

## Appendix B: Producing for Multimedia and the Web

In addition to enabling regular music production, SONAR includes a number of features to help you create music for multimedia and the Internet. You can import a video file into a SONAR project and then compose music for it. You can also export video files along with your synchronized music. And you can export your music files to a number of popular Internet audio file formats, including Windows Media Format and MP3. In essence, these capabilities round out SONAR's full set of features, allowing you to use the program for most (if not all) of your music production needs.

### Importing Video Files

If you're ever asked to compose music for film, video games, or some other visually based task, SONAR's File > Import > Video command will come in very handy. Using this command, you can include an AVI, MPEG, Windows Media, or QuickTime video in your project and edit the existing audio tracks or add new ones.

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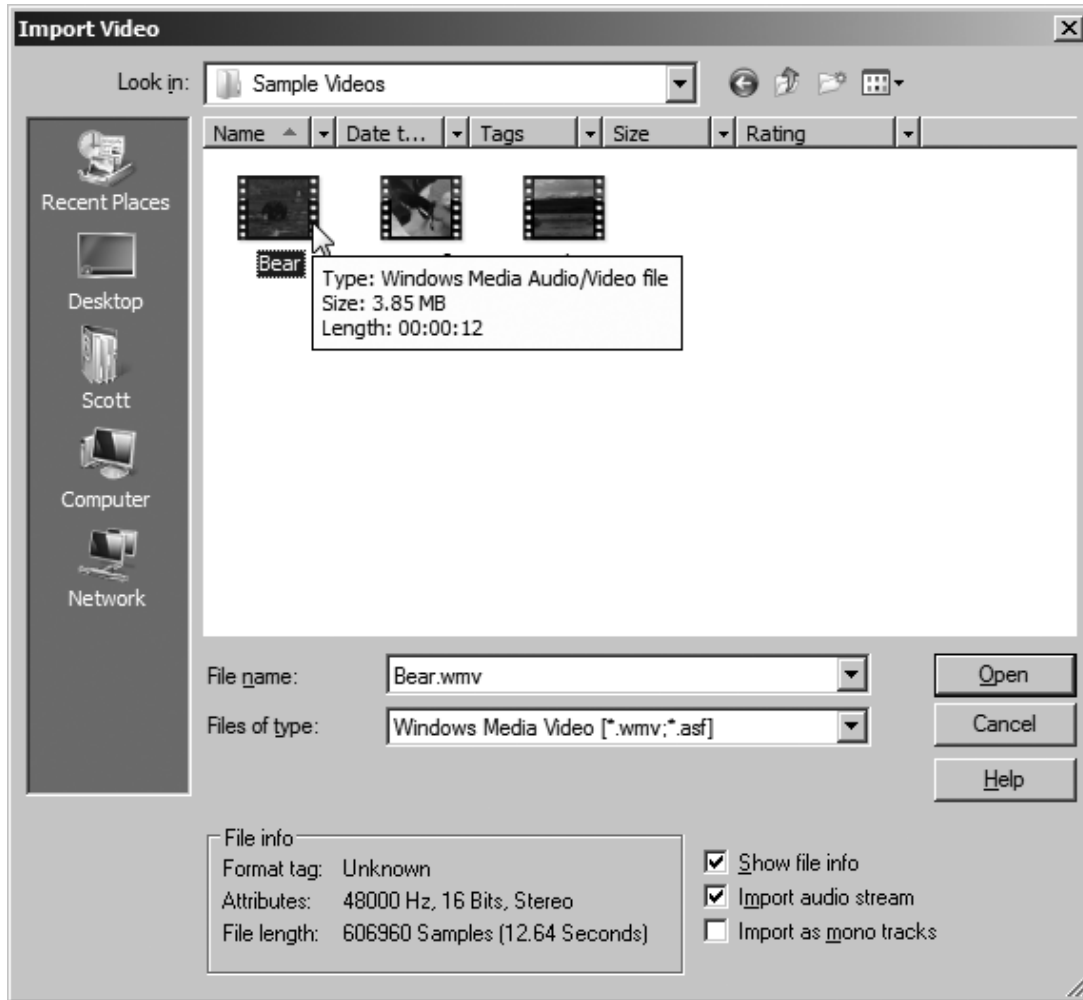
**Video File Formats** AVI, MPEG, Windows Media, and QuickTime are special digital video file formats specifically designed for working with video on computers. Each format uses its own unique compression scheme to achieve the highest possible video quality in the smallest possible file size. Audio Video Interleaved (AVI) is a Windows-based format, which means that any computer running Windows can play AVI files. Windows Media is also a Windows-based format, but it is used more for posting video on the Internet. QuickTime is a Mac-based format, which means that any Macintosh computer can play QuickTime files. With special player software, a computer running Windows can play QuickTime files, too, which is why SONAR supports the format. Motion Pictures Expert Group (MPEG) is an advanced format that is used for DVD video as well as Internet video.

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To add a video file to your project, follow these steps:

1. Choose File > Import > Video to open the Import Video dialog box (see Figure B.1).
2. Choose the type of video file (AVI, MPEG, Windows Media, or QuickTime) that you want to add from the Files of Type list and then select a file.

## 678 SONAR 8 Power!: The Comprehensive Guide



**Figure B.1** Here you can select a video file to add to your project.

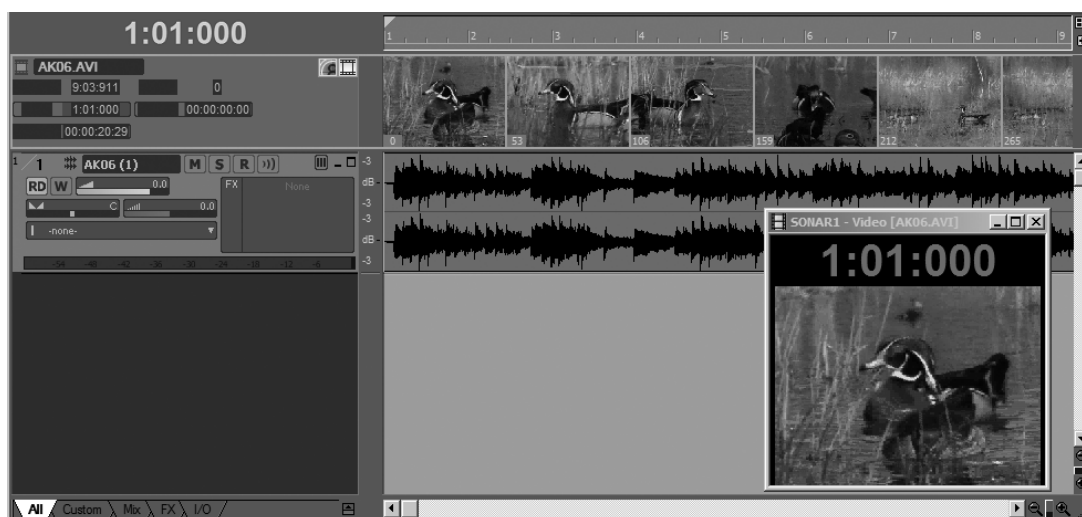
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**Importing Problems** If you have trouble importing a video file, it may be that your computer doesn't have the proper video *codec* installed. A codec (coder/decoder) is a special piece of software that allows Windows to code and decode different types of video data. Each different type of video data requires a different codec. Most often, you can solve this problem by simply downloading and installing the latest version of the Windows Media Player. The WMP is a free download, and it includes many different types of codecs in its installation. Get the latest WMP at [www.microsoft.com/windows/windowsmedia/](http://www.microsoft.com/windows/windowsmedia/).

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3. If the video file contains audio data, you can import that data by activating the Import Audio Stream option at the bottom of the dialog box. If the audio is in stereo, you can import it as a single stereo audio track or a pair of audio tracks containing the left and right channels of the stereo signal by deactivating or activating the Import as Mono Tracks option, respectively.
4. Click Open.

SONAR will load the video file and display the first video frame, along with the current Now time in the Video view. You'll also see a new section added to the Track view called the *Video Thumbnails pane*, which displays small frames of the video data, letting you see what is happening in the video at different points in time. If you imported audio along with the video, the new audio track(s) will be inserted into the project below the video strip so that you can see how the video and audio data are synchronized (see Figure B.2).



**Figure B.2** SONAR displays the video using both the Video view and the Video Thumbnails pane.

When you initially play the project, the video will start playing back at the beginning, but you can change where the video starts by adjusting the start time, as well as the trim-in and trim-out times. Using these parameters, you can adjust when the video will start and end playback. To change the parameters, follow these steps:

1. Right-click in the Video view or Video Thumbnails pane and select Video Properties to open the Video Properties dialog box.
2. On the Video Settings tab, input the new values for the start time, trim-in time, and trim-out time. The start time uses measures, beats, and frames for its value. The trim-in

## 680 SONAR 8 Power!: The Comprehensive Guide

and trim-out times use hours, minutes, seconds, and frames, just as with SMPTE time code.

3. Click OK.

The video will start and stop playing back within the project at the times you specified. You can adjust a number of other parameters for the Video view, and you access all of them via the right-click menu. For instance, if you want to remove the video from your project, just select the Delete command. If you want to temporarily disable video playback, select the Animate command. You can even change the size of the video display by using the Stretch Options command.

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**Exiting from Full-Screen Mode** If you choose Full Screen under the Stretch Options command, the video display will cover the entire computer screen, and you will not be able to access SONAR with the mouse (although the keyboard commands will still work). To get back to the normal display, just press the Esc (Escape) key.

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SONAR provides some additional settings on the Render Quality tab of the Video Properties dialog box. These include Preview Mode, Frame Rate, and Video Size. Basically, these parameters determine how you will view the video during playback in SONAR; they do not alter the video data itself. If you activate the Preview Mode option, SONAR will display the video using slightly lower quality. This lets SONAR use more processing power for audio playback and less for video playback, and it comes in handy if your PC is having a hard time playing both data formats at once. The Frame Rate parameter provides a similar functionality. Enter a lower frame rate for lower-quality video and to ease the strain on your PC. Using the Video Size parameters, you can adjust the size of the video during playback in SONAR. This essentially lets you preview how your video will look at a different size, but it doesn't actually change the size of the video when you export it.

## Exporting Video Files

After you've imported a video file into your project and either edited its existing audio or added new audio tracks to it, you can export the file so other people can see and hear your work. Follow these steps to export the file:

1. Choose File > Export > Video to open the Export Video dialog box (see Figure B.3).
2. Type a name for the file in the File Name field. Then choose a file type, depending on what kind of video file you would like to save: AVI (Video for Windows), Windows Media, or QuickTime.
3. Click Save, and the video file will be saved with its original parameter settings. If you want to dabble with the method of compression used for the file or with other video-

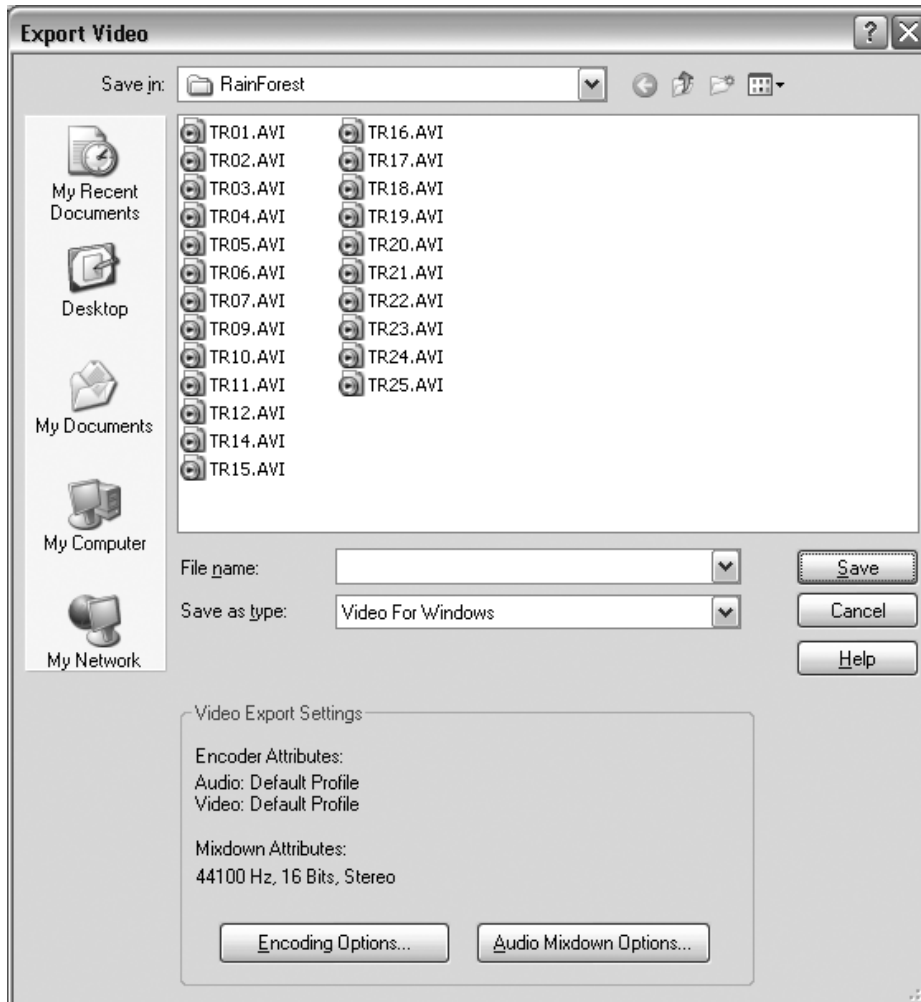


Figure B.3 You can use the Export Video dialog box to export video files.

related parameters, you can set them by clicking the Encoding Options and Audio Mixdown Options buttons in the lower half of the dialog box.

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**Digital Video for Dummies** For more information about multimedia and video-related parameters, you should consult a book dedicated to the subject. Don't let the title fool you; *Digital Video for Dummies, Fourth Edition* is very informative: [www.amazon.com/exec/obidos/ASIN/0471782785/compmedia](http://www.amazon.com/exec/obidos/ASIN/0471782785/compmedia).

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## 682 SONAR 8 Power!: The Comprehensive Guide

When you save your video file, any audio tracks in your project will be mixed down and saved along with the video.

### Exporting Audio Files

In addition to exporting your audio tracks as WAV files for the purpose of burning to CD, you can also export them in a variety of other formats, including Windows Media and MP3 files, for distribution over the Internet or for other purposes.

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**Surround Sound** This section of the book discusses exporting stereo music projects. If you are working on a surround-sound project, please refer to Chapter 14 for more information on working with and exporting surround-sound audio.

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**Converting Your MIDI Tracks** If you want to include the music from the MIDI tracks of your project in your exported audio files, read the “Converting Your MIDI Tracks” section of Chapter 13.

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### Audio File Formats

Just as different physical methods of storing audio were developed over time for different applications and reasons (vinyl records, tapes, compact discs, and now DVDs, and so on), different computerized methods for storing audio data have been developed as well. These methods come in the form of audio file formats. An audio file format is simply a specification stating the structure of how audio data in a file should be stored. For example, one audio file format may specify that the bits and bytes of audio data should be ordered in a certain manner, and another format may specify that the data be ordered in an entirely different manner. Of course, this is a very simplified explanation, but what it boils down to is that the same audio data can be stored in a variety of different ways.

Why do you need more than one audio file format? Because you may want to use your audio data for different tasks, such as playback on a CD, music or sound effects in a video game, a film or video soundtrack, or even for downloading over the Internet. Each task may require that your audio data be saved in a different way. For example, audio for a CD is usually saved in the WAV format and must be stored using a bit depth of 16 and a 44.1kHz sampling rate. But for downloading over the Internet, you would use a different format because with an uncompressed WAV file at 16 bit, 44.1kHz, every minute of stereo audio consumes about 10MB of disk space. Factor in that most songs average around four minutes, and that’s a lot of data to download.

In addition to providing different bit depths and sampling rates, some audio file formats also offer data compression. This means that by saving to certain file formats, you can shrink the size

of your audio files for use in low-bandwidth situations, as mentioned earlier with the Internet. Sometimes the compression doesn't affect the quality of your audio, but most of the time it does. With compression, you have to find a good compromise between the quality of your audio data and the size of the file you want to end up with.

Different audio file formats also exist because of the many different computer platforms that have been created over the years, such as the Amiga, Macintosh, NeXT, and the Windows PC. To provide you with as much flexibility as possible, SONAR allows you to import/export a large number of the existing audio file formats.

### ***MP3 Audio (.MP3)***

More than likely, you've heard of the MP3 audio file format. It's the most popular music format on the Internet. News about the format has even made it into the mainstream media because the format is being used to post illegal copies of music all over the Web. Why is the format so popular? Because it compresses your audio data with about a ratio of 12:1, and the quality of the audio is very close to CD quality. If you plan on posting your music on the Web, use the MP3 format for maximum audio player compatibility.

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**How MP3 Works** For more information about the MP3 format, check out the HowStuff-Works site at [www.howstuffworks.com/mp3.htm](http://www.howstuffworks.com/mp3.htm).

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### ***Microsoft Wave and RIFF Wave (.WAV)***

Like MP3, Wave is another very popular audio file format that you've probably heard about. Wave is a Windows-based format, which means that any computer running Windows can play Wave files. The format supports a lot of different types of audio data, including 8-bit, 16-bit, 32-bit, and even 64-bit monophonic and stereo audio. The Wave format also provides support for a huge number of different compression schemes, including many of the different ADPCM variants via the Microsoft ACM (Audio Compression Manager). The ACM is a part of Windows that works transparently, providing access to any compression schemes that are installed on your computer. Windows ships with a number of different schemes, and you probably also have a number of others from audio product manufacturers. If you're working with Windows, then you probably use the Wave format for about 90 percent of your audio work. Most sound and music software on the Windows platform support this format. Wave files have a .WAV file extension.

You'll notice, however, that SONAR provides two Wave selections: WAV (Microsoft) and Wave (RIFF). Use Wave (RIFF) if you're exporting your audio to be used on an audio CD. Use WAV (Microsoft) if you would like to use a compression scheme. When you choose WAV (Microsoft) as your export format, SONAR provides an Extra Encoding Options dialog box. From the drop-down list, you can choose the encoding scheme you would like to use.

### ***Broadcast Wave (.WAV)***

You probably noticed one additional Wave file format in the SONAR export list: Broadcast Wave. This file format is similar to the other Wave formats, but in addition to the audio data, the file contains the following embedded information: Description (256 max. text characters), Originator (author of the file), Originator Reference (unique identifier created by SONAR), Origination Date (date file was created), Origination Time (time file was created), and Time Reference (SMPTE timestamp for the start of the file). The Description and Originator can be set by you in SONAR's File > Info window using the Title and Author fields, respectively. The other information is automatically added to the file by SONAR. The Time Reference is the most important parameter because it tells you exactly when the file starts, thus allowing you to align the beginning of the audio at the proper time in a project. A common use for Broadcast Wave files is remote recording. Most remote recording devices save to Broadcast Wave. This allows you to use a portable device to do your location recording and then bring the Broadcast Wave files back into SONAR for assembling at the proper time codes. Broadcast Wave files also have a .WAV extension. SONAR's Import Audio dialog box will allow you to tell what type of Wave file you are bringing into a project.

### ***Windows Media Advanced Streaming Format (.WMA)***

Windows Media is a special audio file format that creates streaming audio files for transmission over the Internet. The format is a Windows-based format, which means that any computer running Windows (with the Windows Media Player installed) can play Windows Media files. Windows Media supplies sophisticated proprietary compression features for making it possible to transmit audio data over the Internet in real time. This means that you can start listening to the data as it downloads rather than having to wait for the whole file to be stored on your computer's hard drive. And the compression does affect the quality of your audio data. Windows Media files have a .WMA extension. Surf on over to [www.microsoft.com/windowsmedia](http://www.microsoft.com/windowsmedia) to find out more about this format.

### ***Audio Interchange File Format AIFF (.AIF)***

This is the standard file format for saving audio data on the Macintosh. If you ever need to transfer audio files between the PC and the Mac, this is the format you should use. Files in this format may or may not also contain a Mac-Binary header. If a file of this type doesn't contain a Mac-Binary header, it probably has .AIF for a file extension, which is the type that is supported by SONAR.

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**Mac-Binary Header** Files on the Macintosh are stored with what is called a Mac-Binary header. This is a small section of information stored in the beginning of a file that identifies the type of file to the Mac OS (operating system) and other applications. This is how the Mac can tell whether a file contains text, graphic, or audio data, and so on. If you want to learn more about how files work on the Mac, go to [www.apple.com](http://www.apple.com) and check out all the technical information available there.

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***AU Sun/NeXT (.AU)***

Like the Macintosh AIFF, the Sun/NeXT audio file format is also a standard format, but it's for the NeXT and Sun Sparc station computer systems rather than the Mac or PC. This format supports many types of audio data, including 8-bit and 16-bit, monophonic and stereo. It also provides support for a variety of compression schemes. If you download a lot of audio files from the Internet, you'll file many of them with the .AU file extension. Most of these files are 16-bit audio that have been compressed to 8-bit u-Law data for transferring over the Internet or for use in Java applications.

***Free Lossless Audio Codec (.FLAC)***

Similar to MP3, FLAC uses compression to create small file sizes, but unlike MP3, the quality of the audio is not affected. FLAC is known as a lossless audio file format, which means there is no loss of quality when audio is saved to this format, even though the file size is smaller than if you had saved the same audio data to the WAV file format. This is a nice way to store audio data in a limited amount of space without having to worry about affecting the quality, but keep in mind that not all applications support this format. So you still need to store your data in another format if you want it to be accessible from within some other audio applications. In addition, because it is a lossless format, FLAC can't create the same small file sizes as something like the MP3 format. So either way there is a tradeoff between file size and audio quality. Go to <http://en.wikipedia.org/wiki/Flac> for more information about FLAC.

***RAW File (.RAW)***

RAW audio format files (as the name states) contain plain PCM audio data. The data is not saved in a specific format (like those mentioned earlier). When you save a RAW file, the audio data is saved in a "plain brown wrapper," so to speak. It's pure audio data. However SONAR does allow you to choose the PCM format.

***Sound Designer 2 (.SD2)***

SD2 is a product-specific audio format for use with the Sound Designer 2 software application on the Macintosh. It only supports PCM audio, and the files have an .SD2 extension. Like AIFF, this format can be useful when you need to port your audio to the Mac.

***Sony Wave64 (.W64)***

If you work with very large projects in SONAR, you may have run into the 4GB file size limit imposed by the Microsoft Wave and RIFF Wave formats. The Sony Wave64 format does away with this limit and allows you to save audio files of any length. In addition, SONAR now supports this format internally when recording audio tracks so that if your project starts to reach the 4GB limit, SONAR will automatically use the Sonar Wave64 format instead of RIFF Wave.

## 686 SONAR 8 Power!: The Comprehensive Guide

### **Apple Core Audio File (.CAF)**

This file type is Apple's answer to the 4GB file size limit imposed by other audio file formats, but instead of being specific to Windows, this one is for the Macintosh operating system. You can use this file format when exchanging large audio files with another studio that uses Mac computers.

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**Audio File Format FAQ** If you want to dig even deeper and find more in-depth information about these (and other) audio file formats, go to <http://sox.sourceforge.net/AudioFormats.html> to check out the Audio File Format FAQ (Frequently Asked Questions).

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### **Preparing Audio for the Internet**

Because the MP3 and Windows Media formats use compression to reduce the size of audio data so that it's easier to download over the Internet, they sometimes affect the sound of your audio. You can compensate for these unwanted changes in quality by following a few simple processing procedures before you convert your files.

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**Mix Down Tracks First** Instead of processing your existing tracks, it is a good idea to mix down all your tracks to a single stereo audio track using the procedures outlined in Chapter 13. That way you can keep all your original tracks intact and just process the single stereo track for exporting as MP3 or Windows Media.

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### **Removing DC Offset**

Before you process your audio data, you should remove any DC offset that might be present in it. What is DC offset? Well, depending on the quality of your sound card, your audio might not be recorded as accurately as it should. Many times an electrical mismatch can occur between a sound card and the input device (especially with less-expensive sound cards). When this happens, an excess of current is added to the incoming signal, and the resulting audio waveform is offset from the zero axis (a line running horizontally through the center of a waveform that represents no sound or zero amplitude). This is known as *DC offset*. To remove DC offset:

1. Select your mixed down stereo audio track.
2. Choose Process > Audio > Remove DC Offset to open the Remove DC Offset dialog box.
3. Choose the Remove DC Offset preset.
4. Click OK.

### ***Applying Equalization***

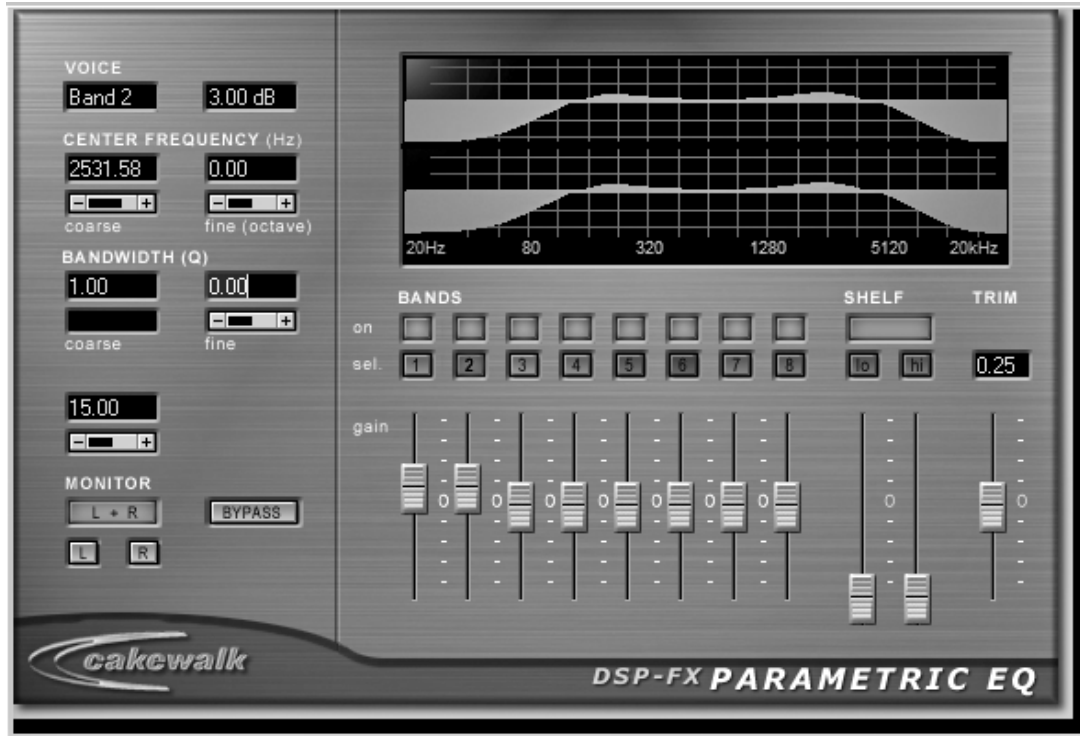
Equalize your audio, but keep in mind that you might lose most of the high-end and extreme low-end content when you export the audio to one of the compressed file formats. It might take some experimentation, but cutting the low frequencies (below 60Hz) and the high frequencies (above 10kHz) is a good place to start. This will help reduce any of the anomalies that can occur during the file format compression. To compensate for the frequencies being cut, you can boost some of the low frequencies that are still intact, around 200Hz. You can also boost the important content in your audio, such as vocals (if there are any). Here's how it's done:

1. Select the stereo audio track that you created from bouncing down all the other existing tracks.
2. Choose Process > Audio Fx > Cakewalk > FxEq to open the FxEq dialog box.
3. Choose the None preset to assign all the parameter settings to their default values.
4. Activate the Lo Shelf option. Set its Center Frequency (Coarse) to around 60Hz and then set its gain to -15 dB (the lowest setting). Doing this will cut out most frequencies below 60Hz.
5. Activate the Hi Shelf option. Set its Center Frequency (Coarse) to around 10,000Hz and then set its gain to -15 dB (the lowest setting). Doing this will cut out most frequencies above 10kHz.
6. Set the Gain on the first parametric band to +3.0 dB and then set its Center Frequency (Coarse) to around 200Hz. Also, set its Bandwidth (Coarse) to 1.00. You can experiment with how much the frequencies are boosted, but I wouldn't go any higher than +6.0 dB.
7. Set the Gain on the second parametric band to +3.0 dB and then set its Center Frequency (Coarse) to around 2,500Hz. Also, set its Bandwidth (Coarse) to 1.00. This will boost the mid-range frequencies around 2,500Hz. You can experiment with how much the frequencies are boosted, but I wouldn't go any higher than +6.0 dB.
8. Leave all the other parameters set to their defaults. When you're finished, the FxEq dialog box should look similar to Figure B.4.
9. Click the Audition button to preview your audio before you make any changes. If you hear any clipping or distortion, try lowering the gain on one or both of the parametric bands.
10. Click OK.

### ***Applying Dynamic Processing***

In addition to altering the frequency content of your audio, converting to MP3 or Windows Media can reduce the dynamic (amplitude) range, making your audio sound flat or dull.

## 688 SONAR 8 Power!: The Comprehensive Guide

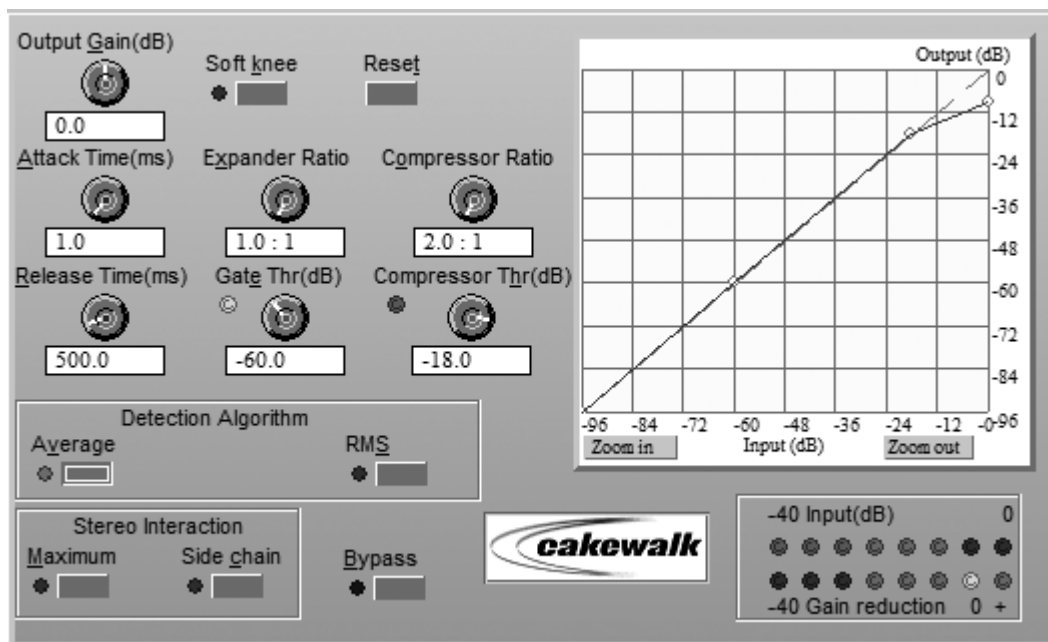


**Figure B.4** Use the FxEq function to equalize your audio in a single process.

Adding a bit of dynamic processing before conversion will give you some control over your final signal levels, rather than leaving them to chance. To accomplish this, you need to use SONAR's FX Compressor/Gate effect.

1. Select the stereo audio track that you created from bouncing down all the other existing tracks.
2. Choose Process > Audio Fx > Cakewalk > FX Compressor/Gate to open the FX Compressor/Gate dialog box.
3. Choose the Flat preset to assign all the parameter settings to their default values.
4. Set the Attack Time parameter to 1ms (millisecond).
5. Set the Compressor Ratio parameter to 2.0:1. You can experiment with the Compressor Ratio if you'd like. A good ratio range is between 2.0:1 and 4.0:1, but it might vary with some audio material, so you'll have to use your own judgment. But be careful—too much dynamic processing can add unwanted artifacts and make your audio sound dull and lifeless.

6. Set the Release Time parameter to 500ms.
7. Set the Compressor Thr (Threshold) parameter to  $-18$  dB.
8. Leave all the other parameters set to their defaults. When you're finished, the FX Compressor/Gate dialog box should look similar to Figure B.5.



**Figure B.5** Use the FX Compressor/Gate effect to apply dynamic processing to your audio.

9. Click the Audition button to preview your audio before you make any changes.
10. Click OK.

### **Normalizing Your Audio**

The last step is to normalize your audio. Normalization raises the amplitude of an audio signal as high as it can go without causing clipping or distortion. This guarantees that your file will use the maximum amount of digital resolution and amplitude available. It also ensures that you'll be using the highest possible volume when exporting your audio for the Internet, which helps mask low-level noise and possible compression artifacts. But keep in mind that normalization is not always necessary, so you might want to try exporting your audio with and without normalization. To normalize your audio:

1. Select the stereo audio track that you created from bouncing down all the other existing tracks.

## 690 SONAR 8 Power!: The Comprehensive Guide

2. Choose Process > Audio > Normalize to open the Normalize dialog box.
3. Choose either the Normalize to -0.5 dB or the Normalize to -1.0 dB preset. In this case, you don't want to normalize to 0 dB (or 100 percent) because the MP3 and Windows Media conversion processes don't always handle 0 dB signals very well. They can sometimes "choke" on such a high amplitude signal, so it's best to leave a small amount of dynamic room for the conversion process to work its magic.
4. Click OK.

Now your audio is ready to be exported to Windows Media or MP3.

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**Other File Formats** Exporting to MP3 or Windows Media requires additional steps. All other formats either export directly or simply allow you to choose a compression format.

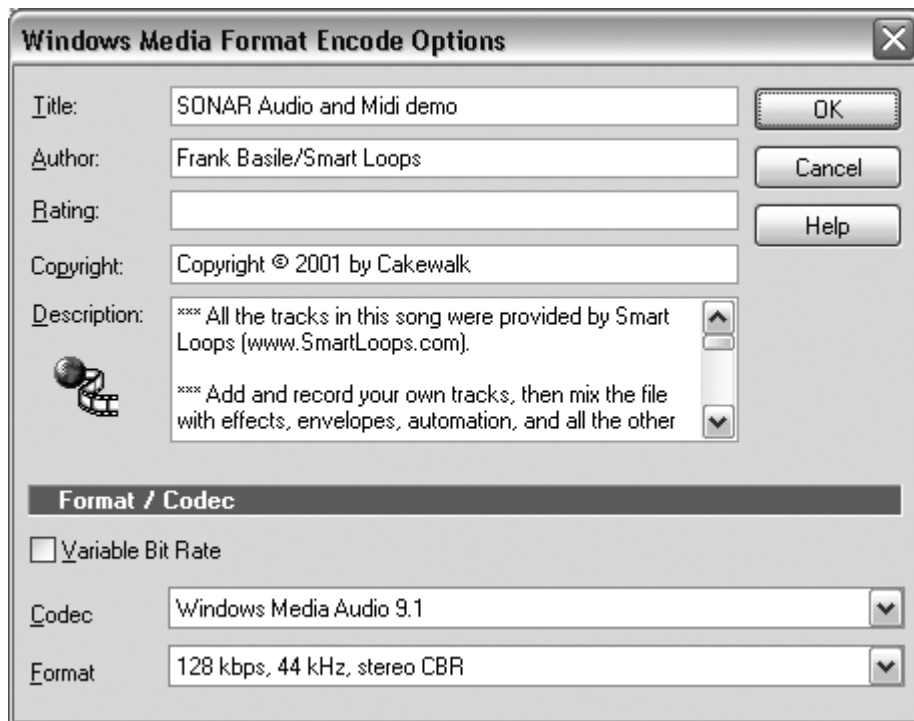
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### Exporting to Windows Media

To mix and save your audio tracks as a Windows Media file, just follow these steps:

1. Select the track(s) you want to export in the Track view.
2. Choose File > Export > Audio to open the Export Audio dialog box.
3. From the Look In list, select the folder in which you want to save the Windows Media file. Then type a name for the file in the File Name text box.
4. Choose the type of file from the Files of Type list. In this case, use the Windows Media option.
5. Select the Channel Format you want to use. You can mix your audio tracks to a single stereo file, two mono files (that, when combined, create a stereo file), or a single mono file.
6. For the Source Category parameter, choose the Entire Mix option.
7. Leave all the Mix Enables options activated to ensure that your new Windows Media file will include the same effects and mix automation as you used on the original audio tracks. I also recommend activating the 64-bit Engine option if you want to use the best processing that SONAR provides.
8. Choose the Sample Rate. If you're exporting for the Internet, you'll probably want to use 44.1kHz (44100), but that is just an example.
9. Choose the Bit Depth. Again, for the Internet, you'll probably want to use 16-bit, but that's not a strict rule.

10. Set the Dithering. You usually want to set this to None, unless your project is recorded in 24-bit (or higher) and you are exporting to a lower bit depth (like 16-bit). In that case, you want to use dither and Pow-r 3 setting usually gives the best results.
11. Click Export to open the Windows Media Format Encode Options dialog box (see Figure B.6).



**Figure B.6** In the Windows Media Format Encode Options dialog box, you can adjust specific parameters for the Windows Media file.

12. Enter title, author, rating, copyright, and description information for the Windows Media file.
13. Choose a Codec for the encoding process. A codec is a special piece of coder/decoder software code that specifies what type of audio file will be created. In this example, you are encoding a Windows Media Audio 9.1 file, but there are other versions of the Windows Media format available. If you have more than one Windows Media codec installed on your computer, you will have a choice here. Most of the time, you will want to use the latest version.
14. Choose a format for your Windows Media file. The Format parameter chooses the audio quality for your file. The higher the quality, the better the file will sound, but

## 692 SONAR 8 Power!: The Comprehensive Guide

the bigger the file size will be. The standard for online audio is 128kbps. This produces a near-CD quality audio file.

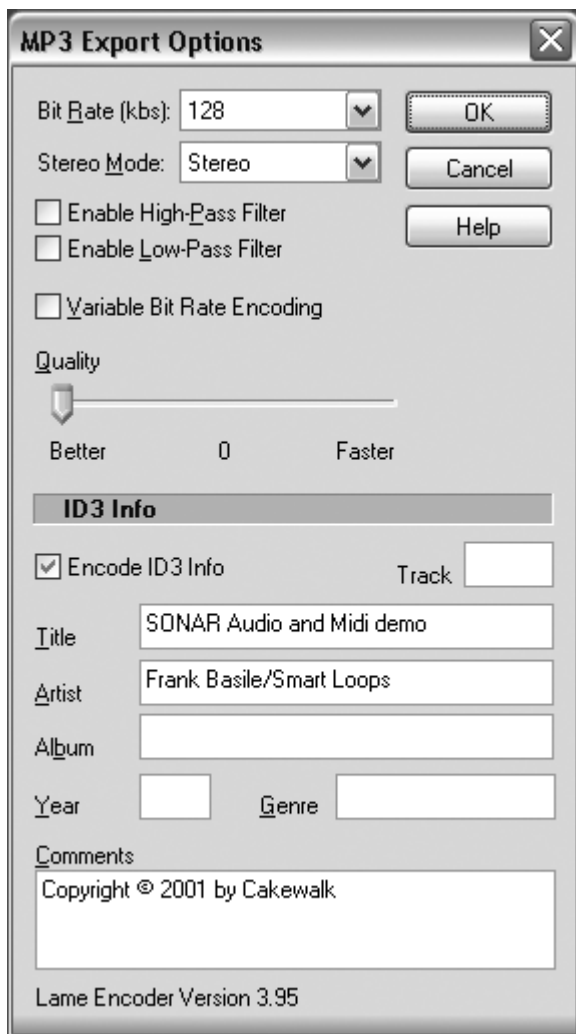
15. Click OK, and your audio will be saved as a Windows Media file with a .WMA extension.

### Exporting to MP3

To mix and save your audio tracks as an MP3 file, follow these steps:

1. Select the track(s) you want to export in the Track view.
2. Choose File > Export > Audio to open the Export Audio dialog box.
3. From the Look In list, select the folder in which you want to save the MP3 file. Then type a name for the file in the File Name text box.
4. Choose the type of file from the Files of Type list. In this case, use the MP3 option.
5. Select the Channel Format you want to use. You can mix your audio tracks to a single stereo file, two mono files (that, when combined, create a stereo file), or a single mono file.
6. For the Source Category parameter, choose the Entire Mix option.
7. Leave all the Mix Enables options activated to ensure that your new MP3 file will include the same effects and mix automation as you used on the original audio tracks. I also recommend activating the 64-bit Engine option if you want to use the best processing that SONAR provides.
8. Choose the Sample Rate. If you're exporting for the Internet, you'll probably want to use 44.1kHz (44100), but that is just an example.
9. Choose the Bit Depth. Again, for the Internet, you'll probably want to use 16-bit, but that's not a strict rule.
10. Set the Dithering. You usually want to set this to None, unless your project is recorded in 24-bit (or higher) and you are exporting to a lower bit depth (like 16-bit). In that case, you want to use dither and Pow-r 3 setting usually gives the best results.
11. Click Export to open the MP3 Export Options dialog box (see Figure B.7).
12. Here, you can select a bit rate and stereo mode for your file. Bit rate chooses the audio quality for your file. The higher the quality, the better the file will sound, but the bigger the file size will be. The standard for online audio is 128kbps. This produces a near-CD quality audio file.

The Stereo Mode parameter is pretty straightforward. Choose Stereo to produce a stereo file; choose Mono to produce a mono file. There is also a Joint Stereo mode,



**Figure B.7** In the MP3 Export Options dialog box, you can adjust specific parameters for the MP3 file.

which lets you create smaller MP3 files by comparing the left and right audio signals and eliminating any material that is the same in both channels. Using this option usually degrades the audio quality, though, so I advise against it unless you really need smaller MP3 files.

13. The Enable High-Pass Filter and Enable Low-Pass Filter options apply some last minute EQ to your MP3 file. Since you've already applied EQ to your file (as previously discussed in this appendix), you'll probably want to leave these options deactivated.

## 694 SONAR 8 Power!: The Comprehensive Guide

14. Set the Variable Bit Rate Encoding option. Activating this option tells SONAR to vary the bit rate during the encoding process. Sometimes this can yield a higher-quality sound and a smaller file size, but it depends on the material you are encoding. You'll have to experiment with this setting to see if it is worth using. Personally, I usually leave this option deactivated.
15. Use the Quality parameter to adjust the time it takes to encode your MP3 file. If you set the slider toward the left, encoding will go slower; set it to the right, and encoding will go faster. But the more time you spend on encoding, the better the quality of the file. I recommend you leave the slider set all the way to the left. Encoding a file (depending on its size) doesn't usually take very long anyway.
16. If you want to include some information about the file, activate the Encode ID3 Info option. Then you can enter title, artist, album, year, track number, comments, and genre information.
17. Click OK, and your audio will be saved as an MP3 file with an .MP3 extension.