Chapter 2

WAVs and Other Sampled Sound Files

Have you ever sent your buddies a favorite sound file only to find that they couldn't play it on their computers? Have you ever downloaded a sound file that your computer couldn't play? Windows, Mac OS, and UNIX all speak different languages when it comes to sound. A Macintosh can't play a Windows WAV file; Windows can't play a Mac SND file; and neither of them can handle a UNIX AU file. Not to mention the Internet flavor of the month, MP3 files, which only the newer operating systems recognize. This chapter explains all of these sound files, along with a few others that you'll bump into on the Net. It also introduces software to play all the popular types, including MP3, and to convert them to formats your buddies can use.

What you'll learn:

- What we mean by the term *file format*
- What these file formats are and how they differ: WAV, RIFF, Macintosh SND, AIFF, AIFC, AU (and NeXT SND), MP3, plus a few others
- How to use Windows Media Player to play sounds
- How to use DirectShow (ActiveMovie) to play sounds
- How to use Jet-Audio for Windows to play sounds
- How to use SoundApp for Macintosh to play and convert sounds

WAVS, MIDIs, & RealAudio • 7507-4/1 • ch02.3 • Chapter 02 • Proof 3 • MS • 10/8/98 • p.17

Understanding Audio File Formats

You can't just dump audio information helter-skelter into a file and expect various playback programs to be able to correctly interpret it. It must be *formatted* in a way that players know how to read it. Each audio file format represents one specific layout that computer programs use to read and write audio information. A WAV file and an AIFF file could record the same sound, but if you compared their bits and bytes, they would look quite different. For that reason, a WAV player can't interpret or play an AIFF file, and vice versa. Most of today's players, however, are sophisticated enough to handle both formats, and many more.

The following sections describe *sampled* sound formats — that is, sound files containing digital samples taken from analog recordings. All these formats can store the same types of sound, and you can convert sound data from one format to another.

WAV Files

The WAV format was developed by Microsoft and IBM as the Windows native audio format. It's the file format that Windows uses for its own sounds, such as the musical startup or the error message ding. Windows plays those sounds without starting a separate playback program; the WAV player is built into the main program. But WAV popularity has grown way beyond Windows itself; it's the most popular type of audio file on bulletin board systems, online services, and the Internet, especially the Web.

Note

The name WAV comes from a WAV file's usual extension, .wav, which stands for *waveform*.

WAV and RIFF formats

The WAV format is a form of RIFF — the Resource Interchange File Format — which was developed as a generic data format and can be used for audio, video, and other types of data. In fact, you can mix several types of data in one file, although most WAV files usually contain only WAV data. The format accommodates any sampling rate, sample sizes up to 32 bits, any number of channels, and a wide variety of encoding schemes, including PCM, A-law, μ-law, and many others. Low-end players might not be able to interpret all these variations, though. A simple player might handle only 8- or 16-bit samples, a few sampling rates, a single channel, and PCM encoding.

A RIFF file is made up of *chunks*. Each chunk starts with a four-character identifier. What the rest of the chunk contains depends on the type of chunk. Many chunks in turn contain chunks, called *subchunks*, as you'll see shortly.

Figure 2-1 diagrams the layout of a WAV file. The RIFF file itself is considered to be the highest level chunk, identified by the word RIFF. The next four bytes contain the length of the remainder of the chunk. The RIFF chunk contains one subchunk, the WAVE chunk, beginning with the identifier WAVE.

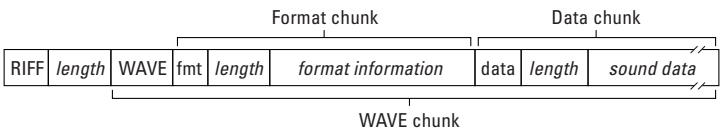

Figure 2-1 *A WAV file is really a RIFF file containing a WAVE chunk.*

A WAVE chunk can contain several subchunks, but most only have two: a format chunk that indicates the format of the audio data, and a data chunk that actually contains the data. The format chunk is identified by "fmt" followed by a space. Next comes its length. The format information includes, among other things,

the type of encoding, the number of channels, and the samples per second. A WAV player needs this information to successfully interpret the data in the data chunk.

Finally comes the data chunk. It starts with the identifier "data" followed by its length. Sampled data is stored in frames, where each frame represents one sample for all the channels. Sixteen-bit stereo PCM data, for example, needs four bytes per frame: two bytes for the first channel's sample, followed by two bytes for the second channel's sample.

If you're ever stuck with an unidentified file — whether it's audio or some other kind — try opening it as a text file in your word processor or text editor. Many file formats have an identifier somewhere near the beginning that tells you what type of file it is. Figure 2-2 shows the contents of a WAV called `mywebwel.wav`, displayed in WordPad. Even though most of the "text" is unreadable — the binary data displays as extended characters such as θ and ÿ — you can clearly see "RIFF" in columns 1 through 4 and "WAVEfmt" in columns 9 through 16. Now that you're familiar with the WAV format, you know that this must be a WAV file. (By the end of this chapter, you'll be able to identify several more types of sound files.)

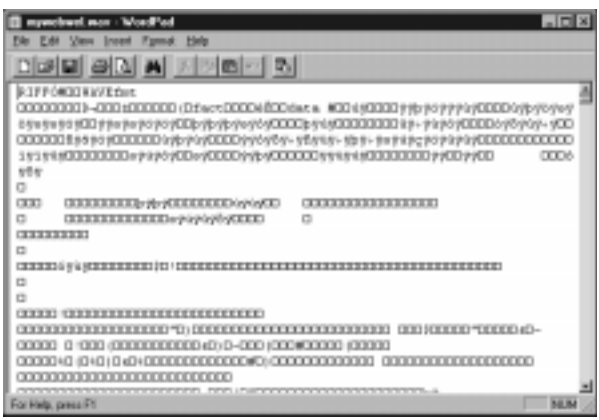

Figure 2-2 *You can tell this is a WAV file by examining its contents in a text editor.*

Macintosh Files

The two audio file formats closely associated with a Macintosh are SND and AIFF. I'll talk about SND here and AIFF in the "AIFF and AIFC formats" section later in the chapter.

The Macintosh SND format

SND is the native Mac format and is used for the OS alert sounds, game sounds, and other application sounds. Mac users have also created thousands of SND files for sharing with each other. You'll find Mac SND forums on most of the major online services and hundreds of SND FTP and Web sites.

Tip

Chapter 5 shows you how to play SND files as well as create standalone files out of SND resources, and vice versa. You'll learn how to record your own SND files in Chapter 11.

Sounds built into a Mac program are not SND files but *snd resources* stored in the program's resource fork. The Mac OS alert sounds, for example, are stored in the resource fork of the System file. A SND file is simply a Finder file with a single snd resource. Even though everyone calls them SND files, their actual file type is SFIL.

Note

For my PC friends: A Macintosh file has two parts called *forks* – resource and data. The resource fork contains items referenced by the data fork, such as icons, sounds, color palettes, and fonts. A PC file would be similar to the data fork of a Mac file.

An snd resource consists of header information followed by the sound data. (None of it is readable by humans, so I won't try to show it to you here.) The sound data could be a set of commands and/or a sampled sound or wavetable data. Sound commands tell Sound Manager how to create the desired sound. For example, they might

say to play a tone at 440 cycles per second for two seconds at a certain amplitude (volume) with a certain timbre. (That would result in a rather ugly beep using the note A.) If a sampled sound is also included in the resource, the sound commands tell Sound Manager how to play it. Sampled sounds include a second header providing necessary information such as the sample size, the sampling rate, and the type of encoding.

Figure 2-3 shows the contents of a SND file displayed as text. The sound's name, `TKTempleBells`, appears starting in column 50, the SFIL type in columns 67 through 70 and again in columns 83 through 86, and the creator in columns 71 through 74 and 87 through 90. Everything else is binary data.

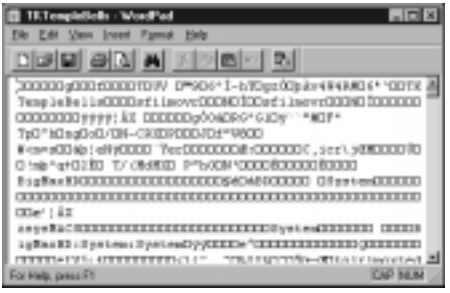

Figure 2-3 *The expression "sfil" in columns 67 through 70 tells you that this is a Macintosh SND file.*

Sounds are played by the Mac OS Sound Manager, which can handle 8- or 16-bit samples with one or two channels and any sampling rate up to 64 kHz. It will automatically convert 16-bit samples into 8-bit samples if your system does not have the necessary 16-bit sound hardware.

AIFF and AIFC formats

Apple developed the Audio Interchange File Format (AIFF) as an interchange format for Macintosh sounds. (Silicon Graphics, Inc. (SGI), codeveloped AIFF and AIFC formats, which are used on

their workstations.) Although SND is the Mac's native format, it isn't used much for interchange across platforms because most other systems can't interpret files with two forks. AIFF fills in the gap. As you can see in Figure 2-4, its format is similar to RIFF. (There's a reason for this similarity — they're both based on an earlier format called IFF that was developed for the Amiga.) The file is identified by the word *FORM*, and the AIFF chunk by the word *AIFF*. The common chunk serves the same purpose as the format chunk in the RIFF format and contains the same type of information. It gives the number of channels, the sample rate, and the bits per sample (up to 32), but does not specify the type of encoding because only PCM coding is permitted.

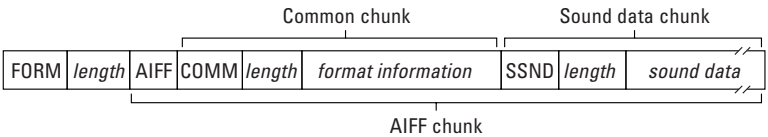

Figure 2-4 *The AIFF file format is similar to RIFF.*

The sound data chunk contains the sound information stored in sequential frames just like WAV format. Also like WAV format, AIFF permits any number of channels, any sampling rate, and sample sizes up to 32 bits. Not every player can handle all these variations, however. Other types of chunks are possible but are not often used.

Figure 2-5 shows the contents of a file named `monkey`. You can tell that it's an AIFF file by the FORM in columns 1 through 4, AIFF in columns 9 through 12, COMM in columns 13 through 16, and SSND in columns 39 through 42.

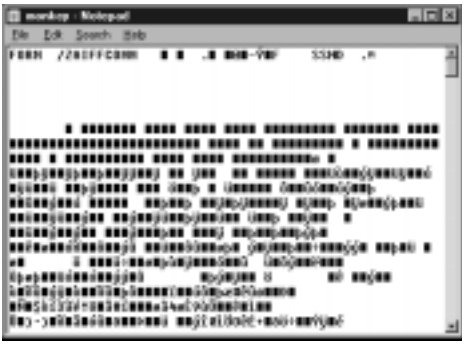

Figure 2-5 *The FORM and AIFF identifiers provide the clues that this is an AIFF file.*

A revision to the original AIFF standard allows for data compression. It is known as the AIFF-C or AIFC format, and its identifier is AIFC. The common chunk has been expanded to indicate the type of compression. A new format version chunk specifies the version number of the AIFC format. This was included to permit future updates without having to create another new identifier. A sound accelerator chunk helps to eliminate problems in decompressing when a sound loop doesn't return to the first frame.

UNIX and Sun AU Files

The Internet was originally created on UNIX machines, and even though there are now millions of PCs and Macs accessing it, UNIX still has a huge presence on the Net, especially among college users. In fact, the majority of the computers that host today's Internet are UNIX computers. And since UNIX uses the AU format, developed by Sun Microsystems, many FTP and Web sites offer AU sounds.

Note

The AU format seems to have about half a dozen common names. It's also known as Sun Audio, NeXT audio (because it's also used by NeXT computers), and μ-law or mu-law or u-law (because it uses μ-law compression). And just to make sure you're paying attention, on NeXT machines it's also called the SND format, not to be confused with Mac's SND format, which isn't the same at all.

AU format

AU files are known around the Net for being small but poor. That's because they have a history of recording 8-bit, 8 kHz monaural samples, compatible with the sound hardware on many UNIX and UNIX-like systems such as Sun and Linux. Today's AU format, however, supports up to two channels, up to 32-bit samples, and any sampling rate up to 44 kHz. While high-quality samples are not as common as the "small but poor" ones, they're not completely rare either.

The AU format, shown in Figure 2-6, is much plainer than the other formats explored in this chapter. It starts with the identifier .snd, which explains why it is sometimes called SND instead of AU. The formatting information specifies sample size, sampling rate, number of channels, and other essential information. Next comes an optional text description of the sound. And last is the sound data, using μ-law compression.

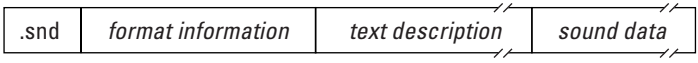

Figure 2-6 *This is a typical AU file layout.*

Figure 2-7 shows the contents of an AU sound file, which you can spot by the ".snd" in the first four columns. This one also has a description starting in column 25, but you can't always count on that because the description is optional.

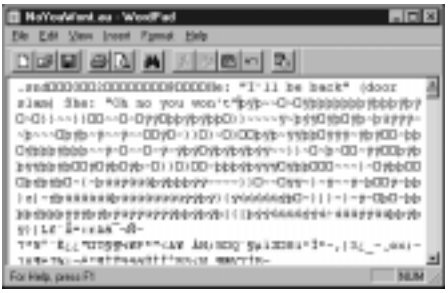

Figure 2-7 *The .snd at the beginning of the file tells you this is an AU file (or a NeXT SND file).*

MP3 Files

MP3 is the file format for MPEG-1 Layer 3 compression — not MPEG-3 compression as some people think. It's worth repeating here that this format provides the best compression and quality that you will find on the Internet today. As you'll see if you visit a few MP3 sites, its advocates tend to be somewhat fanatical about it. An MP3 file simply contains MPEG-1 Layer 3-encoded sound data, as Chapter 1 describes. There aren't any text IDs or headers, so I can't show you how to identify one.

If I wrote this book two or three years from now, it would probably be called *MP3s, MIDIs, & RealAudio*. The popularity of MP3 format for sampled sound is growing by leaps and bounds, and I believe that it will soon displace WAV, SND, and the other sampled formats on the Internet. But WAV and SND won't disappear as the Windows and Mac native formats — at least not soon. As I write this, MP3 players and plug-ins are not yet common, but you will probably have at least one player by the time you read this. Windows Media Player has already been upgraded to handle MP3. Other players and plug-ins will soon add MP3 capabilities.

Note

Yes, there are also MP1 and MP2 files, but you'll seldom run into them.

Other Sampled Formats

There are dozens of other sampled sound formats, but most of them are used by specific applications or hardware. You might occasionally find files in these formats:

- SVX — This is similar to the WAV format and is used on the Commodore Amiga.
- VOC — This is the native format for Creative Labs Sound Blaster cards.
- PCM — This file type often refers to raw PCM sound data.

Playing Your Sampled Sounds

You probably have a lot of sampled sounds on your computer, supplied by your operating system and multimedia applications. And it doesn't take too long to build up quite a collection of sound files downloaded from various online resources. (Some of my online buddies have gone a little whacko in this department. A couple of them even had to buy Zip disks for extra storage space. This section is fondly dedicated to them.)

Which player you use depends on what type of file you want to hear. Your operating system probably includes a player for its own sound format. Your sound board may also provide some players, which may be installed on your hard drive or on a CD-ROM or floppy disk that came with the board. As an example, my Creative Labs sound board came with players for audio CDs, MIDIs, and WAVs, with a lot more features than the ones provided by Windows. If you don't have the players you want, you can find

several good shareware ones. I have included two in this chapter: Jet-Audio for Windows and SoundApp for Macintosh.

Note

Be sure to search around for any software that came with your sound board. My sound board was installed at the factory when I bought my computer, so I didn't realize at first all the goodies that came with it. One day I looked in the board's folder on my hard drive and found ten programs that I didn't know I had. Imagine my surprise.

In the following sections, I show you how to use the players that come with your systems: Media Player for Windows and Sound Manager for Macintosh. And because those players are a bit short on features, I'll also show introduce you to some shareware players with great bells and whistles. I looked for players for both Windows and Mac that have at least these features:

- Plays at least WAV, AU, AIFF, AIFC, Macintosh SND, and MP3 formats
- Also plays MIDIs and MODs (coming up in Chapter 3)
- Enables you to build a playlist of files to listen to while you work
- Can also play CDs (See Appendix C on the CD-ROM.)
- Does not cost a fortune (to me, less than $50)

As you'll soon see, I found a couple of programs that have all these features and a lot more. But first, the free stuff.

Media Player for Windows

Media Player is Windows' player for both sound and video. Windows 95 and 98 each provide a version of Media Player. They both use the same interface, shown in Figure 2-8. The Windows 98 version is a slight improvement over the Windows 95 version, handling a few more file formats.

Figure 2-8 *The Windows 95 and 98 versions of Media Player use the same interface.*

But as I write this, Microsoft is testing a greatly expanded Media Player 5.2. Figure 2-9 shows what it looks like when playing an audio file. It is both a standalone player and an Internet Explorer plug-in. It is planned to handle all major audio and video formats, including the all-important MP3, so it can be your only audio and video player. Some people will like the convenience of having just one player for everything. Others may prefer to have a selection of players. When you install Media Player 5.2, it replaces your former standalone Media Player and any plug-ins you have installed for Internet Explorer. By the time you read this, Media Player 5.2 has probably been released and you can download it free of charge from Microsoft's Web site at this address:

```
http:\\www.microsoft.com
```

Figure 2-9 *Media Player 5.2 sports an entirely new interface, shown here without the video window.*

This section assumes that you will want to upgrade to Media Player 5.2 when it becomes available. It shows you how to play sampled files and create playlists using the standalone player.

Media Player 5.2 basics

When you start Media Player 5.2 for a sound file, the window shown in Figure 2-9 opens. If you have not yet opened a file, choose File ➪ Open to open a common browse box where you can select the file you want. The bar in the middle, called the *Seek Bar*, shows where you are in the current file. The bar represents the entire file, and the slider represents your current position. In the example in Figure 2-9, roughly one quarter of the sound has been played so far. The status bar in the lower-right corner confirms that the slider is currently located 3 seconds from the beginning of the 12 second audio.

The buttons on the control panel are designed to look like those on a standard tape or CD player, and they work the same way.

Choose the Play button to listen to the audio. As it plays, the slider moves along the Seek Bar and the status bar shows the elapsed time.

The Play button becomes a Pause button. To interrupt the audio before it finishes, choose either Pause or Stop (the next button in the margin).

The Stop button resets the slider to the beginning of the file, while the Pause button leaves it where it is. You can also drag the slider around as desired to move forward or backward.

The speaker icon mutes the player. Click it a second time to restore sound. The slider next to the speaker adjusts the volume.

Note

The other Media Player 5.2 controls work with Microsoft NetShow, explained in Chapter 8.

Keeping track of your favorites

Media Player helps you locate and open your favorite media files using the Favorites menu, shown in Figure 2-10. You can create your own folders on this menu, add files to the folders or to the menu itself, and open files for playing. The bottom part of the menu shows you whatever files and folders are located in the C:\Windows\Favorites\Media folder. Although you can tailor the menu using the Organize Favorites option, I think it's a heck of a lot easier to just use Windows Explorer to make changes to the Media folder. The changes show up the next time you open Media Player. To play a favorite song, simply select it from the Favorites menu.

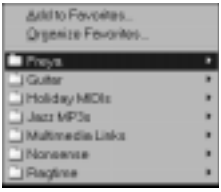

Figure 2-10 *Media Player's Favorites menu gives you quick access to your favorite media files and sites*

Tip

When you first install Media Player, the Favorites menu is loaded with links to Internet multimedia sites. To cut the menu down to a reasonable size, I suggest that you move them all into a folder like the Multimedia Links folder shown in Figure 2-10.

DirectShow (ActiveMovie)

If you have installed Microsoft Internet Explorer, you also have an ActiveX control called ActiveMovie that can play audio and video files. Although ActiveX is meant to be run by another program,

such as Internet Explorer, you can use a Windows program called Rundll32 to run it. Rundll32's entire purpose is to enable you to run modules that you couldn't ordinarily run because they are not standalone programs, such as ActiveMovie. (Windows also provides a sister program called Rundll for running 16-bit modules.) I don't want to get too deeply into Rundll32, as it's quite complex and doesn't pertain to the main topic of this book. But I think you should be aware of it because you're likely to see it pop up in some dialog boxes associated with ActiveMovie.

If ActiveMovie is installed on your system, you should be able to start it up by choosing Start ➪ Programs ➪ Accessories ➪ Multimedia ➪ ActiveMovie Control. Unlike a standalone program, you must choose a file to open immediately. The ActiveMovie window is a lot simpler than even the Media Player window. Play, stop, and pause are its only functions. The reason I bring up ActiveMovie is because Internet Explorer may have installed it as your default WAV and MIDI player. If so, when you open an audio file by double-clicking it, you'll see the ActiveMovie control instead of one of your other players.

Jet-Audio for Windows

Now let's have some fun! Jet-Audio for Windows is a 32-bit media component system from COWON that has just about every feature they could think of. It includes six independent components and a "remote control," all designed to look like a high-end stereo rack system. Figure 2-11 shows the components discussed later in this chapter: Digital Audio player, Sound Effector, and Mixer, along with the main control panel.

Note

The other components are MIDI Player (covered in Chapter 3), CD Player (Appendix C), Digital Video Player (not covered), and Remocon (remote control – not covered).

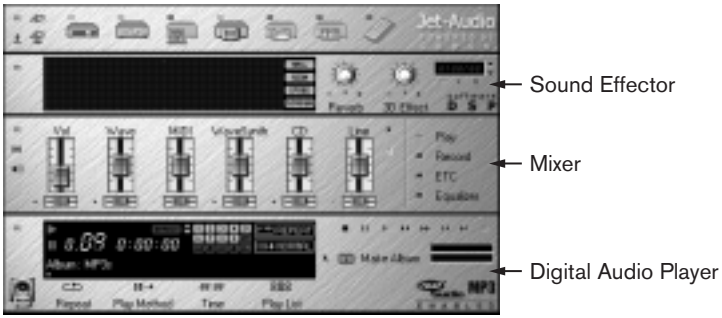

Figure 2-11 *Jet-Audio's components for playing sampled sounds include Digital Audio Player, Sound Effector (Digital Signal Processor or DSP), and Mixer.*

The fine print

Jet-Audio's shareware registration fee is $29, but you can try it for 30 days before you pay the fee. It works with Windows 95, 98, and NT. It requires a 486-DX2/66 or better CPU, but needs a Pentium 90 or higher for playing MP3 and RA files. Sixteen megabytes of RAM is recommended, along with at least 4MB of disk space.

Installing and starting Jet-Audio

To install Jet-Audio, insert the book's CD-ROM into your CD-ROM drive and open the Windows Software/Jet-Audio folder. Double-click the file named `Jet-Audio` and follow the directions on your screen. After it's installed, choose Jet-Audio from your Start menu to start it.

At the top of the Jet-Audio window is the main control panel, where you select the components with which you want to work. You open and close a component by clicking its image in the control panel. If you find the images a bit difficult to identify — me too — you can pause your mouse pointer over each one to pop up its name.

For this chapter, please open Sound Effector, Mixer, and Digital Audio Player, and close MIDI Player, CD Player, Digital Video Player, and Remocon.

Digital Audio Player

Digital Audio Player, shown in Figure 2-12, can play WAVs, MP1s, MP2s, MP3s, AIFFs, AUs, and SNDs. (It can also play RealAudio files, as you'll learn in Chapter 7.) In a sense, it enables you to create virtual CDs out of your sound files. You group them into albums and then open and play the albums. You could create albums of quiet classics, patriotic music, sound effects, and Holiday music, to suggest a few. Since your albums are stored on your hard drive, their sizes are not as limited as real CDs — you can have hundreds of files per album.

Figure 2-12 *Digital Audio Player gives you an interface for managing and playing sampled files.*

How to create an album:

1. Choose the Make Album button, shown in Figure 2-12, to open the Make Album window (see Figure 2-13).
2. Click the New Album button.
3. Type a title in the Album Title box.
4. Choose Add Files to Album to pop up a list of three choices: Add File(s), Add File(s) in Folder, or Add File(s) in Folder (Including Sub-Folders).
5. If you want to select individual files for the album, follow these steps:
   a. Choose Add File(s) to open a dialog box where you can browse for files.

   b. Drop down the Files of Type list and choose the type of sound files for this album.

   c. Select one or more files and choose Add to List. The selected songs are added to the list at the bottom of the dialog box.

   d. Repeat steps a through c until you have added all the desired files.

   e. Choose Close to close the dialog box and return to the Make Album window, where you'll see the added songs in the playlist at the bottom of the window.

6. If you want to add all the sound files from a folder, or from a folder and its subfolders, follow these steps:

   a. Choose Add File(s) in Folder or Add File(s) in Folder (Including Sub-Folders). In either case, a dialog box opens where you can locate and select a folder.

   b. Select the desired folder and then choose OK. The dialog box closes and you return to the Make Album window, where the new files appear in the playlist at the bottom of the window.

7. Repeat steps 3 through 6 until you have added all the desired files to the album.

8. You can change the order of the files in the album by dragging them up or down.

9. To describe a file, select it and then type a description in the Description box.

10. When your playlist is finished, choose OK to close the Make Album window.

Figure 2-13 *You create and edit albums in the Make Album window.*

When you're ready to open an album, choose the Select Album button, shown here. This pops up a list of your albums so you can select one. Use the controls on the right to start, pause, stop, advance to the next track, return to the previous track, and so on.

Tip

Pause your mouse pointer over any control on the player to pop up a tool tip telling you what that control does.

The status window includes a play mode indicator that you can click to toggle among these three modes:

NORMAL — *Normal mode* plays straight through the album in sequential order.

RANDOM — *Random mode* selects songs from the entire album at random.

PROGRAM — *Program mode* plays songs from a programmed playlist in sequential order.

Choose the Playlist icon, shown here, to open a window where you can create a playlist. In the window, select one or more files and choose Add to Program List. You can drag the files around in the playlist to change their order. When you choose OK to return to the main window, be sure to choose Program mode to play just the playlist.

The numbered squares, shown in the margin, are file indicators. Yellow squares indicate files on the current playlist, if there is one. Pausing your mouse pointer over a square pops up the name of the file. Click a square to start that file. When an album contains more than 15 files, you can scroll the numbered squares up and down with the arrows. If there are scores of files in the album and you don't want to be bothered scrolling through them, click the track number indicator to pop up a complete list of the album where you can select the one you want to start with.

The status window also shows the current repeat mode, which you click to toggle among these three modes:

No repeat

Repeat the current file

Repeat the entire playlist or album

Sound Effector

Sound Effector, shown in Figure 2-14 is a digital signal processor (DSP) that creates the effect of four different environments: room, stage, hall, and stadium. Select an environment by clicking the appropriate button. Hall mode is selected in Figure 2-14. You adjust the effect with the Reverb and 3D knobs. Click the small red button under each knob to turn the effect on and off. Then click the + and - signs to adjust it.

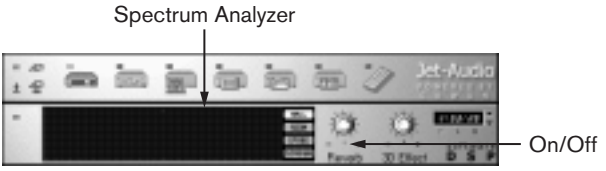

Figure 2-14 *Sound Effector is a DSP with a twist.*

The spectrum analyzer window — which works with MPEG files, MIDIs, and CDs — graphically displays the audio spectrum as the file plays. It is a display tool only; you can't adjust it or use it to adjust the sound.

Sound Effector also includes a sleep timer. It turns off whatever is playing after the designated time interval. The sleep timer shown in the margin has 58 minutes and 42 seconds to go. To set the sleep timer, click the red button to turn it on with the default time of one hour. Then click the up and down arrows to adjust the time. Click the blue arrow to start it.

Mixer

Use Mixer to adjust the volume and balance of the various players to which you're listening. If your system is capable of playing or recording multiple sounds — perhaps you can listen to sampled sounds, MIDIs, and CDs at the same time — you can adjust the mix with this device. Suppose you're listening to a favorite MP3 album while you surf the Web, and you don't want any MIDI background files on Web pages to disturb your music. You can turn down or mute the MIDI controls to suppress any MIDI music.

To adjust the volume of a device, drag the vertical slider up and down. To adjust the balance between speakers, drag the horizontal slider left and right. To mute a device, click the tiny red button next to the balance button. It glows bright red when it is muted. To adjust all the sound at once, use the Vol control on the left. Muting

a device is different from pausing or stopping it in that the file continues to play, even though you can't hear it.

Tip

The small speaker icon to the left of the Vol control is an attenuation (ATT) switch, which turns all sound down but not off, so you can make a phone call or talk to someone. Click it again to restore the former volume.

For MPEG files, choose Equalizer to change the main display from a volume mixer to a six-band graphic equalizer, as shown in Figure 2-15. Here also you drag the sliders to adjust the balance between the six ranges, boosting low tones, perhaps, or damping the mid-to-high range. The ATT switch is available in this view too so you don't have to switch back to the mixer to hush the volume.

Figure 2-15 *Equalizer works on MPEG files just like the equalizer on a stereo system.*

SoundApp for Macintosh

SoundApp 2.5 by Norman Franke is a Macintosh sound player and converter. You can use it to listen to many different sound types and to convert sound resources to other types of files for sharing with others. You can also convert other types of files into sound resources. It enables you to work with individual sound files as well as playlists. It provides extensive AppleScript support so that you can incorporate SoundApp into your AppleScript solutions.

SoundApp can play System 7 snd resources and SND files, AU, WAV, AIFF, AIFC, MIDI, MOD, and several other formats. It can convert to System 7, sound suitcase, AIFF, AU, and other formats. (The Readme file that comes with SoundApp lists all the formats it

can handle.) It can also change the sample rate, compression mode, channels, and sample size of a sound file without changing its format.

The fine print

SoundApp 2.5 is freeware. Feel free to use it and share it with your friends. It requires Mac OS 7.0 or higher and Sound Manager 3.1 or higher. It also needs QuickTime 2.0 or higher if you want to be able to play QuickTime movies and to convert to and from QuickTime formats. SoundApp is located in the SoundApp folder in the Macintosh Software folder on the book's CD-ROM. Copy it to your hard drive and double-click it to install it.

Playing files with SoundApp

Playing a sound is as easy as dropping the sound file on the SoundApp icon. You can drop several files at once to queue them up for playing. You can continue to drop more files on the icon while a sound is playing. If you drop a folder on the icon, SoundApp plays all the sound files in the folder and its subfolders.

SoundApp's status window, shown in Figure 2-16, shows you which sound is playing, how far along it is, and technical info about the file. You control the player with these keys:

. (period)	Stop all files and close list
→	Skip to the next sound
←	Return to the previous sound
spacebar	Pause and resume
;	Stop playing after current file finishes
+	Increase volume
-	Decrease volume

Tip

If you have trouble remembering the control keys, choose Options ➪ Show Controls to display a CD player-style control panel. To view technical information about a file without actually playing it, select the file and choose File ➪ Get Info.

Figure 2-16 *SoundApp's status window provides information about the sound currently being played.*

How to convert a sound file:

1. Use the options on the Convert menu to select the format, encoding, sampling rate, channels, and bit depth for the converted file.

Tip

To create a sound suitcase, choose Convert ➪ Format ➪ Sound Suitcase. Sound suitcases are explained in Chapter 5.

2. To convert files using the selected settings, hold down the Shift key while you drop one or more files on the SoundApp icon. A dialog box opens so you can indicate where you want to save the converted files.
3. Select or create a folder and choose Save.

Tip

Use Convert ➪ Save Settings to save your current settings with a name such as "AIFF settings" or "For Windows users." The name you assign appears at the bottom of the Convert menu where you can click it to restore those settings.

How to create a playlist:

1. Choose File ➪ New Play List to open the playlist dialog box, shown in Figure 2-17.
2. Drag as many files as you wish into the playlist dialog box. (Or choose File ➪ Add to add them to the playlist.)
3. Drag the files around in the playlist to change their order.
4. Choose File ➪ Save to give the playlist a name and save it in a folder (or on the desktop).

Figure 2-17 *You create and access a playlist with this window.*

Choose File ➪ Open to open a playlist. In the playlist window, choose Play All or Convert All to play or convert the entire list. (Enable Shuffle and/or Repeat as desired.) Or you can select one or more individual files and choose Play, Convert, or Info.

Tip

Check out the Options ➪ Preferences and SoundApp Help for other things you can do with SoundApp.

What's on the CD-ROM

In the Windows Software folder you'll find these programs:

CD/Spectrum Pro is a rack system similar to Jet-Audio but with fewer features. I included it because it has one fun feature that Jet-Audio doesn't have: it includes two amazingly good screen savers that dance in time to whatever music you're playing. I love it!

Clock Talk is a clock that announces the time. It includes alarm, timer, and stopwatch functions.

Digital Peace plays soft environment WAVs (rain forest, forest stream, and ocean continuously while you work. It's a nice change of pace.

Media Blaze helps you manage your sound files when they're starting to overwhelm you.

What's Next?

MIDIs don't record sampled sounds, they create music from scratch via your computer's sound board. Chapter 3 describes MIDIs and other synthesized music formats.