

SurCode

Surround Sound Software Encoder

DVD Professional

Version 1.0



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1 Overview

This version of SurCode converts your 5.1 Surround Sound files to DTS format, for use in DVD Video or for making Surround Sound audio CDs.

SurCode can accept the 6 master soundfiles in either a.WAV or .AIFF format. SurCode outputs a ".dts" file, a ".dtp" file, or a ".wav" file.

If you are producing Video DVDs, you will use SurCode along with whatever DVD-authoring software you have. SurCode will output DTS-encoded soundfiles that you will then input into your DVD-authoring software.

2 The SurCode main screen

Figure 2-1 shows the SurCode main screen.

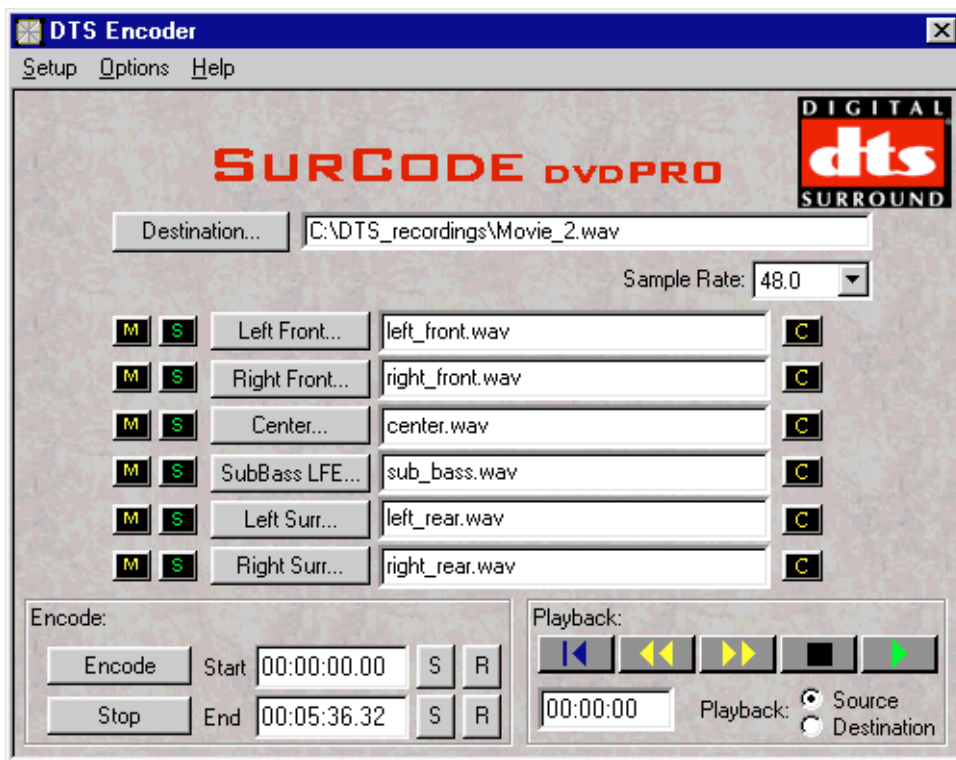


Figure 2-1 The SurCode main screen

3 Encoding procedure

- 1) Tell SurCode where to find the 6 soundfiles of your Surround Sound master.
- 2) Tell SurCode where to place the encoded soundfile.
- 3) Select encoder options.
- 4) Hit the "Encode" button.

This is the entire procedure for most recordings that you will encode. Monitoring options are - - you can monitor the pre-encoded soundfiles (see section 9, *Monitoring*), and you can set different start and end times (see section 8, *Encoding*).

4 Sample rate selection

SurCode DVD Professional allows you to choose between two sample rates (see Figure 4-2). The 44.1 sample rate is used for making audio CDs, and the 48.0 sample rate is used for DVD-Video.

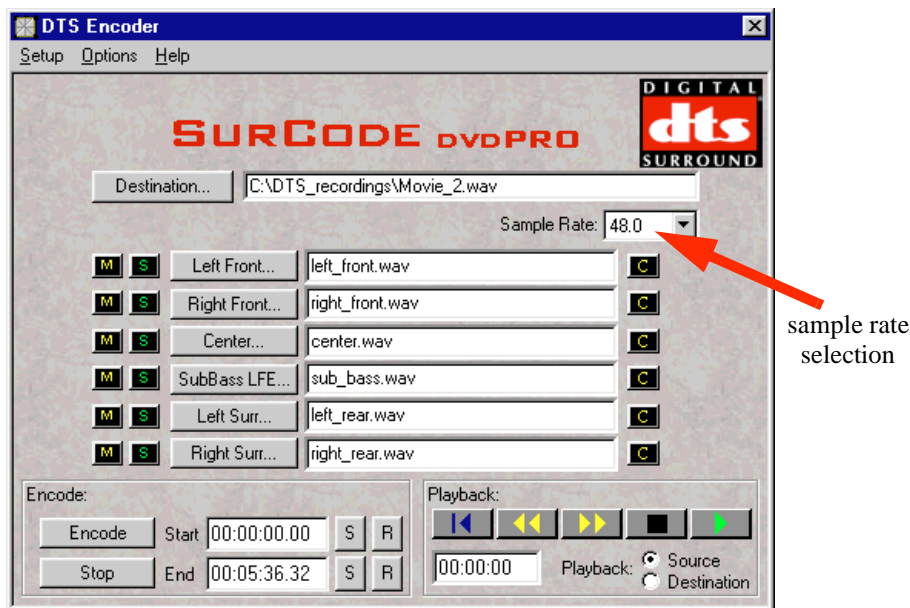


Figure 4-2

5 Selecting the soundfiles to be encoded

It is necessary to specify the soundfiles for encoding (see Figure 5-3).

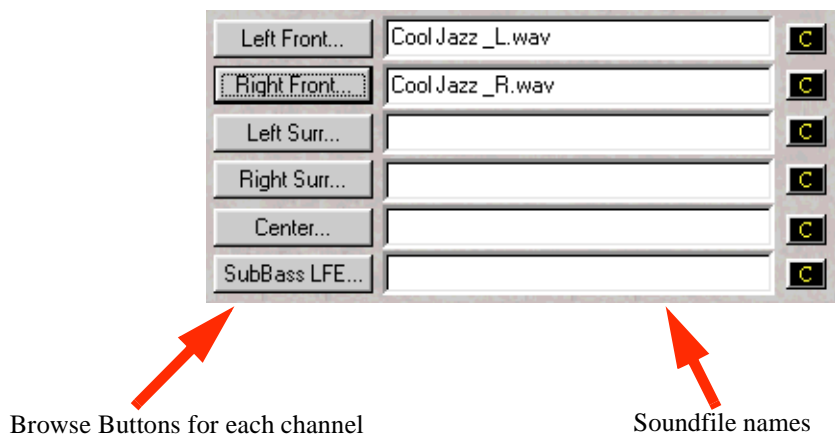


Figure 5-3

To select a soundfile for one of the 6 channels, click on the button on the left that corresponds to the channel you want to load. This will bring up a browse window (see Figure 5-4).

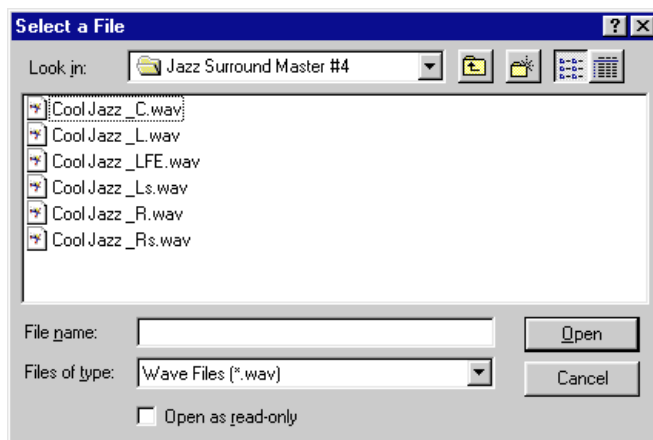


Figure 5-4

Navigate to the directory that has your soundfiles, and double-click on the soundfile that you've chosen for that channel. The filename that you've chosen will now appear to the right of the browse button.

You will usually specify soundfiles for all 6 channels if you are encoding 5.1 Surround. If you don't specify a filename for a channel, SurCode will encode silence into that channel.

6 Selecting an output file for encoded sound

You must tell SurCode where to put the encoded file when encoding is complete (see Figure 6-5).

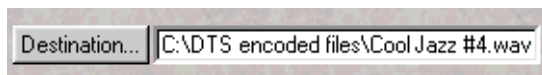


Figure 6-5

First, click on the button labeled "Destination". This brings up the browse window (see Figure 6-6).

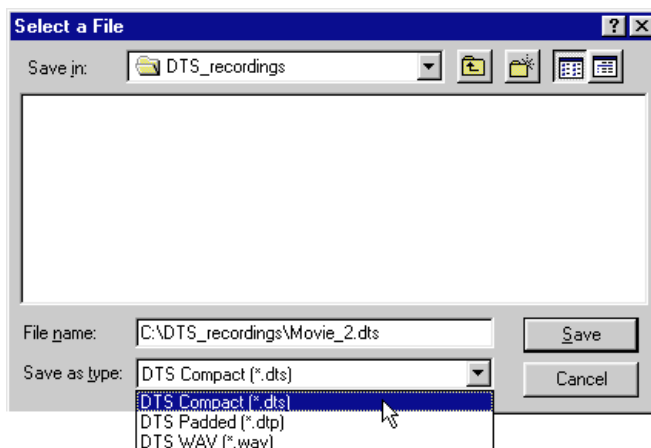


Figure 6-6

Browse to the directory you want to save the encoded file in (shown in the window at the top labeled "Save in:"), and type a filename into the window labeled "File name:".

Next, select the file type, in the window labeled "Save as type". You can choose the DTS Compact format (".dts"), the DTS Padded format (".dtp"), or the DTS WAVfile format (".wav").

Then hit the "Save" button. The directory pathname and filename will now appear in the SurCode window next to the "Destination" button.

7 Encoding Options

If you are encoding for DVD-Video (48 kHz), there are some encoding options you must choose. To view the encoding options, go to the Options menu and select "Encoder Options" (see Figure 7-7).

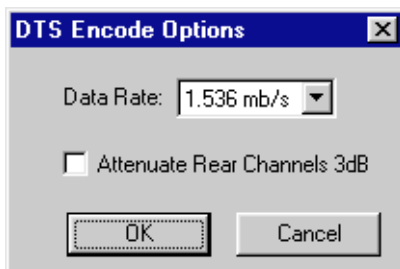


Figure 7-7

7.1 Data Rate options

For DVD-Video, there are 2 data rate options (see Figure 7-8).

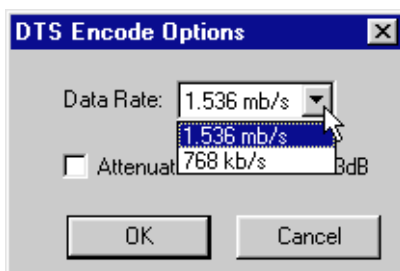


Figure 7-8

7.2 The Attenuate Rear Channels 3 dB Option

The original standard for Surround Sound in movie theaters was to attenuate the rear channels by 3 dB. So, in mixing for theaters, studios have their rear channel monitors attenuated 3 dB.

Home theaters, on the other hand, have the rear channels at unity gain. So, a mix that was made with the rear monitors attenuated 3 dB will have rear channel levels that are 3 dB too high for home theater. This option takes care of that difference. So, in general, you use this option if creating a DVD-Video using a Surround master that was originally mixed for movie theaters.

8 Encoding

When the six input files and the output (Destination) file have been selected, you are now ready to encode.

Just click on the "Encode" button (see Figure 8-9).

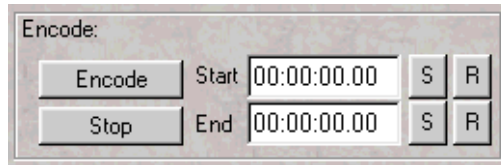


Figure 8-9

A progress meter will tell you when the process has completed.

You can cancel the encoding process at any time by clicking on the "Stop" button.

It is not necessary to encode the entire input surround master. For instance, you may want to trim a few seconds of silence off the beginning. You can use the "Start" and "End" windows to trim the soundfile before encoding (see section 9.1, *Using the transport to trim an encoded file*).

9 Monitoring

You can monitor the input files using SurCode. If you are encoding Surround for audio CDs, you can also monitor the encoded files, provided that you have an outboard DTS decoder, plus a S/PDIF output on your soundcard.

Figure 9-10 shows the recommended setup for monitoring.

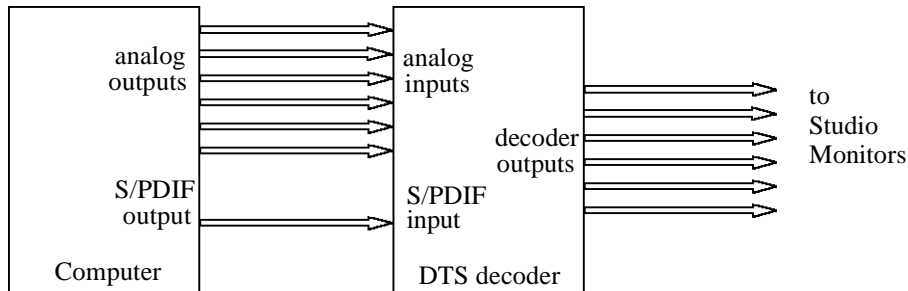


Figure 9-10

The analog outputs from the computer allow you to monitor the input soundfiles, and the S/PDIF output allows you to monitor the DTS-encoded soundfile.

Figure 9-11 shows the monitoring section of the SurCode interface.

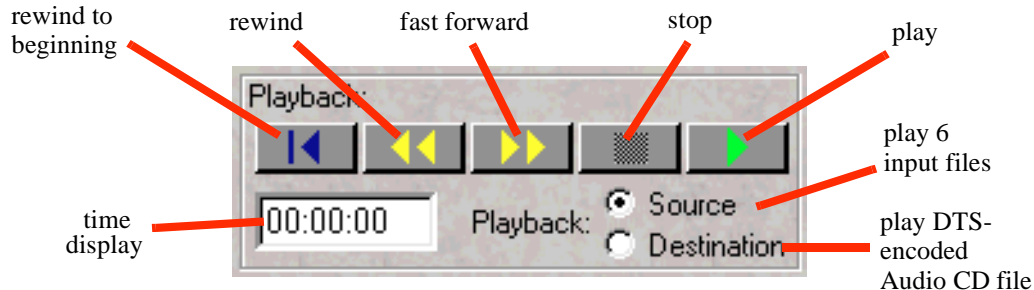


Figure 9-11

The monitor section has a 5-button transport control. When you click on the play button, playback begins at the time location shown in the time display window. The time display keeps a running indication of where you are in the soundfile.

You can play the 6 input soundfiles. The outputs are routed to 3 Windows .wav stereo output devices, typically analog outputs of a soundcard.

If you have encoded for audio CD, you can play the destination (DTS-encoded) soundfile. It's output is routed to a Windows .wav digital output device, usually an S/PDIF output. Most decoders accept both the 6 analog inputs, as well as S/PDIF coax or optical. Usually the decoder will

automatically sense when DTS-encoded material is present, and switch between the encoded and unencoded inputs.

When you are playing from the 6 input soundfiles, you can solo or mute any of the 6 channels. The solo/mute buttons are to the left of the input channel browse buttons (see Figure 9-12).

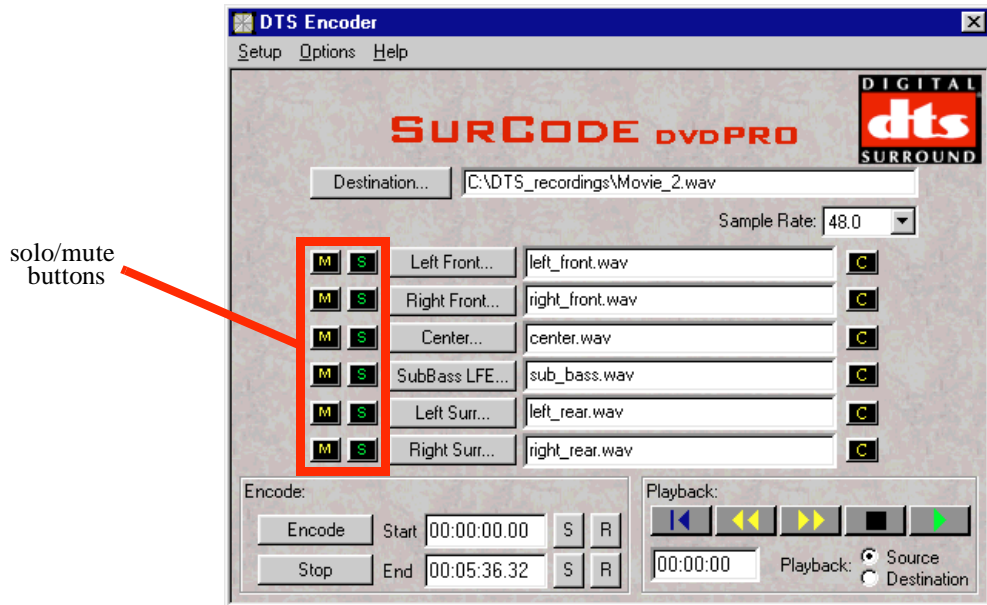


Figure 9-12

It is necessary for you to tell SurCode what soundcard outputs you want to play through (see section 10, *Device options*).

9.1 Using the transport to trim an encoded file

The monitoring section makes it easy to trim up a file for encoding.

The start and stop times for the encoder default to the beginning and end of the soundfile. To trim a file, you will want to change these times.

There are two buttons next to the start time, and also next to the stop time. These buttons are labeled "S" and "R" (see Figure 9-13).

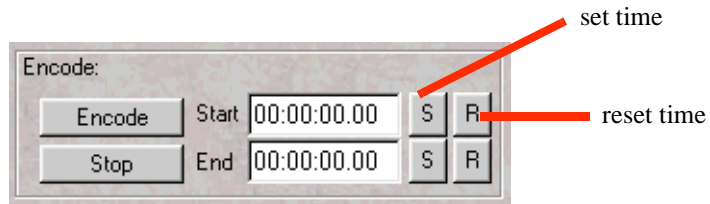


Figure 9-13

When you click on "S", the time that is showing in the monitor time display is copied into the encoder time window next to the button. When you hit the "R", the time is reset to the default (which is zero for the Start time, and is the end-of-recording time for the End time).

Say that there is some unnecessary silence at the end of the recording. You can listen to the recording, and hit the "S" button on the End time when you hear the recording ending. The time can transfer either on-the-fly or with the transport stopped. The encoder will now trim the recording to the new end point, eliminating the unnecessary silence on the end.

10 Device options

The "Device Options" window can be accessed through the Options menu. This is where you tell SurCode which soundcard outputs to use for monitoring (see Figure 10-14).

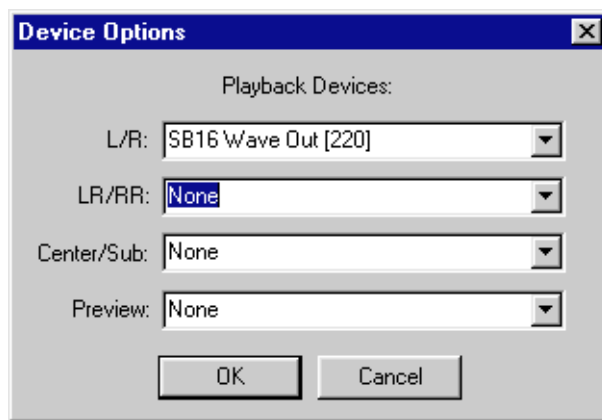


Figure 10-14

Windows wave devices work in stereo pairs. So you will need to assign 3 wave drivers to have 6 outputs to monitor your original 5.1 surround master. Usually you will connect these to analog outputs, although you might also connected them to ADAT, TDIF, or other digital outs.

If less than 3 wave drivers are specified, SurCode will mix the source files to the available wave drivers for playback.

The last item in the dialog is for assigning an output to play the encoded soundfile. This should be assigned to a S/PDIF output to feed to a decoder.

To assign an output, click on the down-arrow at the right side of the window. A drop-down menu will list the outputs available in your system. Just click on the output that you want, and it will be assigned.

11 Appendix 1: Burning an Audio CD

If you have encoded for audio CD, you can burn your encoded soundfiles to CD using any program that can create an *audio* CD. Here, we will use the very popular program "Adaptec Easy CD Creator" as an example (see Figure 11-15).

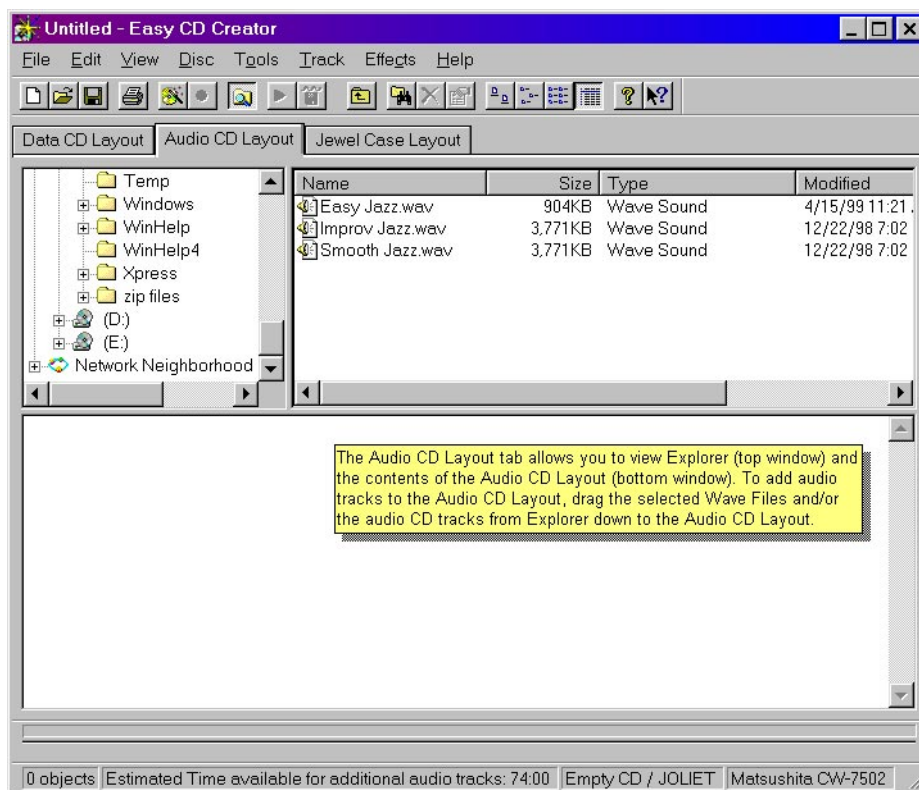


Figure 11-15

This is the main screen. This is where you tell the program that you are making an audio CD (rather than a data CD) by selecting the tab labeled "Audio CD Layout". Next, go to the

upper-left window and select the folder that contains your soundfiles. The list of soundfiles in the folder will appear in the upper-right window.

Next we will select the soundfiles to burn onto the CD (see Figure 11-16).

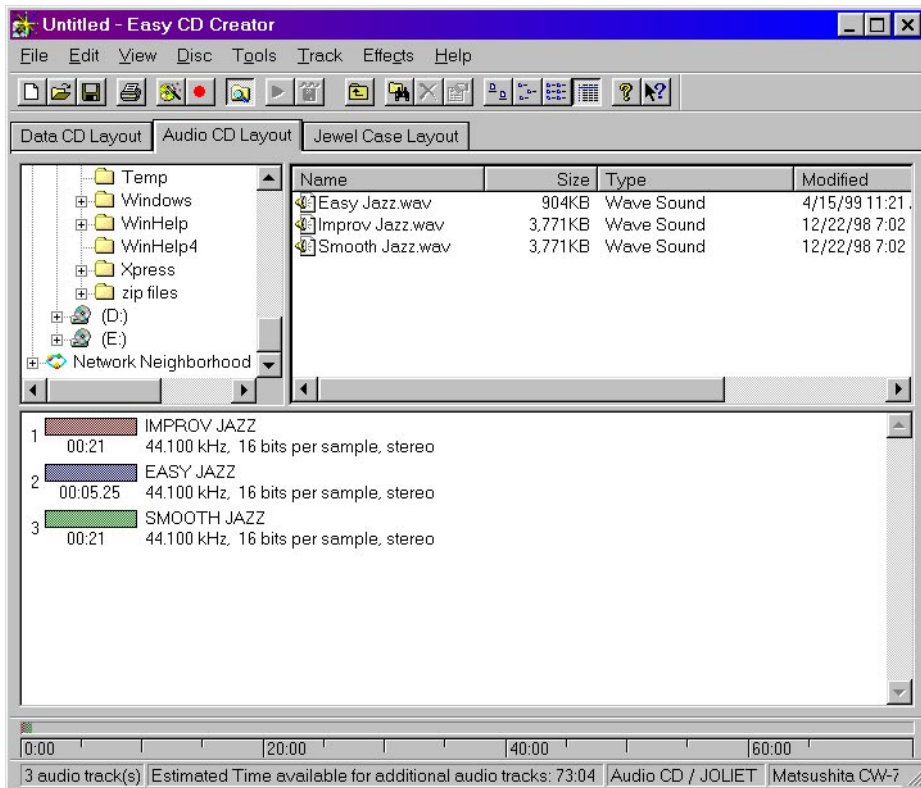


Figure 11-16

You select the soundfiles by dragging them from the upper-right window and dropping them into the bottom window. PLEASE NOTE: The order in which they appear on the list is the order in

which they will play on the CD. For instance, when this CD is playing "EASY JAZZ", the CD player will be showing "02" on it's track indicator.

When you have completed your list, you are ready to burn the CD (see Figure 11-17).



Figure 11-17

Just click on the button with the big red dot, above the "Audio CD Layout" tab. This brings up the record properties dialog (see Figure 11-18).

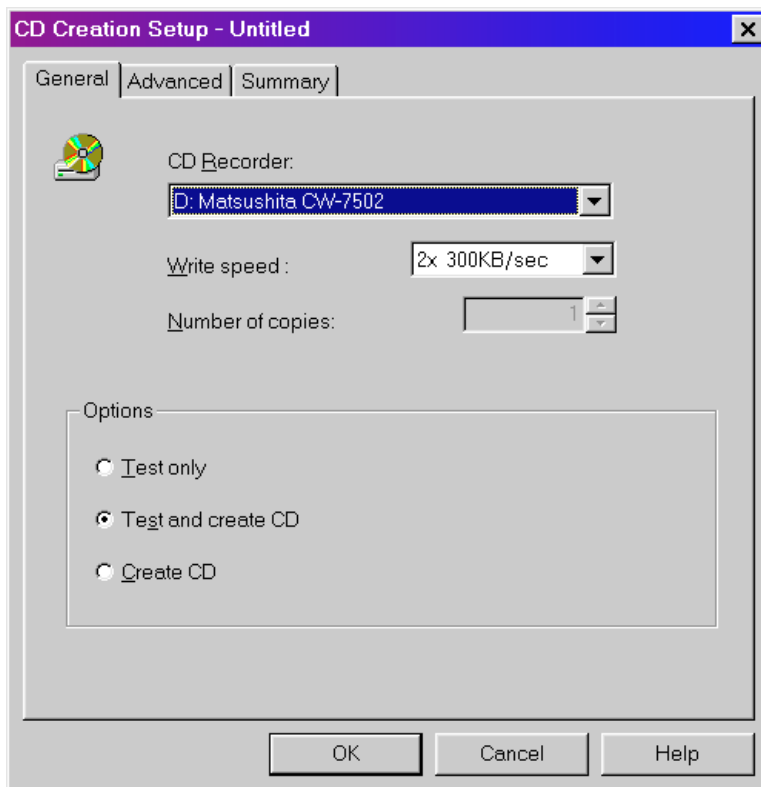


Figure 11-18

Click on "Test and Create", and then click on "OK". Easy CD Creator will now burn the CD. When it is done, it will pop up this window (see Figure 11-19).

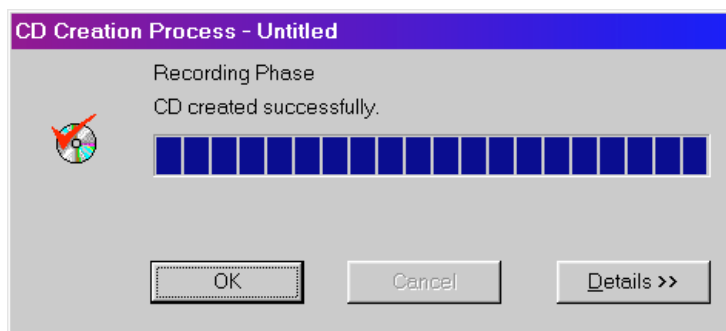


Figure 11-19

You now have a Surround Sound CD that you can play!

12 Appendix 2: Playing a DTS Surround Sound CD

To listen to encoded CD's, you will need a decoder, or a receiver with a built-in DTS decoder. It is possible to buy a consumer decoder that includes DTS for street prices starting around \$250.

To use the decoder, connect the Digital Out of your CD player to the Digital In of the decoder. You can use either RCA coax or optical, depending on what outputs you have on your CD player (see Figure 12-20).

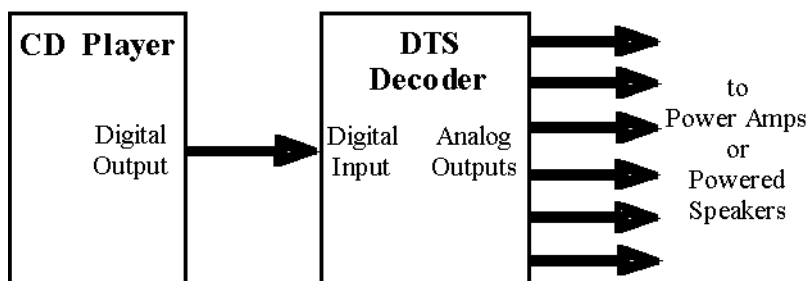


Figure 12-20

The decoder automatically detects DTS signals coming from a Surround CD, and decodes the Surround signal. If it is a stereo CD, the decoder automatically switches to stereo mode.

You can also play a CD from a DVD player. The only problem is that most DVD players WON'T play CD-R's. So, if you want to burn the CD's yourself, they are not likely to play in a DVD player. The one brand of DVD player that we have found to consistently play CD-R's is Pioneer (as of the writing of this manual).

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| Package Media Type | Bit Rate | Sampling Rate | Channel Format |
|--------------------|-----------|---------------|----------------|
| CD | 1.234Mb/s | 44.1kHz | 5.1 Channel |
| DVD Video | 1.536Mb/s | 48kHz | 5.1 Channel |
| DVD Video | 768Kb/s | 48kHz | 5.1 Channel |

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