Turn Your Vinyl Records into Audio CDs

by Joe Holmes

FIND ULTRA RECORDER 2.4.1 and demos of Peak 2.01 and Ray Gun on The Disc.

TRICKY By now you've probably replaced most of your precious vinyl record collection with pristine pop- and click-free compact discs— most, but not all. Does anyone believe we'll ever see "The Nutty Squirrels Sing a Hard Day's Night" on CD? Until the major labels realize the true value of classics like "Bagels and Bongos" by the Irving Fields Trio, you have no choice but to burn your own private CD collection, using a turntable, your Mac, and a CD burner.

Taking sound from an analog source is not the same as replicating tracks from CD to CD. You must first digitize the audio onto a Mac volume, such as a hard disk, before you can burn your CD, and turntables don't sound good when played directly through a Mac.

You may remember our recent article "Digitize Your Wax" (Feb/99, p74). It was a good starting point for the basics of buying and setting up a CD burner, but we didn't cover all the gritty, esoteric details of lifting vinyl tracks. So if you truly want to digitize wax, here is the complete step-by-step process.
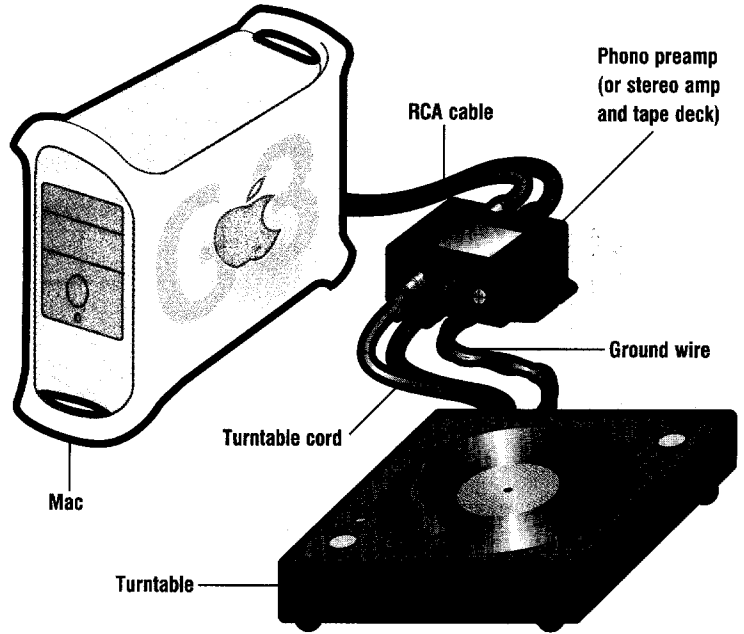

Phono preamp (or stereo amp and tape deck)

RCA cable

Ground wire

Turntable cord

Mac

Turntable

Illustration by Chris Vanderhoof

Preparation

Set Up Your Turntable

Turntables put out different signals than tape decks or CD players, so you need to use some sort of phono preamplifier between your turntable and your Mac to prevent your record from sounding thin and watery. You can buy an inexpensive preamp at your local audio shop for $20 to $25. While you're there, pick up an extra set of audio cables— the kind with a pair of RCA jacks at each end.

Plug your turntable's audio-out RCA jacks into the preamp's inputs. Then run the spare audio cable from the preamp's output jacks to the audio inputs of your Mac. Be sure you keep the right and left channels consistent. We recommend that you use an AV Mac, because converting from RCA to your microphone jack doesn't work very well. Do a test recording to make sure it sounds right.

If you don't want to put out the money for a preamp, you *can* tape the record onto an audiocassette and then record from the cassette to your computer. However, this strategy involves extra work and, of course, requires that you have a tape deck.

TO RECORD FROM A TURNTABLE to your Mac, you need to use a phono preamp like the one shown here.

Set Up Your Mac

First, you're going to need *lots* of hard disk space—about 10.1MB for every minute of audio. A full 74-minute CD will take up almost 750MB of disk space, plus you'll need some extra room for editing and tweaking. We recommend using a freshly formatted 1GB drive or drive partition. If you plan on using space on your boot drive, be sure to optimize the disk with a tool such as Norton Speed Disk (use the Multimedia setting) or Alsoft's Disk Express Pro. You should also maximize your CPU's attention by disabling unnecessary extensions, turning off virtual memory and AppleTalk, and quitting unused applications.
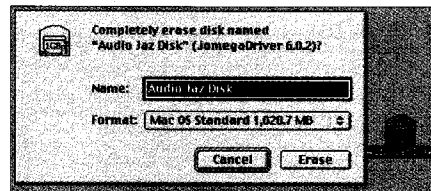
IT'S A GOOD idea to format a 1GB disk or partition for recording.
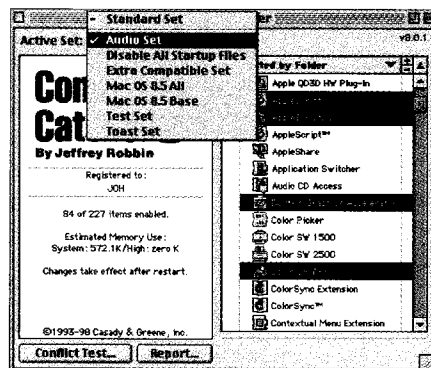
USE YOUR EXTENSIONS MANAGER or Conflict Catcher to create a slim extension set for recording.

Burning Vinyl, Method One
Crude but Nearly Free

If you have a CD burner, you've probably already got Adaptec Toast (800-442-7274 or 408-957-7274, http://www.adaptec.com), as it comes bundled with most burners. Dust off your turntable, shell out $20 for the shareware audio utility Ultra Recorder (http://members .aol.com/ejc3), and you'll have all the ingredients for the least expen- sive way to record your LPs. The drawback to this cheap method is that you can't edit the tunes or clean them up—and your final CD will consist either of one long track or of individual tracks that don't fade in and out smoothly. Nevertheless, this inexpensive system gets the job done.

Set Up Ultra Recorder

Launch Ultra Recorder and set the application to record at 16 bits, 44.1KHz, no compres- sion, and standard AIFF format. These are the standard settings for CD-quality audio. Don't try to save hard disk space by using lower settings—Toast won't be able to make an audio CD if you use any other setup.

SET ULTRA RECORDER to match the settings shown here.
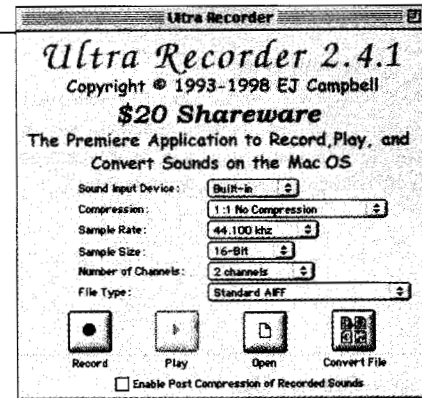
Begin Recording

Set the needle down at the begin- ning of the record and click Ultra Recorder's Record button. At the end of side one, click the Pause button, flip the record, and start recording again. If you insist on recording individual tracks, save each track as a separate file.
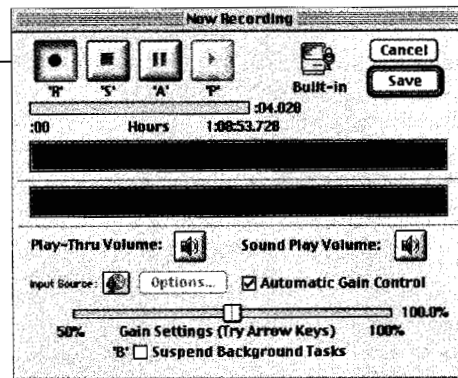

HERE'S WHAT YOU WILL see as you record. We recommend recording a whole side of an album at a time instead of individual tracks— otherwise it will take forever.

Save and Burn

When you've finished recording the album, save the file. Then drag the audio file to the Toast window and burn your CD. If you've recorded separate tracks, arrange them in any order you like. Could it be any simpler?

TOAST PROBABLY CAME with your CD burner. Just drag the files over to Toast and burn your CD.
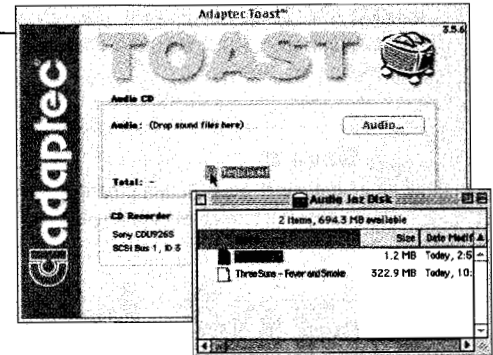

The Ground and the 60-Cycle Hum

When you start recording your LPs, you may notice a horrible hum clearly audible during quieter passages. This is the dreaded 60-cycle ground loop hum, named for the 60-cycles-per- second alternation of the current that runs through your house. The problem comes from poor grounding of your setup.

First, hook up your turntable to your Mac using the preamp setup as if you're about to record. Then turn the volume way up. If you hear nothing but a quiet hiss, consider yourself lucky. However, if you hear an electrical buzz, you have the 60-cycle hum.

To get rid of the hum, first make sure your turntable's ground wire is attached to the grounding connector on your amplifier. If that's not the problem, try unplugging your amplifier's power cord and plugging it back in with the prongs in the opposite slots.

If the hum persists, ground the phono preamp: Attach one end of a wire to a screw on the case of the preamp, and attach the other end to a screw on your amplifier's case.

If that doesn't work, ground everything to the center screw of your AC outlet cover. Be careful: If the grounding wire touches the prongs of the AC plug, you and your stereo could get a nasty shock.
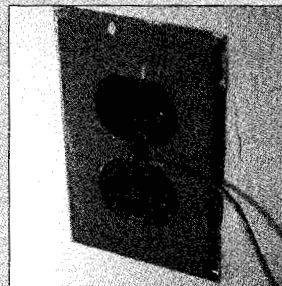
BE SURE TO GROUND YOUR AMP, or your recording could suffer from the dreaded 60-cycle hum.

Burning Vinyl, Method Two
High Quality and Expensive

For an even better reproduction of your record, you may want to spend some money and use a more robust audio editing program—for example, Digidesign ProTools ($795, 800-333-2137, http://www.digidesign.com), Bias Deck ($399, 800-775-2427, http://www.bias-inc.com) or Bias Peak LE ($99), or Macromedia SoundEdit Pro ($270, 800-457-1774, http://www.macromedia.com). These pro-grams allow you to edit tracks, resulting in much smoother transitions between songs and fewer pops and clicks on the final CD. We used Bias Peak LE, which comes bundled with Adaptec's Jam software ($16). Like Toast, Jam is a CD-burning utility, but it is specifically designed for making music CDs (see the sidebar "Jam Out an Entire Album" below).

Record It
Digitize the entire album to your hard drive. Follow the general directions we used in Method One, using your more flexible and powerful audio software instead of Ultra Recorder.
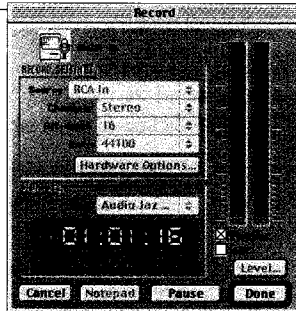

**WE USED BIAS PEAK LE for our high-quality recordings.**

Clean Up
Now refine the recording. If you want as clean a sound as possible—without pops, clicks, and other noise—pick up a copy of Arboretum's Ray Gun ($99, 800-700-7390, http://www.arboretum.com), a miraculous plug-in that should work with any high-end audio program. When you finish cleaning your recording with Ray Gun, use your chosen recording software to normalize the audio; this increases the signal without creating any "clipping" distortion.

ARBORETUM'S RAY GUN gets rid of unwanted pops and clicks.
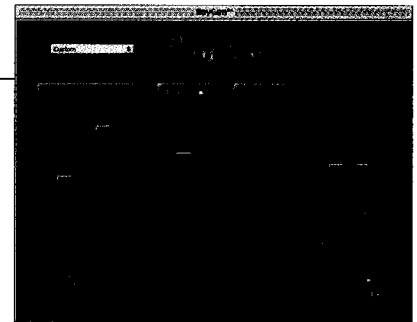
Divide the Tracks
Audition each track to locate the precise beginning and end of songs. Select a track, copy it, create a new stereo document in your chosen audio editing application, and paste the track into the new document.
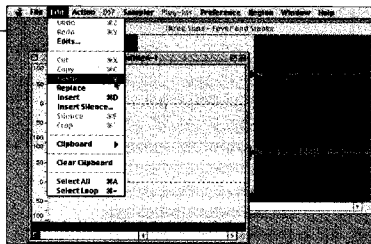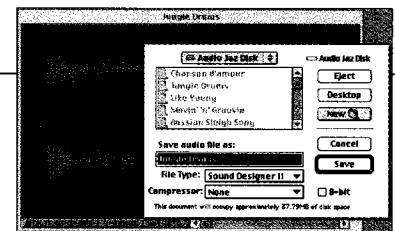

DIVIDE TRACKS so you can skip around with your CD player.

Save It
Save each track to your hard disk in either AIFF or Sound Designer II format, both of which Toast and Jam can read.

MAKE SURE YOUR FILES end up in AIFF or Sound Designer II format.
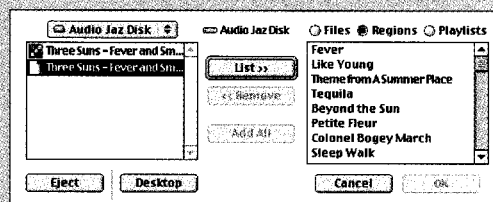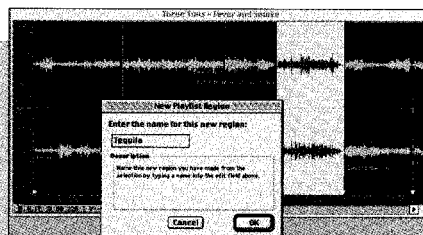

Burn to CD
Drag your tracks into the Toast or Jam window. Arrange them in the order you want on the final recording, then burn them onto your CD. Now you can amaze your friends by playing Esquivel's *Infinity in Sound* on your car's CD player!

Jam Out an Entire Album

With Jam, Adaptec's audio CD-burning utility, you can digitize an entire album as one long audio file and then mark individual tracks for the CD. This is the only easy way to create a CD from an album whose tunes run into each other without a gap, such as a recording of a live concert.

To make such a recording, just use Bias Peak LE or another high-end audio tool to digitize an entire LP onto your hard drive, as explained in Method Two above. Clean up the sound, then follow Peak LE's instructions for marking out a region on the album. Save each region in Sound Designer II format. When you load these regions into Jam, you can set the pause between tracks to zero, and Jam arranges the songs to play smoothly without interruption.