



DVD-Audio Authoring System  
**Version 2.0**

**Owner's Manual**

Updated June 2004

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# **discWelder CHROME II**

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Please Read This Manual First!**

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# **1 Introduction to discWelder CHROME II**

Welcome to discWelder CHROME II, the professional-level, high-resolution DVD-Audio authoring program from Minnetonka Audio Software. With CHROME II, you can create ultra-high-fidelity DVD-Audio discs that will allow you to export the authored disc for commercial replication. You can also play your “one-off” DVD-R discs on any commercially-available DVD-Audio player that supports DVD-R/RW. You can import surround and stereo tracks, in Linear PCM, MLP and DSD-Encoded formats, in different bit- and sample-rates, onto the same disc. CHROME II is easy to use and a great value.

Please keep the following points in mind:

**YOU MUST REGISTER THIS PRODUCT WITHIN 14 DAYS OF INSTALLATION!** We realize it's not fun, but if you don't, it won't run! Seriously, folks, it's how we do business, so please register. We've given you four ways to register - e-mail, fax, phone, or the mail. It's easy - simply follow the on-screen prompts, either when you install the program, or when you open it again (within 14 days of install, that is).

There are several new features in this version that require you to carefully read this Manual, or to already know what you're doing (“Custom Menu” is a good example). New Features in CHROME II are shown with **Blue Headers**.

We have changed the System Requirements for CHROME II. You now need Windows 2000 or Windows XP, a monitor with a minimum screen resolution of 1024 X 768, and more free hard drive space (see below).

Note that several new features use very CPU-intensive processes, such as Auto-Mirror and DSD Import/Convert. Therefore, the time necessary to burn the disc can be substantial - the various encodes, re-formats, and conversions all require processing time. This is especially true with a slower computer.

Make sure that you assign the discWelder Cache to a hard disc with a LOT of free space - 20 to 40 GB would be just fine. The Temp files created during the above-mentioned processes can be very large and very numerous.

CHROME II needs up to 15 minutes of closing time once the disc is written (as do all DVD-A authoring programs), because a DVD has up to 4.7 billion bytes of data to be scanned in order to properly format the directory, lead-in, and lead-out areas of the disc.

CHROME II can import a “VIDEO\_TS”, which is the name given to a folder with an externally-authored video presentation (which can include the same stereo and/or surround audio mixes and still images that are in the DVD-Audio zone). A disc with the imported “VIDEO\_TS” folder and the “Audio\_TS” folder is a “Universal” DVD, with both DVD-V and DVD-A sections - the replicated disc can then be played on any DVD player. This feature requires a separate video authoring program to create the “VIDEO\_TS”.

For all our Macintosh-based friends, CHROME II will import AIFF files (but not SDII files) as well as WAV, MLP and DSD files, and can do so on a simple network between Macintosh and PC computers. WAV, AIFF, MLP and DSD files can also be imported from CD-ROM discs or IEEE-1394 (Firewire) drives.

Please author responsibly (read the Manual!). Thanks



Lil' Sparky

# 2 The discWelder CHROME II Main Screen

Figure 2-1 shows the discWelder CHROME II Main Screen.

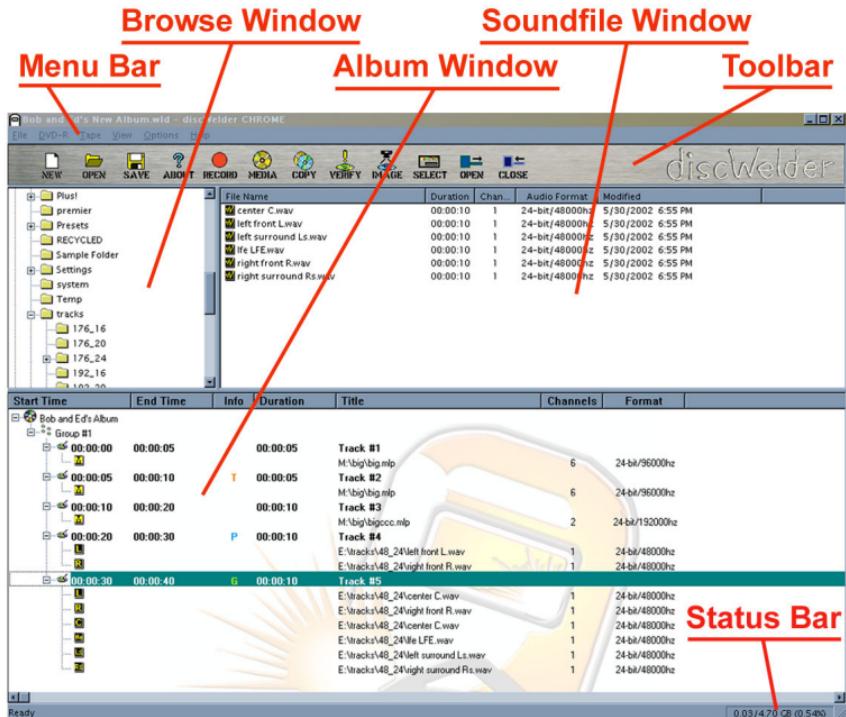


Figure 2-1

## 2.1 The Menu Bar

These pull-down menus give you access to all the functions of discWelder CHROME II. For more information, see the “Menu Items” section.

## 2.2 The Browse Window

Use this window to navigate to the folder that holds your soundfiles.

## 2.3 The Album Window

The Album window is where you assemble the playlist of soundfiles that will make up your DVD-Audio disc.

## 2.4 The Soundfile Window

This is where you view the soundfiles you will use to make up your playlist in the Album window.

## 2.5 The Toolbar

The Toolbar gives you one-click access to the most commonly used menu items. For more information, see the “Toolbar” section.

## 2.6 The Status Bar

The Status Bar in the lower right-hand corner of the Main Screen shows the total current size of the Album in gigabytes (GB) and percent of total disc (media) capacity. The text turns red if the current album size exceeds the selected disc capacity. To set the disc capacity, Right-Click on the Status Bar and toggle the 3.95GB, 4.70GB or 8.54GB size of the media you will use to burn your disc (see Figure 2-2).

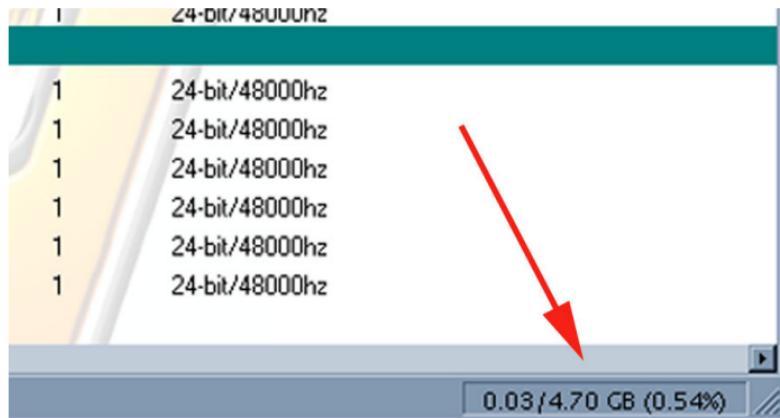


Figure 2-2

# 3 Creating an Album

Understanding the basic structure of a DVD-Audio disc makes it much easier to create an Album.

## 3.1 The structure of a DVD-Audio disc

Figure 3-1 shows the basic structure of a DVD-Audio disc.

**Album - one per DVD-Audio disc**  
**Group - up to 9 per Album**  
**Track - up to 99 per Group**  
**Soundfiles - up to 6 per Track**

Figure 3-1

Each DVD-A disc can have one album. In that one album can be up to 9 groups. In each group can be up to 99 tracks. Names can be assigned to the Album, Groups, and Tracks.

## 3.2 Universal DVD discs

A “Universal” DVD disc (sometimes referred to as a “Hybrid” DVD disc or a DVD-A/V disc) is a DVD that contains both a video zone (DVD specifications refer to this as the “VIDEO\_TS”) and an audio zone (referred to as the “AUDIO\_TS”). That means that the replicated Universal DVD disc will play in any DVD player, whether it is a DVD-V or a DVD-A/V player (most manufacturers make units that play both DVD-V and DVD-A).

discWelder CHROME II creates the AUDIO\_TS and also allows you to import a VIDEO\_TS authored in a DVD-Video authoring program. CHROME II can alternately create the VIDEO\_TS automatically (this exclusive feature is called “Auto-Mirror” - for more details see the Auto-Mirror section). “Import VIDEO\_TS” can be found by clicking on the “File” menu, then “Album Properties”, then “Import VIDEO\_TS”. The “Use Mirrored VIDEO\_TS” selection to enable “Auto-Mirror” may be found in “Album Properties” also.

**Note:** If the soundfiles in the VIDEO\_TS are in 5.1 surround format, they MUST be encoded into either Dolby Digital (AC-3) files (or

optionally DTS files) to be included in the VIDEO\_TS. The audio content is typically encoded from the same source files as those in the AUDIO\_TS, although they may be encoded from different source files if desired. The encoded soundfiles (called "streams") are multiplexed together with the encoded (MPEG2) video streams (along with Menu structures and other elements) into the final VIDEO\_TS that will be imported into CHROME II.

The VIDEO\_TS MUST include a stereo Linear PCM (16- or 24-bit, 48kHz) track OR a stereo or surround Dolby Digital track, or both, depending on the amount of space available and the wishes of the producer. A DTS-Surround encoded track is optional, and the authoring program for the VIDEO\_TS must be able to import and multiplex the DTS-encode stream.

### 3.3 Assembling an Album

To Create an Album, go to the File menu and select "New". The bottom window will now be ready to start a new Album (see Figure 3-2).

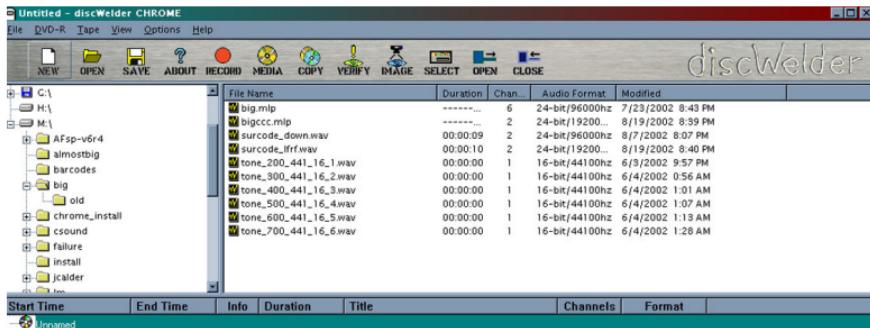


Figure 3-2

The first line of the Album is where the Album is named. To give the Album a name, Right-Click on this line. A menu will appear (see Figure 3-3).



Figure 3-3

Select "Rename Album". A window will appear on the line that lets you enter an Album name (see Figure 3-4).



Figure 3-4

When you hit the Enter key, the new Album name will appear in the first line (see Figure 3-5).



Figure 3-5

### 3.3.1 Creating Groups and Tracks

The first level under Album is Group. You must create a Group before you can add Tracks. You can create a Group two ways: drag the Left Front soundfile down into the Album window (or Double-Click on it) and CHROME II will automatically create a new Group and place the selected soundfile in the Left Front channel of the first Track; or you can

Right-Click on the Album line and select "New Group". CHROME II will add a new Group line under the Album line (see Figure 3-6).

Start Time	End Time	Info	Duration
Bob and Ed's Album			
Group #1			
00:00:00	00:00:00		00:00:00
L			
R			
C			
H			
Ls			
Rs			

Figure 3-6

Also, discWelder CHROME II automatically adds the first Track line (the default format is 5.1 Surround unless changed - see Section 3.3.7) under the new Group line.

To name the new Group, Right-Click on the Goup line, and select "Rename Group". A window will appear on the Group line where you can type in a name (this is similar to Figure 3-4). The Group name appears after you hit the "Enter" key (see Figure 3-7).

Start Time	End Time	Info	Duration
Bob and Ed's Album			
Bob's Songs			
00:00:00	00:00:00		00:00:00
L			
R			
C			
H			
Ls			
Rs			

Figure 3-7

To name the first Track, Right-Click on the Track line, and select "Rename Track". A window will appear on the Track line where you can type in a Track name.

You are now ready to assign soundfiles to the first Track. Use the upper left window to browse to the folder where your soundfiles are located. A list of all the .wav, .aiff, .mlp and .dff files in that folder will appear in the upper right window.

### 3.3.2 Assigning Soundfiles

The 6 lines under the Track line are asking for the 6 soundfiles of your 5.1 Surround recording. You assign the different soundfiles to the Track channels by drag and drop, or Double-Clicking. Drag the 6 soundfiles, one at a time, to the corresponding channel of the Track , or you can Double-Click on each soundfile in the correct channel order (L, R, C, LFE, Ls, Rs) and they will appear in the six corresponding channels under the Track (see Figure 3-8).

File Name	Duration	Char
center C.wav	00:00:10	1
left front L.wav	00:00:10	1
left surround Ls.wav	00:00:10	1
lfe LFE.wav	00:00:10	1
right front R.wav	00:00:10	1
right surround Rs.wav	00:00:10	1

Start Time	End Time	Info	Duration	Title
00:00:00	00:00:10		00:00:10	Fast Song
L				E:\tracks\48_24\left front L.wav
R				E:\tracks\48_24\right front R.wav
C				E:\tracks\48_24\center C.wav
LFE				E:\tracks\48_24\lfe LFE.wav
Ls				E:\tracks\48_24\left surround Ls.wav
Rs				E:\tracks\48_24\right surround Rs.wav

Figure 3-8

To add another track, Right-Click on the Group line (in this case, the Group called "Bob's Songs"), and select "New Track". A second Track will be added under the first Track (see Figure 3-9). Or you may Double-Click on the next Left Front soundfile for the next Track, and the

Track (with the Left Front soundfile) will be created under the previous Track.

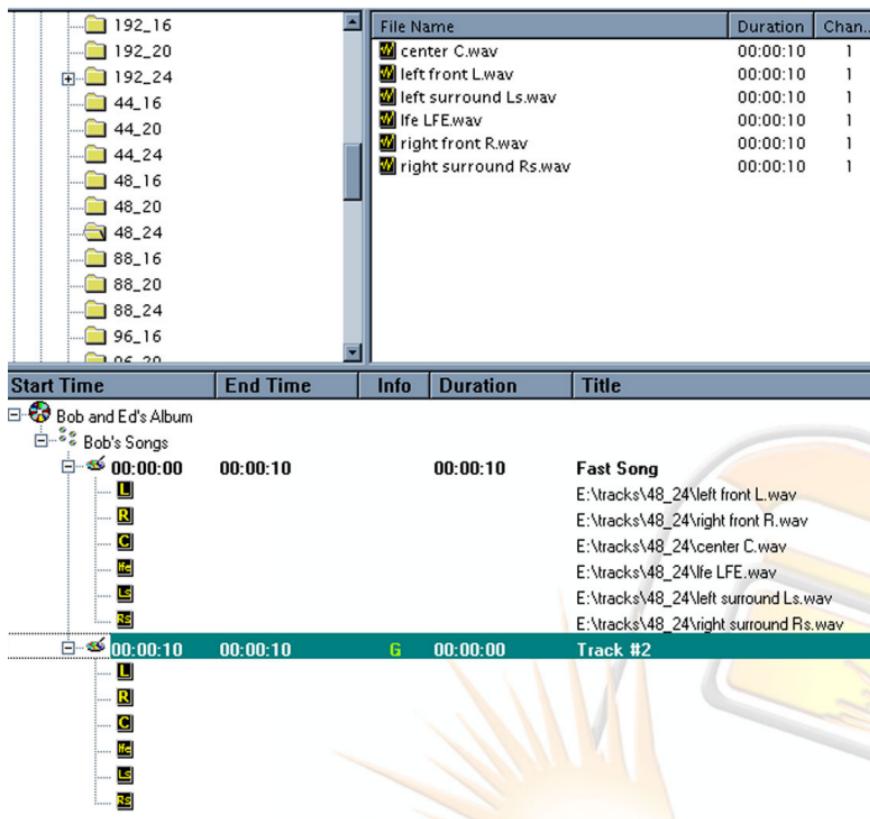


Figure 3-9

You can now name the second Track, and assign the 6 soundfiles (see Figure 3-10).

The screenshot shows a software interface for managing audio tracks. On the left, a tree view displays various folder structures under categories like '192\_20', '192\_24', '44\_16', etc. In the center, a table lists tracks with columns for File Name, Duration, and C. The tracks listed are tone0.wav through tone5.wav, each with a duration of 00:00:10. Below this is a timeline table with columns for Start Time, End Time, Info, Duration, and Title. The timeline shows two main tracks: 'Fast Song' (00:00:00 to 00:00:10) and 'Slow Song' (00:00:10 to 00:00:20). Each song is composed of six individual tracks labeled L, R, C, F, Ls, and Rs, corresponding to the files listed in the track table.

File Name	Duration	C
tone0.wav	00:00:10	
tone1.wav	00:00:10	
tone2.wav	00:00:10	
tone3.wav	00:00:10	
tone4.wav	00:00:10	
tone5.wav	00:00:10	

Start Time	End Time	Info	Duration	Title
Bob and Ed's Album				
Bob's Songs				
00:00:00	00:00:10		00:00:10	Fast Song
L		E:\tracks\48_24\left front L.wav		
R		E:\tracks\48_24\right front R.wav		
C		E:\tracks\48_24\center C.wav		
F		E:\tracks\48_24\lfe LFE.wav		
Ls		E:\tracks\48_24\left surround Ls.wav		
Rs		E:\tracks\48_24\right surround Rs.wav		
00:00:10	00:00:20	G	00:00:10	Slow Song
L		E:\tracks\48_20\tone0.wav		
R		E:\tracks\48_20\tone1.wav		
C		E:\tracks\48_20\tone2.wav		
F		E:\tracks\48_20\tone3.wav		
Ls		E:\tracks\48_20\tone4.wav		
Rs		E:\tracks\48_20\tone5.wav		

Figure 3-10

### 3.3.3 Saving your Album

Go to the File menu and click on Save As. Give your Album a file-name, and click OK.

### 3.3.4 Recording your Album onto DVD

Simply click on the red dot on the Toolbar.

### 3.3.5 Adding more Tracks

You can continue to add Tracks, up to 99 total per Group. Simply Right-Click on the Group line, and select "New Track".

### **3.3.6 Adding more Groups**

You can create more Groups, up to 9 total. Simply Right-Click on the Album line (the top line of the Playlist), and select "New Group".

### **3.3.7 Stereo Tracks**

In addition to 5.1 Surround Tracks, you can add Stereo Tracks. Simply drag a stereo soundfile to the "L" channel of the Track, and discWelder CHROME II will change the track from a listing of 6 channels to a listing labeled for stereo (see Figure 3-11).



Stereo Track symbol

Figure 3-11

You can set the Album to default to stereo files. That is, you can set it so that all new Tracks ask for stereo files instead of 5.1 Surround files. To do this, Right-Click on the Album line (the top line of the Playlist), and select "Album Properties". Then go to the "Track Defaults" window and select "Stereo (L,R)".

### **3.3.8 MLP files**

In addition to mono and stereo .wav and .aiff files, you can place an MLP-encoded file on a Track (see the "MLP" section). Simply drag and drop or Double-Click on an MLP-encoded file to the "L" line of a new Track, and the track file format will switch from 6 mono files to a single file, labeled with the MLP track symbol (see Figure 3-12).



MLP Track symbol

Figure 3-12

### **3.3.9 DSD Import/Convert**

DSD-format (.dff) audio files may also be placed on a Track (see the "DSD" section). Simply drag and drop or Double-Click on a DSD-encoded file to the "L" line of a new Track, and the track file format will switch from 6 mono files to a single file, labeled with the DSD track symbol (see Figure 3-12).



DSD Track symbol

Figure 3-13

When the disc or disc image is created, the DSD will be converted to Linear PCM based on the settings under Options->DSD Options. For more information, see the “DSD” section.

### **3.3.10 Images**

You can also assign images (still pictures) to show on a TV screen. To assign images, go to the Track Properties window (see the “Track Properties” section).

### **3.3.11 On-Screen Menu**

discWelder CHROME II can automatically create an on-screen menu from information in your Album (see the “On-Screen Menus” section).

# 4 Menu Items

This chapter describes the items in the menus at the top of the discWelder CHROME II main screen.

## 4.1 The File Menu

Figure 4-1 shows the File menu.



Figure 4-1

### 4.1.1 The New command

This command closes the Album in the bottom window, and presents a blank window for starting a new Album. A prompt will ask if you want to save the previous Album.

### 4.1.2 The Open command

This command opens a previously saved Album and places it in the bottom window.

### 4.1.3 The Save command

This command saves the current state of the Album in the bottom window, under the current filename.

#### **4.1.4 The Save As command**

Same as the Save command, except it allows you to type in a new file-name. The current state of the Album will be saved under the new name.

#### **4.1.5 The Album Properties command**

This brings up the Album Properties dialog (see the “album Properties” section).

#### **4.1.6 Most Recent Projects**

Under the Album Properties command on the File Menu is a list of the last 4 Albums that were open in discWelder CHROME II. Clicking on any one of these will open the Album in the Playlist.

#### **4.1.7 The Exit command**

This closes the discWelder CHROME II program.

### **4.2 The DVD-R menu**

Figure 4-2 shows the DVD-R menu. These menu items relate to the DVD-R recorder disc drive.



Figure 4-2

## 4.2.1 The Record Disc command

This command brings up the Record Disc dialog (see Figure 4-3).

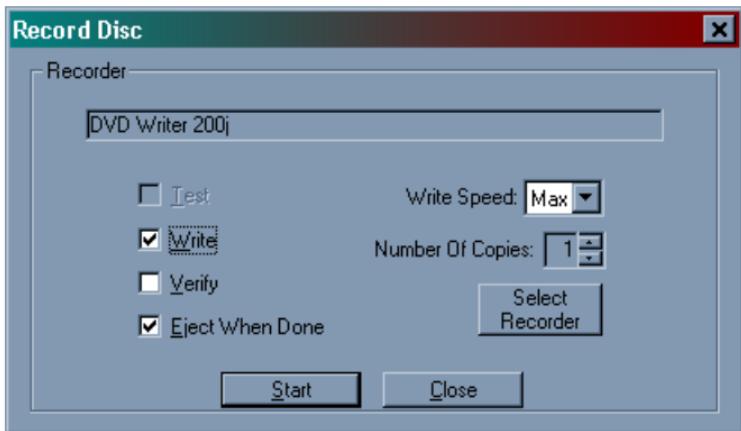


Figure 4-3

This is the window where you can tell discWelder CHROME II to actually start writing a disc. There are a number of options you can select from this window.

### 4.2.1.1 Select Recorder

This brings up the Select Recorder window. This is the same as the "Select Recorder" command on the DVD-R menu.

### 4.2.1.2 Test / Write / Verify

To write your Album to a disc, select the "Write" option, and click on the "Start" button.

If there is any doubt that your computer system can keep up with the necessary data rate to write the disc, you can use the "Test" option. Select "Test" and click on the start button. discWelder CHROME II will go through the entire disc writing procedure except for actually burning the data on the disc.

If both options are selected, then they proceed in order (when the Start button is clicked). First, the Test is performed. If the system passes the Test, then the Write is performed.

Note that not all drives supported the “Test” option.

If the “Verify” box is checked, the disc will be automatically verified for data accuracy after it is burned to disc.

#### **4.2.1.3 Eject When Done**

Selecting this option causes the drive door to be opened when the disc operation is completed.

#### **4.2.1.4 Write Speed**

The speed used during disc writing may selected, or set to “Max” for the maximum burn speed.

#### **4.2.1.5 Number of Copies**

One or more copies of the disc may be made by setting this selection.

### **4.2.2 The Media Properties command**

This command brings up the Media Properites window (see Figure 4-4).

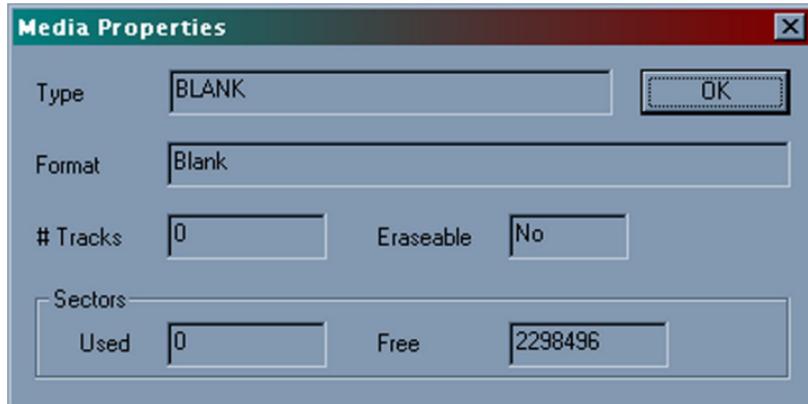


Figure 4-4

### **4.2.3 The Copy Disc command**

This command copies from a DVD disc to the blank disc in your DVD-R drive. When you select the Copy disc command, a window appears (see Figure 4-5).

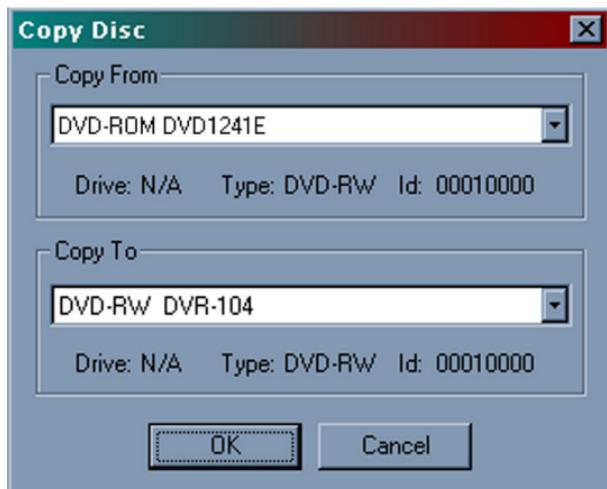


Figure 4-5

In the "Copy From" window, you can select any drive that can read a DVD disc. In the "Copy To" window, you will select a drive that can write DVD-R discs. Note: You cannot copy and write using the same disc drive. (Please observe all applicable Copyright laws).

### **4.2.4 The Verify command**

You may want to check a disc to see that the data was written correctly. The Verify command lets you check a disc (the disc that is in the DVD-R recorder drive) against another disc or a disc image on a hard drive.

When you choose the Verify command, a submenu comes up (see Figure 4-6).



Figure 4-6

#### 4.2.4.1 The Verify to Disc command

When you choose Verify to Disc, a window comes up (see Figure 4-7).

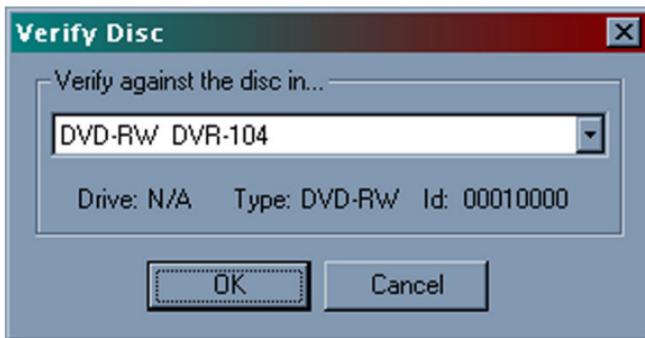


Figure 4-7

In this window, you tell discWelder CHROME II where to find the disc to verify against. That is, the DVD-R in the DVD-R recorder will be compared to the disc found in the drive that you specify in this window.

#### **4.2.4.2 The Verify to Disc Image command**

This command compares the DVD-R to a disc image on the hard drive. When you choose Verify to Disc Image, a window comes up (see Figure 4-8).

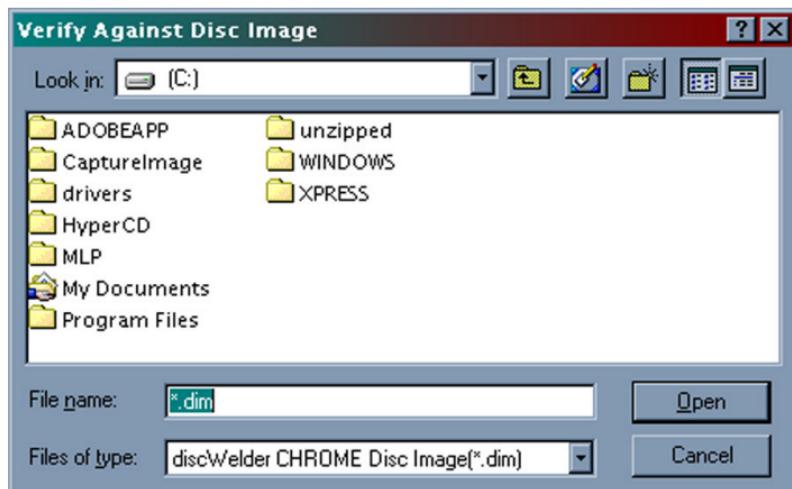


Figure 4-8

In this window you specify the disc image that will be used for comparison.

#### **4.2.5 The Disc Image commands**

Before an Album can be written onto a DVD disc, the information must be compiled to create a "disc image" on the hard drive. discWelder CHROME II lets you perform 3 different operations with disc images:

- 1) You can convert an Album to a disc image and save it without making a DVD.
- 2) If you have saved a disc image, you can create a DVD directly from the disc image instead of the Album playlist.
- 3) You can read the disc image of a DVD disc and save it on the hard drive.

Note: When you use the "Record disc" command (to record a disc from an Album playlist), a temporary disc image is created automatically as the first step in creating the DVD.

Figure 4-9 shows the Disc Image submenu.

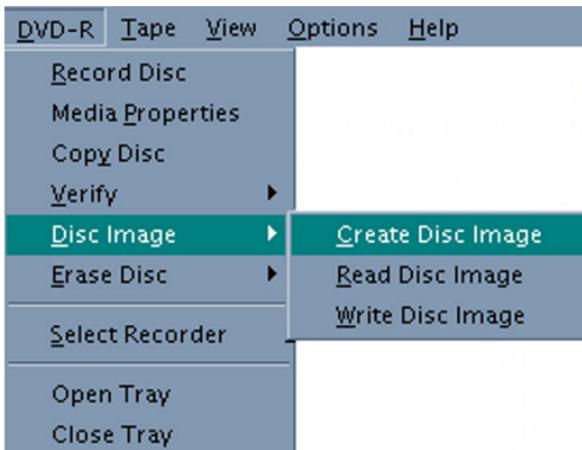


Figure 4-9

#### 4.2.5.1 Create Disc Image

This command creates a disc image from the Album playlist, and stores it as a file on the hard disc. When you select this command, it brings up the "Create Disc Image" dialog (see Figure 4-10).

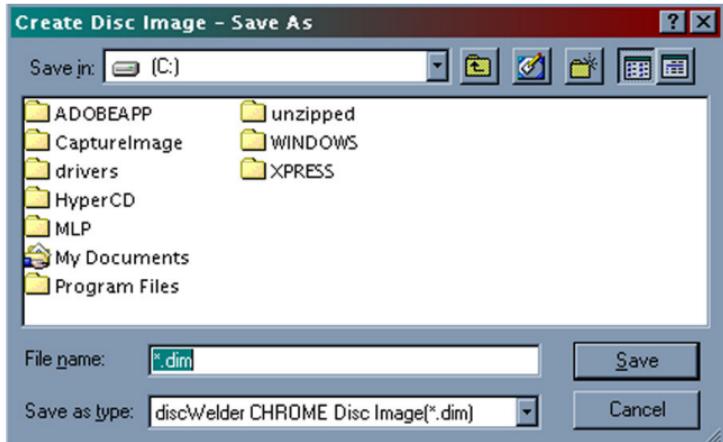


Figure 4-10

You select a folder, and give the disc image a filename. The file is stored with an extension of ".dim".

#### 4.2.5.2 Read Disc Image

This command reads the disc image off of a DVD, and stores it onto the hard disc. When you select the Read Disc command, it brings up the "Read disc Image" dialog (see Figure 4-11).

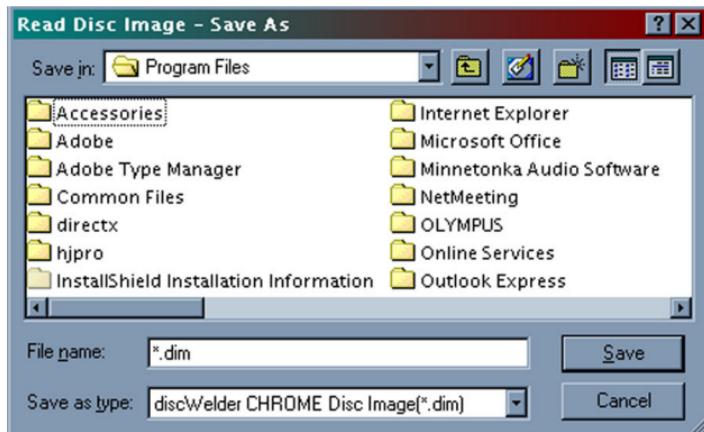


Figure 4-11

You specify a folder and a filename, and discWelder CHROME II reads the image off the DVD and stores in on the hard drive under the specified filename.

### 4.2.5.3 Write Disc Image

The Write Disc Image command reads a disc image off the hard disc, and copies it onto a DVD. When you select the Write Disc Image command, the "Write Disc Image" dialog comes up (see Figure 4-12).

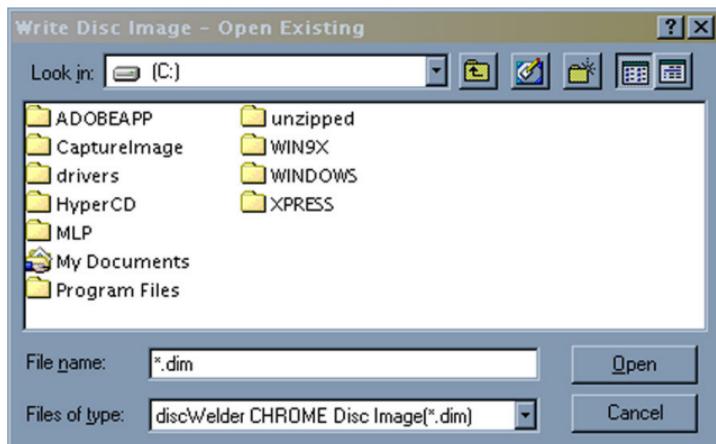


Figure 4-12

In this dialog you select a source file from the hard disc. discWelder CHROME II will then copy the image off the hard disc and onto the DVD.

### 4.2.6 The Erase Disc command

If you are using DVD-RW discs, you can erase a disc and re-use it. The Erase Disc command erases the DVD-RW disc that is in the selected drive.

A “Quick Erase” will erase the disk volume and directory information. Performing a “Full Erase” will clear all sectors on the disc.

#### **4.2.7 The Select Recorder command**

This command brings up the Select Recorder dialog (see Figure 4-13).



Figure 4-13

If you have more than one DVD-R disc drive on your system, you can use this window to choose which one discWelder CHROME II will use.

#### **4.2.8 The Open/Close Tray commands**

These open and close the disc tray on the selected DVD drive.

### **4.3 The Tape Menu**

discWelder CHROME II lets you put your disc image onto DLT tape, because it is a standard for delivering a completed DVD-Audio project to

a disc duplication facility. The DLT tape features are available in the Tape menu.

Figure 4-14 shows the Tape menu.



Figure 4-14

#### **4.3.1 The Record Tape command**

To create a disc image from your Album playlist and record it directly to the DLT tape, select the Record Tape command.

#### **4.3.2 The Write Disc Image to Tape command**

If you have already created a disc image, and you want to copy it from your hard drive to DLT tape, select Write Disc Image to Tape. It will

first ask you to select the disc image that you want to copy (see Figure 4-15).

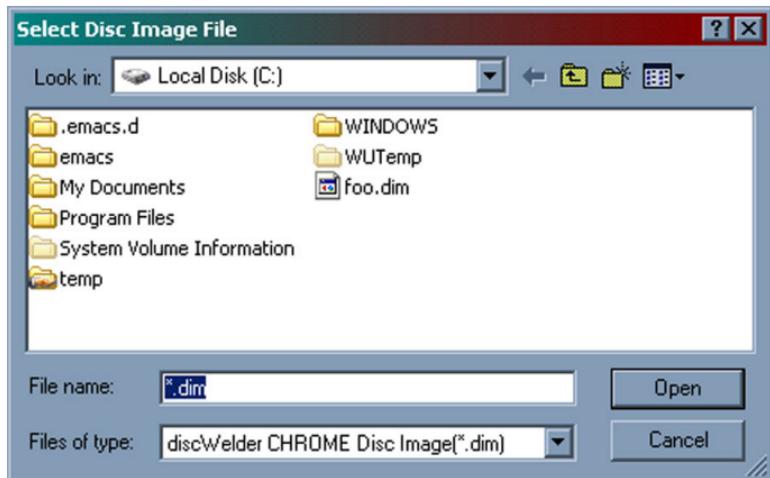


Figure 4-15

### 4.3.3 The Create Tape Image command

This command will write the DDP tape image to a folder, using the current playlist. The tape image files may then be transmitted to the disc duplication facility by a method other than a physical tape (e.g. ftp file transfer).

#### **4.3.4 The Media Properties command**

The Media Properties command can tell you if a tape is loaded into the DLT tape machine, and gives you some information about the tape (see Figure 4-16).

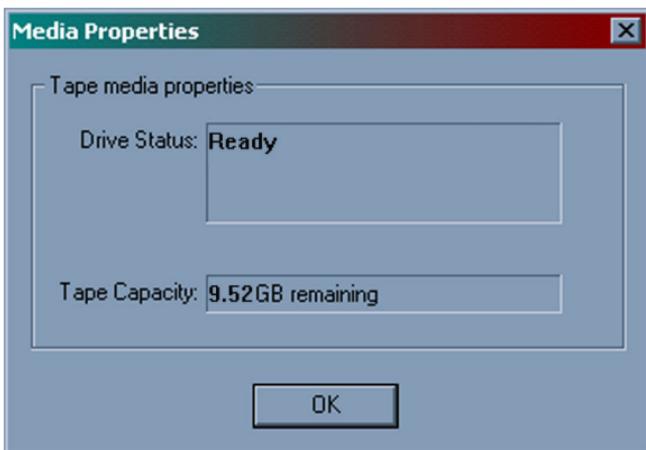


Figure 4-16

#### **4.3.5 The Select Tape Drive command**

If more than one tape drive is connected to your computer, you can select which one is used to read or write a tape (see Figure 4-17). Click on the down-arrow, and a list of available tape drives will appear.



Figure 4-17

### **4.3.6 The Load Cartridge command**

This command instructs the DLT tape machine to load a tape cartridge.

### **4.3.7 The Unload Cartridge command**

This command instructs the DLT tape machine to unload a tape cartridge.

## **4.4 The View menu**

Figure Figure 4-18 shows the View menu.

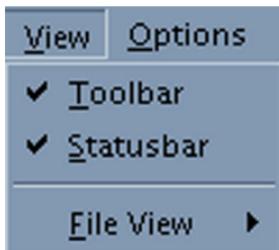


Figure 4-18

### **4.4.1 The Toolbar command**

The Toolbar command lets you show or hide the Toolbar (see the “Toolbar” chapter). Clicking on the Toolbar menu item toggles the checkmark on and off. When the checkmark is present, the Toolbar is shown. When the checkmark is gone, the Toolbar is hidden.

### **4.4.2 The Statusbar command**

The Statusbar command lets you show or hide the Statusbar (see “Status Bar” in the “Introduction” chapter). Clicking on the Statusbar menu item toggles the checkmark on and off. When the checkmark is present, the Statusbar is shown; when gone, it’s hidden.

#### 4.4.3 The File View command

The File View command controls the way in which the files will be displayed in the soundfile browsing window. Clicking on File View brings up a submenu (see Figure 4-19).

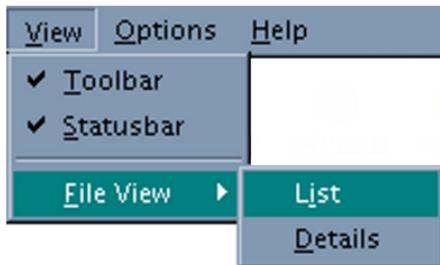


Figure 4-19

When List is chosen, only the filenames are displayed. When Details is chosen, the window displays filenames, the duration of the recording, number of channels, audio format, and the date modified.

#### 4.5 The Options menu

Figure 4-20 shows the options menu.

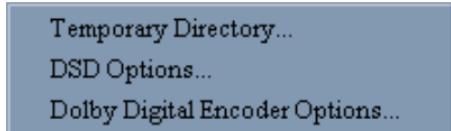


Figure 4-20

#### 4.5.1 The Temporary Directory Options command

Clicking on the Temporary Directory Options item brings up a dialog (see Figure 4-21).

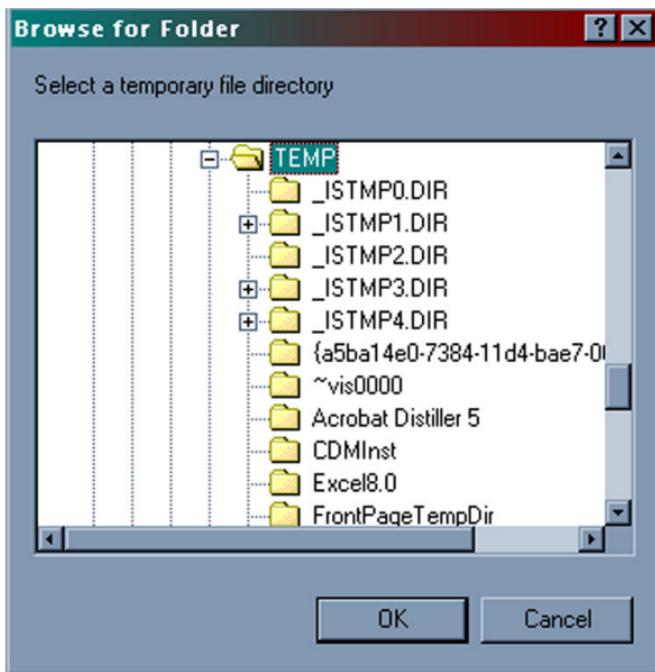


Figure 4-21

This dialog allows you to specify which directory is used for temporary files. Setting this directory could be important, because DVD temporary files can easily be several gigabytes in size.

## 4.5.2 DSD Options command

The DSD Options item brings up a dialog to select conversion options when importing DSD files (see Figure 4-22).

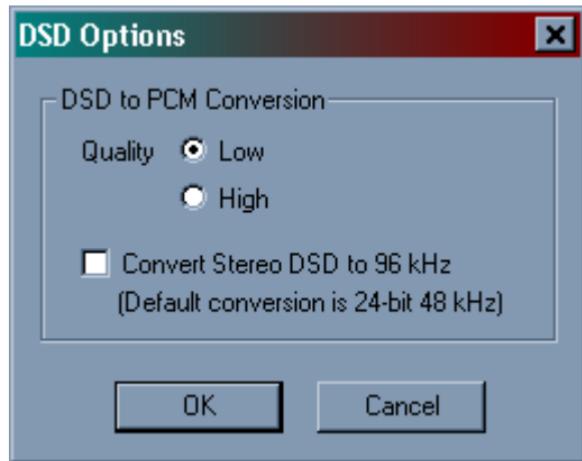


Figure 4-22

The Quality option specifies whether a Low quality, but fast DSD to PCM conversion will be performed, or whether a High quality, slow conversion will be done.

You also have the option of converting Stereo DSD files to either 24-bit 48 kHz (the default), or 24-bit 96 kHz PCM. The 96 kHz conversion will take longer and consume more disk space than the 48 kHz option.

See the DSD section for more details on the use of DSD files.

## 4.5.3 Dolby Digital Encoder Options command

In the integrated SurCode Dolby Digital encoder used by the “Auto-Mirror” function, two parameters are accessible - Dialog Normalization and Dynamic Compression Preset. See “APPENDIX B - Dolby Digital Parameters in CHROME II” for more details on these parameters. The Parameter Window will allow changing the Dialog Normalization (Dial-

norm) value, and selection of Dynamic Compression (DynComp) Preset (see Figure 4-23).

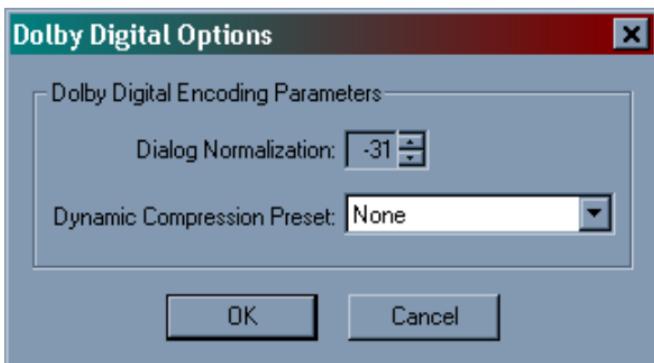


Figure 4-23

**Note:** The default values for these parameters are set for generic music, and may not be appropriate for your material. Please read and understand the Dolby Guidelines (at [www.dolby.com](http://www.dolby.com)) for Dolby Digital Encoding before committing to Dialnorm and DynComp values.

See the Auto-Mirror section for more details.

## 4.6 The Help menu

Figure 4-24 shows the Help menu.

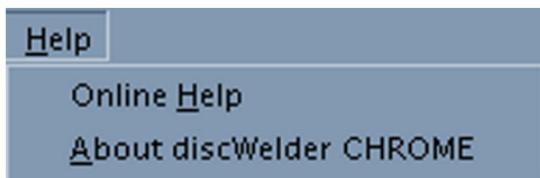


Figure 4-24

### 4.6.1 The Online Help command

The Online Help command brings up the discWelder CHROME II online help. This command will start up your internet browser, which will display the help files.

#### 4.6.2 The About discWelder CHROME II command

Clicking on About discWelder CHROME II brings up an information dialog (see Figure 4-25).



Figure 4-25

This window will display the revision number of this copy of discWelder CHROME II, and also displays copyright and contact information.

# 5 Toolbar

Figure 5-1 shows the discWelder CHROME II toolbar.



Figure 5-1

The toolbar gives you quick access to the most commonly used functions, without the need to go to the menus.

## 5.1 New

This command closes the Album in the bottom window, and presents a blank window for starting a new Album. A prompt will ask if you want to save the previous Album.

## 5.2 Open

This command opens a previously saved Album and places it in the Album window.

## 5.3 Save

This command saves the current state of the Album in the Album window, under the current filename.

## 5.4 About

Gives you the version number of your discWelder CHROME II program. Also gives you contact information for Minnetonka Audio Software.

## 5.5 Record

Click on this button when you are ready to record a disc. This is the same as the "Record Disc" command in the DVD-R menu.

## **5.6 Media**

This brings up the Media Properties windows. This is the same as the "Media Properties" command in the DVD-R menu.

## **5.7 Copy**

Click on this button if you want to make a copy of an existing disc. This is the same as the "Copy Disc" command in the DVD-R menu.

## **5.8 Verify**

Verifies the data on a disc, against another disc or against a disc image on the hard drive.

## **5.9 Image**

If you want to perform an operation with a disc image on the hard drive, click on this button. This is the same as the "Disc Image" command on the DVD-R menu.

## **5.10 Select**

If you have more than one DVD drive, click on this button to select which drive you are using. This is the same as the "Select Recorder" command on the DVD-R menu.

## **5.11 Open**

This opens the tray on the selected DVD-R drive.

## **5.12 Close**

This closes the tray on the selected DVD-R drive.

## 6 Shortcuts

discWelder CHROME II has features to make it even easier and faster to create a playlist for an Album.

Instead of dragging soundfiles to the Album window, you can Double-Click on files to send them to the bottom window. Soundfiles are copied to the Album and placed on the Album in order.

When you are starting a new Album, there is only one line in the album window (see Figure 6-1).

Start Time	End Time	Info	Duration	Title
... Unnamed				

Figure 6-1

Since there are no tracks in this Album yet, discWelder CHROME II will assume that the first soundfile you select is the Left channel soundfile of the first Track of the first Group. When you double click on a soundfile in the soundfile window, discWelder CHROME II will create a Group and a Track, and place the soundfile into the first soundfile line of the Track (see Figure 6-2).

Start Time	End Time	Info	Duration	Title
... Unnamed				
└ Group #1				
└ 00:00:00	00:00:10		00:00:10	Track #1
└ L				E:\tracks\48_24\left front L.wav
└ R				
└ C				
└ M				
└ LS				
└ RS				

Figure 6-2

After placing the soundfile on the Track, the selection moves to the next soundfile line (the selection is shown by making the selected line dark blue). This indicates that the next soundfile that is chosen will go

on this line. When you Double-Click another soundfile, it goes to this line, and the selection moves to the third line (see Figure 6-3).

Start Time	End Time	Info	Duration	Title
00:00:00	00:00:10	00:00:10	00:00:10	Track #1 E:\tracks\48_24\left front L.wav E:\tracks\48_24\right front R.wav

Figure 6-3

You can keep Double-Clicking on soundfiles until all the soundfile lines are full. When the last soundfile is added to the Track, the selection moves to the Group line (see Figure 6-4).

Start Time	End Time	Info	Duration	Title
00:00:00	00:00:10	00:00:10	00:00:10	Track #1 E:\tracks\48_24\left front L.wav E:\tracks\48_24\right front R.wav E:\tracks\48_24\center C.wav E:\tracks\48_24\lfe LFE.wav E:\tracks\48_24\left surround Ls.wav E:\tracks\48_24\right surround Rs.wav

Figure 6-4

The next time you Double-Click on a soundfile, discWelder CHROME II will assume that you want to start a new Track. It will create the next

Track, add the soundfile to the first soundfile line, and move the selection to the second soundfile line (see Figure 6-5).

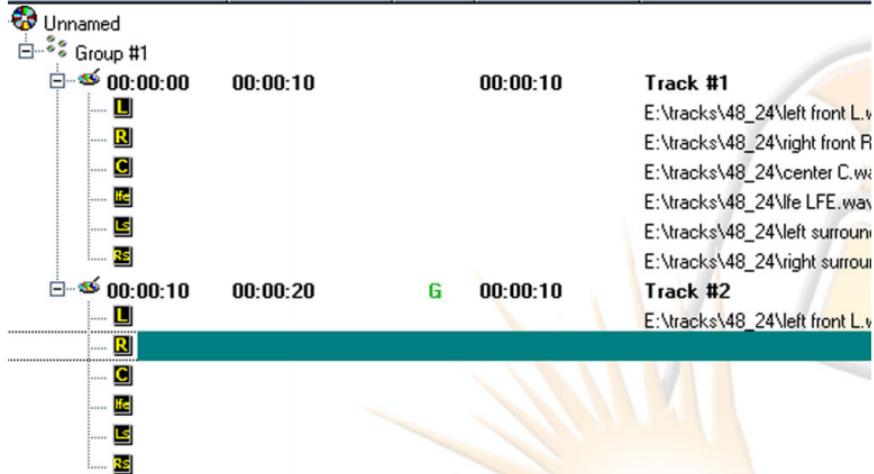


Figure 6-5

The Double-Click shortcut can be used anywhere in your Album; you don't need to start at the beginning. For example, if you want to leave Track 1 blank and want to put soundfiles into Track 2, create Track 2 by Right-Clicking on the Group line and specifying New Track (see Figure 6-6).

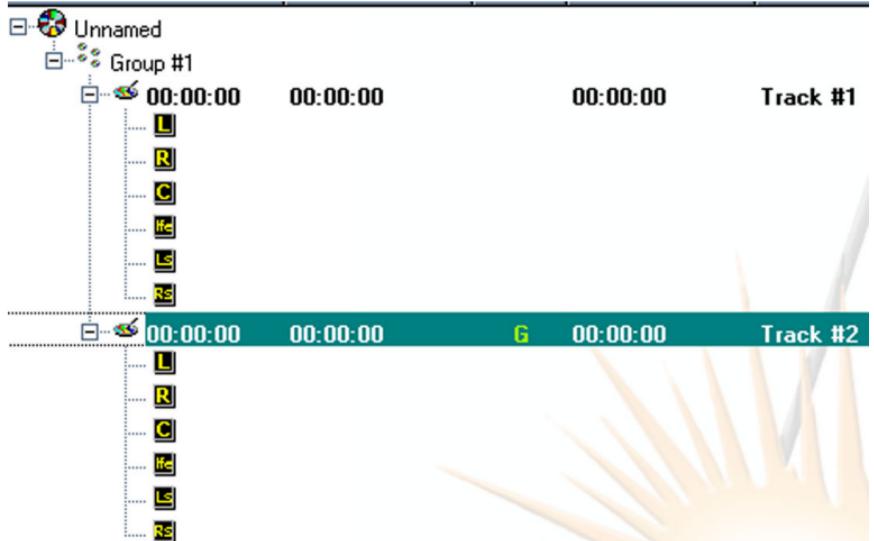


Figure 6-6

Then move the selection to the first soundfile line of Track 2 by Left-Clicking on it. Now, when you Double-Click on a soundfile, it will go into the first soundfile line of Track 2 (see Figure 6-7) and the selection will move to the second soundfile line of Track 2.

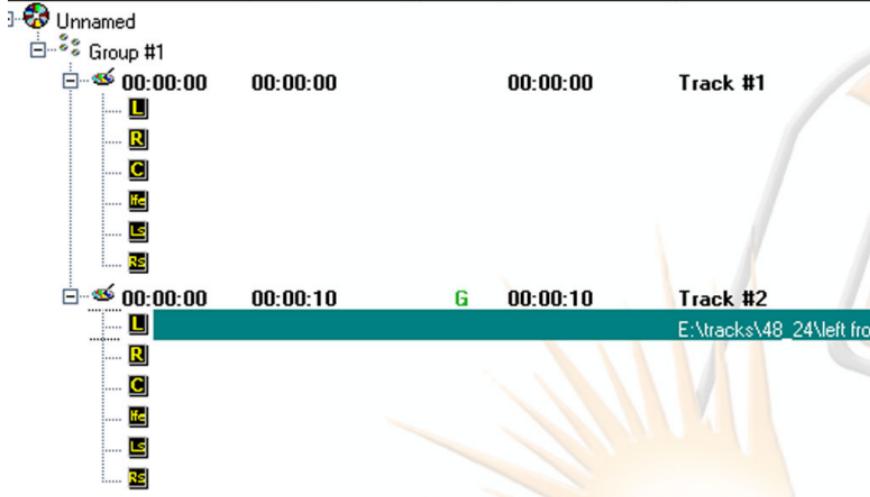


Figure 6-7

You can also use the Double-Click shortcut to replace soundfiles. For example if you accidentally put the wrong soundfile on a line, simply select the line by left-clicking on it, and then Double-Click on the soundfile that you want to replace it. discWelder CHROME II will ask you if you want to replace the soundfile (see Figure 6-8).

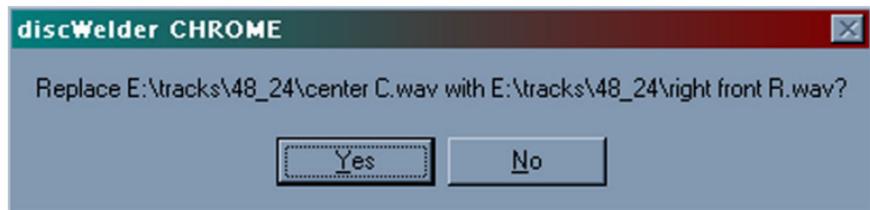


Figure 6-8

## **7 Track Properties**

When you select Track Properites by Right-Clicking or Double-Clicking on the Track Title, it brings up the Track Properties window (see

Figure 7-1).

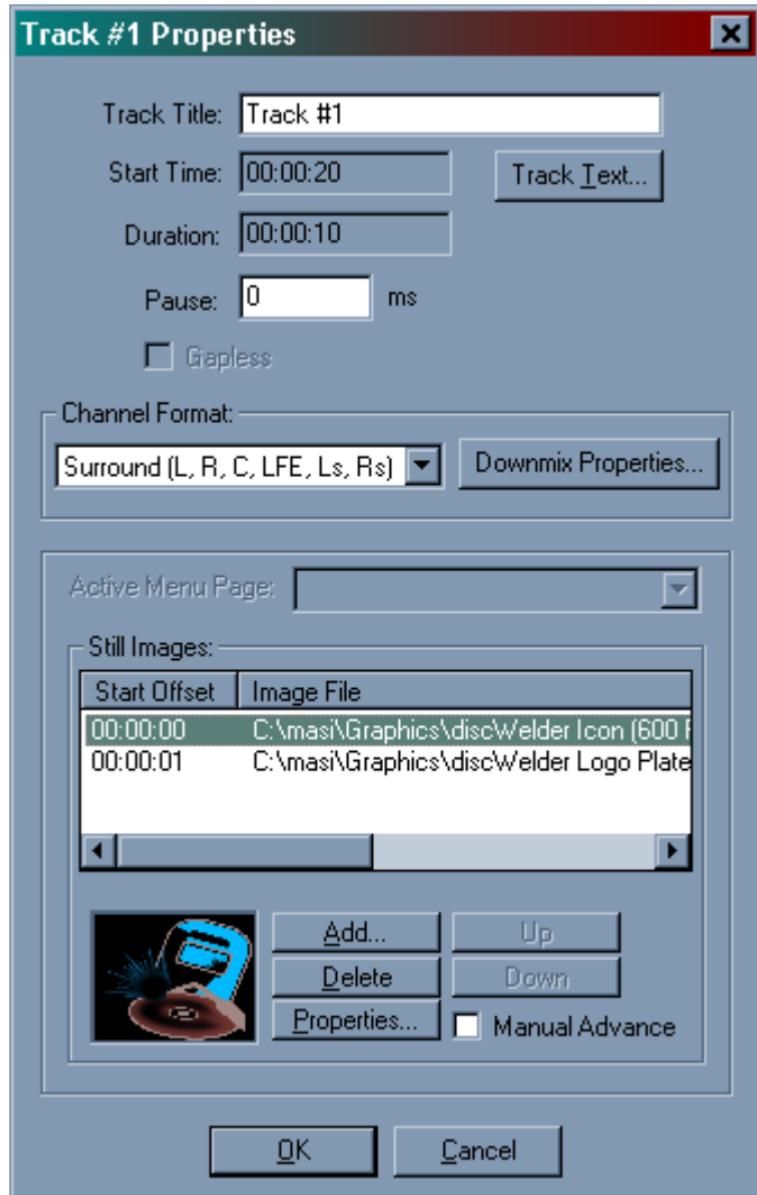


Figure 7-1

## **7.1 Track Title**

This displays the name of the Track. You can change the Track name in this window.

## **7.2 Start Time**

Displays the starting time of this Track, relative to the beginning of the album.

## **7.3 Duration**

Tells you how long the Track is.

## **7.4 Pause**

With CHROME II, you can specify a pause at the beginning of a Track. The pause time is in milliseconds.

**Note:** There is a very short space automatically added before some tracks by many DVD-A players. See the Track Pause and Gapless Track sections in this chapter.

## **7.5 Track Text**

Track information, such as Title, Author, and Composer may be associated with tracks for display by some DVD-Audio players. See the section on Audio Text for details on how to specify the track text information.

Note that when the Track Title is specified through the playlist, or on the Track Properties dialog, the Title is automatically set in the Track Text.

## **7.6 Track Channel Format Defaults**

This window lets you choose whether the Track is stereo or 5.1 Surround.

When the Track was originally created, the Channel Format was set according to the Channel Format in the Album properties. After the

Track is created, you can go into the Track Properties and change the Channel Format for that Track. (see Figure 7-2).

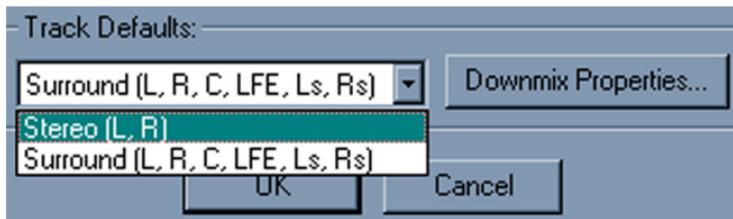


Figure 7-2

This format is automatically changed if you drop a stereo soundfile into a 5.1 Surround Track.

## 7.7 Downmix Properties

When you create a new Track, the Downmix coefficients for that Track are set to the default Downmix coefficients in the Album Properties.

Once the Track is created, you can go to the Track Properties and assign a different set of Downmix coefficients to that Track (see Figure 7-3).

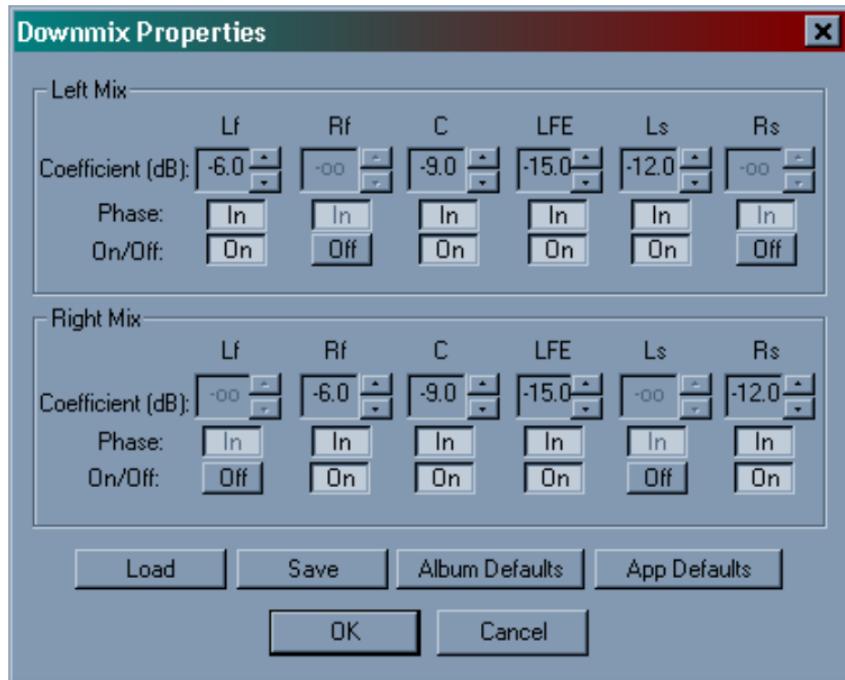


Figure 7-3

**NOTE:** DVD-Audio allows for a maximum of 16 unique downmix tables in a Group.

You can save this downmix table for later use on other Tracks by clicking on the Save button. You can also load previously saved downmix tables into this window by clicking on the Load button and browsing to the saved downmix files.

Clicking on the "Album Defaults" button sets the values to the default values that were set under the Album Properties dialog.

Clicking on the "App Defaults" button sets the values to the default values of the discWelder CHROME II program (shown in Figure 7-3).

## 7.8 Still Image

For each Track, you can assign one or more still images that will be displayed on the TV screen while the track is playing. To assign images, click on the Add button. This brings up a file selection dialog (see Figure 7-4).

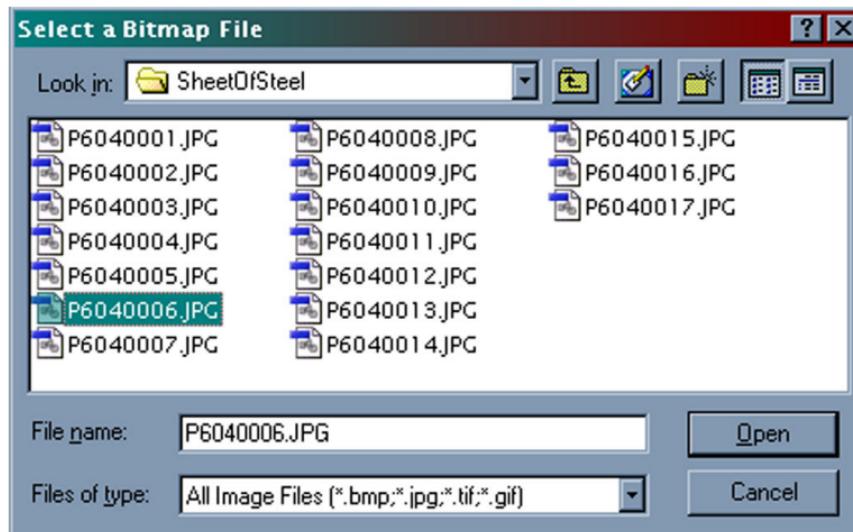


Figure 7-4

The file needs to be in .BMP, .TIF, or .JPG format. The resolution of the picture depends on which TV System is selected. For a 525/60 (NTSC) system, the allowable resolutions (in pixels) are:

720 x 480

704 x 480

352 x 480

352 x 240

For a 625/50 (PAL) system, the allowable resolutions (in pixels) are:

720 x 576

704 x 576

352 x 576

352 x 288

A thumbnail of the selected picture will be shown.

The Clear button can be used to remove the image from the Track.

## 7.8.1 Still Image Properties

When you click on the Still Image Properties button, the Still Image Properties window comes up (see Figure 7-5).

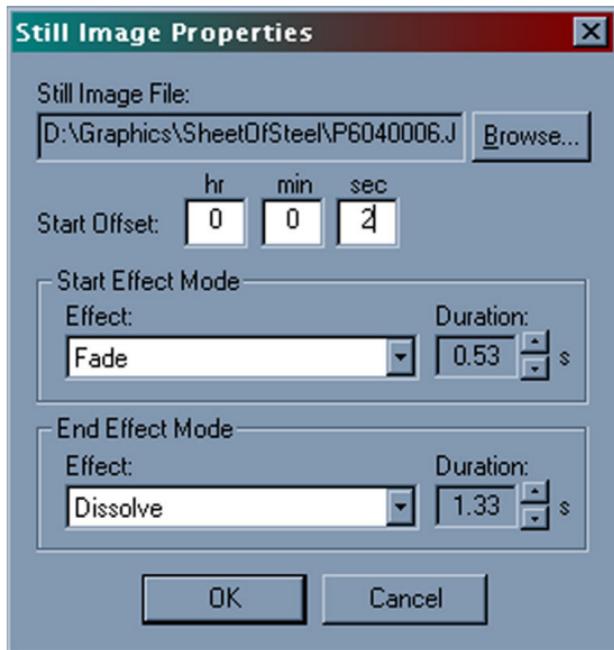


Figure 7-5

The Still Image File window shows the current image, and you can select a different image by browsing (click on the “Browse” button).

The Start Offset determines when an image will be displayed relative to the start of the Track. It applies only if the "Manual Advance" is NOT checked in the Track Properties dialog. If the Manual Advance IS checked, the images will not automatically appear, but instead are advanced by the viewer.

The Start Effect Mode and the End Effect Mode for a new Track is determined by the Global Effects Settings in the Album Properties (see the “On-Screen Menu” chapter). In this window, you can customize the Effects settings for each Track.

**Note:** In “Gapless Tracks” and “MLP Track Points”, all Tracks and Track Points must either HAVE Still Images or NOT, i.e. identical Still Image (slide) utilization.

## 7.9 Track Points

In cases where a long MLP, PCM or DSD-encoded track must contain ongoing Track Numbers within the “parent” track, for example at the start of movements of a symphony or the start of songs in a live recording, they are referred to in CHROME II as “Track Points”. This is because they “point” to a time location inside the “parent” track that will show up on the consumer’s DVD-A player as separate track numbers. They do not alter the track at the track number (Track Point), but simply point to the location where the producer wishes another track number to appear.

### 7.9.1 Making Track Points

To make a Track Point, drag-and-drop an MLP, PCM or DSD-encoded track into the CHROME II. The following example shows an MLP track as denoted by the MLP symbol (see Figure 7-6).

Clip #1				
00:00:00	00:00:10	00:00:10	Track #1	
.. M			M:\big\big.mlp	
00:00:10	00:00:20	00:00:10	Track #2	
.. M			M:\big\bigccc.	

Figure 7-6

Then Right-Click on the Track line, and click on “New Track Point” (see Figure 7-7).

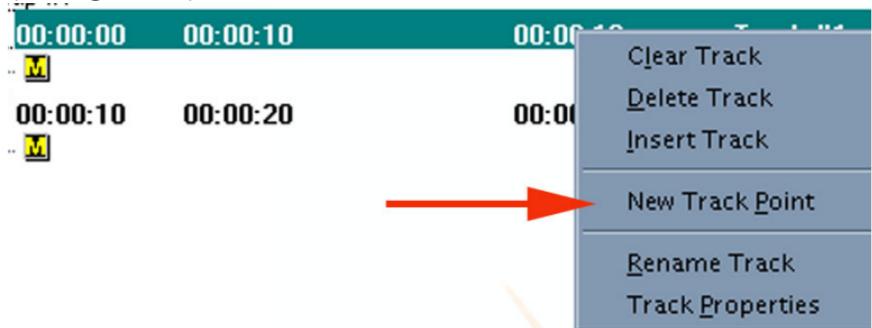


Figure 7-7

The “Track Point Offset” window will appear (see Figure 7-8).



Figure 7-8

This is where you will enter the time offset of the track point, i.e. the space between the start of the “parent” track and the new Track. The offset number is entered in Hours: Minutes: Seconds: Thousandths. The arrow shows where the example has “5 seconds” as a Track Point Offset. The new Track will appear 5 seconds after the start of the “parent” track (see Figure 7-9)

**Note:** A Track Point Offset must fall within the time boundaries of the “parent” track, i.e. an offset value cannot be larger than the original track duration or the time remaining in the track.

After the offset number is entered, hit the “OK” button. The new “track” will show up under the MLP “parent” track as the next track number. A Track Point is denoted by the “T” under the “Info” header (see Figure 7-9).

me	End Time	Info	Duration	Title
named				
Group #1				
00:00:00	00:00:05		00:00:05	Track #1 M:\big\big.mlp
M				
00:00:05	00:00:10	T	00:00:05	Track #2 M:\big\big.mlp
M				
00:00:10	00:00:20		00:00:10	Track #3 M:\big\bigccc.mlp
M				

Figure 7-9

## 7.9.2 Adding Track Points

Subsequent Track Points can be entered by Right-Clicking on the Track line again to enter a new offset value, or by Right-Clicking on the Track Point line and selecting “Insert Track Point” (see Figure 7-10)

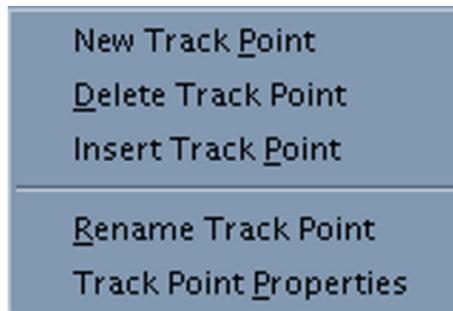


Figure 7-10

This Track Point is inserted (once the Track Point Offset has been entered) BEFORE the current Track Point (see Figure 7-11).

Time	End Time	Info	Duration	Title
Jnnamed				
Group #1				
00:00:00	00:00:05	M	00:00:05	Track #1 M:\big\big.mlp
00:00:05	00:00:07	M	00:00:02	Track #2 M:\big\big.mlp
00:00:07	00:00:10	T	00:00:03	Track #3 M:\big\big.mlp
00:00:10	00:00:20	M	00:00:10	Track #4 M:\big\bigccc.mlp

Figure 7-11

The “T” symbol under the “Info” column indicates that the track is a Track Point (see Figure 7-12.)



Figure 7-12

It is also possible to Delete or Rename Track Points (see Figure 7-10),

and to see what the Track Point Properties are (see Figure 7-13).

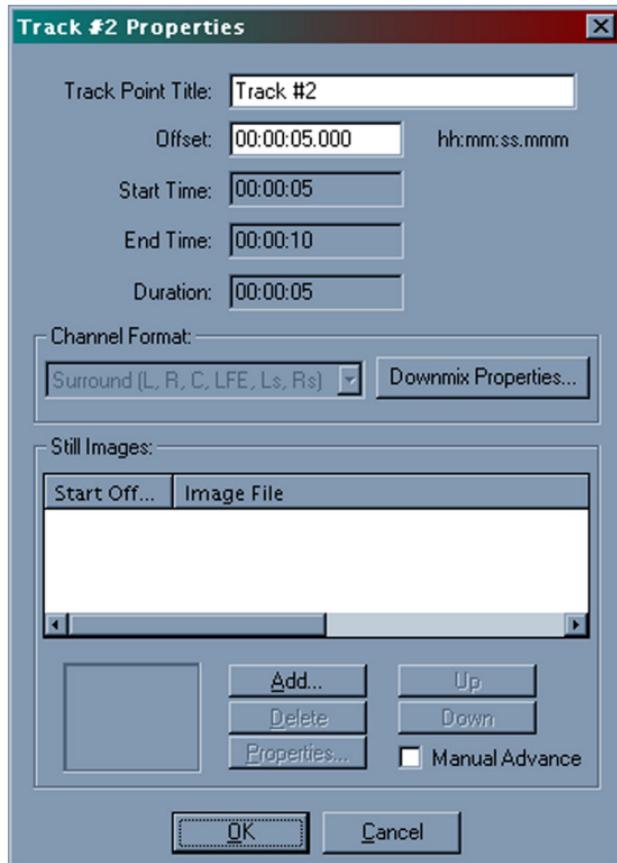


Figure 7-13

Still Images may also be added to the Track Points, just as for the “parent” MLP track by clicking on the “Add” button.

**Note:** If the “parent” Track has a Still Image, all the Track Points must have Still Images also. If the “parent” Track does not have a Still Image, then the Track Points cannot have Still Images (this is also true for “Gapless” Tracks, below).

## 7.10 Gapless Tracks

It is possible in discWelder CHROME II to have consecutive Linear PCM tracks (with identical Track parameters - see the Note below) play without a gap or pause (silence) between them. Normally, depending on

the DVD-A player, there is a very small gap between consecutive tracks. CHROME II lets the producer specify that adjacent tracks play without a gap or pause, i.e."Gapless". CHROME II also allows a pause to be specified, in milliseconds (see the "Track Pause" section), between tracks if desired.

### 7.10.1 Making Gapless Tracks

To make a track Gapless, Right-Click on the Track line, and click on the Track Properties button (which is active ONLY if Gapless play is possible - see Figure 7-14).

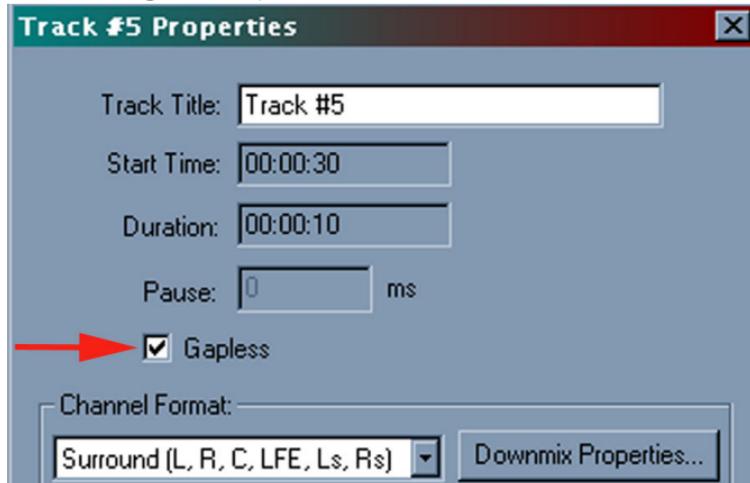


Figure 7-14

Checking this box will make the playback between the selected track and the PREVIOUS track Gapless. The Gapless track symbol is a "G"(see Figure 7-15)



Figure 7-15

This symbol under the "Info" column indicates that the track is Gapless with the previous track (see Figure 7-16).

	00:00:30	00:00:40	G	00:00:10	Track #5
	L R C LFE				E:\tracks\48_24\left front L.wav E:\tracks\48_24\right front R.wav E:\tracks\48_24\center C.wav E:\tracks\48_24\lfe LFE.wav

Figure 7-16

**Note:** Gapless play is ONLY possible between Linear PCM tracks with identical channel formats, bit-depths, sample-rates, and utilization of slides (see Still Image Note above). For MLP-encoded tracks, Track Points can be used (with long MLP Tracks) to obtain Gapless playback.

## 7.11 Track Pause

CHROME II can insert a “Pause” between tracks of up to 10 seconds. Right-Click on the Track line, click on “Track Properties”, and enter the desired pause between the selected track and the previous track in milliseconds (see Figure 7-17).

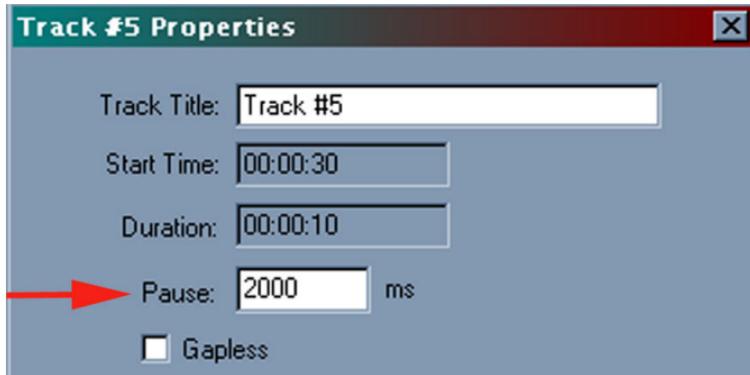


Figure 7-17

**Note:** This feature is NOT available for MLP-encoded tracks.

Track Pause is indicated by the “P” symbol under the “Info” column (see Figure 7-18).



Figure 7-18

The Pause symbol indicates that a pause exists between the selected track and the PREVIOUS track (see Figure 7-19).

	00:00:30	00:00:40	P	00:00:10	Track #5
	L				E:\tracks\48_2
	R				E:\tracks\48_2
	C				E:\tracks\48_2
	Hs				E:\tracks\48_2

Figure 7-19

# 8 MLP Encoding

The only type of soundfile encoding that can be used with DVD-Audio is Meridian Lossless Packing (MLP). The discWelder CHROME II program does not include an MLP encoder, but it can import soundfiles that are MLP encoded. CHROME II looks for the ".mlp" filename extension to identify MLP-encoded files, including those from Minnetonka Audio Software's **SurCode MLP** encoder.



MLP stands for Meridian Lossless Packing, which is an encoding system designed to compress high-resolution audio files with bit-for-bit accuracy. The difference between MLP encoding and the "lossy" data compression encoding systems used in DVD-Video authoring is that MLP is "lossless", that is, when decoded on playback, you get the same audio data bit-for-bit that you started with. Or to put it differently, MLP reduces the size of the soundfiles with no deterioration of the sound quality, by efficiently packing the same data into less space.

## 8.1 Why Encode?

MLP encoding has two primary benefits:

1. It minimizes the size of the compressed file, allowing a larger amount of audio to be stored on the DVD-A disc.
2. It can reduce the maximum instantaneous peak data rate.

This second benefit is very important for DVD-Audio, which has an upper limit of 9.6Mbps (megabits per second). For example, six channels of 24-bit, 96kHz Linear PCM (Pulse Code Modulation) audio has a data rate of 13.82Mbps, which is much greater than the data throughput of the DVD system. This high data rate would also limit the playing time to approximately 45 minutes. MLP encoding can reduce the worst-case data rate to 9.6 Mbps, extending the playing time to the industry standard of 74 minutes, as well as allowing bit-accurate high-resolution six-channel audio.

## 8.2 How It Works

Because MLP was originally designed with consumer applications in mind, one of its design aims was that any complexity must be in the encoder instead of the decoder. The design of the decoder ensures that it will remain lossless regardless of hardware platform or processor implementation. In addition, the decoder is driven by information in the bit-stream, allowing improved versions of the encoder to be developed without becoming incompatible with the installed base of decoders. MLP encoding uses a combination of three methods to reduce the data rate:

1. Lossless matrixing is used to reduce the correlation between channels.
2. Lossless waveform prediction is used to reduce the inter-sample correlation.
3. Entropy coding is used to reduce the data rate by efficiently encoding the most likely occurring values in the audio data.

MLP does not make any assumptions about the assignment of channels, or the correlation between channels, but takes advantage of whatever redundancy is in the overall signal to encode the data using the smallest possible bandwidth.

In addition to these procedures for reducing the data rate, MLP uses stream buffering to reduce the variations in the transmitted data rates, and absorb transients that are hard to compress, in order to assure a maximum instantaneous peak data rate. The buffer allows the peak data rate to be minimized for virtually all practical audio data.

## 8.3 Long MLP

Some projects require that the entire album, or major portions of an album, be encoded as one or more long MLP files. For example, a classical-music recording of a symphony or a live concert recording. These projects cannot have audio gaps or pauses in the soundfiles. Also, for resolution and/or time reasons, they must be MLP encoded.

When this is the case, discWelder CHROME II can import long MLP files and use a feature called “Track Pointers” to add Track Numbers where desired within the long MLP track, for example, at the start of different symphony movements, songs, or other events. See the “Track Properties” chapter for more information on Track Pointers.

## 8.4 Compression Amounts

Table 1: This table gives examples of the typical compression that can be realized with different audio bit- and sample-rates using MLP encoding.

Bit-Rate	Sample-Rate	Minimum	Typical
16-bit	48kHz	0%	50%
20-bit	96kHz	40%	55%
24-bit	96kHz	38%	52%
24-bit	192kHz	43%	50%

**Table 1: Compression Amounts**

## 8.5 DVD-A Playing Time

Table 2: This table gives examples of playing times on DVD-Audio that can be obtained with different channel, bit-rate, and sample-rate combinations using MLP encoding.

Number Of Channels	Bit-Rate	Sample-Rate	Play Time
6 Chan.	24-bit	96kHz	86 min.
5.1 Chan.	24-bit	96kHz	100 min.
2 Chan.	24-bit	192kHz	2 hours
2 Chan.	24-bit	96kHz	4 hours
2 Chan.	16-bit	44.1kHz	12 hours
1 Chan.	16-bit	44.1kHz	25 hours

**Table 2: DVD-A Playing Time**

For more information on **SurCode MLP**, please visit  
[www.surcode.com](http://www.surcode.com).

## 8.6 DSD Import/Convert

This feature allows Direct Stream Digital (DSD) format (.dff) audio files to be selected into the CHROME II playlist and converted to Linear PCM (Pulse Code Modulation). The DSD-to-PCM conversion bit-depth is set at 24-bit, and the sample rates are set at 48kHz for surround and 48 or 96kHz (selectable by the author) for stereo. There is a low quality (fast) / high quality (slow) conversion option, which trades off audio quality for conversion speed. The DSD Import/Convert feature allows authors of SACD discs to create DVD-Audio reference / approval discs of their SACD projects, something not possible in the DSD / SACD native format.

The imported / converted DSD file is designated with a “D” symbol (see Figure 8-1).

Start Time	End Time	Info	Duration
Unamed			
Group #1			
00:00:00	00:00:34	D	00:00:34

Figure 8-1

The “Quality” selection radio buttons and PCM Sampling Rate check box for DSD Import / Convert are both accessible in the “DSD Options” window, selected under the “Options” Menu (see Figure 8-2).

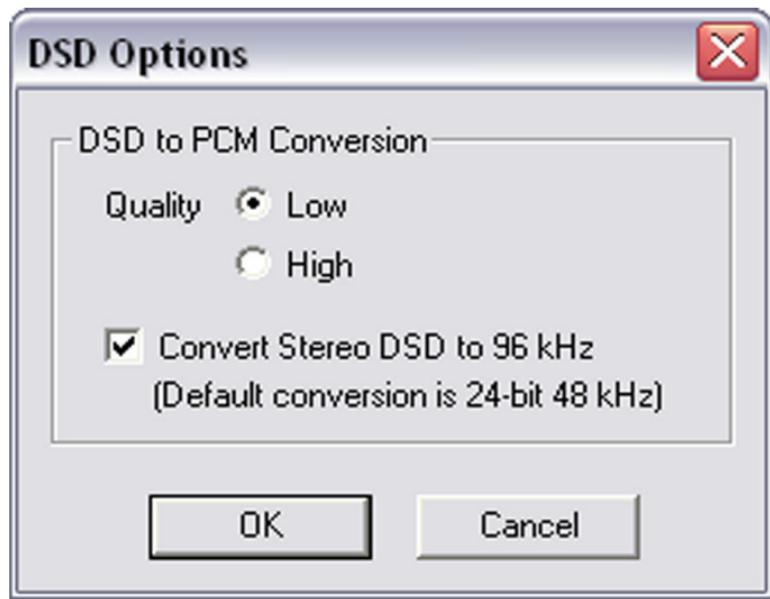


Figure 8-2

When browsing for soundfiles, DSD-format material is indicated by the “.dff” file extension and the “1-bit 2822400 Hz” audio format indication (see Figure 8-3 ).

File Name	Duration	Chan...	Audio Format
ss.dff	00:00:34	2	1-bit/2822400hz

Figure 8-3

**Note:** The “High” Quality conversion setting will take a long time to convert DSD to PCM, up to 8 times real-time for a 2GHz Pentium IV. The “Low” Quality setting runs about twice as fast as real-time in the same computer.

## 8.7 PGC Blocks

PGC Blocks is a feature of the DVD-Audio specification that allows two audio formats (surround and stereo, or different languages, for example) to be contained in each DVD-Audio Track. The DVD player will automatically play the format selected by the end-user (by selecting audio stream 1 or audio stream 2 in the player).

Start by creating tracks as you would for a single audio stream (click and drag, or double click on audio files). Then right click on the track to bring up the track pop-up menu (see Figure 8-4).



Figure 8-4

Select “Add Stream” to add the second audio stream to the track. The track will now display the current stream number (see Figure 8-5).



Figure 8-5

Audio files can now be added to the second stream by dragging or double-clicking on the files to be added.

Clicking on the stream number will toggle the track display between stream 1 and 2. The second stream may be removed by right clicking on the stream number when it is displaying “2”, and selecting the “Remove Stream” function from the pop-up menu.

Note that the DVD-Audio specification requires that the length of the audio in stream 1 and stream 2 be the same on a track. discWelder CHROME II will try to enforce this by extending the length of a stream to match the other stream in the case of two linear PCM tracks, or by truncating linear PCM in the case where one of the streams is in MLP format.

PGC Blocks with Track Points is not currently supported by discWelder CHROME II.

# 11 On-Screen Menu

**There are two categories of On-Screen Menus:** Automatic and Custom. Obviously the Automatic variety are much easier to make, as we do most of the work for you. However, Custom Menus generally look better if you put in the time required to do the graphics work (and learn the requirements for Custom Menu creation)

If you are new to Custom Menu creation, we suggest you start with Automatic for your first project (or several), then try a Custom Menu project. Read the manual section on Custom Menu Creation carefully!

## 11.1 Automatic Menu Creation

discWelder CHROME II can automatically create an on-screen menu from the Album, Group, and Track titles in your Album playlist. The consumer can use the DVD-A player's remote control to navigate through this menu on the TV connected to the player's video output, and select tracks to play.

discWelder CHROME II lets you have considerable control over the appearance of the on-screen menu, with very little effort.

To bring up the on-screen menu properties, Right-Click on the Album line of your Album playlist, click on Album Properties, then select "On-

"Screen Menu" and click on Menu Properties. This brings up the Menu Preview window (see Figure 11-1).

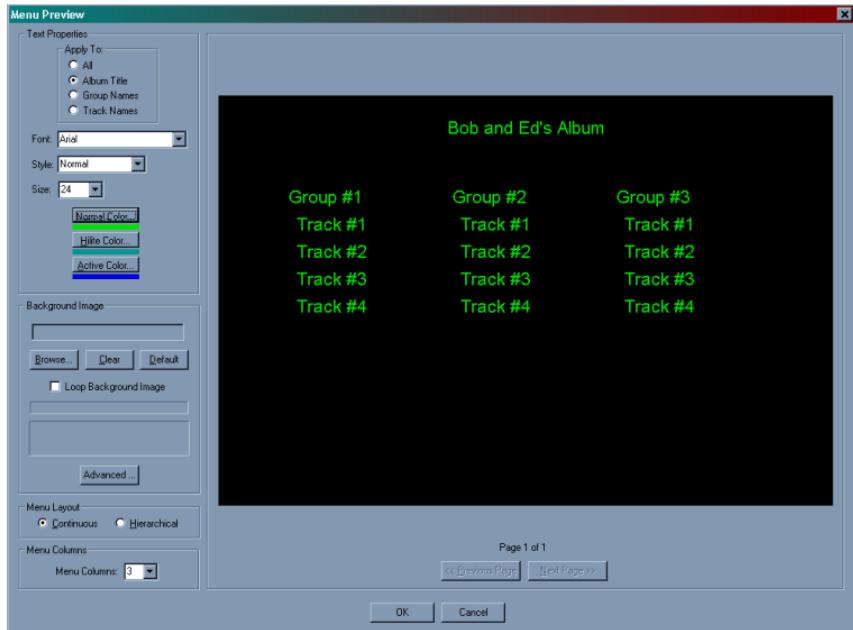


Figure 11-1

The right side of the screen shows a preview of the menus that will appear on the TV screen when playing the finished DVD-A disc. To the left of the preview screen are the controls to set the Font Properties, the Background Graphic, and the Menu Layout.

### 11.1.1 Menu Layout

There are two options for the layout of the Automatic Menu: Continuous and Hierarchical.

### 11.1.1.1 Continuous

When "Continuous" is chosen (see Figure 11-2),



Figure 11-2

all tracks appear in order. Up to three columns will be created on the screen to list the tracks, each Group with its' own column. The maximum number of columns, from 1 to 3, may be set from the Menu Columns selection. Figure 11-3 shows Groups 7-9 of an Album with 9 Groups and 4 Tracks per Group, listed in Continuous order.

Bob and Ed's Album		
Group #7	Group #8	Group #9
Track #1	Track #1	Track #1
Track #2	Track #2	Track #2
Track #3	Track #3	Track #3
Track #4	Track #4	Track #4

Prev                      Home

Page 3 of 3  
[<< Previous Menu] [Next Menu>>]

Figure 11-3

When all the Tracks cannot fit onto a single page (as in this case), multiple pages are created. The word "Next" appears on the lower righthand corner of the screen, and the consumer can click on this to get to the next page of the menu. In this preview screen, you can see the next

menu page by clicking on the "Next Menu" button below the preview screen (see Figure 11-4).

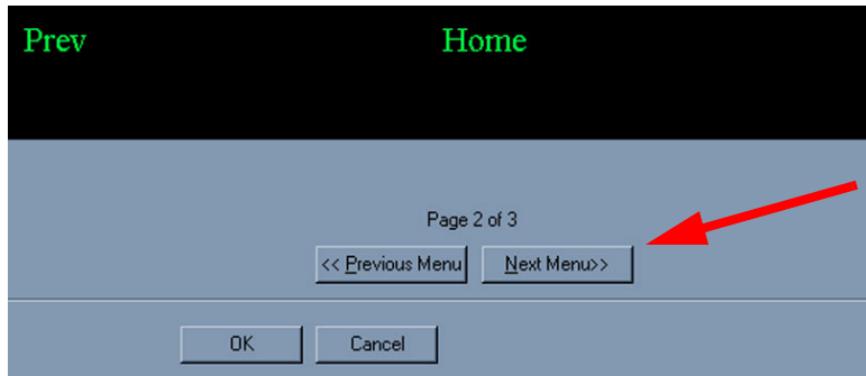


Figure 11-4

Notice on the bottom of the next menu screen are the words "Prev" and "Home". The "Prev" selection will take the consumer back to the previous menu page, and the "Home" selection will take the consumer back to the first menu page. For menu previewing, the "Previous Menu" button can be used to go to the previous menu page.

### 11.1.1.2 Hierarchical

When the Hierarchical Menu Layout option is selected, the first page of the menu lists the Groups in the Album (see Figure 11-5).



Figure 11-5

All the Groups in the album are displayed on the first preview page (see Figure 11-6).

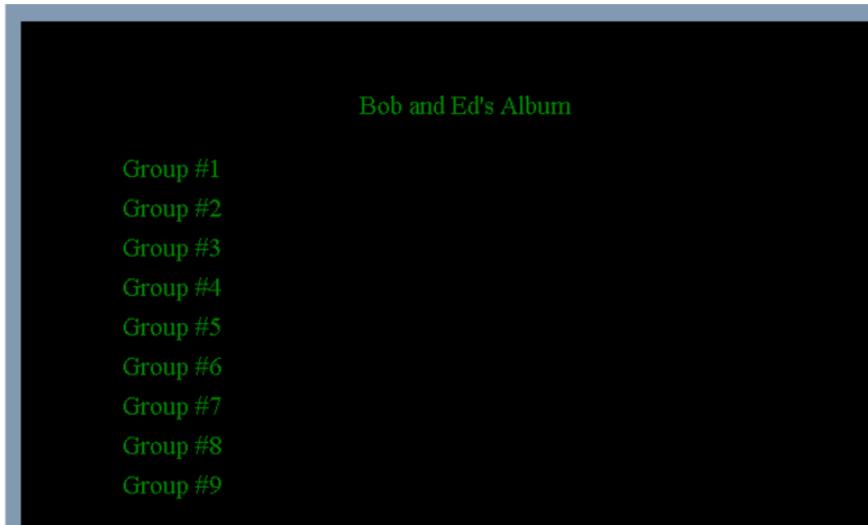


Figure 11-6

When the consumer clicks on a Group, the menu will jump to the page with the Tracks in that Group. For previewing, you can go to the Track menu for the first Group by clicking in the Next Menu button (see Figure 11-7).

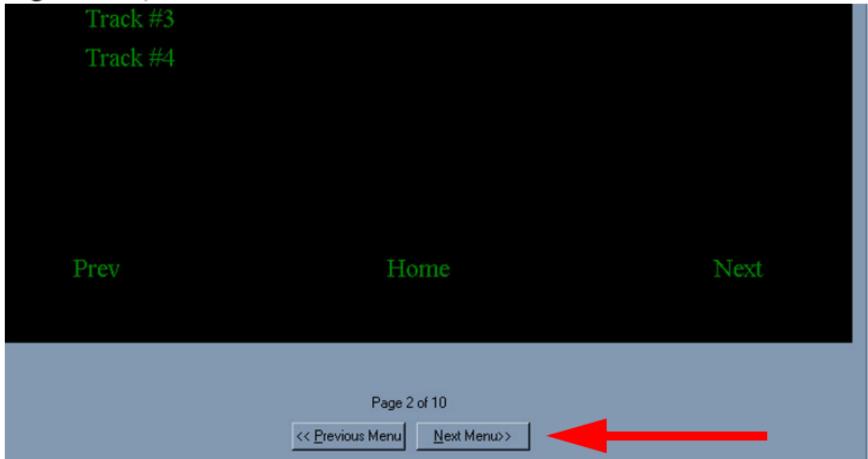


Figure 11-7

You can preview the Track listing for Group 2 by clicking on the Next Menu button again , and so on

### 11.1.1.3 Menu Background Image

You can place a still or motion image in the menu background (see Figure 11-8, which shows the discWelder CHROME II default background).



Figure 11-8

To place a background image on the menu, click the Select Image button, and browse to your graphics file. The file must be .BMP, .JPG, .TIF, .GIF, .MPG or .M2V format. The resolution of the picture depends on which TV System is selected. For a 525/60 system (this is NTSC, used in North America, Japan, and other parts of the world), the allowable resolutions (in pixels) are:

720 x 480

704 x 480

352 x 480

352 x 240

For a 625/50 system (this is PAL, used in Europe, Asia, and other parts of the world), the allowable resolutions (in pixels) are:

720 x 576

704 x 576

352 x 576

352 x 288

When a motion image is selected (.MPG or .M2V), the preview will show the first frame of the image. A motion image may be played once with a freeze on the last frame, or it may be set to repeat continuously by checking the “Loop Background Image” option.

CHROME II will indicate the resolution of the image chosen in the “Background Image” section (see Figure 11-9).

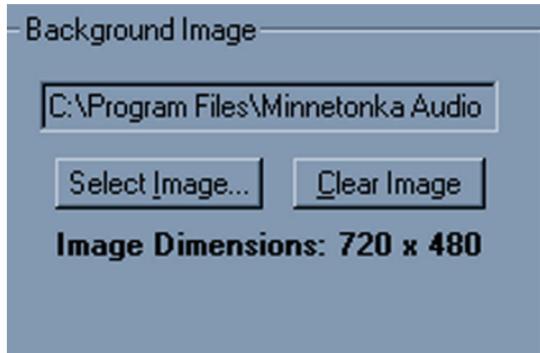


Figure 11-9

There will be a **WARNING** if the chosen image size is outside the allowable resolutions (see Figure 11-10).



Figure 11-10

To remove a background image from the menu, click on the Clear Image button.

#### 11.1.1.4 Font Properties

discWelder CHROME II lets you control the appearance of the text in the menu, including font, style, and color (see Figure 11-11).

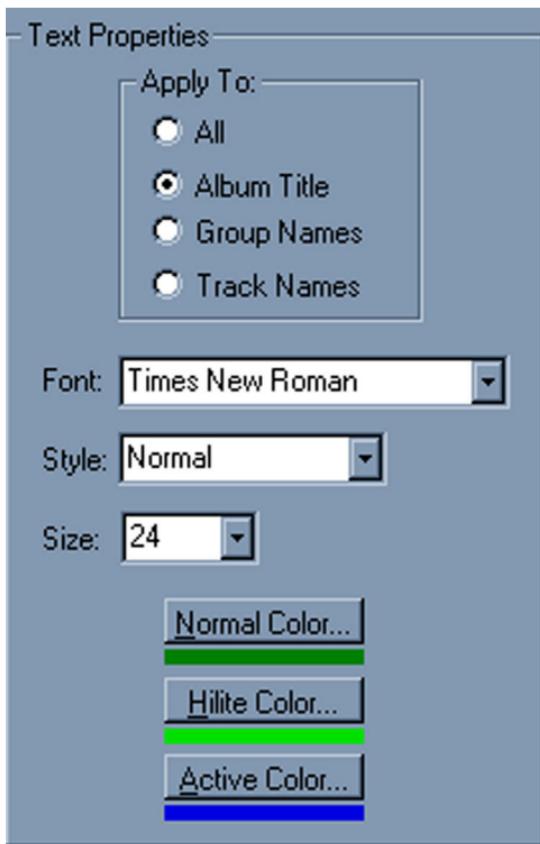


Figure 11-11

To change the text properties, you must first select which text the change will apply to. You can choose Album Title, Group Titles, Track Titles, or all three (the "All" button).

When you change a text property, the change takes effect immediately. You will see the change in the Menu Preview window.

## 1. Font

You can select from any of the TrueType fonts that are installed in your Windows system.

## **2. Style**

The styles available for most fonts are Normal, *Italic*, **Bold**, ***Bold Italic***, and Underline.

## **3. Size**

Font sizes in the drop-down list range from 12-point to 36-point. However, you can type in numeric values up to 71-point and the selected text font size will follow.

## **4. Color**

Colors can be applied to the selected text. There are three separate color attributes:

**Normal Color** is the color of the on-screen text when the item is not selected or activated.

**Hilite Color** is the color of the on-screen text when it is selected by the user.

**Active Color** is the text color displayed when an on-screen item is activated.

When you click on one of the Color buttons, a color palette window comes up (see Figure 11-12).



Figure 11-12

Click on the color that you want, then click on OK. You can also create custom colors by clicking on the Define Custom Colors button.

### 11.1.1.5 Text Properties Example

As an example, we will change the text properties on the Preview Menu shown earlier (see Figure 11-13).



Figure 11-13

We will change all the text to Arial Bold 24 point. First, we click the Apply To All button (see Figure 11-14).



Figure 11-14

Then we select Arial for the Font, Bold for the Style, and leave 24 selected for the Size. Now our menu looks like this (see Figure 11-15).



Figure 11-15

Now we will change the Album Title to yellow. First we click on the Apply To Album Title button, then we click on the Normal Color button. We click on the yellow color square, and then click on OK. Now our menu looks like Figure 11-16.



Figure 11-16

Next, we click on Apply To Group Names, and select the pink color. Our menu now looks like Figure 11-17.



Figure 11-17

Lastly, we click on Apply to Track Names, and select red. Our menu now looks like Figure 11-18.



Figure 11-18

The Hilite and Active Colors can be changed in this manner also. The custom menu configurations will be saved when the Album is saved.

## 11.2 Custom Menu Creation

This feature allows the author to customize the DVD-A appearance and navigation by creating Menu Background Image(s) (either bitmaps or MPEG videos) and Overlay Image bitmaps in an image editing program, then importing these images into CHROME II II. The images can then be used to create the “button” (or “hit”) boxes and their associated actions/links (such as play track, go to other menu page, etc.).

### 11.2.1 Menu Structure Basics

Think of DVD Menus as having three main components: the **Background Image**, which looks nice and just sits there; the **Overlay Image**, which could creatively be called the “action layer” (it is called the “Highlight Layer” in the DVD specification); and **Buttons** (also known as Button Layer). The contents of the Overlay Image will very often graphically relate to or refer back to the Background Image - however, it is the Overlay Image and the Buttons that get anything done (see Figure 11-6).

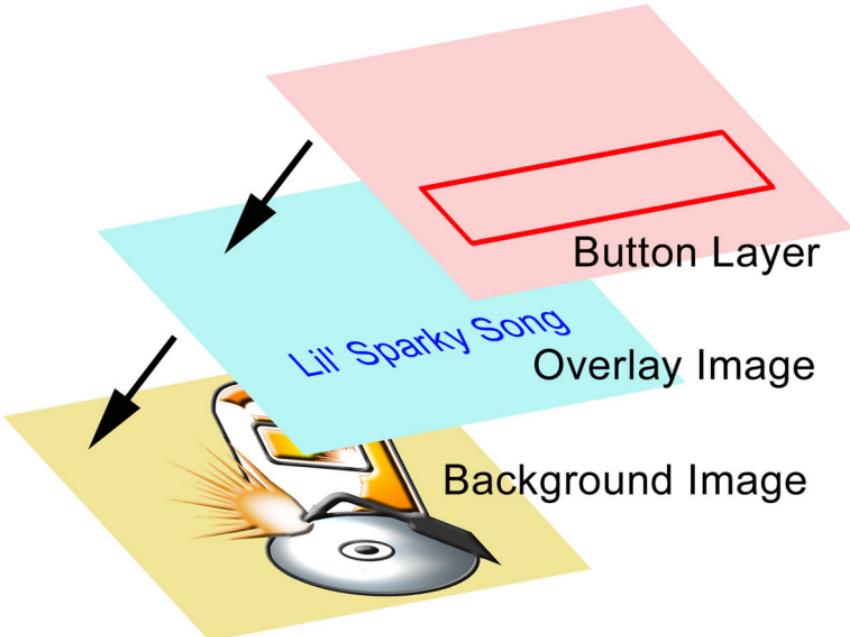


Figure 11-6

The **Background Image** is the graphic art file that the Overlay Image and Button areas are shown against. This can be created in nearly any graphics program. The Track Titles and Menu Titles (such as “Main Menu” or “Playlist”) can be part of the Background Image, or can be placed over the Background using the Overlay Image.

The **Overlay Image** is a graphic art file that may consist of Track Titles and Menu Titles, or simply the symbols or design elements that appear next to or around the Track/Menu Titles built into the Background Image. It is this Overlay that will change color inside a button area to indicate selection or activation by the end-user.

**Buttons** are rectangular areas that initiate Track play and/or Menu page change when “hit” by the end-user. They are drawn by the author around the area of the Background Image/Overlay Image that contains the button’s graphic elements. Only those graphic elements contained in the Overlay Image will change color.

Three states are defined for a button’s rectangular area - Normal Display, Selected, and Activated. Each state has it’s own set of four colors and opacities.

For example, when a button is Selected, the color of the Overlay Image graphic elements inside the button area will change from the assigned “Display” color to the assigned “ Selected” color. When the Selected button is Activated, those graphic elements will change color again to the assigned “Action” color.

The opacity, or transparency, of the graphics inside a button area when it is Displayed, Selected, or Activated is set by the author. It can range from invisible (“0 percent” opacity) to fully opaque (“100 percent”).

Buttons are Selected and Activated by end-user navigation. Typically this entails using the up/down and left/right arrows to highlight button graphics, then Activating it with the Enter key. Navigation is set up by the author using commands available in CHROME II.

The actions initiated by these buttons are defined ONLY by the commands (“Links”) assigned to them by the author. It is very important that the author double-check all the Links assigned to each button for accuracy.

### **11.2.2 Custom Menu Types:**

It may be helpful to categorize Custom Menus into three Classes or Types:

5. Main Menus (also referred to as Top Menus) and Playlist Menus - these are primarily used for Navigation within the DVD-A disc. They cannot show while a Track is playing (they are not “Active”), and they can be “nested” to provide for more flexibility (multiple levels of Playlists, for example). These can contain bitmaps or MPEG Background Images.
6. Active Menus that ARE Track Associated - this is a Menu page that can appear when a Track is selected (only one Associated Active Menu can be used per Track). These can contain an image or lyrics for the Track, for example. These can contain bitmaps but not MPEG Motion Backgrounds.
7. Active Menus that are NOT Track Associated - examples would be Photo Gallery images or Lyrics Gallery images, which the end-user can access via Menu buttons and page commands (“forward” and “back”) during Track playback. These can contain bitmaps but not MPEG Motion Backgrounds.

### **11.2.3 Creating Custom Menus**

To create a Custom Menu, go to the “Album Properties” page by right-clicking or double-clicking on the Album Title. Under the “On-Screen Menu” check box (which must be checked for Menus to appear), click on the “Edit Custom Menu...” button (see Figure 11-7).

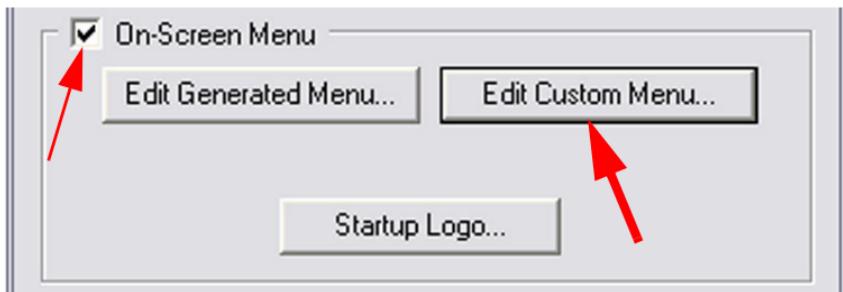


Figure 11-7

**Note:** Clicking the “Edit Generated Menu...” button will automatically create the On-Screen Menu from the Album, Group, and Track Titles that appear in the Album Window of CHROME II. This can be used to automatically generate Track titles and button areas for the Custom

Menu process by first clicking the “Edit Generated Menu...” button, checking the accuracy of the automatically-generated Menu, then clicking “OK” and exiting this window. Then click on the “Edit Custom Menu...” button, and the information and preliminary button areas will appear in the “On-Screen Menu” window for further editing.

**Note:** Clicking on the “Edit Generated Menu...” button will DELETE ALL Custom Menu parameters (there is a **Warning** previous to this action).

Clicking on the “Edit Custom Menu...” button brings up the “Menu Edit” page (see Figure 11-8).



Figure 11-8

On the “Menu Edit” page, the author can browse for and select the Background Image to import - shown with a **RED** outline in Figure 11-8, above (or utilize the wonderful Default image provided). The Background Image can be either a bitmap, as shown in Figure 1-9, or an MPEG Motion Background.

The allowable sizes, in pixels, for Background Image bitmaps are:

NTSC: 720x480 (standard), 704x480, 352x480, 352x240;

PAL: 720x576 (standard), 704x576, 352x576, 352x288.

If the imported bitmap is not at one of these pixel dimensions, a **WARNING** will appear (see Figure 11-9).

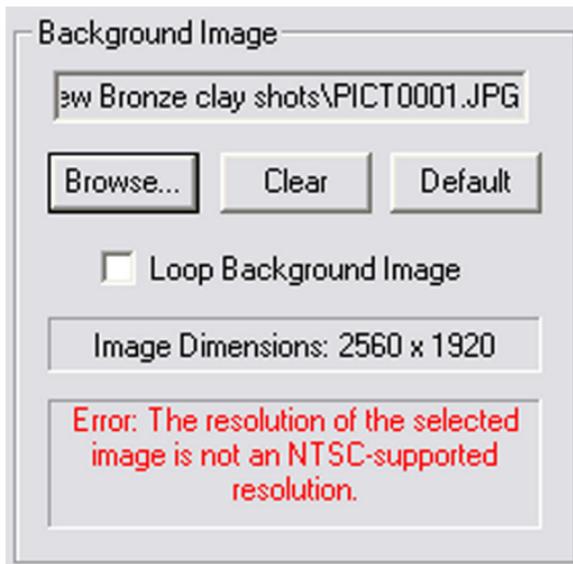


Figure 11-9

Next, the Menu Overlay (Subpicture) can be imported as a bitmap file. The Overlay must be a 2 to 4 color (indexed/delimited) bitmap of the same size as the Background Image. The author can create as many custom menu pages (Background Image and Overlay Image) as desired. If

the Overlay Image has MORE than four colors or FEWER than 2 colors, a **WARNING** will appear (see Figure 11-10).



Figure 11-10

When a Motion Menu (MPEG) is used, the arrival of the Overlay Image may be delayed after the start of the MPEG Background Image.. This delay is set in the “Delay (secs)” box in the Overlay Image area (see above). This delay may not be longer than the duration of the MPEG Background Image file, and the delay time is ignored if the Motion Menu is looped .

### 11.2.3.1 Creating Button Areas

To create the button areas used for Navigation and Actions (Links), the author draws a rectangular area around each of the button regions on the overlay. The author can associate a Link (Command) with each rectangular area. Links are available to start playback of a Track, go to a Menu page, go to the First Menu page, and go to the next or previous

Menu page. Each rectangular area has attributes to specify the adjacent regions, i.e. Navigation: up/down/left/right (see Figure 11-11).



Figure 11-11

To draw a button, click on the “Button Draw Mode” radio button (see Figure 11-12), then click and drag the cursor to create the button area. You may also use “shift>click>drag” to create a button if you are not in the Button draw Mode. To delete a button, right-click on it and select “Delete”.



Figure 11-12

To create Navigation links from one button to another, shift-click on the white triangle located on one of the sides of the button area box (see Figure 11-13) depending on the desired navigation direction (for example, “Up” or “Down” on the player’s remote control), then drag (while holding the shift-click) to the button you wish to navigate to - a shaded arrow indicating navigation direction and target button will appear (see Figure 11-13).

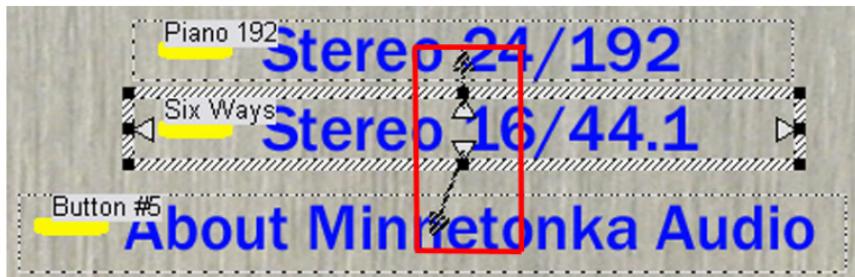


Figure 11-13

To delete a Navigation Arrow, shift-click on its' white triangle and drag the Arrow back to the same button area.

**Note:** When a button area is selected (by clicking inside the rectangular button area), the button area borders become black and white cross-hatched lines. While selected, the button area can be re-sized by "grabbing" the appropriate black corner or edge square and dragging to the desired size.

**Note:** The button area can be re-positioned by placing the cursor over the button area (it turns into a four-arrow symbol) and dragging the button area to the desired spot.

### 11.2.3.2 Changing Button Colors

After importing the Overlay Image, the author can then choose the colors for the Subpicture Color palette by selecting the set of 4 colors (Background, Pattern, Emphasis 1, Emphasis 2) and contrasts for each color set shown in the "Subpicture Color" window - Display, Selected, and Action (see Figure 11-14).



Figure 11-14

**Note:** The color palette for all active Menus may contain no more than 16 total colors.

The set of colors for the “Selection Color” and the “Action Color” should be different from the “Display color” (and each other) to avoid end-user confusion.

The Opacity (Transparency) of each Button color can be set by using the scroll arrows (percent up/down) to the right of each Color Bar. While there are 16 actual levels of Opacity on the disc, the Color Bars indicate percentages. 100% is completely opaque and 0% is completely transparent. Many projects will use 100% on the “Pattern” buttons and 0% on the rest.

### 11.2.3.3 Linking Tracks

To Link a Button to a Track, which will start (play) the Track when the end-user hits “Enter” or “Play” on the player’s remote control, right-click on the button, drag to select “Link To Track”, then select the Track to Link to this button (see Figure 11-15 ).



Figure 11-15

#### 11.2.3.4 Linking Menus

To Link a Button to a Menu, which will show the Menu when the end-user hits “Enter” on the player’s remote control, right-click on the button, drag to select “Link To Menu”, then select the Menu to Link to this button (see Figure 11-16 )

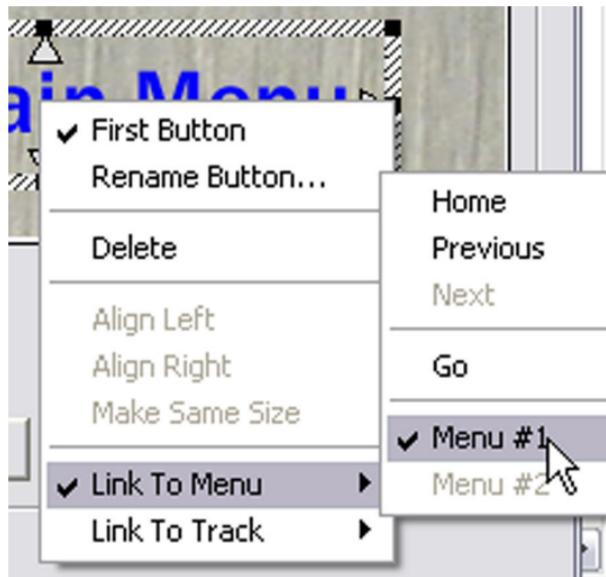


Figure 11-16

**Note:** Each Menu page may have a First Button designated - this is the button that will be active by default when the page is first shown. This will default to the first button created on the Menu page by the author, or it can be designated by right-clicking on the desired button and selecting “First Button”.

If a First Button has not been specified for a menu, most players will automatically remember the last selected button on this page when the user revisits the page.

#### 11.2.4 Active Menu

This feature allows a Menu page to be Active during Track playback. This means that the button(s) on that Active Menu page will continue to

function while the Track plays. This option will override the display of slides on a Track (see Figure 11-17).

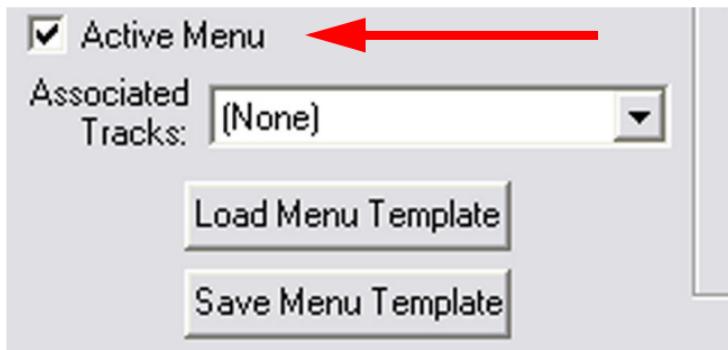


Figure 11-17

The Track(s) associated with this Active Menu page will appear in the pull-down selection window next to “Associated Tracks”.

### 11.2.5 Custom Menu Rules

1. An “Active” Menu Background Image may contain a bitmap file, but may NOT contain an MPEG file.
2. An MPEG Video Background Image can be either elementary stream (video only), or in the “DVD Pack” format, which is MPEG2 video multiplexed with 16-bit/48KHz PCM mono or stereo audio (if the video has audio).
3. All Menus should contain at least one Linked button, or the Menu page may be “Dead-Ended”, i.e. the end-user cannot get out of the page (especially true in players without a remote control).
4. Menu pages with MORE than one button must have Navigation to and/or from each button - a button without Navigation will be “Orphaned”, i.e. the end-user cannot select it.
5. A VTS Link cannot be added to a Track with an Associated Active Menu page. In other words, the player cannot display a video and an active menu at the same time.
6. The Overlay Image must contain at most four colors (including the Background color). Also known as “Indexed” or “Delimited” color.
7. All shapes and/or text that will change color with Selection or Action must be contained within the button area.
8. The set of active Menu page Overlay colors may contain no more than 16 total colors.

9. Track Slides (Slide Show) cannot be used when an Active Menu (either Track Associated or not) is used with a Track.
10. An Album cannot contain more than 99 total Menu pages.
11. The Track command links from an Active menu are restricted to be within the same Group.

## 11.3 Motion Menu

This feature allows the selection of an MPEG2 video file as a menu background (Motion Menus cannot be used as Active menus). The Motion Menu may contain audio ONLY if it is in “DVD Pack” format, which multiplexes the MPEG2 video with 16-bit/48KHz PCM mono or stereo audio. Motion Menu is selected in the Background Image area of the Menu Edit window (right-click or double-click on the Album Title, select Album Properties, and select “Edit Custom Menu...” or “Edit Generated Menu...”). Click on the Browse button and locate the MPEG file for the Motion Menu, select it, and it will appear in the Background Image file window (see Figure 11-18).

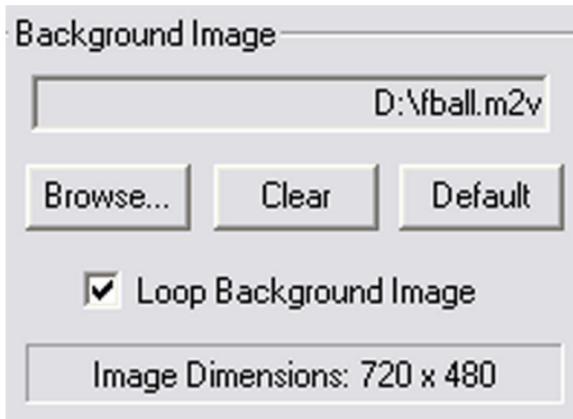


Figure 11-18

Motion Menus may be looped - set to repeat indefinitely until the end-user selects an action (such as Track play). To loop a Motion Menu, check the “Loop Background Image” box in the Background Image area (see Figure 11-18). Checking the Loop Background Image box will cancel any Delay set for the Overlay Image (see Section 1.4.3).

**Note:** Motion Menus can be used for any Main Menu Backgrounds (including Top Menu and Playlist).

## 11.4 Startup Logo

This feature can be accessed on the Album Properties page by right-clicking or double-clicking on the Album Title and clicking on the “Startup Logo” button (see Figure 11-19)



Figure 11-19

Startup Logo allows the author to select a bitmap or MPEG2 video file to be displayed once upon disc insertion. If an MPEG file is selected, it may contain audio ONLY if it is in “DVD Pack” format, which multiplexes the MPEG2 video with 16-bit/48KHz PCM mono or stereo audio.

If the “Auto Play” option is not checked in the Album Properties, when the disc is inserted in the player the first page of the menu (Top Menu) will be displayed after the Startup Logo finishes playing.

If “Auto Play” is selected, the startup logo may be played when the disc is first inserted, or when the Top Menu is first displayed. If “Always Play Logo First” is checked, the startup logo will be played when the disc is inserted, and then the first track will start to play. Otherwise, the startup logo will play once when the Top Menu is initially displayed.

If Startup Logo is a bitmap, the Duration (in seconds) must be set to the amount of time the author wishes the Startup Logo to remain on-screen (see Figure 11-20).



Figure 11-20

# 12 Right-Click Menus

Right-Click menus provide an easy way to navigate to the many functions of discWelder CHROME II.

## 12.1 Album Right-Click menu

Figure 12-21 shows the Album Right-Click menu.

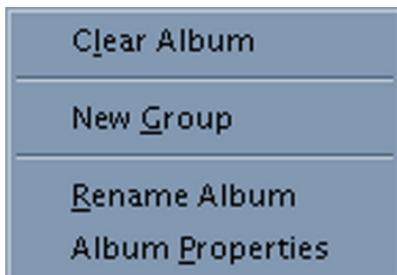


Figure 12-21

### 12.1.1 Clear Album

This removes all the Groups and Tracks from the current Album.

### 12.1.2 New Group

This command creates a new Group in your Album. If the Album does not have a Group, this will create a Group line directly under the Album line. If the Album already has one or more Groups, this command will create a new Group line directly under the last soundfile of the last Track line.

### 12.1.3 Rename Album

If your Album does not have a name, this will allow you to name it. If your Album already has a name, this will allow you to change the name.

This command opens a window on the Album line, where you can type in the name.

## 12.1.4 Album Properties

This selection will bring up the Album Properties window (see Figure 12-22).

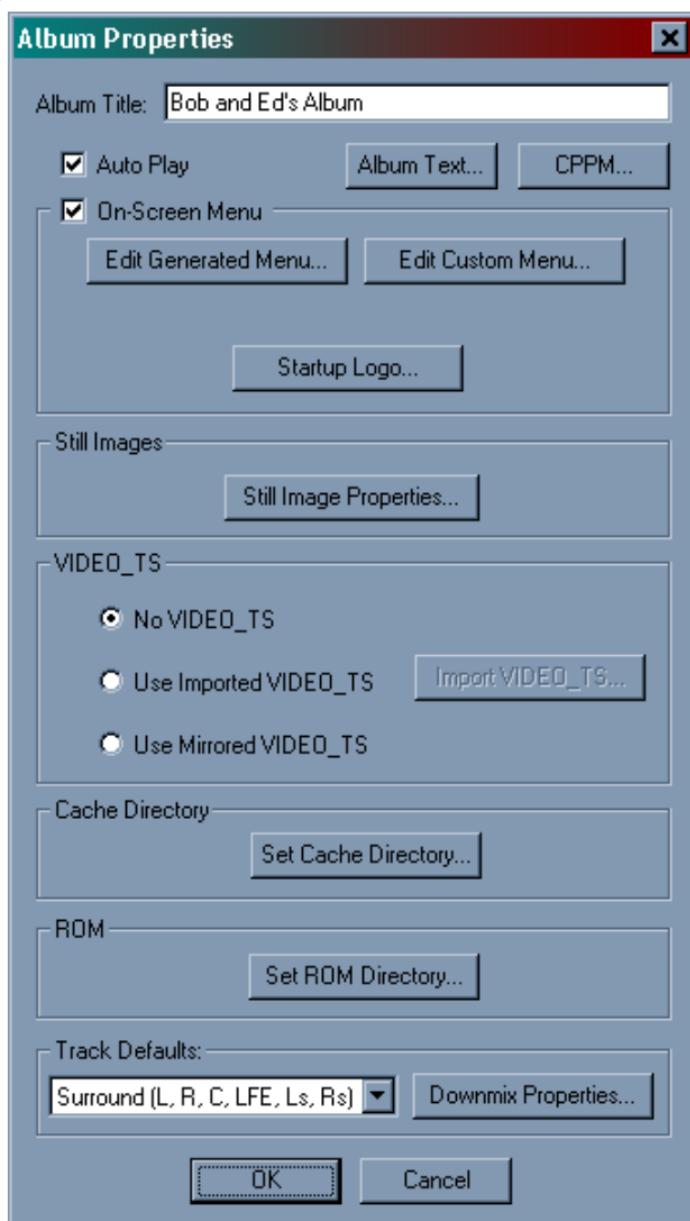


Figure 12-22

#### **12.1.4.1 Album Title**

This window displays the name of the Album. You can use this window to enter an Album name, or to change an existing Album name. This window does the same thing as the "Rename Album" command on the Album Right-Click menu.

#### **12.1.4.2 Auto Play**

If this box is checked, the DVD-A disc that is created will automatically start playing when inserted into a DVD-A player.

#### **12.1.4.3 Album Text**

Text information may be associated with the Album. See the Audio Text section for more information on creating Album Text.

#### **12.1.4.4 CPPM**

CPPM is the set of copy protection and control information that may be specified for DVD-Audio discs. Refer to the CPPM section for more information.

#### **12.1.4.5 On-Screen Menu**

A DVD-A disc can display a menu on a TV screen. If this box is checked, discWelder CHROME II will create an on-screen menu from the Album, Group, and Track names in your Album.

discWelder CHROME II gives you considerable control over the setup of the on-screen menu. With very little effort you can

- choose between a continuous track list or a hierarchical track list
- place a background graphic under the menu
- control the font, size, and color of the list items

A completely custom menu may also be created. For details, see the "On-Screen Menu" chapter.

There is a single setting for Aspect Ratio, Display Mode, and TV System that apply to all the images on the disc (see Figure 12-23). The

Effects Settings, on the other hand, just determine the initial settings for each Track. The Effects can later be customized on each Track.

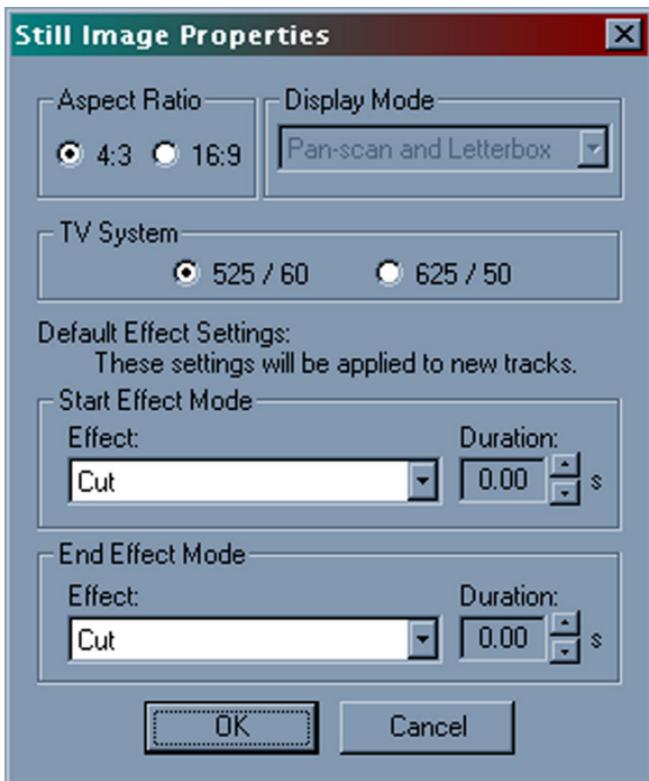


Figure 12-23

## Aspect Ratio

If the images you place on the disc were made to fit a standard TV screen, select "4:3". If your images were made for a wide-screen TV format, select "16:9".

## Display Mode

If you selected an Aspect Ratio of 16:9, you can select a Display Mode. The Display Mode determines how a wide-screen image will be displayed if the viewer has a standard TV screen. The Pan-scan mode fills the picture to the top and bottom of the screen, but cuts off some of the picture on the right and left sides. The Letterbox mode has black space along the top and bottom, but places the full picture on the screen.

## **TV System**

This sets the picture to work on the TV system of the intended viewer. Generally, North America and Japan uses "525/60" (NTSC) and Europe uses "625/50" (PAL).

### **Global Effects Settings**

When the TV screen switches from picture to picture, it can be done in a number of different ways, such as a fade-in and a fade-out, or a diagonal wipe. Each track can be customized to use a different effect. The Global Effects Settings determines the effects on each new Track before the Track is customized.

The Start Effect Mode determines how the picture will be drawn onto the screen. The Period determines how long it will take to draw the picture. Similarly, the End Effect Mode determines how the picture will be erased from the screen. The Period determines how long it will take to erase the picture.

### **12.1.4.6 VIDEO\_TS**

The VIDEO\_TS options allow enable discs to be created with both DVD-Audio and DVD-Video zones. The DVD-Video zone would play in a video-only player, and the DVD-Audio zone would play in a DVD-Audio/Video player.

A VIDEO\_TS may be created outside of discWelder CHROME II using a video authoring program. The VIDEO\_TS folder is then specified in the Album Properties. Once the VIDEO\_TS has been imported, the video titles are available to be linked from tracks in the playlist. See the VTS Links section for more information.

discWelder can also create a VIDEO\_TS using the "Auto-Mirror" feature. This feature will duplicate the playlist in the video zone, by automatically encoding the audio in Dolby Digital AC-3 format. See the Auto-Mirror sectoin for more details.

### **12.1.4.7 Cache Directory**

discWelder CHROME II will automatically create and use a cache directory to hold intermediate files that may take a long time to create. For example, when the Auto-Mirror function is enabled, audio files will be encoded in Dolby Digital AC-3 format. These encoded files will be

saved in the cache directory, so that they will not have to be recreated if the original audio has not been changed.

The cache directory location may be viewed, changed or cleared through the Cache Directory dialog.

#### 12.1.4.8 ROM Directory

A folder may be specified through the ROM Directory dialog. The contents of this folder will be placed in the root directory of the DVD file system.

This feature may be used to place files on the DVD that would be accessed if the disc is placed in a computer DVD drive.

#### 12.1.4.9 Downmix Properties

When a 5.1 surround recording is played back over a stereo sound system, the DVD-A player must mix 6 channels down to 2 channels. You can set the levels for each channel of the downmix using the Downmix Properties (see Figure 12-24).

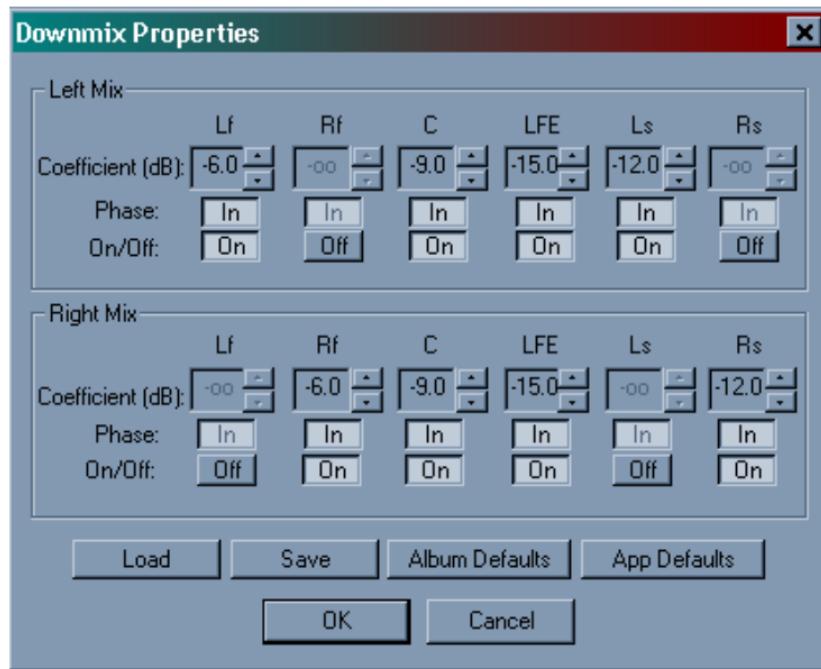


Figure 12-24

The left stereo channel is a mix of the 6 Surround channels, with a mix coefficient for each of the 6 channels. The right stereo channel is also a mix of the 6 Surround channels.

You can set the gain value of each channel in the mix. Gains are in 0.2 dB increments from 0 to -40, and 0.4 db increments from -40 to -60. You can also set the value to  $-\infty$ , or click on the On/Off button to set the channel to Off..

In this menu, you are setting the Album Downmix defaults. This is the value that will be loaded into the Downmix Properties of each new Track. You can go into each Track, and customize the Downmix coefficients for that particular Track.

If you have a downmix table that you like, and expect to use again, you can save it. When you click on the "Save" button, a Save Downmix window appears (see Figure 12-25).

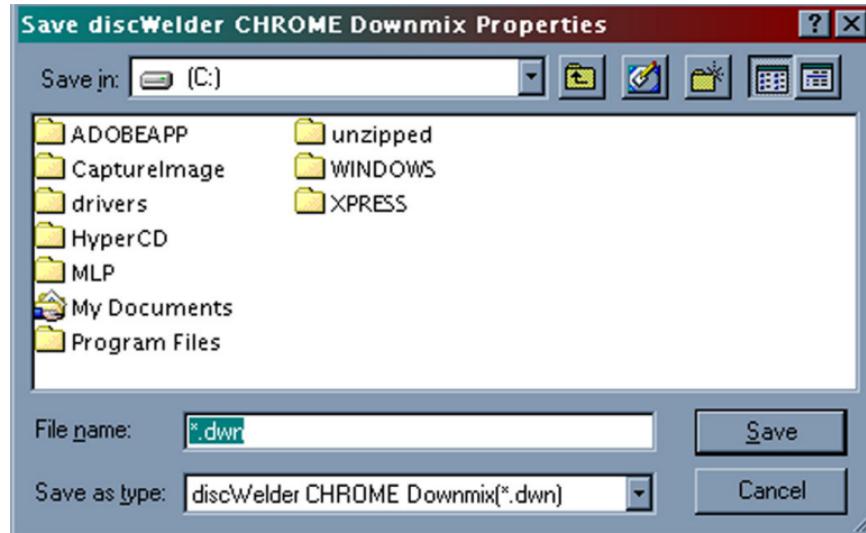


Figure 12-25

Just browse to the folder where you want to store it, give it a filename, and click on the Save button. The file will be saved with a filename extension of ".dwn".

If you already have a downmix table saved, and you want to use it, click on the "Load" button in the Downmix Properties window. discWelder CHROME II will load the values into the table.

If you click on "discWelder CHROME II Defaults", it will set the Album Downmix defaults back to the default values of the discWelder CHROME II program.

## 12.2 Group Right-Click menu

Figure 12-26 shows the Group Right-Click menu.



Figure 12-26

### 12.2.1 Clear Group

This removes all the Tracks from the Group.

### 12.2.2 Delete Group

This removes the Group from the Album.

### 12.2.3 Insert Group

This adds a new Group to the list, ABOVE the Group that is highlighted.

### 12.2.4 New Track

This adds a new track to the Group, after the last Track in the Group.

### 12.2.5 Rename Group

This lets you name an unnamed Group, or change the name of a named Group. When you select Rename Group, a window opens up on the Group line so you can type in a name.

## 12.3 Track Right-Click menu

Figure 12-27 shows the Track Right-Click menu.

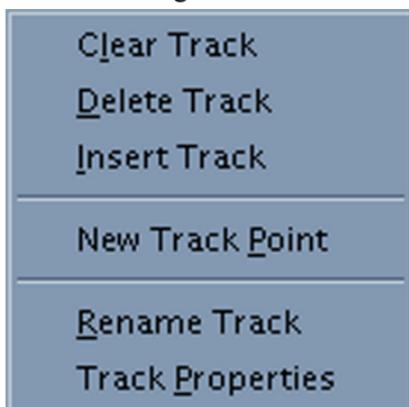


Figure 12-27

### 12.3.1 Clear Track

This removes all the soundfiles that are assigned to the Track.

### 12.3.2 Delete Track

This removes the highlighted Track from the Group.

### 12.3.3 Insert Track

This inserts a new Track in the Group, ABOVE the Track that is highlighted.

### 12.3.4 New Track Point

This inserts a new Track Point in an MLP Track (see the “MLP Tracks and Track Points” section of the “Track Properties” chapter).

### 12.3.5 Rename Track

This lets you name an unnamed Track, or change the name of a named Track. When you select Rename Track, a window opens up on the Track line so you can type in a name.

## 12.4 Soundfile Right-Click menu

Figure 12-28 shows the soundfile Right-Click menu. This menu appears when you Right-Click on a soundfile line in the Album window.

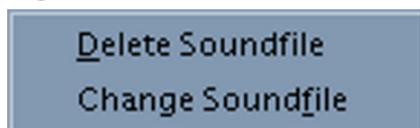


Figure 12-28

### 12.4.1 Delete File

This removes the soundfile from the Track.

### 12.4.2 Change File

This lets you replace the soundfile with a different soundfile. When you click on "Change File", a dialog appears (see Figure 12-29)

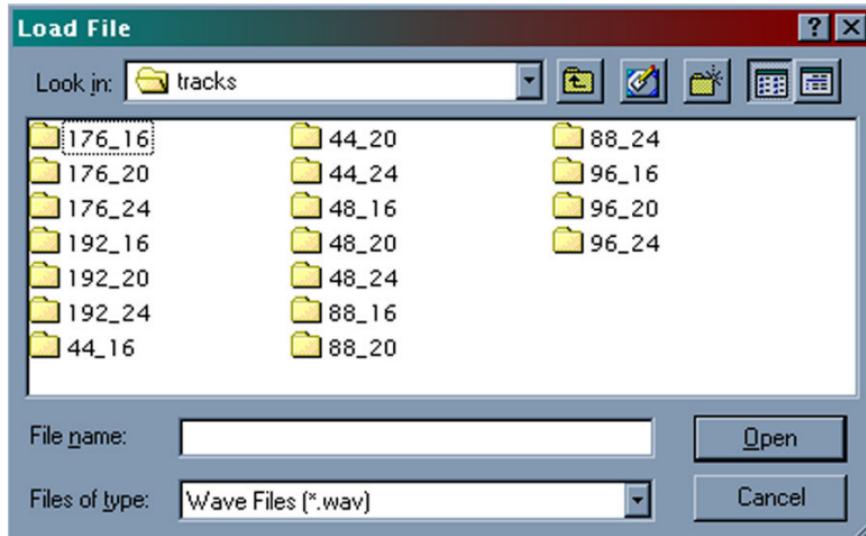


Figure 12-29

In this dialog, you select the new soundfile and hit the "open" button.

## 12.5 Video Track Link

Video Track Links enable a track in the AUDIO\_TS to be linked to play a Video Title in the VIDEO\_TS. This makes possible the playback of videos from within the audio playlist.

The “Video Track Link” feature presents a list of Video Title Sets, and Title Numbers within each Set. The list is created from a scan of the VTS files present during the “Import VIDEO\_TS” function. The author can associate a discWelder track with a Video Title.

Limitations for Video Track Link are that the Link must be from the first or last Track in a Group, or that the Video Track Links are the only Tracks in a Group.

Before adding a Video Track Link, make sure you have specified a VIDEO\_TS for Import in the “VIDEO\_TS” section of the “Album Properties” page (right-click or double-click on the Album Title).

To add a Video Track Link to a Track, right-click on the Track you wish to add the Link to (it MUST be the first or last Track in a Group, or part of a Video-only Group). Scroll down to “Video Title Link”, select a Video Title Set from the list, and select a Title Number from within the Set. The Track will now be linked to this VTS and play the VTS as a Track (see Figure 12-30).

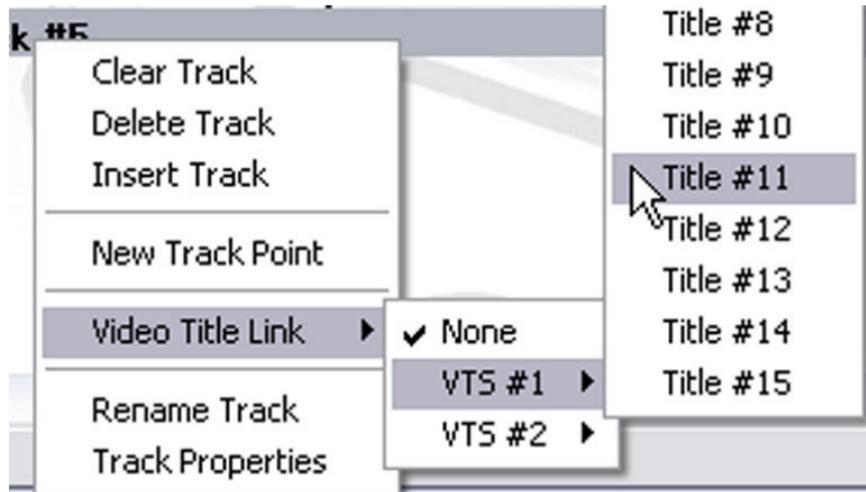


Figure 12-30

Note: Audio files may also be specified on a Track that has a Video Track Link. The audio files will ONLY play in an “Audio-Only” player (such as an automotive or portable DVD-Audio player). The Linked Video Track (PCM stereo, Dolby Digital stereo or surround, or DTS surround) will play in any DVD-A/V player.

**Note:** The DVD player will revert to the Main Menu (Menu #1) at the end of the Video Track Link, unless it is part of a Group of VTS Tracks, in which case the VTS Tracks will play in the order you have assigned them with Video Track Links.

## 12.6 Auto-Mirror

This feature allows the author to automatically create a VIDEO\_TS (Video Zone) from the contents of the AUDIO\_TS (Audio Zone). This allows album playback on both DVD-Audio and DVD-Video players (by creating a Universal DVD-A/V disc). The audio tracks are encoded with an integrated SurCode™ Dolby Digital (AC-3) encoder from the Tracks in the AUDIO\_TS (Audio Title Set), and the VIDEO\_TS (video title set) is auto-formatted using the integrated video authoring application.

The Auto-Mirror option creates a video main menu and a static slide per Track, where the video Track slide comes from the first slide of the audio Track (if there is a slide or slides specified for the Track in the AUDIO\_TS). The SurCode Dolby Digital encoder automatically selects the coding mode based on the channel format of each Track (5.1 surround or stereo). If an audio Track is MLP encoded, CHROME II decodes the MLP data using the integrated MLP Decoder and re-encodes it as a Dolby Digital (AC-3) Track.

To select this option, click the “Use Mirrored VIDEO\_TS” radio button in “Album Properties”, accessed by right-clicking or double-clicking on the Album Title (the first line in the Album Window). The Album Properties window will appear with the “VIDEO\_TS” section in the middle of the window (see Figure 12-31).

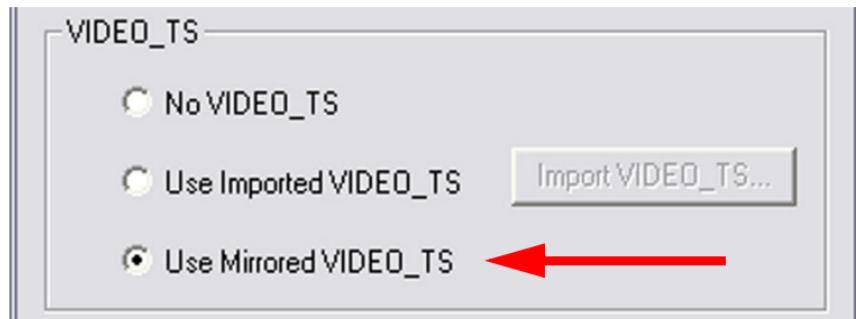


Figure 12-31

In the integrated SurCode Dolby Digital encoder used by “Auto-Mirror”, two parameters are accessible - Dialog Normalization and Dynamic Compression Preset. See “APPENDIX B - Dolby Digital Parameters in CHROME II” for more details on these parameters. These Encoding Parameters are available under the “Options” Menu - select “Dolby Digital Encoder Options”. The Parameter Window will allow

changing the Dialog Normalization (Dialnorm) value, and selection of Dynamic Compression (DynComp) Preset (see Figure 12-32).

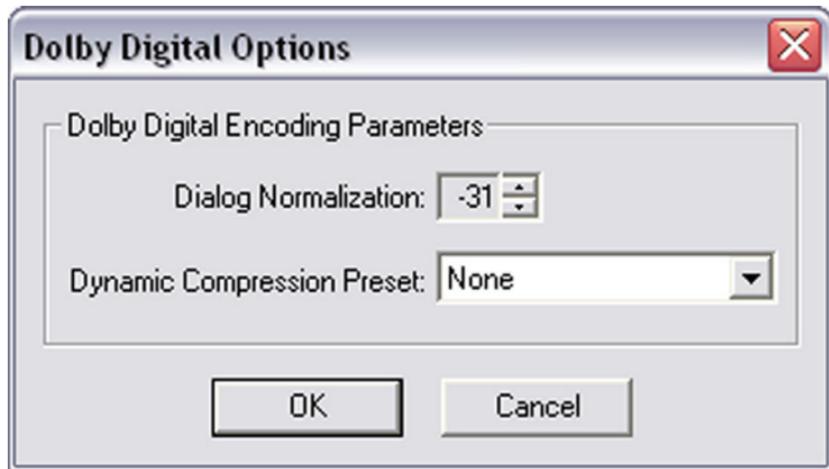


Figure 12-32

**Note:** The default values for these parameters are set for generic music, and may not be appropriate for your material. Please read and understand the Dolby Guidelines (at [www.dolby.com](http://www.dolby.com)) for Dolby Digital Encoding before committing to Dialnorm and DynComp values.

**Note:** Do not use Track Points (PCM or MLP) if you use Auto-Mirroring. The track points will not result in individual tracks in the VIDEO\_TS.

## 12.7 Audio Text Information

Static text may be specified for album name, group names, track names and other group, track and album information. (see Figure 12-33).



Figure 12-33

This static text may be displayed by some players, or used in special data applications.

When Album, Group and Track titles are specified through the playlist Rename or Properties dialogs, this information is automatically propagated to the Audio Text Information.

To view or add static text to an Album, Group, or Track, open the Text window by first right-clicking on the Album, Group, or Track Title and open the Properties Window. Click on the Album (or Group or Track) Text button. The Text window will open.

Using the top-left pull-down menu, select the category of text you wish to enter - for example, Language. The top-right pull-down menu will display a list of sub-categories to be selected. Enter the text for this cat-

egory/sub-category below the pull-down menus and click the “Add” button to add this text to the list of Album, Group or Track text.

You may also Insert, Replace, or Delete text as well. This process can be repeated for any text category shown in the upper-left pull-down window.

## 12.8 CPPM

CPPM specifies the copy protection and control information for the album.

To access the CPPM setup, right click on the Album name and select Properties. From the Album Properties dialog, select the CPPM button (see Figure 12-34).



Figure 12-34

The CPPM dialog will be displayed as shown in Figure 12-35..

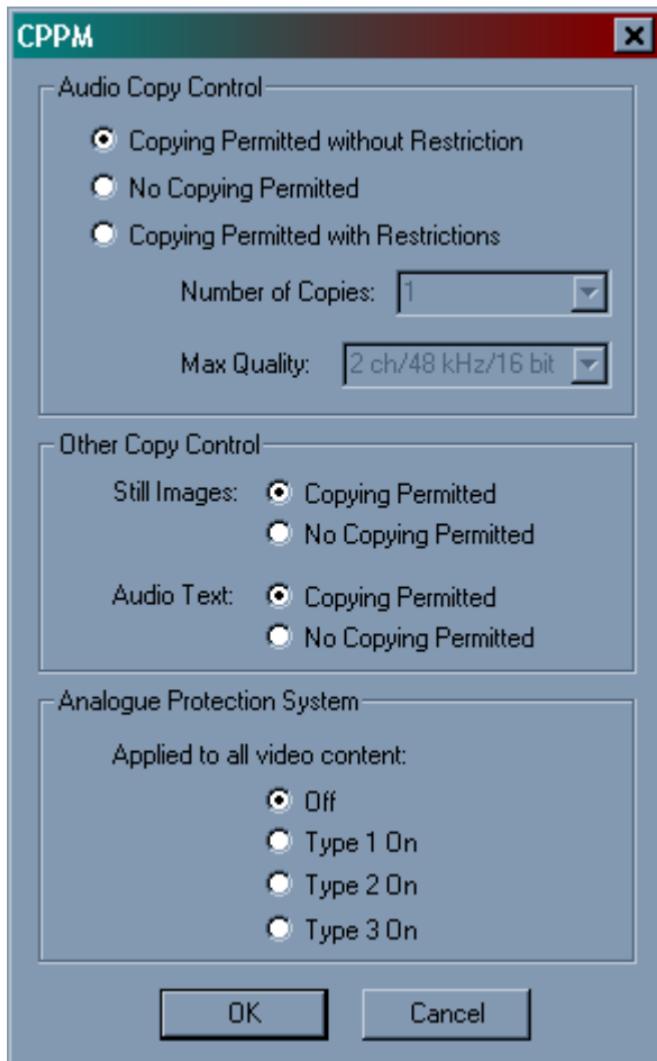


Figure 12-35

Copying of the audio data may be set as follows:

- Copying Permitted without Restriction
- No Copying Permitted

- Copying Permitted with Restrictions - Restrictions may be set to control the number of copies made and the allowable digital formats that will be available for copying the audio.

Still Images and Audio Text may also be protected from copying, independent of the audio data.

For video data, the Analogue Protection System (APS) may be specified. Macrovision licenses the use of APS. Go to [www.macrovision.com](http://www.macrovision.com) for more information on licensing and use of this technology. Type 1 is available for 525/60 and 625/50 TV systems. Types 2 and 3 are only available for 525/60 TV systems. The APS selection will be applied to all video content on the disc in the audio zone (menu pages, startup logo, and slides).

Two additional features of CPPM are watermarking and encryption of the data. Watermarking would be applied to the audio data prior to authoring. Visit the [www.verance.com](http://www.verance.com) website for more information on watermarking technology for DVD-Audio. Encryption of the audio data would be applied from a DLT tape at the manufacturing facility.

# 17 Appendix A: Allowable audio formats

discWelder CHROME II allows you to record Stereo or 5.1 Surround recordings onto the DVD-A disc.

## 17.1 Stereo recordings

Stereo recordings can have sample-rates of 192, 176.4, 96, 88.2, 48, or 44.1 kHz.

Bit-depths can be 24-, 20-, or 16-bits.

## 17.2 5.1 Surround recordings

5.1 Surround recordings can have sample-rates of 96, 88.2, 48, or 44.1 kHz.

Bit-depths can be 24-, 20-, or 16-bits.

PLEASE NOTE: 5.1 Surround recordings with bit-depths and sample-rates of:

24/96

20/96

24/88.2

20/88.2

require mandatory MLP encoding (see the “MLP Encoding” chapter). An MLP encoder is not included in the discWelder CHROME II program, but CHROME II can accept files encoded by an external MLP encoder, including those from Minnetonka Audio Software’s **SurCode MLP** encoder.



## 17.3 Multiple formats for different tracks

The DVD-A specification and discWelder CHROME II allow for different tracks to have different formats. For instance, Track 1 could be 24/48 in 5.1 Surround format, and Track 2 could be 24/192 stereo format.

## 17.4 Different formats on a single track

In the DVD-A specification, 5.1 Surround recordings can have one audio format on some channels, and another format on others. To do this, DVD-A views 5.1 recordings as having 2 channel groupings. The allowable groupings for 5.1 are shown in Table 1.

**Table 1**

Channel Group 1	Channel Group 2
L,R	C, LFE, Ls, Rs
L, R, C	LFE, Ls, Rs
L, R, Ls, Rs	C, LFE

The soundfiles in Group 1 can have sampling rates of 96, 88.2, 48, or 44.1 kHz. The soundfiles in Group 2 can have sampling rates identical to Group 1. In addition, if Group 1 has a sampling rate of 96, Group 2 can also have a sampling rate of 48. If Group 1 has a sampling rate of 88.2, Group 2 can also have a sampling rate of 44.1.

The soundfiles in Group 1 can have bit depths of 24-, 20-, or 16-bits. The soundfiles in Group 2 can have a bit depth identical to Group 1. In addition, if Group 1 has a bit depth of 24-bits, Group 2 can also have a bit depth of 20- or 16-bits. If Group 1 has a bit depth of 20-bits, Group 2 can also have a bit depth of 16-bits.

**Note:** discWelder CHROME II currently does NOT allow two different soundfile formats on one track for Linear PCM. That is, all soundfiles on a single track must have the same bit-depth and sample-rate. All MLP Track channel assignments are supported (see the “MLP Encoding” chapter).

# **18 Appendix B: Dolby Digital Parameters in discWelder CHROME II**

## **18.1 Dialog Normalization Value (dialnorm)**

The Dialog Normalization value is a Dolby Digital parameter that describes the long-term average dialog level of the associated program. It may also describe the long-term average level of programs that do not contain dialog, such as music. The Dialog Normalization value indicates how far the average dialog level of the encoded program is below digital 100% full scale (0 dBFS). This level is specified on an absolute scale ranging from -1 dBFS to -31 dBFS. Dolby Digital decoders attenuate programs based on the Dialog Normalization value in order to achieve uniform playback level. This parameter determines the audio reproduction level and affects other parameters and decoder operation.

## **18.2 Dynamic Compression Preset**

The Dynamic Compression Preset (also referred to as a Dynamic Range Compression Profile, or DRC) determines the characteristic curve of the dynamic range compression algorithm. Dynamic Range Control generates “dynrng” and “compr” gain words during the encoding process. A Dolby Digital decoder uses these gain words to reduce the dynamic range of the audio program during playback. This feature can be disabled on the decoder (except when downmixing) by the end-user who desires program reproduction with the original dynamic range. Dynamic Range Compression can be set by selecting one of several built-in profiles. Six preset DRC profiles are available to content producers: None, Film Standard, Film Light, Music Standard, Music Light, and Speech. Each is applied in the pattern shown in Figure 18-1. In each case, the center of the null band is assigned to the dialogue level parameter setting, and the DRC profile is applied in relation to that level. Here are the details of the range for each profile.

### **None**

No DRC profile selected. The dialogue level parameter (“Dialnorm”) is still applied.

### **Film Standard**

- Max Boost: 6 dB (below -43 dB)

- Boost Range: -43 to -31 dB (2:1 ratio)
- Null Band Width: 5 dB (-31 to -26 dB)
- Early Cut Range: -26 to -16 dB (2:1 ratio)
- Cut Range: -16 to +4 dB (20:1 ratio)

### **Film Light**

- Max Boost: 6 dB (below -53 dB)
- Boost Range: -53 to -41 dB (2:1 ratio)
- Null Band Width: 20 dB (-41 to -21 dB)
- Early Cut Range: -26 to -11 dB (2:1 ratio)
- Cut Range: -11 to +4 dB (20:1 ratio)

### **Music Standard**

- Max Boost: 12 dB (below -55 dB)
- Boost Range: -55 to -31 dB (2:1 ratio)
- Null Band Width: 5 dB (-31 to -26 dB)
- Early Cut Range: -26 to -16 dB (2:1 ratio)
- Cut Range: -16 to +4 dB (20:1 ratio)

### **Music Light (No early cut range)**

- Max Boost: 12 dB (below -65 dB)
- Boost Range: -65 to -41 dB (2:1 ratio)
- Null Band Width: 20 dB (-41 to -21 dB)
- Cut Range: -21 to +9 dB (2:1 ratio)
- Dolby Laboratories, Inc. Metadata Guide

### **Speech**

- Max Boost: 15 dB (below -50 dB)
- Boost Range: -50 to -31 dB (5:1 ratio)
- Null Band Width: 5 dB (-31 to -26 dB)
- Early Cut Range: -26 to -16 dB (2:1 ratio)

- Cut Range: -16 to +4 dB (20:1 ratio)

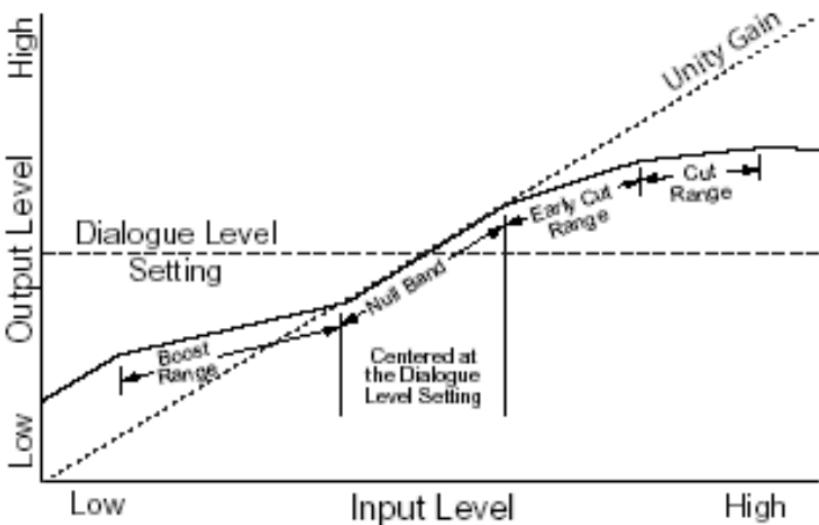


Figure 2 DRC Profile

Figure 18-1

For more information about Dolby Digital and these parameters, please visit [www.dolby.com](http://www.dolby.com).