ASTARTE CD-COPY

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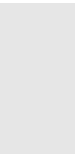
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ASTARTE CD-COPY

INTRODUCTION

WINDOWS & MENUS

REFERENCE

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What is CD-Copy?

CD-Copy is a data extraction tool. It allows you to extract many different kinds of data from CD's, including Audio Tracks, PhotoCD Data Tracks, ISO 9660 Data Tracks, HFS Data Tracks and more. With CD-Copy, data can be extracted to other storage media, then written to CD-R/CD-RW (*writing data back to CDs is accomplished using CD recording software, like Adaptec Toast or Adaptec Jam. Such software is not included*).

Compatibility & System Requirements

CD-Copy is compatible with any CD-ROM drive or CD recorder which uses either FWB CD-ROM Toolkit, Apple's Apple CD-ROM extension, or the Toast CD Reader Extension (*included with Astarte Toast CD-ROM Pro and Adaptec Toast*) for reading. Providing you are running your CD-ROM drive with one of these 3 extensions, CD-Copy should be compatible with your drive. CD-Copy can work with multiple CD-ROM drives simultaneously, and can work in the background while you use your computer for other tasks.

A Power Macintosh or Quadra that supports SCSI Manager 4.3 of the Apple IDE Manager is required to take advantage of all of CD-Copy's features.

16 MB of RAM (*or more*) is recommended.

CD-Copy is compatible with versions of System as old as 7.1 but a newer System is highly recommended due to the increased stability we have observed (*System 7.5.5 or later is ideal*)

NOTE: Using CD-Copy on a PowerBook with a built-in CD-ROM drive (i.e. 1400 or 3400) requires that you disable the Apple CD-ROM driver extension first.

Installation

To install CD-Copy, simply insert the master floppy disk into your floppy drive and copy the CD-Copy application to any of your attached hard drives.

Copy the application to your hard drive.
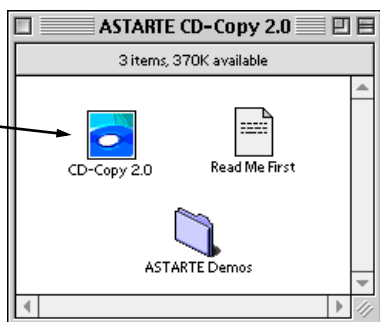
The first time you run CD-Copy it will present a dialog asking for your serial number and personalization information. Enter the serial number printed on the master diskette label, along with your name and company and click OK.

Technical Support & Updates

Support for CD-Copy is available directly from Astarte. If you are having difficulties using CD-Copy, please review "Frequently Asked Questions" on page 40 before calling.

Customer Support Contacts

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fax:++49-(0)721-85 38 62
e-mail:info@astarte.de
Internet: http://www.astarte.de

Product Updates

Be sure to register your software by returning the registration card or registering on-line (www.astarte.de) so we can notify you of major upgrades as they become available.

Maintenance updates are posted on our web site.

CD-Copy Operation

Overview

There are four basic steps to extracting any data using CD-Copy:

1) Insert the source CD into an available CD-ROM drive

2) Examine the list of data items displayed in the main CD-Copy window (*shown below*).

3) Select the desired data, and

4) Save the data to your desired destination.
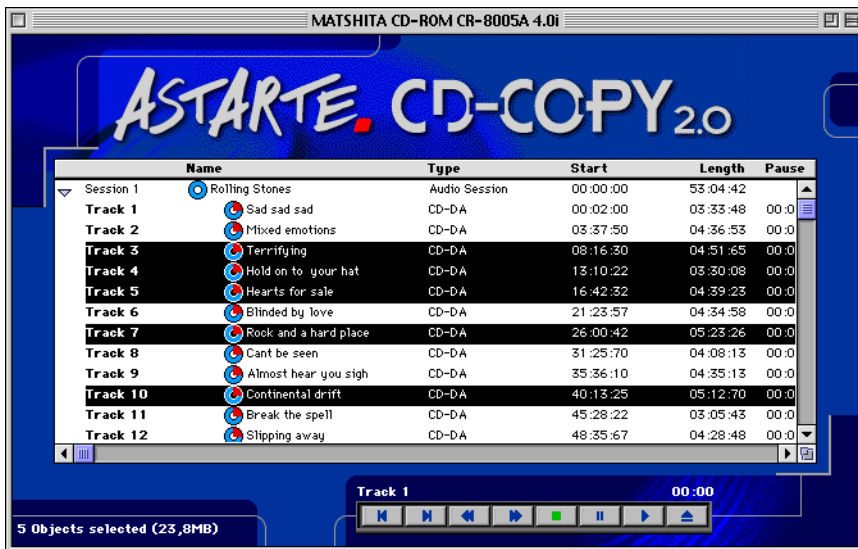
The Main CD-Copy Window

If you are an experienced Macintosh user, chances are you will be able to figure out how to use CD-Copy without reading the manual. However, **we still urge you to read the manual** as there are many powerful features which you may not discover on your own

Each of CD-Copy's many options is covered in detail in the following chapter, "Windows & Menus".
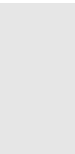
WINDOWS & MENUS

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Setting Your Preferences

The first time your launch CD-Copy, you should set your preferences. To access the CD-Copy preferences, select **Preferences** from the **File** menu. In most cases, you will only need to set these once.
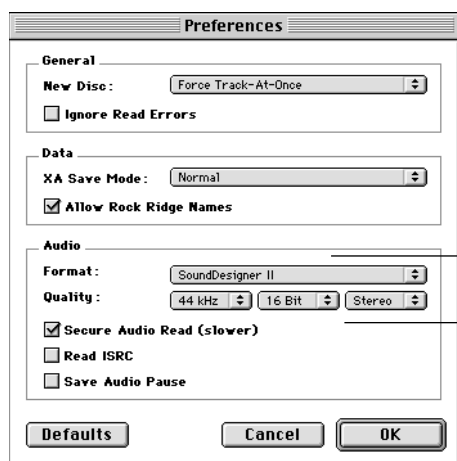
These four settings determine the format of extracted audio tracks.

New Discs

This setting determines the behavior of CD-Copy whenever a new disc is detected.

• Force Track-At-Once

This setting will prevent CD-Copy from scanning the tracks for the correct pause settings. Every track will then be in a format which allows the user to make an exact copy with a Track-At-Once recording software like Toast CD-ROM Pro.

CAUTION: If the original CD does not conform to Track-At-Once format the copy will NOT be like the original. This often happens if the original has something other than 2 second pauses between tracks. This includes many live CDs and Playstation discs.

• Track-At-Once Warning

This setting will tell CD-Copy to check the real pause settings of the disc. If these pause lengths are different than the Track-At-Once assumption (2 seconds) it will inform you with a dialog box from which you can reset all the pauses (gaps) to Track-At-Once values.
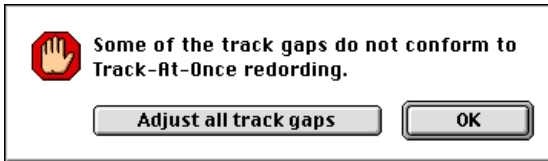
• No Warning

This setting will tell CD-Copy to check the real pause settings of the disc. If these pause lengths are different from the Track-At-Once assumption (2 seconds) it will NOT inform the user about it. This is the best choice if you want to copy an audio CD and want to re-record it with a Disc-At-Once CD Recording software like Astarte CD-DA or Adaptec Jam.

Ignore Read Errors

If you have a disc that is scratched or dirty or otherwise has portions that are unreadable, checking this option will allow you to 'extract' what readable data there is. With the option unchecked, CD-Copy will stop extracting if it encounters an unrecoverable read error.

XA Save Mode

Many CDs contain XA sectors (i.e. PhotoCDs, Multisession ISO).
Every XA sector consists of a header, subheader and then the data. Using this pop-up menu you can tell CD-Copy exactly what you want to extract. If you are recording the track back to another CDR disc, you'll usually want to leave the setting at Normal.
If you are otherwise unsure which option to choose, select **Normal**.

• Normal

Every sector in the saved file will contain sector header, sub-header and data.

• Sub-Header and Data

Every sector in the saved file will contain sector sub-header and data.

• Data-Only

Every sector in the saved file will contain data only. This mode is NOT compatible with Toast but can be used to extract the raw data of a mpeg track on a VideoCD.

Allow Rock Ridge Extensions

Normally all file names of ISO discs are limited to the 8.3 format.
Many UNIX ISO discs contain special file extensions called "Rock Ridge Extensions" which allow the longer file names. If you check Allow Rock Ridge Names CD-Copy uses the longer file names. If you uncheck Allow Rock Ridge extensions then CD-Copy uses the 8.3 format.

Audio Format

This setting specifies which file format will be used for saving extracted audio tracks. You can select SoundDesigner II, AIFF, QuickTime or WAV. The normal setting is SoundDesigner II. SoundDesigner II is the only format that preserves indexes and track spacing, for use in Astarte CD-DA or Adaptec Jam. Use the WAV format if you want to use the sounds on a Windows computer.

• Audio Sampling Rate

Choices for Sampling rate are 44,100 Hz / 22,050 Hz / 11,025 Hz. **44,100 Hz is the standard for CD audio**.

• Audio Channel mode

Choose Stereo or Mono. **Stereo is the standard for CD audio.**

• Audio Bit Rate

You can choose 8-bit or 16-bit sound. **16-bit is the standard for CD audio.**

Secure Audio Read

Checking this options causes CD-Copy to perform what amounts to audio error checking. Many CD-ROM drives are somewhat imprecise when reading audio; 2 reads of the same data will often give different data. If you encounter noise in your extracted audio tracks, check this option. With Secure Audio Read checked, CD-Copy will use a special technique to help ensure that the audio data is extracted faithfully, although the extraction process will take much longer.

Read ISRC

Each audio track can have a unique ISRC 'serial' number. It takes some time to read this information from a CD. If you know that the source CD does not contain ISRC codes or you do not want them read, you can uncheck this option to allow for faster disc scanning.
Note: ISRC codes do not affect the sound of a track; they are simply reference numbers that are used by radio stations and other who have to report their usage of particular tracks.

Save Audio Pause

If checked, this option ensures that any pause before an audio track is saved along with the audio data. If you are recording the tracks back with software that inserts it's own pause (i.e. Adaptec Toast) you can uncheck it so that you do not end up with 2 pauses (one saved with the file and one inserted by the mastering software).

After setting each of these items according to your requirements, click the OK button to close the dialog window and accept your changes. If you want to discard your changes, click on the cancel button instead of the OK button. Don't worry if you don't fully understand how a particular setting applies to you. After reading through the rest of this manual, you can come back here and change your preference at any time.

The Drive window

This is the main window where you can see and manipulate all the objects on the inserted disc (sessions, tracks, files and folders). You will see the name, type, start, length and pause of every object.

*The first time you launch CD-Copy, you will see a drive window for each available CD-ROM/CD-R drive. If you close the window of an empty drive (no disc inserted), that will window will stay hidden until you select it from the **Window** menu to reveal it again. This is useful if you have more than one CD drive and don't want their windows to appear automatically. In addition, since each drive window uses some processor power, closing unused windows will maximize performance.*

This picture shows a typical data disc. This disc has three ISO 9600 data tracks written in three separate sessions.


Notice that each session and each directory (Folder) has a triangular icon that can be clicked on to reveal what's inside. And for each file, the start position on the disc and the length of the file is shown. Invisible files are shown in gray type.

Working With Items in the List

- You can collapse and expand some items by clicking on the small triangle to the left of its listing.

- If you double-click on an object you get a dialog box with some information about it.

- If you double-click on an object which contains data (like a track or a file) while pressing the option key you will see a Hex view of that item.

- You can drag the objects from the drive window to the finder. This has the same effect as the **Save…** menu entry.

- In the lower left corner you can see how many objects you have selected and how many bytes they will use if you save them.

Playing Audio Tracks

Now lets look at a disc with audio tracks. When you insert a disc with audio tracks, playback controls appear at the bottom of the drive window.
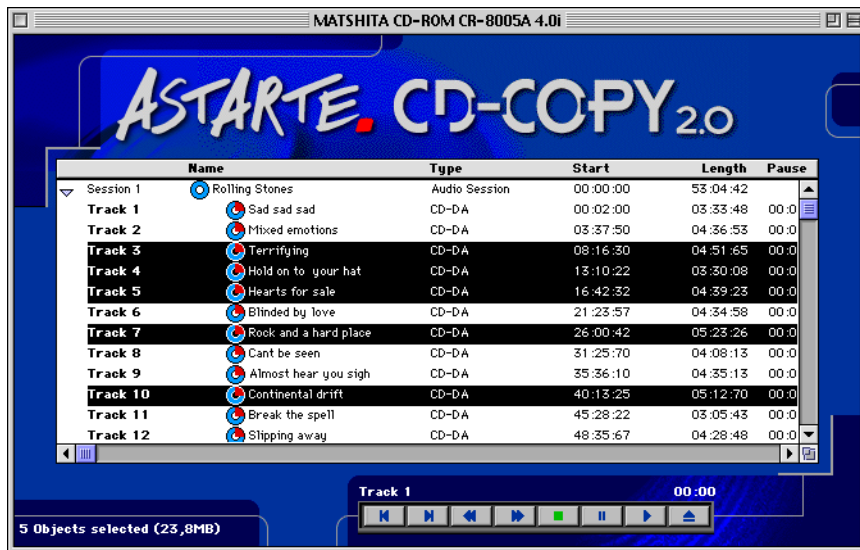

Playback controls

To play a track, select the desired track form the drive window. Then click on the play button. When a track is playing (*or you've paused the playback*) the number of the track, the current index number and the current time elapsed of that track will be displayed above the playback controls.

*Note: **For smooth audio playback from CD-Copy you need at least a 4x CD-ROM drive**. CD-Copy plays audio tracks by reading the tracks through the data bus; this allows playback even from drives that do not have audio connections to the computer. However, because it is essentially "extracting" the data as it plays, playback can be interrupted by other processes on your computer. This is normal.The playback function is intended to help you select tracks for extraction; it is not a CD player application.*

Getting Information About An Item

Double-click on any item in the Disc Window to display additional information. The information and format varies depending on what type of item was selected. Some of the information can be edited *(Audio track names, start and end points, index points, etc.)*
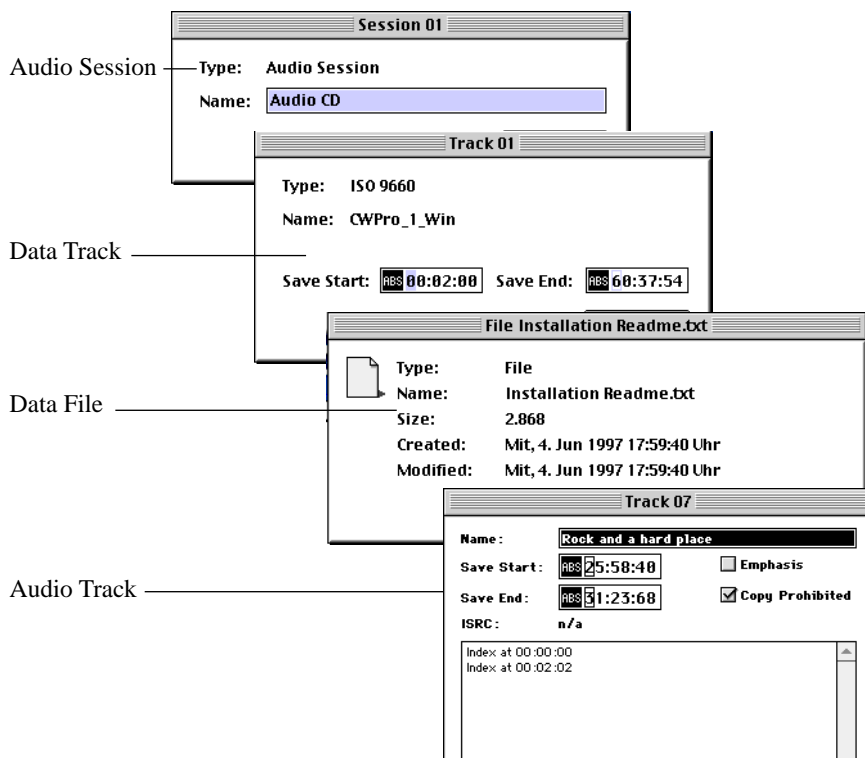
Extracting Items from the CD

To extract any data from the inserted CD, simply select it from the list and drag it to the Finder (or use the **Save** command in the **File** menu.)

The progress bar will appear while the data is being saved.

Note: You can still use your Mac for other tasks while CD-Copy is working; just send it to the background and go on with your work.

File Menu

Close

Closes the front-most drive window. You can re-open it with the **Windows** menu.

Save

If you select one or more objects in the front disc window you can choose where to save them.

Save Image...

If you select all tracks of a *VideoCD* this menu entry is named **Save As VideoCD Image...** If you use this CD-Copy will generate one image file ready for Toast to generate a VideoCD.
If you select one or more audio tracks this menu entry is named **Save As Audio Image...** If you use this CD-Copy will generate one image file ready for Astarte CD-DA or Adaptec Jam to generate an Audio CD. (*you must have your preferences set to SoundDesigner II, 44,1 kHz 16 bit mono or stereo AND you must have selected only audio tracks.*)

Page Setup...

Opens the standard Page Setup dialog.

Print...

Select this command to print the active window in CD-Copy. *NOTE: Not all windows can be printed; you can print the Drive Window, and all sections of the Drive Info and Disc Info windows*.

Preferences

This allows you to specify a variety of settings for CD-Copy. See "Setting Your Preferences" on page 8 for all the details.

Quit

This command closes the CD-Copy application.

Disc Menu

Show Drive Info

Selecting this command displays information about the currently active drive (*the currently active drive is the drive whose drive window is frontmost.*) Click the tabs at the top of the Drive Info window to switch between the **General** and **Features** display.

• General

The first section of the general information is the physical type (SCSI or IDE) of the drive and the installed driver version.
The second section is the drive identification data returned by the **Inquiry** command.
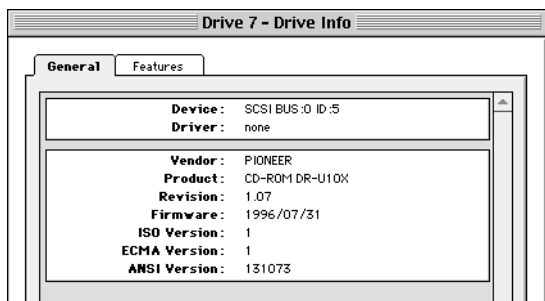
• Features

The Features window shows vendor-specific information about the drive. For some drives this section will be empty.
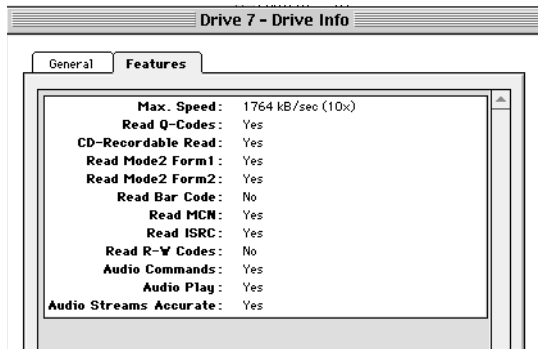
If you have multiple CD drives or recorders and want to see the drive info of a particular drive, bring the drive window with the name of that drive in the title bar to the front and them select **Show Drive Info...**.

Show Disc Info

Selecting this command displays a window with several 'pages' of information about the disc in the currently active drive.

To move between the various pages of info, click on the tabs at the top of the window.
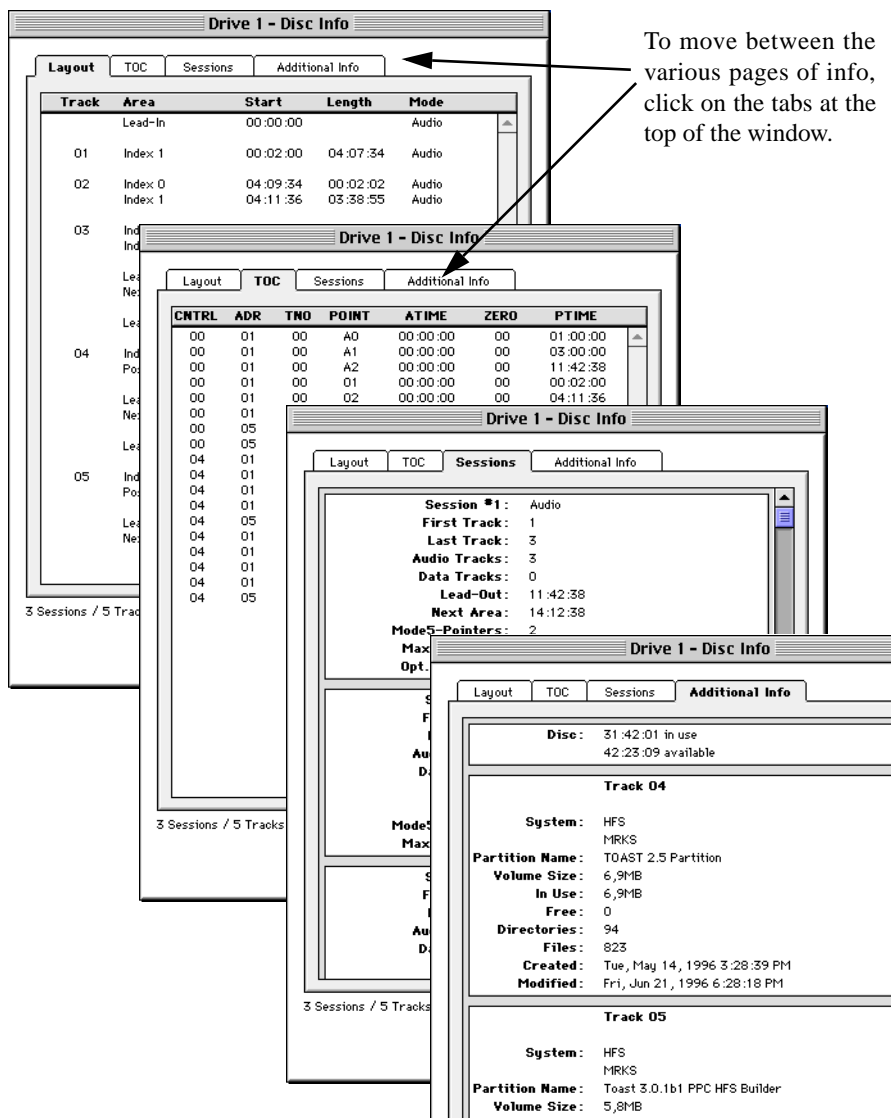
• Layout

Shows the entire layout of the data on the disc, including track and index start times, lengths and pauses.

• TOC

Lists the **Table of Contents** of the disc. Please refer to the standards books (Red Book, Blue Book, etc.) for complete explanations of the items in the TOC.

• Sessions

Lists information about each session on the disc.
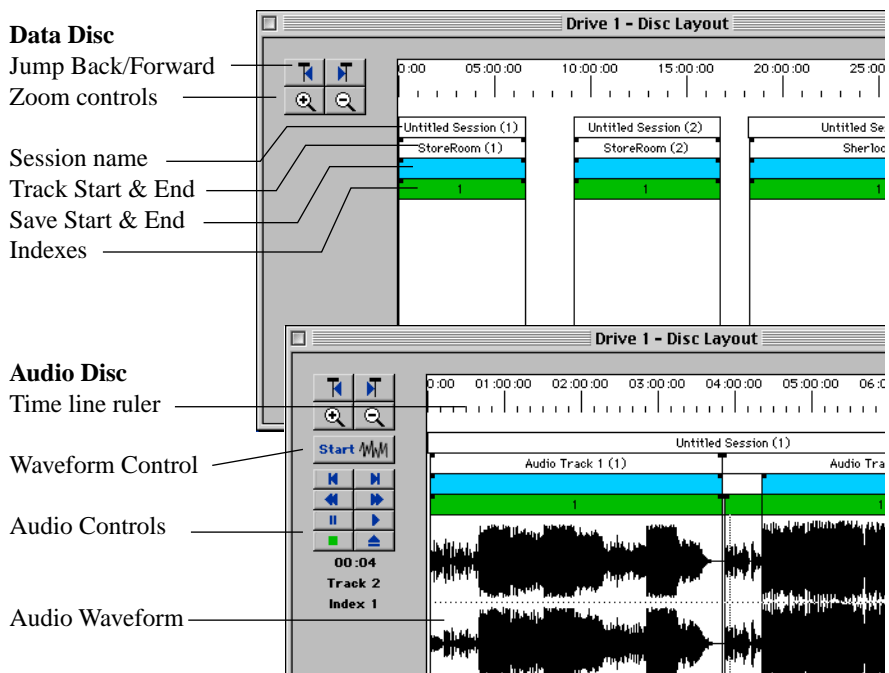
• Additional Info

Lists some additional info about the disc including how much space is taken up on the disc, and how much (if any) space remains.

Show Disc Layout

Selecting this menu displays the physical layout of the data on the disc in the currently active drive.

• Jump Back/Forward Controls

Click the left button to move to the previous point (track start, track end, index, etc.) Click the right button to go to the next point.

• Zoom Controls

Click the Zoom In control (+) to see more detail in the window. Click the Zoom Out (-) control to see less detail.
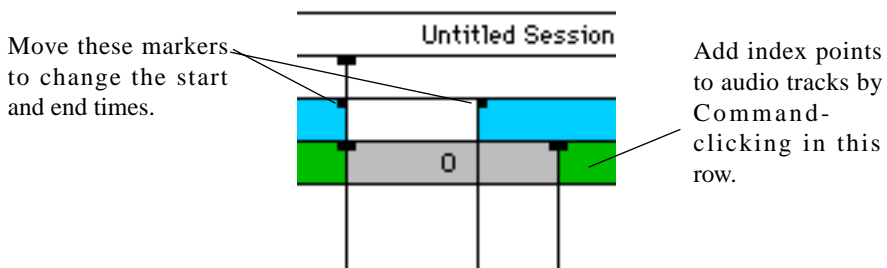
• Session Name

Indicates the name of each session in the window.

• Track Start & End

This row shows the beginning and end of each track.

• Save Start & End

This row indicates what part of the given track will be saved when it is extracted. Normally this matches the Track Start & End, but you can move the Start and End points to new positions by dragging the black rectangles. In conjunction with the waveform display this makes it easy to select specific portions of songs for extraction.

Move these markers to change the start and end times.

Untitled Session

Add index points to audio tracks by Command-clicking in this row.

If you double-click on one of the markers, you will get this dialog which allows you to set the values numerically.

Index 1

Minimum	Maximum	Value
00:02:00	03:36:02	ABS 00:02:00

Cancel   OK

Option-click here to get a menu of suggested values.
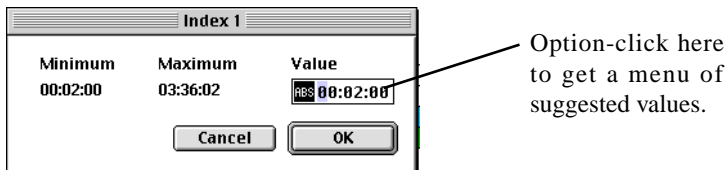
If you click on "ABS" then the sector is displayed relative to the minimum value. This is indicated by "REL".

• Indexes

If your disc has inter-track indexes, they will be shown here.

• Timeline Ruler

Shows the position of the data on the disc. Units are Minutes:Seconds:Frames.

NOTE: If you press the option key and click in the ruler you get a pop-up menu with all the points available on the disc. If you choose one of them it will become the left-most sector of the display.

• Waveform control

A waveform can be generated for audio tracks by clicking on the START icon. Creating the waveform will take some time depending on the speed of your CPU, the speed of your CD-ROM drive and the CD being read. The waveform information is saved in the CD-Copy preferences folder so it can be recalled later. The waveform file for one audio CD can be as large as 660K. These files may be deleted if you wish, although you will have to re-generate it if you want to work with the disc later.

• Audio Controls

If the inserted disc is an audio CD, the Audio Controls can be used to play the tracks.

• Waveform Display

The Waveform Display shows a graphical representation of the actual content of the audio tracks. This is very useful for finding specific points in a song, or for trimming silence from the start or end of a track. The waveform will not appear until you click the Waveform START control to read the disc (see above).

Disc Layout Sub-menu

If you have made changes to the disc layout that you want to remove, the **Disc Layout** sub-menus allow you to restore everything to their original values by selecting **Reset To Default** or to re-read the contents of the disc by selecting **Rescan** from the Disc Layout sub-menu.

The **Reset to Track-At-Once** command resets all track information to values suitable for Track-At-Once recording.

Hex View

Hex view lets you view the selected item in hexadecimal form. Click on the file or track you want to view and then select Hex View… from the disc menu.

Information about the sector being viewed.

Hex view

Text view
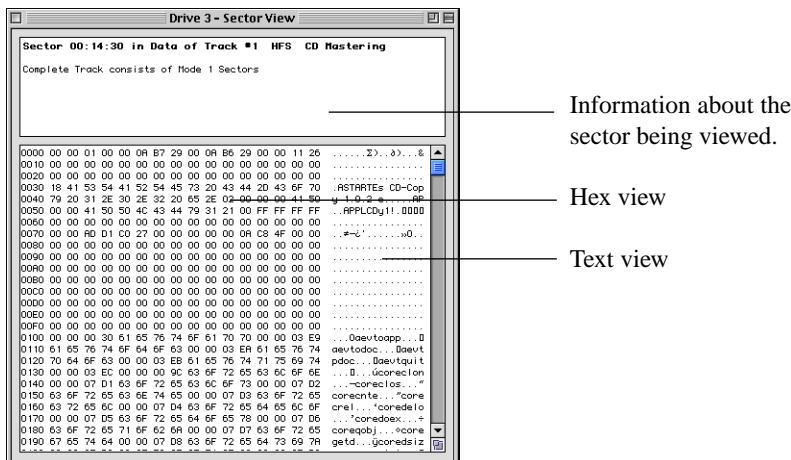
You can look at every readable sector on the disc in hexadecimal format. In addition you get the header and subheader information of XA sectors and the Q-Codes of audio sectors (if your drive supports reading of Q-Codes).

When viewing tracks or files in this way you can advance to the next sector on the disc or go back to the previous sector by pressing the left or right arrow keys (respectively) or you can use the **Previous Sector** and **Next Sector** commands in the Disc menu.

Go to Sector...

You can also use the Go to Sector command to move directly to a particular sector in the Hex view. Select Go to Sector and enter the exact sector you want to go to and click Enter.

Verify Tracks

When you select this command CD-Copy will read all the selected tracks from the inserted CD, checking for read errors.

If errors are encountered, CD-Copy will display a message:
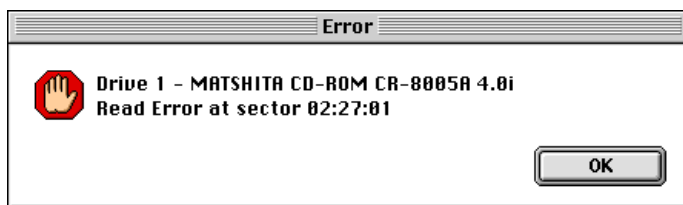
Eject

This command ejects the disc from the currently selected drive.

Markers menu

Markers | Windows
Add Marker... ⌘M
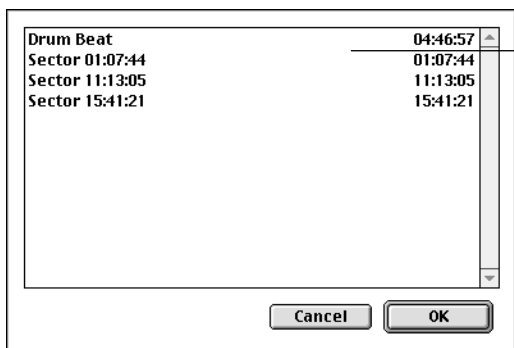Modify List...
Sector 20:32:40

CD-Copy can save Markers which make it fast and easy to jump to any specific point on the source CD. Commands for working with Markers are found in the **Markers** menu.

• Add Marker…

If you are in the Hex View window or you have a dialog box on the screen with a editable sector field you can add that sector to your marker list using this menu command.

• Modify List…

With this you can modify the list of markers.

Drum Beat	04:46:57
Sector 01:07:44	01:07:44
Sector 11:13:05	11:13:05
Sector 15:41:21	15:41:21

Cancel   OK

Double-click on the marker you want to edit.

• Markers

Select a marker from the list to jump to that point in the Layout or Hex view, or to enter the value into an editable field.

NOTE: Markers are saved separately for each CD that you insert, so you can reuse them later. This information is stored in the CD-Copy folder in your Preferences folder.

Windows Menu

The windows menu can be used to bring any open window in CD-Copy to the front. If a window is not yet open, selecting that window in the Windows menu opens it and brings it to the front.

• Log

Selecting Log opens the Log window which contains a history of what actions have been performed with CD-Copy since launching.
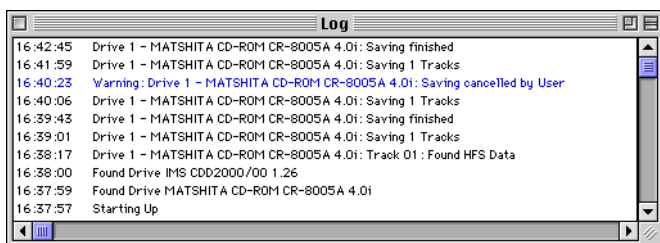
• Drive Windows

Selecting a Drive window brings that drive window to the front so that it is the active drive.

USING CD-COPY

USING CD-COPY

A Tutorial

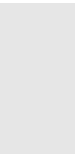With most types of CDs, the copying process is as simple as inserting the disc, selecting the sessions or tracks you want to copy, selecting Save, and then opening the saved file(s) in your recording software to write the new disc.

In the following pages we'll show you, step by step, how to copy some popular disc formats. You'll see that the basic steps are the same for nearly every disc. **If you're not sure how to proceed, refer to the format reference chart "How to Copy Various Formats" on page 36.**

NOTE: If you want to make a faithful copy of a multisession disc, remember to record each session back to CD individually.

Copying an Audio CD

1) Launch CD-Copy

2) Insert an audio CD

3) As CD-Copy scans the disc, a progress bar will appear at the bottom of the main window.

4) Select the tracks you want to extract by clicking on them in the list. Hold down the Command key while clicking to select non-adjacent items. *To select a whole disc for extraction, you can choose Select All from the Edit menu.*

5) select **Save** from the file menu.
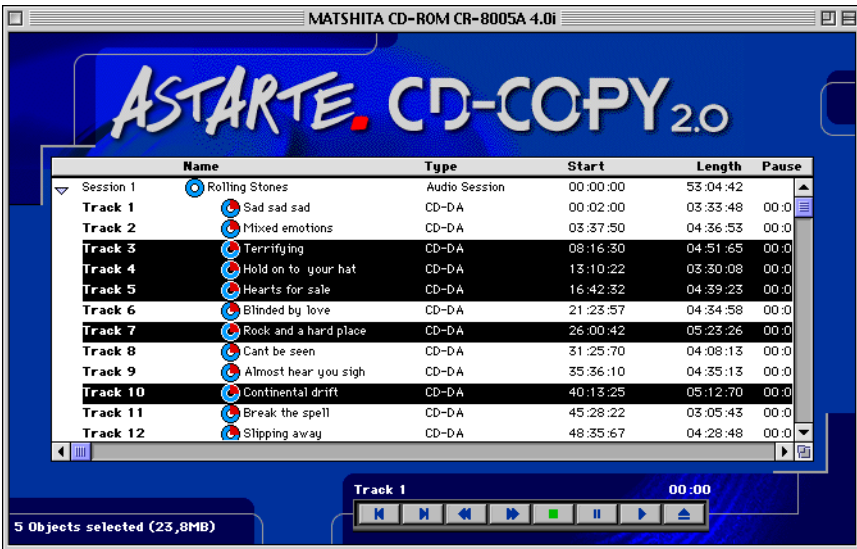
Tracks selected for extraction.

The progress bar will appear while the data is being saved.

Note: You can still use your Mac for other tasks while CD-Copy is working; just send it to the background and go on with your work.

6) When the tracks are saved, open your CD recording software (*Adaptec Toast shown here*), select the Audio CD format, and select the extracted files.
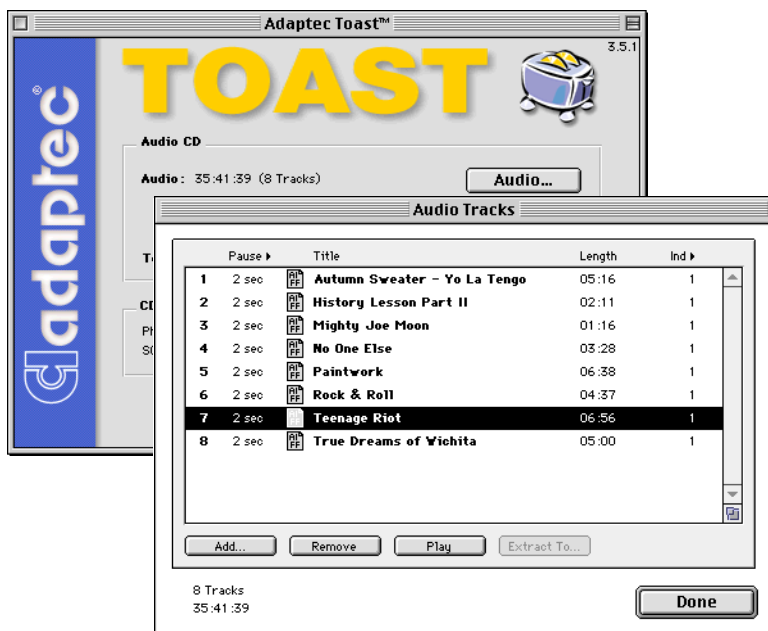
Tracks added to the Toast track list for recording.

Fine-tuning Your Track Selections

CD-Copy allows you to adjust the start and end point of each index and track before you extract it.

This is useful for:

> • Selecting just the portion of a track that you want.
>
> • Changing the length the inter-track gaps.
>
> • Moving the start point (Index 1) of a track in relation to the start of the song.
>
> • Adding indexes to tracks.

Here's how it works:

1) With the Disc Layout window visible, click the **Start** button to scan the disc.

The waveform will appear on screen as the scan progresses. If you want to stop the scan click on the Stop button.

Note that the waveform is cached to disk for future use. You can quit CD-Copy and come back to it later and then waveform will come up immediately instead of having to wait for the disc to be scanned. For more information on the waveform display, see "Waveform Display" on page 23.

2) If desired, click on the **Zoom In** button to get a closer view of the waveform or click the **Zoom Out** button to get a better overview of the entire disc.

3) Make adjustments to the track beginning and end of each track by moving the divider between tracks.
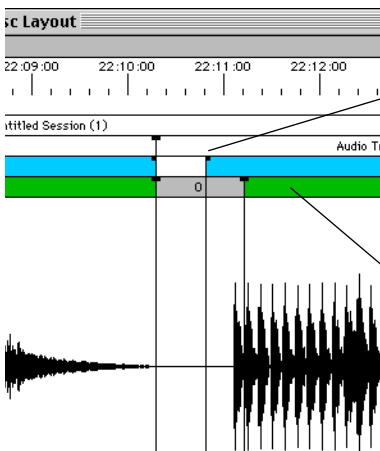
Adjust track start and end points by dragging the rectangular markers.
Position the cursor directly over the element you want to adjust. When the cursor changes to two horizontal arrows, you can click and drag the element to move it.

Command-click here to add indexes.

4) After you have made any adjustments you desire for each track, click on the close box to dismiss the track info window.

5) Select the tracks you want to extract by clicking on them in the list. Hold down the Command key while clicking to select non-adjacent items. *To select a whole disc for extraction, you can choose Select All from the Edit menu.*

6) Select Save from the file menu, the adjustments you made in the disc layout window will be taken into consideration when the tracks are extracted.

Copying Specific Files From a CD

CD-Copy makes it easy to copy selected files and folders from a data CD. As you've already seen, it's as easy as drag and drop.

1) Insert your data CD into the CD-ROM Drive.

2) Select the tracks you want to extract by clicking on them in the list. Hold down the Command key while clicking to select non-adjacent items.
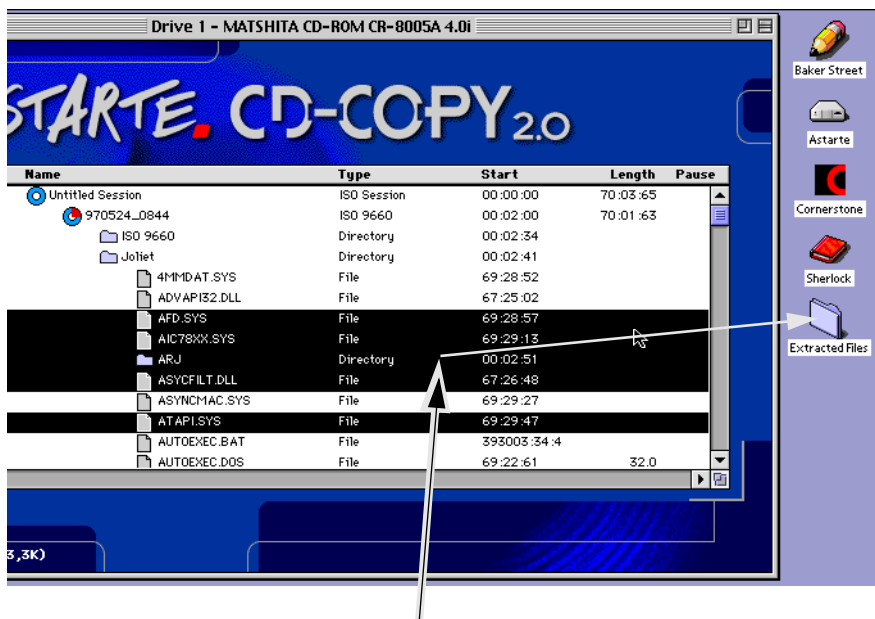
Simply drag and drop to extract files.

3) Drag the selected items to the desired drive or folder.

CD-Copy will even let you select and save invisible files and folders.

Copying a PhotoCD

CD-Copy can be used to copy **multitrack** Photo CDs. (*NOTE: due to limitations of CD-recorders, **Multi-session** Photo CDs cannot be copied.*)

To copy a PhotoCD,

1) Insert the original PhotoCD to examine the contents. You will find that the disc will contain various tracks.

2) Select each track (*either by shift clicking or by selecting Select All from the edit menu*).

3) Select **Save** from the file menu.

Now that the tracks are extracted you need to use your CD Recording software to record the tracks back to a disc.

4) Launch your CD recording application.

5) Select **Multitrack CD-ROM XA** as the format and load the tracks in the recording software in the same order they were on the original.

6) Write the new disc.

Copying a Multisession ISO Disc

A multisession ISO disc is very simple to copy.

1) Insert the original multisession ISO disc.

2) Select all sessions of the disc.

3) Select save from the file menu.

4) When the extraction is complete, quit CD-Copy and launch your CD recording software.

5) Set the format to **Multitrack CD-ROM XA**.

6) Add the extracted image file from the first session to the track list.

If a session contained more than one track, be sure to add them all to the track list, in the same order as on the original. (Do not combine tracks from different sessions.)

7) Write the disc using the **Write Session** option.

8) Repeat steps 6 and 7 above until you've written all the tracks/sessions to the disc.

How to Copy Various Formats

Use this chart to determine what format your disc is written in, and how to extract the data. Look in the first column for the description that matches what you see in the CD-Copy Disc window, then follow the instructions on the other columns for saving and writing the data

If CD-Copy shows	Your CD is in this format:	How to Save (Save or Save As Audio Image)?	What format to use when writing saved data to CD-R with Adaptec Toast?	What format to use when writing saved data to CD-R with Adaptec Jam?	Comments
1 HFS track	**Macintosh HFS** (Single Session/ Volume)	Select the HFS track and choose Save from the File menu	Use the Disc Image format. Click on Toast's Data button and choose your HFS disc image.	N/A	
2 or more HFS Tracks	**Macintosh HFS** (Multiple Sessions/ Volumes)	Select each HFS track you want to save and choose Save from the File menu	Use the Disc Image format. Click on Toast's Data button and choose each HFS disc image. Write each disc image as its own session.	N/A	
1 ISO 9660 track	**ISO 9660** (Single Session)	Select the ISO 9660 track and choose Save from the File menu	Use the Disc Image format. Click on Toast's Data button and choose your ISO 9660 disc image.	N/A	If your disc image contains Rockridge or Joliet extensions for UNIX / Windows 95 long file names, do NOT mount the disc image in Toast prior to writing it to disc! (*The MacOS will cause the long file names to be ignored in favor of the 8.3 names*)
1 or more ISO 9660 XA track(s) and sessions	**ISO 9660 XA** (Multiple Sessions)	Select each ISO 9660 XA track/session you want to save and choose Save from the File menu	Use the Multitrack CD-ROM XA format and click on Toast's data button. Add all the ISO 9660 XA tracks from the first session to the track list in the original order. Write the session. Repeat for each session.	N/A	If your disc image contains Rockridge or Joliet extensions for UNIX / Windows 95 long file names, do NOT mount the disc image in Toast prior to writing it to disc! (*The MacOS will cause the long file names to be ignored in favor of the 8.3 names*)
1 Hybrid Track	Mac/ISO **Hybrid**	Select the Hybrid track and choose Save from the File menu	Use the Disc Image format. Click on Toast's Data button and choose your Hybrid disc image.	N/A	

If CD-Copy shows	Your CD is in this format:	How to Save (Save or Save As Audio Image)?	What format to use when writing saved data to CD-R with Adaptec Toast?	What format to use when writing saved data to CD-R with Adaptec Jam?	Comments
1 or more CD-DA tracks	**Audio CD**	Select the CD-DA tracks you want to save and choose Save (if using Adaptec Toast or Adaptec Jam) or Save as Disc Image (only if using Adaptec Jam) from the file menu	Use the Audio CD format. Choose each audio track by dragging and dropping it onto Toast's main window.	If you saved the Audio as an audio disc image, click on the Add Tracks button in Jam, click on the "Regions" Radio button, then import all tracks. If you saved the tracks as individual files, then click on the "Files" radio button when you add tracks.	
1 data track (any format) + 1 or more CD-DA tracks	**Mixed Mode** (Audio + data in a single session)	Select all tracks you want to save and choose Save from the file menu	Use the Disc Image format, and select audio tracks (command A). Click on Toast's Data button and select the disc image, then choose each audio track by dragging and dropping it onto Toast's main window.	N/A	
1 audio CD session with 1 or more CD-DA tracks + 1 data session with 1 data track (any format)	**CD-Extra**	Select all tracks you want to save and choose Save from the file menu - or - select the data tracks and choose Save from the file menu, then select CD-DA tracks and choose Save as Audio Disc Image (only if using Adaptec Jam to write the audio session)	Choose each audio track by dragging and dropping it onto Toast's main window, then write the audio to disc, making certain you use the "Write Session" button. Then use the Disc Image format, click on Toast's Data button and select the data disc image.	If you saved the Audio as an audio disc image, click on the Add Tracks button in Jam, click on the "Regions" Radio button, then import all tracks. If you saved the tracks as individual files, then click on the "Files" radio button when you add tracks.	*Only the audio session can be written in Adaptec Jam, the data session must be written with Adaptec Toast*
1 audio CD session with 1 or more CD-DA tracks + 1 data session with 1 Hybrid XA track	**Enhanced CD**	Select all tracks you want to save and choose Save from the file menu - or - select the data tracks and choose Save from the file menu, then select CD-DA tracks and choose Save as Audio Disc Image (only if using Adaptec Jam to write the audio session)	Choose audio tracks by dragging and dropping them onto Toast's main window, then write the audio to disc, making certain you use the "Write Session" button. Then select the Disc Image format, click on Toast's Data button and select the hybrid disc image.	If you saved the Audio as an audio disc image, click on the Add Tracks button in Jam, click on the "Regions" Radio button, then import all tracks. If you saved the tracks as individual files, then click on the "Files" radio button when you add tracks.	*Only the audio session can be written in Adaptec Jam, the data session must be written with Adaptec Toast*
1 ISO 9660 XA Track + 1 or more CD-ROM XA Tracks	**Photo CD**	Select each ISO 9660 XA track and the CD-ROM XA tracks you want to save and choose Save from the File menu	Use the Multitrack CD-ROM XA format and click on Toast's data button. Select the ISO 9660 XA track and each CD-ROM XA track you want to write to disc. Write all tracks to CD-R in the same session.	N/A	

If CD-Copy shows	Your CD is in this format:	How to Save (Save or Save As Audio Image)?	What format to use when writing saved data to CD-R with Adaptec Toast?	What format to use when writing saved data to CD-R with Adaptec Jam?	Comments
1 ISO 9660 XA Track + 1 or more CD-ROM XA Tracks + 1 or more CD-DA tracks	**Photo CD Portfolio**	Select each ISO 9660 XA track, each CD-ROM XA track, and each audio track you want to save and choose Save from the File menu	Use the Multitrack CD-ROM XA format, and select Audio Tracks (command A) and click on Toast's data button. Select the ISO 9660 XA track and each CD-ROM XA track you want to write to disc. Then drag the audio tracks to the Toast main window to select.	N/A	
1 CD-i track	**CD-i**	Select the CD-i track and choose Save from the File menu	Use the CD-i format in Toast. Click on Toast's Data button and select your CD-i disc image.	N/A	
1 ISO 9660 Track + 1 or more CD-ROM XA Tracks	**Video CD**	Select the ISO 9660 track and each of the CD-ROM XA tracks you want to save and choose Save from the File menu.	Use the Video CD format in Toast. Click on Toast's Data button and select your Video CD disc image. (Multiple Tracks?	N/A	
It doesn't match any of the above	**Unknown format**	Select each track you want to save and choose Save from the File Menu	Use the Disc Image format in Toast.		

REFERENCE

REFERENCE

Frequently Asked Questions

Please refer to this information if you have any trouble when using CD-Copy; you may find a solution here.

General Read Errors

What causes Read Errors (-36) and how can I prevent them?

These errors indicate that the CD-ROM drive you are using to read the CD has encountered a portion of the disc that it is unable to read. This could have many causes including a flaw in the CD-ROM media, a defect in the CD-ROM reader, dust, dirt or other debris on the CD itself, or a CD-ROM reader that needs to be cleaned.

First of all, make sure that the CD you are trying to read has been properly cleaned. Secondly, if your CD-ROM reader has not been cleaned, check with the drive manufacturer for instructions on how to clean the drive (with some drives, it may be as simple as blowing compressed air in through the door of the drive). If both have been cleaned, the read errors may indicate a more significant problem with either the CD-ROM media or the CD-ROM drive itself.

Finally, you can also try modifying the CD-Copy preferences to help assure more reliable reading. Specifically, checking the "Secure Audio Read" option, and *unchecking* the "Read ISRC" and "Ignore Read Errors" may help alleviate the read errors.

Audio Read Errors

I have a few Audio CDs that play perfectly in my CD-ROM drive, but they sometimes produce read errors when I'm copying them with CD-Copy.

The process of playing audio from an audio CD is process that is more tolerant of read errors on the source media. Audio CD players have an error correction process, and although there may be read errors on the CD, an audio CD player makes them less noticeable or not noticeable at all. In the case of Digital Audio Extraction (DAE), however, it's crucial that all of the data read from the disc without error. As such, the CD-ROM drive may detect read errors on a CD in the DAE process, although those errors may not be detectable when playing the audio CD with an audio CD player.

Noise In Audio

When I use CD-Copy to extract audio tracks from a CD, I get audio files that contain noise, like clicking and popping, that is not on the original audio CD. How can I prevent this?

Chances are that this problem is caused by read errors, so you could address the problem by following some of the suggestions covered in "General Read Errors" on page 40. Also note that the problem could be related to Digital Audio Extraction capabilities of the particular CD-ROM drive that you are using for the audio extraction.

Can't Read Audio

CD-Copy says that my drive cannot read audio, but it can play audio CDs just fine. Why is that?

Most CD-ROM drives are capable of playing audio CDs, but not all are capable of Digital Audio Extraction. You should check with the manufacturer of your CD-ROM drive to find out of your CD-ROM drive supports Digital Audio Extraction.

Exact Audio Copies

How do I make an exact duplicate of an entire audio CD? I want to make sure that the length of the pauses between tracks are copied identically.

The simplest way to make an exact duplicate of and audio CD would be to select all of the tracks within CD-Copy, then to select Save as Audio Disc Image from the File Menu. The audio disc image that CD-Copy creates, will be a single Sound Designer II file that preserves all of the information on the original disc, including pause lengths. Each individual track is designated by a region within that Sound Designer II file. Once you have an audio disc image, you need CD Recording software that recognizes Sound Designer II files and regions, such as Adaptec Jam or DigiDesign's MasterList CD. With either of those CD Recording packages, you can import the audio disc image file, and write it to CD-R, producing a duplicate of the original.

If you are using Toast, or another CD recording package that does not recognize Sound Designer II regions, you cannot make a duplicate of an audio CD using the Save as Audio Disc Image option. You must save the audio tracks individually, and assuring that the pause lengths on the copy match the pause lengths on the original audio CD involves an extra step.

You have 2 options for matching the gaps lengths on your copy to those on the original CD using Adaptec Toast: 1) Once you have selected the audio tracks in Adaptec Toast, you can manually edit the gap lengths, using the pause values shown in CD-Copy as a guide (in the main window, CD-Copy will tell you the length of the gaps between tracks), or 2) Prior to extracting the audio tracks you can go into the CD-Copy preferences, check the "Save Audio Pause" Option, save the tracks to your hard drive, then write them to CD-R with Adaptec Toast after setting all gap lengths to "0" seconds. What this latter option does is this: it saves the gap as part of the track itself, so that you are actually building X

seconds of silence (to represent the pause) at the beginning of your track. Both options should produce a copy that sounds the same as the original audio CD.

TAO vs. DAO

What's the difference between Track-at-Once and Disc-at-Once?

Track-at-Once (TAO) and Disc-at-Once (DAO) apply to the way information is recorded to a CD-R. In TAO mode, the recorder's laser (which is what 'writes' the information to CD-R) turns off in between each track. This usually results in several sectors between tracks that contain no information, or information that is meaningless. These sectors between tracks written in TAO mode translate into audible gaps between tracks, the standard gap length being 2 seconds. In DAO mode, the recorder's laser never turns off between tracks, eliminating the blank or meaningless sectors between tracks, and allowing for true 0 second gaps between tracks.

Compatibility with CDR Software

Once I've copied data off a CD onto my hard drive with CD-Copy*, can I use any CD Recording software to write that information back to a CD-R?*

Yes, provided the CD recording software you are using is compatible with the format of the disc image you are trying to write. For instance, when CD-Copy saves a Video CD to your hard drive, it does so in the form a White Book Video CD Disc image. As long as your CD recording software supports the White Book Video CD format, it should be capable of writing that disc image.

In addition, as far as audio is concerned, CD-Copy will allow you to extract audio in a variety of file formats (see CD-Copy Preferences), so that you can choose the format that is compatible with your CD Recording software.

What Can't I Copy

*Exactly what formats can/can't CD-Copy copy?*

For a list of formats that CD-Copy can copy, please see "How to Copy Various Formats" on page 36.

CD-Copy cannot copy discs in the CD+G format (*used mainly for Karaoke discs*), DVD discs, PhotoCDs with non-standard gaps between tracks, or audio CDs which contain data in the pause preceding the first audio track.

Can't Hear Audio

I don't hear anything when I am trying to listen to audio tracks. Why?

You may not have your **Sound In** options set correctly. Open your Sound control panel and making sure that the *Sound In* is set to "*Internal CD*" and that the "*Playthrough*" box is checked.
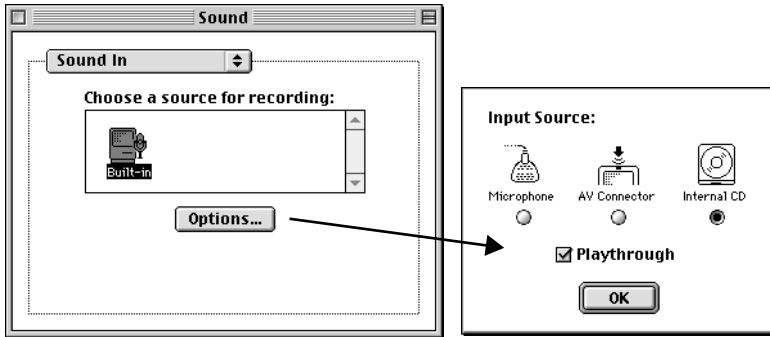
Sound Control Panel

If you have the *Monitors & Sound* control panel, make sure that the Sound Input is set to "*Internal CD*" and that the "*Listen*" box is checked.
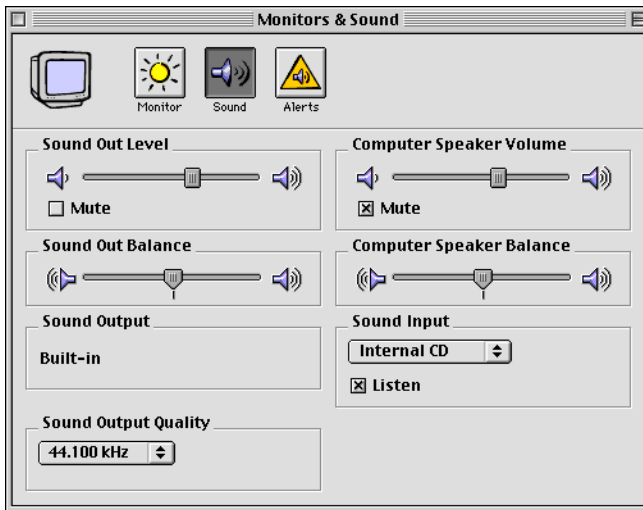
Monitors & Sound Control Panel

Can't Unmount Volume

I get the following error message: "Sorry, but I cannot unmount volume X. Please insure that there is no program using the data of this volume."

For certain CD-Copy operations, it is necessary to unmount the disc that is inserted in the CD-ROM drive. If a file on the disc is in use, the disc volume cannot be unmounted. Try closing all of the files an applications residing on that CD.

Required Extensions

What system extensions need to be active in order to use CD-Copy, and are any system extensions incompatible with CD-Copy?

In most cases, no extensions are required to use the CD-Copy software. As long as you are using a Macintosh that supports SCSI Manager 4.3.1 and Thread Manager (like a Power Macintosh or a 68040 Macintosh with System 7.5.3 or later) CD-Copy requires no system extensions.

Playstation Discs

Can I copy Sony Playstation discs?

Assuming you have CD-Copy, Adaptec Toast and a recorder that can write CD-ROM XA tracks which contain both form 1 and form 2 sectors in Track-at-Once mode (you'll need to check with the manufacturer of your recorder to find this out), you can copy a Playstation disc.

Note: Sony Playstation devices can detect copies that are written on recordable discs, so unless you have a Playstation that has been altered with a *"bootleg"* ROM chip, you will not be able to use copied discs in your Playstation.

Glossary of Terms

Audio Sectors

Audio sectors consists of sound material which is provided with error correction. They can not be read directly by a CD-ROM drive, but many drives provide the possibility to convert the audio data into computer data. An audio sector consists of 2353 bytes of data which corresponds to 1/75 of a second of playing time of a 16-bit sample at 44.1 kHz.

Audio Tracks

Audio tracks consist of audio sectors. They can be played by any CD player as long as they are in the first session of a disc.

CD-i

CD-i stands for Compact Disc Interactive. This is a computer system developed by Philips. It allows play of interactive CD-i discs. Some CD-i players also support the play of VideoCDs and PhotoCDs

Disc-at-Once

This is a mode of CD recording wherein all tracks are written to disc without an interruption of the laser. Therefore no runout sectors are written at the end of each track. Not all CD writers are able to write in this mode and not all CD mastering applications support writing in this mode.

Form1 Sectors

A form1 sector is a mode2 sector which consists of 2048 bytes of data with error correction.

Form2 sectors

A form2 sectors is a mode2 sector which consists of 2324 bytes of data with no error correction. These types of sectors are used for storing audio and video data in XA or CD-i tracks

Frame

One frame equals one sector. One audio frame is equal to 1/75 of a second

Green Book

The green book document describes the format and functionality for CD-i players and CD-i discs

Header

A sector's header consists of information about the placement of the sector on the disc and its mode

HFS

HFS is the file system used by the Macintosh. An HFS track on a CD can normally only be read by a Macintosh computer.

Index

Each sector consists of an index between 0 and 99. Index 0 marks a sector as a pause sector. Index 1 marks the beginning of a track.

ISO 9660

ISO 9660 is a file system which can be read by many different computer platforms including DOS, Windows , Macintosh, and Unix.

ISO 9660 XA

ISO 9960 XA is an Xtended Architecture version of ISO 9660 which allows for multiple sessions on a volume. It is a read-only file system and is able to be read by many different operating systems (DOS, Windows, Macintosh, and Unix).

ISRC-CODE

The ISRC-CODE (International Standard Recording Code) is the 'serial number' of an audio track. Its structure is predefined and it is used to indicate the copyright of an audio track.

Media Catalog Number (MCN)

The Media Catalog Number (MCN) describes the UPC/EAN Bar-code of a disc. It consists of 13 digits.

Mixed Mode CD

A mixed mode CD consists of audio tracks and data tracks which are all written in the first session. Data tracks are always placed before the audio tracks so that an audio CD player recognizes and plays the data and audio. To avoid the structure of having audio and data in the same session, the Enhanced CD standard was defined.

Mode1 sectors

Mode1 sectors consist of 2048 bytes of user data with error correction. Each Mode1 sector starts with a synchronization field followed by the header, the subheader, the user data and the error correction.

Mode2 Sector

A Mode2 sector consists of up to 2324 bytes of user data. Two kinds of Mode2 sectors exist: form1 and form2. Each mode2 sector starts with a synchronization field followed by the header, the subheader, the user data and, in form1 sectors, the error correction.

MPEG

MPEG is a compression standard for video and audio data. This standard allows play of movies in full-screen and full motion from disc.

Multisession

A multisession disc consists of several sessions which are written to disc in several write procedures. There are two type of multisession disc, those on which all sessions appear under the same root directory and those on which each volume appears as it's own volume. Multisession ISO discs are single volume while Multisession Macintosh HFS discs are multivolume.

Orange Book

Name of the standard developed by Philips and Sony for CD-Recordables (CD-Rs). part II of the Orange Book describes the structure of a blank CD-R as well as the recording procedure on a physical layer.

Pause

The track spacing (pause between the tracks) of audio or data tracks written in track-at-once mode consist of 150 sectors (2 seconds) of pause and 2 run-out sectors. The pause between data and audio tracks on a mixed mode disc written in track-at-once mode consists of 377 sectors. Discs written in disc-at-once mode do not have fixed track spacing of 152 and 377 sectors.

Photo CD

A Photo CD consists of one ISO 9660 XA track and several XA tracks. Such a disc can be played with a Photo CD or CD-i player.

Photo CD Portfolio

A Photo CD Portfolio consists of an ISO 9660 XA track, and XA track and an Audio Track. Generally this kind of discs are used for interactive presentations.

Q-codes

Q-Codes contain additional information about a sector. The most important information is the ISRC code and the Indices. These codes are not provided with error correction.

Red Book

Red Book is the standard for digital audio defined by Sony and Philips. It defines the format in which a disc has to be recorded to be played in an audio CD player. It also describes what a CD player has to do to play audio CDs correctly.

Run-Out-Sectors

Run-out-sectors originate from the fact that the laser cannot be switched off instantaneously after writing. Therefore two sectors are destroyed. On discs written in track-at-once mode these sectors appear at the end of every track.

Sector

A sector is the smallest data unit on a CD. Its size can take up to 2352 bytes. There are three different kinds of sectors: mode1, mode2 and audio. Additional P-Q codes are saved for each sector. 75 sectors correspond to one second of data (1 sector = 1/75th second).

Session

A session is a union of several tracks. For each recording procedure one session is created which contains all tracks of that recording procedure. A disc which is written in more than one session is called a multisession disc.

Subheader

A sector's subheader consists of information about the sector, (e.g. if a mode2 sector is of form1 or form2). To write mode2 sectors onto a disc the presence of the subheader is mandatory.

TOC

The TOC is the table of contents of a disc. Each session and each track has its entry. For each track, Index 1 is listed in the TOC, but neither their end nor their pause. The TOC also contains the Media Catalog Number.

Track

A track is the smallest logical unit of a CD. Its minimum length is 600 sectors. A CD can have a maximum of 99 tracks. There are three physical types of tracks: Audio tracks, CD-ROM tracks, and XA / CD-i TRACKS. Before each track, 150 empty sectors must be placed (in track 1 these sectors represent the TOC) for the track-at-once mode. If a disc is written in disc-at-once mode these 150 sectors are only mandatory before the first track.

Track-At-Once

With track-at-once mode recording, only one track is written to the disc without an interruption of the laser. Between tracks, the write laser always stops writing. This is why run-out sectors appear on the disc after each track.

Video CD

A Video CD consists of one ISO 9660 XA track and one or several MPEG tracks. These kinds of discs can be read by a Video CD player and are normally used to store movies.
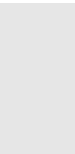
White Book

White Book standard describes the standard for Video CDs

XA / CD-i Tracks

These tracks only consists of mode2 sectors. They are used for ISO 9660 XA, CD-i, Video CD and Photo CD systems

Yellow Book

The Yellow Book standard describes the standard for CD-ROMs. These parameters ensure that CD-ROMs can be played back by all CD-ROM drives. It does not specify the file structure.

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