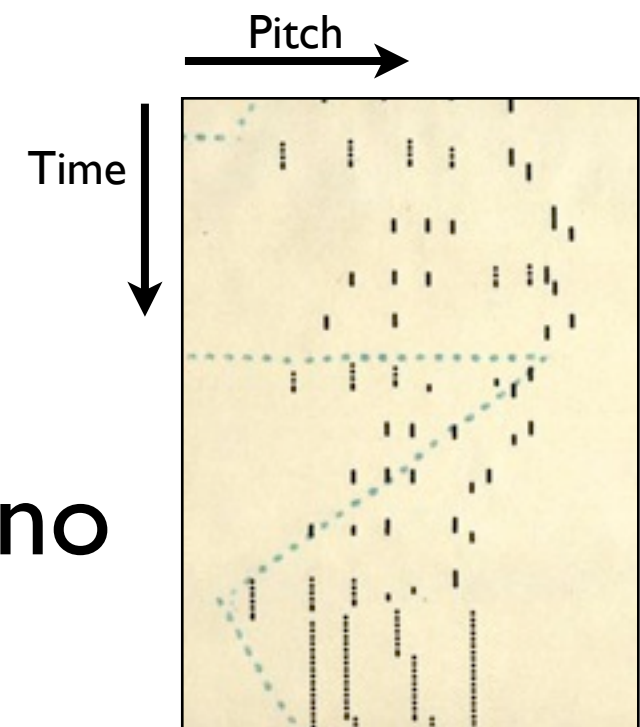
Instant Messaging = Chat

- 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
- Supports Karoke text

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



MIDI Piano Loop

Audio

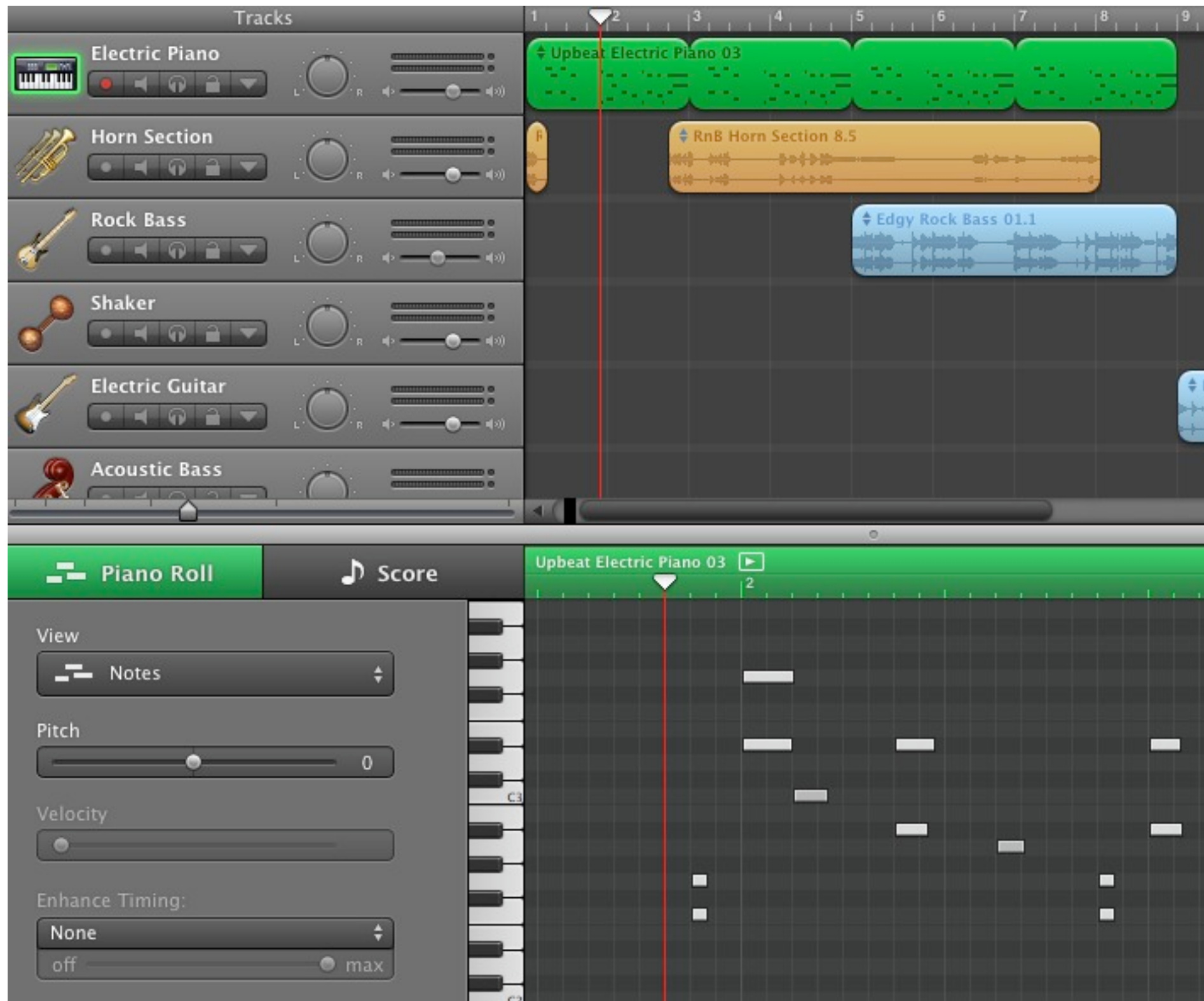
Audio Loops

MIDI Drum Loops

Instrument Tracks

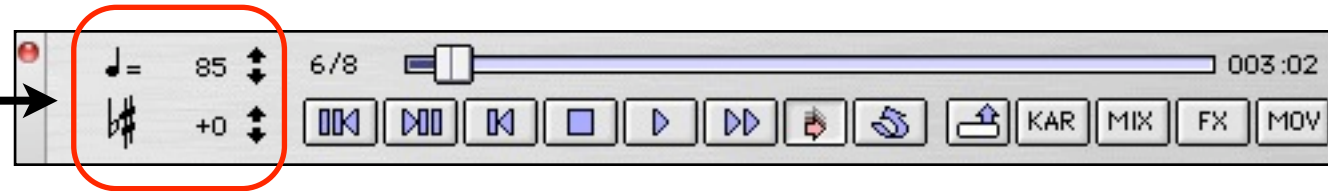
Garageband

Editing Mode

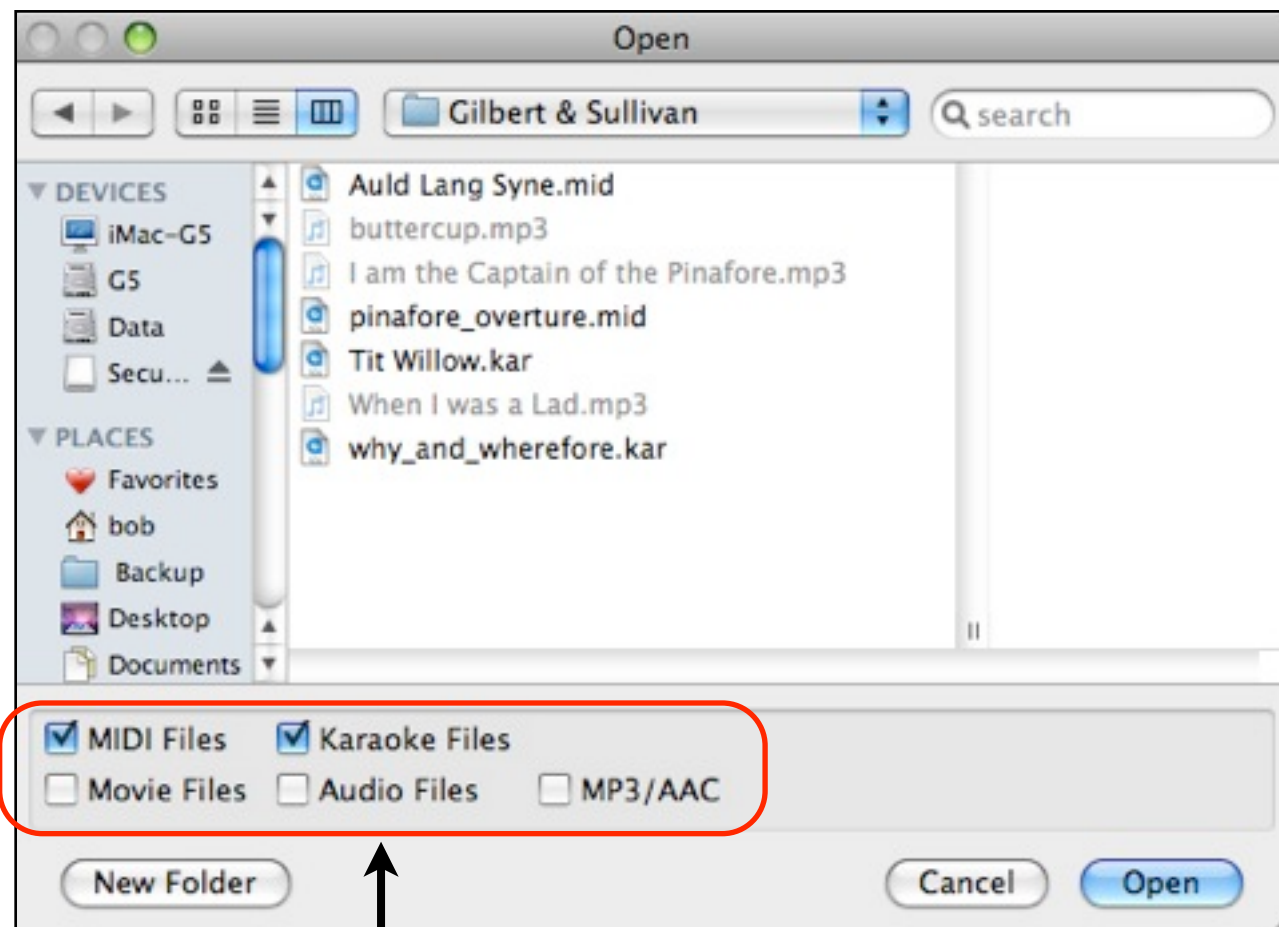


Q-Midi Player, \$12 Software

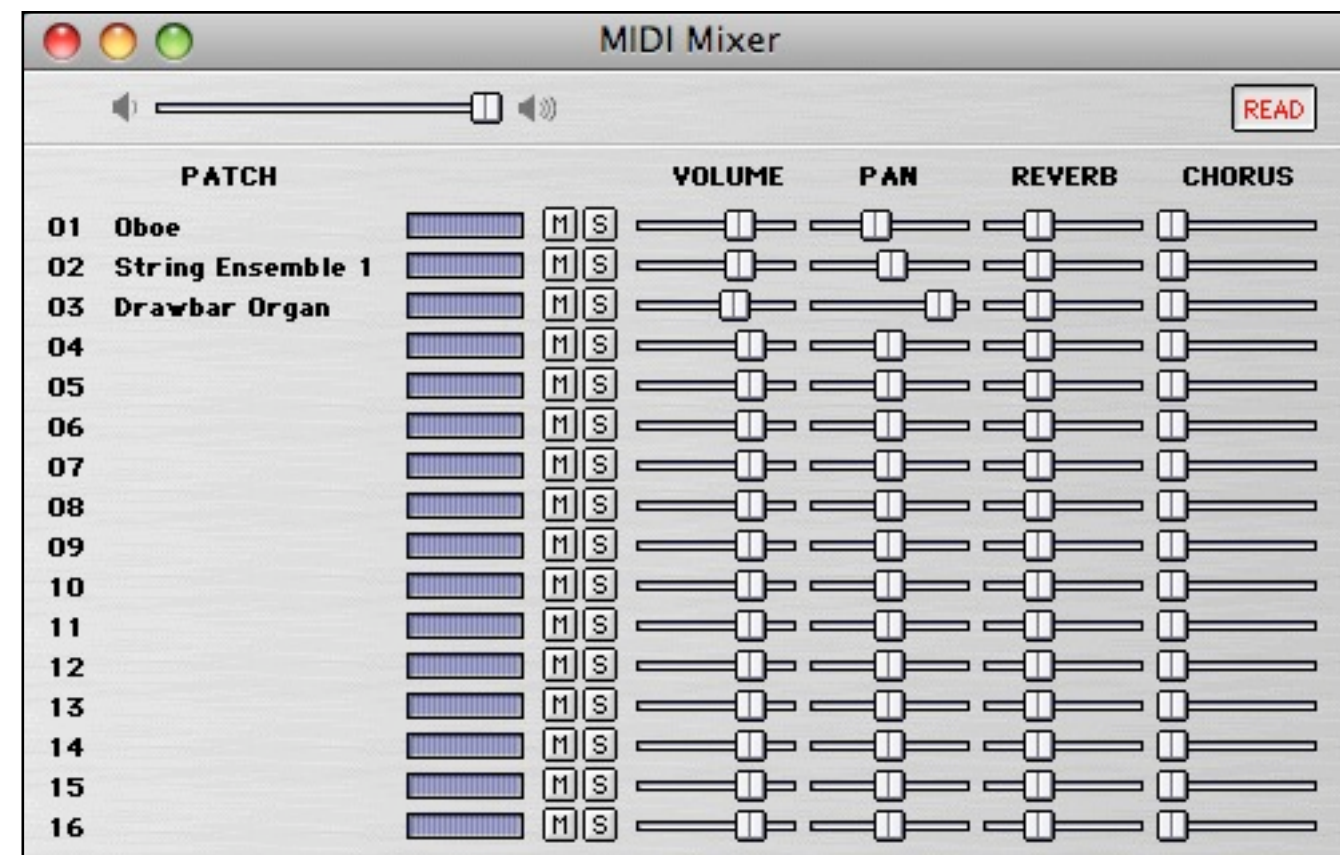
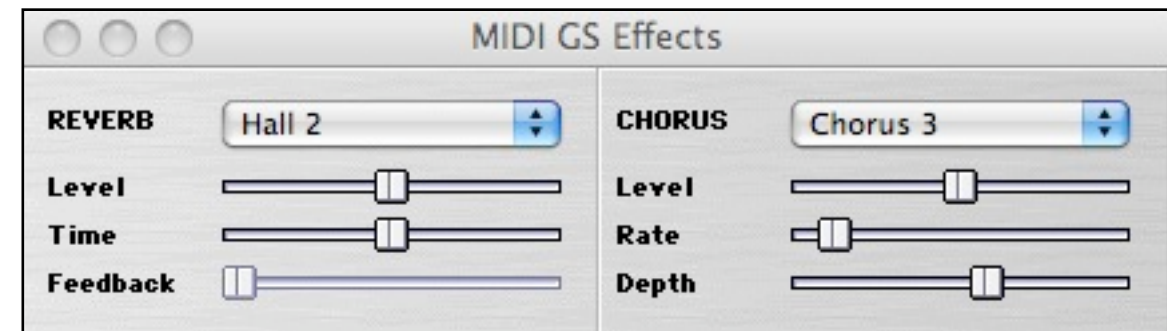
Pitch
Tempo



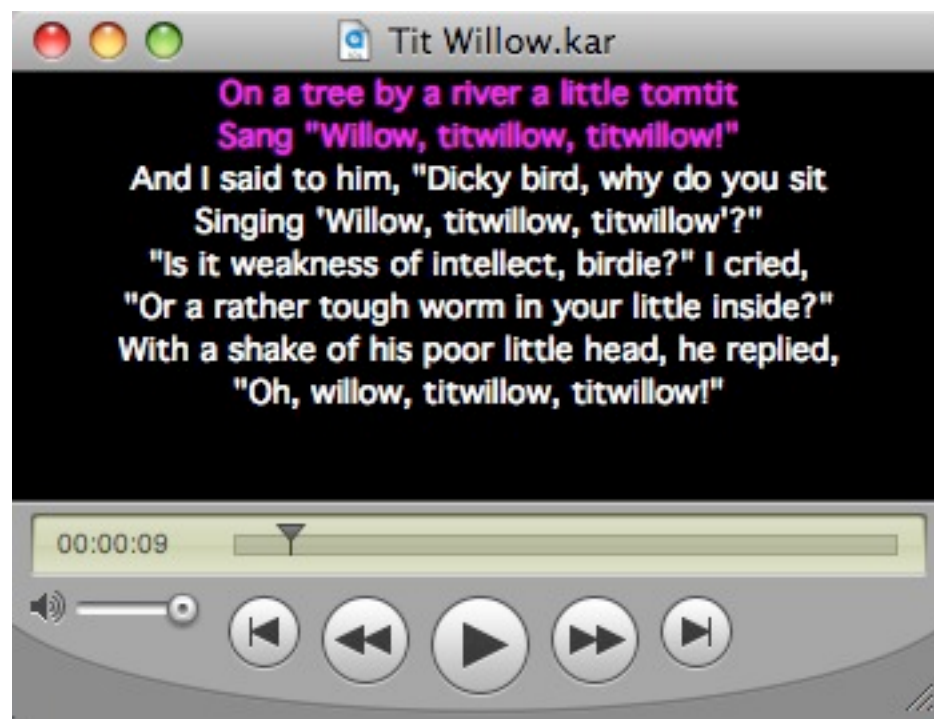
Controller



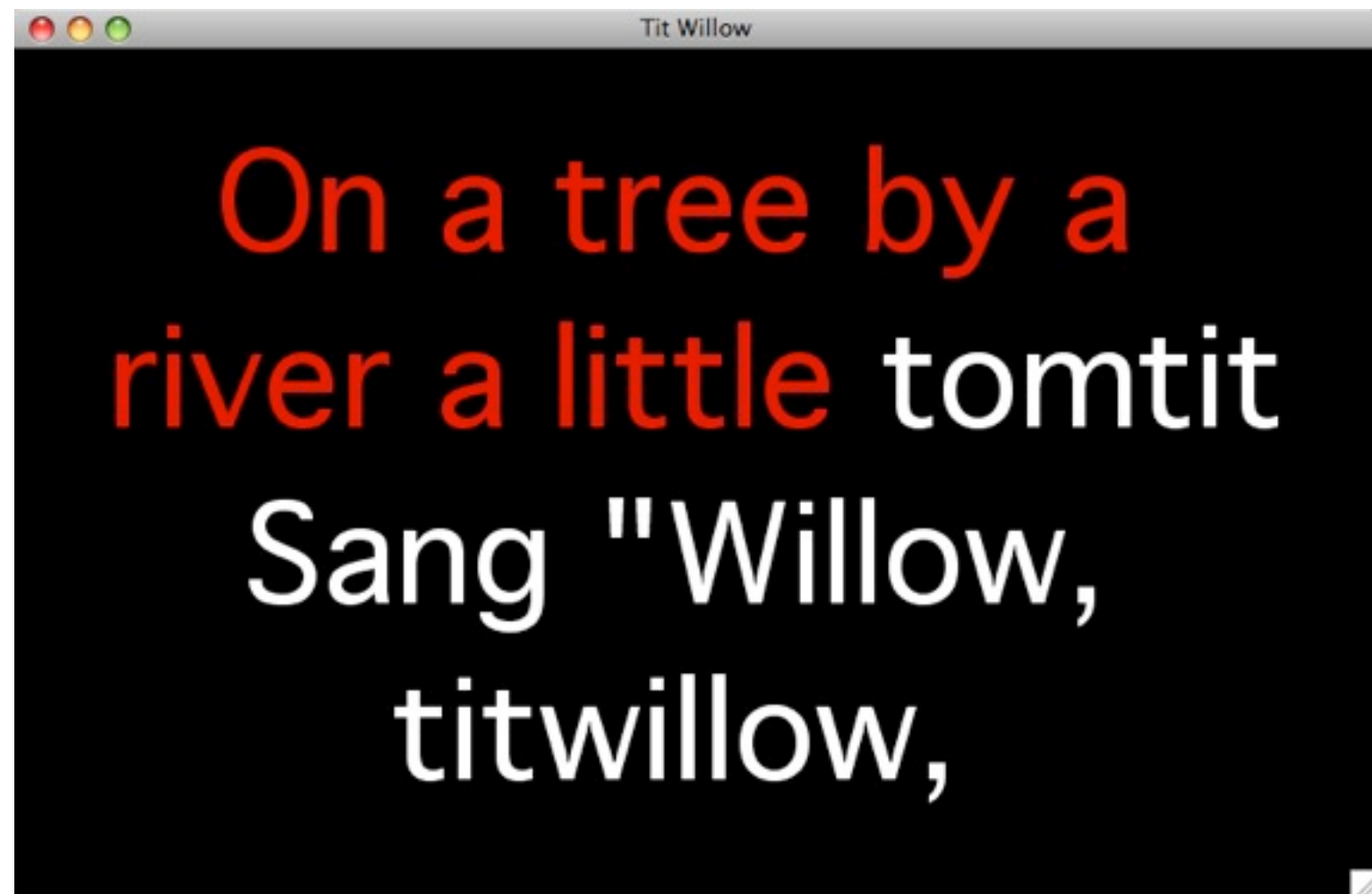
Files supported



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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