Adaptec Toast 4

User's Guide

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1

Getting Started

In this Chapter

Thank you for using Adaptec® Toast™ 4, the world's leading CD mastering software for the Apple® Macintosh® computer. Toast is loaded with powerful features that will make your work easier. To get the most out of your new software, please take some time to review this document.

System Requirements for Toast 4

CPU

- An Apple Macintosh 68040 computer for basic recording of data and music.

Memory

- At least 8 MB of random access memory (RAM) dedicated to the Toast application memory. More RAM allocated to Toast RAM Cache can help alleviate data transfer irregularities.

System Software

- Mac OS 8.1 is the minimum requirement.
- For USB and FireWire, and to take advantage of all the features in Balloon Help, Mac OS 8.6 is required.

Note: In this document, the term FireWire represents IEEE 1394, iLink, and FireWire.

SCSI Recorders

- SCSI Manager 4.3 is recommended. To find out whether your Macintosh supports SCSI Manager 4.3, open Toast and notice your CD recorder's identification in the Toast main window. If you see "Bus x ID y," your Macintosh supports SCSI Manager 4.3; if you see only the SCSI ID (no Bus), it does not.

Note: Only the newer PowerBook® computers (2400, 3400, and newer) support SCSI Manager 4.3.

The Optimal System Configuration

- Power Macintosh
- 2 GB hard drive with at least 800 MB available
- 128 MB RAM and Virtual Memory turned off
- Mac OS 8.1 through 9.x (OS 8.6 with FireWire 2.2.2 and USB)

Installing Toast

To install the Toast software application

1. Insert the Toast Installer CD in your CD-ROM drive.

   The Toast Installer CD includes installers in several languages, each in its own folder.

2. Locate and open the appropriate language folder.
3. Double-click the Adaptec Toast Installer.
4. Follow the on-screen instructions to install Toast on your hard disk.

About Toast CD Reader Extension

The Toast CD Reader extension is automatically installed in your Extensions folder. It allows you to use your CD recorder as a CD reader.

Setting Up and Turning On Your CD Recorder

There is no single way to connect a CD recorder to your Macintosh. For a successful setup, read and follow the instructions that came with your recorder.

For SCSI Devices

- Always turn off your computer and any SCSI devices while you connect cables.
- Make sure your recorder is connected securely to the Macintosh, using as short a cable as possible.
- If your recorder is a SCSI device, and you have multiple devices in a SCSI chain
  - Keep the chain as short as possible. Limit the number of devices in the chain, and use the shortest cables possible.
  - Verify that your SCSI chain is correctly terminated. For information on termination, see the device owner's manual.
  - Consider removing all but the recorder from the SCSI chain when you are recording. You can avoid problems and achieve more satisfying results this way.

Note: SCSI recorders don't need special extensions to use Toast.

For IDE Devices

- For a list of supported IDE (ATAPI) recorders, please see the Toast Read Me file. And for the latest version of the list, go to this URL, http://www.adaptec.com/cgi-bin/cdrmain.cgi.

For USB and FireWire Devices

- For a list of supported USB or FireWire recorders, please see the Toast Read Me file. For the latest updates, go to this URL, http://www.adaptec.com/cgi-bin/cdrmain.cgi.

Additional Factors

- While you are recording CDs, if problems occur, disable all but essential extensions and control panels.
  - To copy directly from a CD-ROM drive, you need the extensions required for that CD-ROM drive. (For example, an Apple CD-ROM drive uses Apple CD-ROM and Foreign File Access extensions.)
  - To copy from a network volume, you need networking extensions, such as AppleShare, Open Transport, Network, AppleTalk, and TCP/IP.

Note: Before you use Toast to burn a CD that requires copying data from a network volume, please record in Simulation Mode.

Data transfer performance depends on factors not in Toast's control (for example, your LAN or internet traffic at a given time of day). It is possible to record from a network volume, but not recommended. We prefer that you copy the files to your hard disk and record them from there.

For details on a problem that occurs if data transfer is too slow or stalls (common when downloading data from the Internet or a local network), see "Buffer Underruns During Recording" on page 5-8.

- Allocate most of your unused RAM to the RAM Cache (choose Preferences from the Toast Edit menu).

Creating Your First CD with Toast

With Toast open, the recording process can be as simple as this:

- Select the data you want to write to the CD.
- Drag the data onto the Toast main window and drop it. (Toast usually chooses the best format for you.)
- Click Write CD.
- In the Start Writing Now dialog box, click Write Disc.

How to Make an Audio CD

For purposes of this practice session, choose a couple of songs from an audio CD and use them in creating your first CD. At the end of this procedure, you'll be able to play the CD you recorded with those songs.

Before you start

- Turn on the recorder
- Make sure Toast is open and the Toast main window is active.
- Insert a clean, blank CD. Use a CD-R, not CD-RW because a CD-RW won't play in a standard CD audio player. Inspect the CD for dust or damage. If necessary, wipe the CD in a radial motion with a clean, dry, lint-free cloth.
- Insert an audio CD containing songs you want to copy into your CD-ROM drive. Inspect the CD for dust or damage before you insert it.

With your preparations complete, begin the procedure.

1. Choose Audio CD from the Format menu.
2. If necessary, double-click the audio CD icon to open it.
3. Drag a couple of audio files from the audio CD to the Toast main window and drop them. (Remember, this is a trial run.)
4. Click Write CD.
5. In the Start Writing Now dialog box, click Write Disc.

   Do not choose Write Session. You can only play the first session of a multisession audio CD in a standard audio CD player.

   The recorder writes the audio tracks on the blank CD. While you wait, a status window shows you how much time is left before recording is completed.
6. When you see the message, "Your disc is ready," click Eject.

If you have a problem, the recorder's Write Speed may be set too high for your CD-ROM drive. For information on using the Check Speed feature, see "Using Check Speed to Check the Transfer Rate" on page 2-3, or for troubleshooting tips, see "Checking the Data Transfer Rate" on page 5-5.

Where to Find What You Want

Here's a list of questions about using Toast (and suggestions for where to look in this User's Guide). The questions are grouped under these general categories:

- Copying data
- Making an audio CD
- Creating a bootable CD

Copying Data

- How do I make a data CD to **share** with friends?

  See "Recording with Files & Folders Format" on page 2-7.

- How do I make a copy of my data for **backup?**

  For simply copying data, see "Recording with Files & Folders Format" on page 2-7. Click the Write Session button (instead of Write Disc), and you can record on the CD successive times until you fill it.

- How do I make a CD for a **Windows** PC?

  See "Recording with Files & Folders Format" on page 2-7.

- How do I use a CD like a huge **floppy disk?**

  Toast doesn't mount a CD like a floppy disk, visible as an icon on your desktop. If you want to be able to see a recordable CD icon and drag items to it and from it, you can use Adaptec's DirectCD™, a software application designed for this purpose.

Making an Audio CD

- How do I **copy** an audio CD?

  See "Recording with Audio CD Format" on page 2-11.

- How do I make a **compilation** from various **audio CDs?**

  See "Recording with Audio CD Format" on page 2-11. For information about using Toast's Greatest Hits to select audio files from different CDs, see "Recording Audio Files Directly from Multiple CDs" on page 2-15.

- How do I copy the audio tracks of an **Enhanced CD?**

  See "Recording with Audio CD Format" on page 2-11.

  For information about extracting audio files, see Chapter 4 "Toast Audio Extractor."

Creating a Bootable CD

- How do I make a bootable CD for my Macintosh?

  See "Creating a Bootable CD" on page 2-9.

2

Using the Basic CD Formats

In this Chapter

This chapter takes you through the procedures for recording CDs using the basic Toast formats. With these formats, you can record a wide variety of CDs containing audio and data files.

For users with more demanding requirements, you may want to upgrade to Toast 4 Deluxe.

Basic CD Formats

Listed on the Format menu according to frequency of use (most used at the top), these are the Toast basic formats:

- **Files & Folders**—for recording data that a Macintosh or Windows PC can read
- **DISC Copy**—for recording data directly from a CD-ROM player, hard disk, or other block-oriented device connected via SCSI, IDE, USB, or FireWire to your Macintosh
- **Audio CD**—for recording audio tracks in the format used by audio CD players

Using Check Speed and Simulation Mode

If you've had limited experience working with your CD recorder, you may want to use Toast's Check Speed or Simulation Mode features the first time you record a CD in an unfamiliar format. The objective of both features is to make sure that the write speed defined in Toast for your recorder is not too fast for the speed of your source device.

Checking the speed is not always necessary, but there are circumstances which make it advisable, at least the first time:

- **Audio CD**—when the source for music tracks is a CD that may be worn or dirty
- **Network volume**—when the source for files you are copying is connected by a network to your Macintosh

Note: Your hardware setup, cables, and the speed or density of network traffic may make recording from a network volume unacceptable.

- **Removable drive**—when the source is on a removable disk
- **CD-ROM drive**—when the speed of your drive is slower than your recorder

How Does Transfer Rate Affect Recording?

To write a CD successfully, Toast must be able to get your computer to supply a steady stream of data to the recorder. How fast the data must be supplied depends on the writing speed and format that you've selected. As a general rule, your CD-ROM drive must be faster than your selected recording speed. For example, if you want to record the copy at 2X, your CD reader must be at least a 4X.

The speed of data flow is called the transfer rate; it indicates how many kilobytes of data are transferred in one second from the Mac.

Using Check Speed to Check the Transfer Rate

To see whether your system is fast enough, you can check the transfer rate before recording the CD. The procedure varies depending on whether you are recording an audio CD or not.

- To check the transfer rate when you are recording non-audio files, see "Recording in Files & Folders or DISC Copy Format" below.
- To check the transfer rate when you are recording an audio CD, see "Recording in Audio Format" on page 2-4.

Recording in Files & Folders or DISC Copy Format

1. Make sure you have gathered in the Toast data window the files you plan to copy to a CD.
2. In the Toast main window, click Check Speed.
3. The Check Speed dialog box appears, and the test proceeds as follows:
   - The Low field reports the lowest number of MB of data per second being transferred during the test.
   - The High field reports the highest number of MB of data per second being transferred during the test.
   - The text under those two fields states the minimum acceptable speed of transfer required for the recording.

   As long as the number reported as Low is greater than the number required for the recording, the speed selected is acceptable.

4 To re-check, using a different writing speed

   a Click Stop.

   b Choose a new setting from the Speed menu.

   The menu is initially set to match the connected recorder.

   c Click Start.

Note: Check Speed is only an approximation (the data is read but not transferred to the writer). If the results of the test are borderline, try Simulation Mode, which gives a more accurate evaluation.

5 As soon as the Write Speed is acceptable, click Done.

6 In the Toast main window, click Write CD.

The final steps of the process depend on the format you have chosen to record the CD. See the specific instructions later in this chapter.

Recording in Audio Format

1 Make sure you have gathered in the Toast data window the audio files you plan to copy to a CD.

2 In the Toast main window, click Check Speed.

3 Because you are recording an audio CD, a special dialog box appears, listing the tracks you've dragged to the Toast main window.

- To test a specific track, select it, and then click Test.
- To test the entire list of tracks, click Test All.

4 Another dialog box appears, and the test proceeds as follows:

- The Low field reports the lowest number of MB of data per second being transferred during the test.
- The High field reports the highest number of MB of data per second being transferred during the test.
- The text under those two fields states the minimum acceptable speed of transfer required for the recording.

As long as the number reported as Low is greater than the number required for the recording, the speed selected is acceptable. The speed dialog box disappears, leaving the track-test dialog box.

5 In the track-test dialog box, click Cancel.

Note: Check Speed is only an approximation (the data is read but not transferred to the writer). If the results of the test are borderline, try Simulation Mode, which gives a more accurate evaluation.

6 In the Toast main window, click Write CD.

The final steps of the process depend on the format you have chosen to record the CD. See the specific instructions later in this chapter.

What to Do if Check Speed Fails

If you cannot get your equipment setup to pass, try the following remedies:

- When a particular audio track shows up with the word Error, the CD it came from may be dirty or damaged. For instructions on removing problem tracks from the list, see "Removing Tracks" on page 2-17.
- When writing data placed on local volumes, turn off all network connections.
- For SCSI systems
  - Remove all devices from your SCSI chain that are not presently needed. Some devices slow down the SCSI bus (especially removable-media drives and scanners.)
  - Check cables and termination. Defective cables or an incorrectly set terminator can slow down the SCSI bus, even though the effect may not be noticeable in normal use.
  - Turn off all unnecessary system extensions. With Mac OS 8.1 and later, you can boot with all extensions off by holding down the Shift key while starting your Macintosh.
  - If your Macintosh supports SCSI Manager 4.3, increase the RAM Cache. (Choose Preferences from the Edit menu.)

- For USB systems
  - Except for your keyboard and mouse, make sure there aren't any other USB devices (such as speakers, scanners, or printers) on the bus.
  - Make sure the keyboard and mouse are on a different USB port from the CD recorder.
  - Make sure that the USB driver is enabled.

Error Messages

You might get the following error message while checking the transfer rate:

"Can't complete the last command because of a Mac OS error."

"Result Code = 2"

This error can occur if you try to use DISC Copy format to copy one of the following CDs:

- CD-i, video CD, photo CD, CD Extra
- A CD containing more than one track
- A CD containing more than one session

Toast cannot copy such a CD.

Using Simulation Mode to Check the Transfer Rate

Simulation Mode lets you run through the entire process of writing the CD, exactly like the real writing process, except that the laser is not turned on in the recorder, so nothing is written to the CD.

- All error messages that would be displayed while writing can also appear in Simulation Mode. For help with some errors, see "Error Messages" on page 5-9.
- Simulating the write procedure takes the same amount of time as writing.

1. Make sure you have gathered in the Toast data window the files you plan to copy to a CD.
2. In the Toast main window, click Write CD.

3 In the Start Writing Now dialog box, click to activate the Simulation Mode checkbox.

*** Simulation Mode*** appears in the menu bar.

4 Click Write Disc or Write Session.

Choose the option you intend to use for the actual recording. Write Disc closes the CD at the end of recording. Write Session leaves open the possibility that you can record additional sessions on this CD later.

Note: During simulation, the write indicator light on the recorder turns on, just as if you were actually writing. This is normal, and does not indicate that data is really being recorded on the CD.

Simulation Mode gives more exact results than Check Speed because the data is actually transferred to the recorder.

Recording with Files & Folders Format

Files & Folders automatically creates a CD that can be read by both Macintosh and Microsoft Windows systems. These CDs contain any combination of files, folders, and volumes as the source for your data. You can even select items from network volumes. (However, your hardware setup, cables, and the speed or density of network traffic may make recording from a network volume unacceptable.)

When to Choose Files & Folders Format

- For easy backups
- For data archiving
- To record open files, (for example, the currently used system files on your startup volume)
- To determine for each alias you copy whether the alias itself or the target file will be written to the CD

Recording a CD in Files & Folders Format

1. Make sure Toast is open and the main window is active.
2. Choose Files & Folders from the Format menu.
3. In the Toast main window, click Data.
4. Drag the files and folders you want to copy onto the Files & Folders window.

   Depending on what you drag into the Files & Folders window, your results vary.

If you drag…	Then…
One folder	■ Folder icon looks like a CD ■ Name of folder = Name of CD ■ Contents of folder = Contents of CD
One folder while pressing the Shift and Control keys	An "Untitled CD" icon is created, with the folder on the top level of the CD hierarchy
Several folders	An "Untitled CD" icon is created, with all folders on the top level of the CD hierarchy
One or several files	An "Untitled CD" icon is created, with all files on the top level of the CD hierarchy
Folders and files	An "Untitled CD" icon is created, with all objects on the top level of the CD hierarchy

5. After selecting all your data, click Done.

   The size of the selected data will be displayed in the Toast main window.

Note: Toast allows you to save your setup so you can use it later. Simply choose the Save As command from the File menu.

6 Insert a CD in your recorder.

This CD may be empty or may contain data that has been written as a session. To determine whether the inserted CD is still recordable, choose Disc Info from the Recorder menu.

7 Click Write CD.

8 In the Start Writing Now dialog box, click an option.

- If you want to add data to this CD later, click Write Session. (If your source volume contains more than 625 MB, this option is disabled.)

  For the first session, 2 minutes and 32 seconds of a 74-minute CD are used as overhead, in addition to the data recorded. For subsequent sessions, 1 minute and 32 seconds are used as overhead for each session.

- If you want to close the CD so that no further data can be added later, click Write Disc.

The writing process begins at the selected speed. When all the data is written, Toast automatically verifies the data.

9 When you see the message, "Your disc is ready," click Eject.

Creating a Bootable CD

1 Make sure Toast is open and the main window is active.

2 Choose Files & Folders from the Format menu.

3 In the Toast main window, click Data.

4 Click the New CD button.

5 Drag the appropriate System Folder into the data window.

Make sure you have the correct System Folder for the computer you plan to boot from the CD. Apple places different items in the System Folder, according to the specific computer where it is used.

Note: When your computer boots from a CD-ROM, some items in a System Folder may not function correctly. Certain control panels and extensions must write to a file during the loading process, and this cannot happen on a CD-ROM. (CD-ROMs are read-only and cannot be modified.) This inability to write causes errors during startup. If your system won't boot from a correctly prepared CD, try holding down the Shift key during startup. This may disable extensions that interfere with the load. Be aware, however, that even when you hold down the Shift key during startup, some extensions may load and cause the CD to be unbootable.

6 Drag additional data you want to copy to the data window.

7 After selecting all your data, click Done.

The size of the selected data will be displayed in the Toast main window.

Note: Toast allows you to save your setup so you can use it later. Simply choose the Save As command from the File menu.

8 Insert a CD in your recorder.

This CD must be empty. To determine whether the inserted CD contains any data, choose Disc Info from the Recorder menu.

9 Click Write CD.

10 In the Start Writing Now dialog box, click Write Disc.

The writing process begins at the selected speed. When all the data is written, Toast automatically verifies the data.

11 When you see the message, "Your disc is ready," click Eject.

Recording with Audio CD Format

With Toast you can create two types of audio CD

- A copy of an entire music CD as is
- A compilation of your favorite songs from different audio CDs or sound files

There are two ways to accomplish the task.

- Copy (extract) the audio tracks to your hard disk first, then copy them to the CD recorder.
- Copy tracks directly from the original CD without extracting them to your hard disk first.

Note: To make a direct copy of an audio track, your CD-ROM drive must support audio extraction at a high enough rate (1X minimum), and, for SCSI recorders, your Macintosh must have SCSI Manager 4.3 installed and working.

Recording an Entire Audio CD

1. Make sure Toast is open, displaying the main window.
2. Inspect the audio CD for dust or damage. If necessary, wipe the CD in a radial motion with a clean, dry, lint-free cloth.

   Dirt and scratches can impair the ability of the CD-ROM drive to read the CD and can slow the data transfer speed.
3. Insert the audio CD into your CD-ROM drive.
4. Drag the icon of the audio CD from your desktop to the main window of Toast.

   Toast chooses Audio CD format for you.
5. To see the list of tracks, click Audio.

6 To gain access to the CDDB web site which automatically assigns the correct names to the CD and its tracks, make sure your modem is connected and turned on.

- If your setup can dial the Internet automatically, click CDDB and let your computer do the rest.
- If you cannot dial the Internet automatically, follow your normal procedure for gaining access to the Internet, and then click CDDB.

  There are a number of ways to configure your Macintosh to dial automatically whenever you click a link to the Internet. Applications that do this include PPP and Remote Access.

Note: Some albums may not appear in the CDDB library. If so, you must type the titles yourself. Also, if you do acquire the album title, you should know that it is used by AppleCD Audio Player and Toast. It is not used for CD-TEXT.

While in the Audio Track window you can also remove, play, rearrange, or rename any of the listed tracks. For details, see "Tips for Audio CD Format" on page 2-17. If you want to extract the tracks to your hard disk and record from there, see "Recording Audio Files from Your Hard Disk" on page 2-13.

7 When you're satisfied with the Audio Tracks list, click Done.

In the Toast main window, you can see the number of tracks and the total time required.

8 In the Toast main window, click Write CD.

9 In the Start Writing Now dialog box, verify the speed is correct and click Write Disc.

Recording commences.

10 When you see the message, "Your disc is ready," click Eject.

You've made a copy of an audio CD. You should be able to play it in any audio player. (In certain audio CD players, you can encounter a problem playing duplicated CDs.)

Index-Points – Text and Numeric Markers

If you have defined index points in your SoundDesigner II files, Toast recognizes them and writes them to the CD. To read the markers in your sound files, select the marker type from the Index pop-up menu. Choose Text Markers or Numeric Markers depending on the type of markers you defined. The number of markers appears in the track list.

Note: Index-points are seldom used, because most audio CD players cannot use them (or even see them).

Not all CD recorders are able to write index-points in Toast's Track-at-Once (TAO) Mode. If your recorder does not support index points, a warning message appears when you try to record the CD.

Recording Audio Files from Your Hard Disk

There are advantages to recording an audio CD from files already copied to your hard disk.

- You may avoid some problems caused by damaged CDs.
- The Macintosh hard disk can handle faster write speeds than many CD-ROM drives.
- You can mix tracks from different albums, creating a compilation CD of your favorite songs. (You can also mix tracks directly from different CDs. For details, see "Recording Audio Files Directly from Multiple CDs" on page 2-15.)

There are two phases to the process. First you extract the files you want to copy, and then you record them from your hard disk. The procedure below describes simple extraction. If you want more control over the extraction process, see Chapter 4, "Toast Audio Extractor."

Extracting Files

1. Make sure Toast is open and the main window is active.
2. Choose Audio CD from the Format menu.
3. Inspect your audio CDs for dust or damage. If necessary, wipe the CDs in a radial motion with a clean, dry, lint-free cloth.

4 Insert an audio CD into your CD-ROM drive.

5 Copy the audio CD or selected tracks you want.

- To copy an entire audio CD, drag its icon to the Toast main window.
- To copy selected tracks from one or more CDs

  a Double-click the CD icon on your desktop.

  b From the CD's directory window, select the tracks you want and drag them to the Toast main window.

  c Repeat steps 4, 5a, and 5b for each CD that contains tracks you want to extract and record.

6 In the Toast main window, click Audio.

The Audio Tracks window shows the list of tracks you selected and dragged to Toast. You can remove, play, rename, or rearrange any of the listed tracks. For details, see "Tips for Audio CD Format" on page 2-17. For information on using CDDB to assign names automatically to the CD and its tracks, see step 6 on page 2-12.

7 When you're satisfied with the Audio Tracks list, select all of the tracks and click Extract To.

8 In the standard file dialog that appears, specify the destination for the files and click Save.

Toast updates the Audio Tracks list to show the AIFF files.

Note: On most systems, extracting audio takes the same amount of time as playing the audio. (One minute of audio takes one minute to extract.) Each minute of audio requires 10 MB of disk space. (So 60 minutes of audio requires 600 MB of disk space.)

9 In the Audio Tracks window, click Done.

Recording Extracted Audio Files

1. In the Toast main window, click Write CD.
2. In the Start Writing Now dialog box, verify the speed is correct and click Write Disc.

   Recording commences.

   Because audio CDs are single-session recordings, it's best to choose Write Disc, which closes the CD.
3. When you see the message, "Your disc is ready," click Eject.

Recording Audio Files Directly from Multiple CDs

Toast's Greatest Hits helps you create a compilation of your favorite songs from different CDs or audio files.

For information on another procedure you can use to create compilation CDs, see "Recording Audio Files from Your Hard Disk" on page 2-13. Extracting the files first means you can pay less attention to the recording process. However, the files may require a lot of space on your hard disk. (One minute of audio = about 10 MB of hard disk space.)

1. Make sure Toast is open and the main window is active.
2. Choose Audio CD from the Format menu.
3. In the Toast main window, click Audio.
4. Inspect your audio CDs for dust or damage before you insert any of them. If necessary, wipe the CDs in a radial motion with a clean, dry, lint-free cloth.
5. Insert an audio CD into your CD-ROM drive.
6. Select the audio tracks you want.
   a. Double-click the CD icon on your desktop.
   b. From the CD directory window, select the tracks you want and drag them to the Audio Tracks window.
   c. Repeat steps 5, 6a, and 6b for each CD you want to use.
7. You can remove, play, rename, or rearrange any of the listed tracks. See "Tips for Audio CD Format" on page 2-17.

Note: To acquire the names of the CD and its tracks electronically, use CDDB. Do this before you actually record the compilation CD from the named audio tracks. For details, see step 6 on page 2-12.

8 When you're satisfied with the list, click Done.

9 In the Toast main window, click Check Speed.

10 Because you are recording an audio CD, a special dialog box appears, listing the tracks you've dragged to the Toast main window.

- To test a specific track, select it, and then click Test.
- To test the entire list of tracks, click Test All.

11 Another dialog box appears, and the test proceeds as follows:

- The Low field reports the lowest number of MB of data per second being transferred during the test.
- The High field reports the highest number of MB of data per second being transferred during the test.
- The text under those two fields states the minimum acceptable speed of transfer required for the recording.

If the word Error shows up beside one or more tracks in the list, there are different possible causes and solutions.

- If Error appears beside all the tracks, it is probable that the system cannot handle the selected write speed. Choose a lower speed and test the tracks again.
- If Error appears beside a particular track (or scattered tracks on the list), the source audio CD may be dirty or damaged. The simple solution is to remove the track. For instructions on removing a problem track from the list, see "Removing Tracks" on page 2-17.

12 As soon as your assembled tracks pass the speed test, click Cancel.

13 In the Toast main window, click Write CD.

14 In the Start Writing Now dialog box, verify the speed is correct and click Write Disc.

During the recording process, Toast prompts you to insert different CDs at the appropriate times.

15 When you see the message, "Your disc is ready," click Eject.

Tips for Audio CD Format

Like all great Macintosh applications, Toast offers more than one way to accomplish most tasks. These tips point out some of the alternatives.

Selecting Tracks

1 Select the audio files in the Finder and drag them onto the Audio Tracks window.

2 When selecting from an audio CD, drag one or more tracks, or to select all the tracks, simply drag the icon of the CD.

Rearranging Audio Files

To change the order of tracks on the finished CD, drag individual audio files around in the Audio Tracks window.

Removing Tracks

To remove tracks from the list, select the files and click Remove.

Note: Removing items from the list cannot be undone. However, if you remove something from the list by mistake, you can re-import the file.

Previewing Tracks

To play a track, select it in the Audio Tracks window and click Play. The track plays back using the Macintosh internal audio output. If the track is on a CD that's not currently mounted, Toast prompts you to insert it.

Note: Playing audio tracks requires the system extension Sound Manager.

Saving Tracks as Sound Files (Audio Extraction)

Toast can save an audio track as a standard AIFF sound file. Simply select the desired track or tracks in the Audio Tracks list and click Extract To. For a detailed procedure, see "Recording Audio Files from Your Hard Disk" on page 2-13.

Entering and Editing the Names of Source CDs and Tracks

When you drop an audio CD onto the Toast main window, a small dialog box asks you to give the CD a more descriptive title.

You can type the title yourself and click OK, or you can click CDDB. If you click CDDB, and the CD is present in the CDDB online library, CDDB assigns the album title and all the track titles automatically for you.

You can edit these names in the Toast Audio Tracks window. There are two ways to do this

- Double-click a CD icon in the track list to display the naming dialog box. Then enter the CD title and track name(s), and click OK. To move to a different track, use the small arrows in the lower left corner of the dialog box.
- Select the track name in the Audio Tracks window. Wait about 1 second, and the highlight color changes, indicating that you can now type a new name. (This in-line editing procedure works the same as renaming an icon in the Finder.) Another way to activate in-line editing is to Command-click the line you want to edit. When you have selected and edited one line, you can use the Tab key to move to the next line.

Note: If the AppleCD Audio Player happens to be open on the desktop at the same time you enter a new name for a track, you'll see an error message. Close the AppleCD Audio Player, and the problem disappears.

You can also edit the names using the AppleCD Audio Player.

1. Choose the player from your Apple menu.
2. Type the CD and track names in the appropriate fields.

Writing from Multiple Source CDs

If you have selected tracks from more than one CD, Toast displays a list of the CDs when you click Write CD.

Make sure you have all the source CDs available before proceeding, because the write process cannot be stopped once begun.

While Toast is writing, the Greatest Hits dialog box prompts you to insert the appropriate source CD as it reads each track.

The Pause Between Tracks

Toast automatically inserts a two-second gap between tracks. To specify a different gap

1. Select the track(s) for which you want to change the pause.

   The menu sets the pause **before** the selected track(s).
2. Click Pause at the top of the list or click a selected track.
3. Choose the pause you want from the pop-up menu that appears.

Note: The pause before the first track cannot be fewer than two seconds.

If your recorder does not support pauses smaller than two seconds, you may see this message:

> "The currently selected recorder has a fixed pause of 2 seconds between tracks. Larger pause values will add audio silence to the previous track, smaller values will be ignored."

Recording with DISC Copy Format

DISC Copy lets you record directly to a CD from block-oriented devices connected to your Macintosh via SCSI, IDE, USB, or FireWire. DISC Copy creates the exact copy of such devices as

- CD-ROM drive with a single-session CD inserted
- Hard disk
- Magneto-optical drive
- Removable drive with a disk inserted

When to Choose DISC Copy Format

- To copy a bootable CD
- To copy a hybrid CD (for example, Macintosh and Windows)
- For easy backups

When to Choose a Different Format

- For reproducing a readable copy of a Macintosh computer hard disk, use Files & Folders format (see page 2-7).
- Because DISC Copy makes an exact copy of a volume, the resulting CD may not work as expected. For example, if you copy a volume formatted as a DOS drive, it won't work properly on a Windows PC; Windows PCs require the ISO format for CDs, but your CD would have the format and structure of a hard disk.
- If you have a bootable CD that can't boot newer Macintosh computers and want to make a copy that can, use Files & Folders format and make the CD bootable to update the driver on the copy you create. (For details, see page 2-9.)

Special Requirements

You must observe the following restrictions:

- You cannot copy CDs that contain mode2 form2 sectors, for example, video CDs, CD-i, photo CDs, etc., because the Macintosh computer cannot read those sectors.
- CDs you copy must contain only one session.

Recording a CD in DISC Copy Format

1. Choose DISC Copy from the Format menu.
2. In the Toast main window, click Data.

   All connected valid source devices are displayed.
3. Select the device to be copied and click OK.

   A dialog box appears, showing the capacity of the device and its contents in MB, block size, and number of blocks. (When you select a CD that you have written yourself, Toast automatically subtracts the unreadable blocks at the end of the CD to avoid errors while writing.)

   It is best not to change the numbers in the dialog box. Doing so may cause your CD not to work. However, if you need to copy the contents of a large hard disk (e.g., 1 GB) to a CD, you must make a couple of adjustments.

   a. In the dialog box, change the Copy pop-up menu from Blocks to Megabytes.

   b. Defragment your large hard disk. (This puts all the data at the beginning of the disk.)

   c. In the Copy field, type a number that equals the amount of data on your hard disk + an additional 50 MB.

      For example, on a 1 GB hard disk, with 650 MB “available,” you have roughly 350 MB of data, and 350 + 50 = 400 MB. So you should type 400 in the Copy field. When you record the contents, Toast copies the defragmented 350 MB plus a bit of extra space for comfort.
4. Click OK.

   The Toast main window displays the amount of data to be written.
5. Insert a blank CD in your recorder.

   To verify that the inserted CD is indeed empty, choose Disc Info from the Recorder menu.
6. Click Write CD.

7 In the Start Writing Now dialog box, choose an option.

- If you want to add data to this CD later, click Write Session (not recommended).
- To close the CD so that no further data can be added later, click Write Disc.

The writing process begins at the selected speed.

8 When you see the message, "Your disc is ready," click Eject.

3

Reference

In this Chapter

This chapter contains information of general interest.

File Menu

Open

Opens previously saved Toast files (or virtual images). Open restores all the settings and file selections to the same state as when the file was saved most recently.

Save / Save As

Saves a virtual image containing references to all selected data, settings, and modified file names so they can be restored later.

Virtual images can be created for every format.

When you quit Toast or switch to a different format, Toast asks if you want to save your current settings.

Note: A virtual image saves references to selected files, but not the files themselves. If you delete the original data, the image becomes invalid.

Revert

Reverts to the last-saved Toast document (virtual image).

Quit

Exits the Toast application, after asking you to save your settings (when appropriate).

Note: Clicking the Close box in the main window is the same as choosing **Quit**.

Edit Menu

Standard Commands

Undo, Cut, Copy, Paste, Clear, and Select All are standard Macintosh commands that are available for use in any of Toast's lists or error logs.

You can use the Copy command to copy as text all selected items in the Toast data window for Files & Folders format.

Preferences

Displays a dialog box that lets you set specific operational parameters for Toast.

Disk Cache

Sets aside space on your hard disk for Toast to store small files temporarily while optimizing and writing on-the-fly.

If you have more than one hard disk attached to your Macintosh computer, you can choose from the pop-up menu which drive to use for this temporary storage. Choose a fast drive that has sufficient free space.

Note: Do not select an optical drive or other slow storage device for the Disk Cache.

RAM Cache

Augments the RAM cache built into your recorder with RAM installed in your Macintosh computer. The amount of RAM Toast uses for cache enhancement is selectable from the pop-up menu.

You can choose a relative amount, based on the selected write speed, or you can set a specific amount of RAM to be used, regardless of the write speed.

In general, if you are writing CDs from data sources with erratic data rates (such as network volumes), you should set a higher value for the RAM Cache. On the other hand, if you generally write from a very fast hard drive on a fast computer, small values should work just fine.

Preferred Drive for Reading Audio

If you have more than one CD-ROM drive on your system, you can use this menu to specify which drive ejects when Toast requests an audio CD.

To verify that the selected drive has audio extraction capabilities, insert an audio CD into the drive and click Test.

Calculate a Checksum While Verifying

When this option is checked, Toast calculates a checksum each time it verifies a CD. This is useful if you are writing CDs from image files created in another application that also calculates a checksum (such as Astarte CD-Copy). You could then compare the two values to ensure that the CD is identical to its source.

Once the checksum is calculated, you can choose Copy from the Edit menu to copy it to the clipboard.

Note: if you do not have software that generates images and checksums, do not check this option.

Look and Feel

Changes the appearance of Toast's windows. Choose an item from the pop-up Look and Feel menu. To see the change, you must quit and reopen Toast.

PowerKey/Rebound Compatible

Tells Toast to send "don't restart" commands to PowerKey or Rebound. When writing a CD, Toast locks out other applications to ensure that the flow of data to the recorder is uninterrupted. Having the PowerKey/Rebound Compatible option active prevents restarts in the middle of recording a CD. (PowerKey and Rebound send a Restart command to your Macintosh unless they are told not to at regular intervals.)

Format Menu

Use the Format menu to select the specific CD format that you want to write.

For information about each format, see the pages listed below:

- **Files & Folders**—See "Recording with Files & Folders Format" on page 2-7.
- **Audio CD**—See "Recording with Audio CD Format" on page 2-11.

  For specific information on using **Toast's Greatest Hits,** see "Recording Audio Files Directly from Multiple CDs" on page 2-15.
- **DISC Copy**—See "Recording with DISC Copy Format" on page 2-20.

Recorder Menu

Write Speed

Specifies the speed you want the recorder to use when writing a CD. Only the speeds applicable to your recorder are available in the menu. (The speeds not supported by your recorder are dimmed.)

Note: If you prefer, you can also set the write speed in the Start Writing Now dialog box.

Simulation Mode

Lets you simulate the process of recording data or music on a CD for purposes of validating write speed and other factors that influence recording.

If you are recording files from the Internet or a LAN, the flow of data is often inconsistent. Simulation gives you a chance to determine whether it's possible to make a successful recording from the net. However, even a successful simulation doesn't guarantee a good recording. Network conditions are too unpredictable.

If you are recording directly from an audio CD in your CD-ROM drive, simulation lets you know whether tracks on the CD can be recorded successfully at the speed you select.

Disc Info

To view information about the CD-R currently inserted in the recorder, choose this command. Available information includes:

- Media type (recordable or not)
- Sessions already on the CD
- Used and available CD space
- The number of megabytes/blocks available (which can be used for additional sessions on the CD)

If your recorder has CD-RW capability and a CD-RW inserted, the Disc Info window includes an Erase function. To erase a CD-RW, click Erase.

In the dialog box that appears click Quick Erase or Erase. If you click Quick Erase, the process takes approximately 10 minutes. If you click Erase, the process takes up to 80 minutes. If you intend to use the CD-RW with Adaptec's Direct CD product, click Erase.

Recorder Info

Displays technical information about the connected CD recorder:

- Recorder model
- Firmware version
- Cache size

In addition, there is a Self Test button.

Note: Self Test may give inaccurate information, depending on how your recorder's firmware handles the command

Eject

Ejects any currently inserted CD from the recorder.

Mount CD-ROM (from the Recorder)

Causes any mountable sessions on the currently inserted CD to appear on the Macintosh computer desktop. Once a CD is mounted, it can be used normally until you eject the CD or restart the computer, even if you exit the Toast application.

Utilities Menu

Compare

Compares the contents of two data sets to see if they match. You can compare two volumes, two folders, or two files.

Note: Compare differs from the verification that Toast performs after writing a CD. First, verification always compares the selected source data to the finished CD; with Compare, you compare any two data sets. Second, Compare checks each individual file when comparing the data; verification compares only blocks. The Compare command usually tells you exactly which file contains the error.

To compare volumes, folders, or files, perform the following:

1. Choose Volumes, Folders, or Files from the pop-up menu.
2. Select the desired original and copy.
3. Click Compare.

   Toast displays a list of any mismatches.

   To create a text-clip file, select items from the list and drag them to the desktop. To open the clip, double-click its icon.

Check Aliases

Examines all the aliases on a specified volume to ensure they point to items on the same volume and that all the original files can be found. Always check aliases before writing in Files & Folders format.

In the dialog box that appears, select the volume you want and click OK. Toast checks the aliases and displays any problems in a list. Be sure to delete or correct any nonfunctional aliases before recording your CD.

Internet Menu

Web Checkup

Looks for Toast upgrades on the Internet.

Adaptec CD-R Home

Provides a submenu you can use for easy Internet access to helpful resources.

Deluxe Info

Provides information on the Deluxe version of Toast.

CDDB Website

When you copy an audio CD for recording in Toast, you can take advantage of the CDDB web site to acquire names for the CD and its tracks. All you need is a modem and a connection to the Internet. For details, see step 6 on page 2-12.

Help Menu

Toast provides contextual information with Balloon Help. To turn on Balloon Help, choose Show Balloons. To turn it off, choose Hide Balloons.

Recording a CD in HFS+ Format

Most of the time Toast generates the file system for use on a CD it records. For Macintosh use, the file system is HFS. Toast never generates HFS+ on its own.

In the Deluxe version of Toast, it is possible to create a CD in HFS+ format.

Copying an HFS+ Volume (Mac OS Extended Format)

If a volume you are recording to CD is formatted in HFS+ and you want to retain that format, use the DISC Copy format.

Track-At-Once (TAO) Recording

The TAO Mode records each track of a CD individually with 150 empty sectors immediately preceding it and 2 run-out sectors at the end of each track.

With some recorders, it is possible to change the number of empty (silent) sectors preceding audio tracks, also known as the pause, usually 2 seconds (150 sectors). The pause before the first track, however, cannot be fewer than 2 seconds.

ISO Names on a Macintosh

The ISO naming convention lets you retain file names that don't observe the DOS 8.3 filename/extension rule. When you choose the Files & Folders format, Toast creates both Macintosh and Microsoft Windows CDs automatically.

About CDs

A CD (compact disc) is 1.2 mm thick and has a diameter of 8 or 12 cm. Its data capacity is approximately 550 MB for 63-minute CDs, 650 MB for 74-minutes CDs, and 700 MB for 80-minutes CDs. The exact capacity varies from one brand of media to another.

The access time and data-transfer rate of a CD is typically much slower than a hard disk, although technological improvements have resulted in CD-ROM readers that read significantly faster than the original single-speed drives.

The recordable part of a CD consists of (at least) three blocks:

- **Lead-In block**—Holds the directory information; located on the innermost 4 mm of the CD's recording surface.
- **Program block**—Holds the data or audio tracks and fills the next 33 mm of the CD.
- **Lead-Out block**—Marks the end of the CD and fills the external 1 mm.

A CD is divided into sectors. The actual available size for data is 2352 bytes for each sector.

Different CD formats use that 2352 bytes in different ways. For example, an audio CD uses all 2352 bytes for audio data, while data formats need several bytes for error detection and correction.

Each sector of a CD is again divided into logical blocks of 512, 1024, or 2048 bytes. The block sizes are part of the definition for each CD format.

There are five different types of sectors:

Type 1: Red-Book Sector or Audio Sector

2352 Audio Sample Bytes

Type 2: Yellow-Book Data Sector Mode1

Sync 12	Header 4	Data 2048	Error Correction 288

Type 3: Yellow-Book Data Sector Mode2

Sync 12	Header 4	Data 2336

Type 4: CD-ROM XA and Green-Book Data Sector Mode2-Form1

Sync 12	Header 4	Subheader 8	Data 2048	EC 280

Type 5: CD-ROM XA and Green-Book Data Sector Mode2-Form2

Sync 12	Header 4	Subheader 8	Data 2324	EC 4

- Type 1 sectors are audio sectors; they contain only audio samples (1 Sample = 4 bytes).
- Types 2 and 4 are data sectors used to store computer data.
- Type 5 is a data sector used to store compressed audio and video data.
- Type 3 is rarely used.

Standard recordable CDs (12 cm diameter) can hold 63, 74, or 80 minutes of data. Because CDs were originally conceived to store only audio data, their capacity is measured in time rather than megabytes.

minutes:seconds:frames – 1 frame = 1 sector

The data for audio CDs is 16 bit/44.1 KHz, stereo. That is, each audio sample occupies 4 bytes (16 bits = 2 bytes per channel), and 1 second of audio contains 44,100 samples.

Because an audio sector (type 1; 2352 bytes/sector) contains only audio samples: 2352/4 = 588 samples/sector. One second contains 75 sectors: 44.100/588 = 75 sectors/second. Therefore a 74 minutes CD-R contains 333,000 sectors (4,440 * 75).

The number of megabytes a CD can hold depends on the type of sectors used on the CD:

- If only type 1 sectors are used, these 333,000 sectors correspond to approximately 747 MB of audio data (333,000 * 2352 bytes).
- If types 2 or 4 are used, they correspond to approximately 650 MB of data (333,000 * 2048 bytes).

If a CD is read with a standard, single speed CD-ROM drive, 150 kilobytes of data are read per second (75 sectors * 2048 bytes in 1 second).

4

Toast Audio Extractor

In this Chapter

The Toast Audio Extractor is an application that lets you save tracks from an audio CD as Macintosh computer sound files in a variety of formats. It requires a CD-ROM drive that supports audio extraction.

Getting Started

To launch Toast Audio Extractor, double-click its icon in the Finder.

After a moment, the main window appears. If an audio CD is already mounted, its contents are shown in the window; if not, insert one to begin.

The Main Window

You can control all of the application's functions from this window.

Track List

The track list shows the number, title (if available), and length of all the tracks on the CD. If you have previously named the tracks using AppleCD Audio Player, the names are taken from the AppleCD Audio Player's database and are displayed in the track list.

Naming the CD and Its Tracks

1. To edit the names with Toast Audio Extractor, double-click any item in the track list.

   The naming dialog box appears

2. Enter the desired CD and track name(s) then click OK.

   You can use the arrows to move to a different track. The names are stored in the Apple CD database, available to applications that use that data (Toast, Toast Audio Extractor, and AppleCD Audio Player, among others). This is not CD TEXT.

The Track Display

The Track Display area shows a graphic representation of each track on the CD. Initially, each track is indicated by an open rectangle.

To view the waveform of one or more tracks

1. Select them in the track list or track display.
2. Click Preview.

   The progress window appears while Toast Audio Extractor reads the tracks and builds the waveforms. This may take a while, depending on the length of the tracks and the speed of your CD-ROM drive.

About the Overlap Option

Toast Audio Extractor attempts to preview and extract audio data at the full speed of your CD-ROM drive. On some drives, this may result in errors that reveal themselves as clicks when you listen to the sound files.

If you experience this problem, activate the Overlap (safer but slower) check box in the extraction Progress window. When Overlap is checked, Toast Audio Extractor verifies the data before saving it, to ensure accurate extraction.

After reading, Toast Audio Extractor displays the waveforms.

Note: Toast Audio Extractor stores the data for the waveform display in a folder called TAE Waveform Cache *f*, located in the same folder as the Toast Audio Extractor application. If you delete these files, the waveforms must be recreated the next time you use that particular CD.

Operational Controls

The upper right-hand section of the main window contains the main controls. There are buttons for starting the extraction process, setting sound options, and playing and previewing the selected audio tracks.

Options

If you click Options, the Sound Format dialog box appears. Use it to specify the format you want for the extracted tracks.

The selected format is also indicated in the lower right corner of the main window.

Extract

To begin extraction of any selected tracks, click Extract. If no tracks are selected, the entire CD is extracted.

Zoom Controls

The Toast Audio Extractor main window contains the Zoom controls. They affect what you see in the Track Display area.

The Zoom controls appear as four small buttons on the right side of the main window, just above the track display area.

- **Zoom In** (magnifying glass with a + sign)—Increases the magnification of the selected track(s).
- **Zoom Out** (magnifying glass with a – sign)—Decreases the magnification of the selected track(s).
- **Show All** (miniature wave form)—Shows all the tracks in the Track Display area.
- **Zoom to Selection** (small CD icon)—Zooms the selected track(s) to the full width of the Track Display area. This is useful if you want to select just a portion of a track for extraction.

Extracting Tracks

To extract tracks from the CD

1. Select the desired track or tracks and click Extract. Toast Audio Extractor presents a standard file naming window.
2. Specify the name and location for the extracted files and click Save.

Note: As a short-cut, you can select any track or tracks in the track list or track display and drag them to the desired location in the Finder. Toast Audio Extractor immediately begins extracting the chosen items to that location.

5

Troubleshooting

In this Chapter

This chapter provides solutions to problems you may encounter while recording CDs or viewing the CDs you have recorded.

Problems with the Basic Formats

Listed on the Format menu according to frequency of use (most used at the top), these are the Toast basic formats:

- Files & Folders
- Audio CD
- DISC Copy

Files & Folders Format

Files & Folders is one of the basic formats. For more information about its use, see "Recording with Files & Folders Format" on page 2-7.

Toast reports that some aliases couldn't be resolved

Resolve Aliases is checked (activated), and aliases in the data you are copying point to files Toast can't find. This often happens, for example, when you drag a System Folder to Toast containing aliases of recently used applications.

Deactivate Resolve Aliases, and Toast records the aliases as aliases (unresolved), displaying them in italics.

Toast cannot find the related volume (error code = –35)

Resolve Aliases is checked (activated), and aliases in the data you are copying point to a volume Toast can't find.

Mount the missing volume or deactivate Resolve Aliases. If you deactivate Resolve Aliases, Toast records the aliases as unresolved aliases, displaying them in italics.

Toast reports that a file or folder could not be found (result code = -43)

This happens sometimes when you drag and drop groups of files onto the Toast main window.

To remove the error, rebuild the desktop by restarting the Macintosh while you simultaneously press and hold down the Option and Command keys.

You see only the first session on a multisession disc

You recorded more than one HFS/HFS+ session on the disc, but your current CD-ROM driver doesn't support multisession discs.

There are two possible solutions:

- If it's an Apple CD-ROM, update to Apple CD-ROM driver version 5.1x or later.
- Insert the disc into your CD recorder and read it from there using the system extension Toast CD Reader. (Toast CD Reader mounts each HFS/HFS+ session as an individual volume.)

Audio CD Format

Audio CD is one of the basic formats. For more information about its use, see "Recording with Audio CD Format" on page 2-11.

Toast reports that your audio file is the wrong format

Save AIFF files in 16-bit, 44.1-KHz, Stereo or Mono format. Use Toast Audio Extractor to extract and save files.

Your audio file sounds as if it's mono, not stereo

The sound file was saved in Mono format, and [Mono] appears beside its name. Toast converts mono files into stereo with both channels containing the identical sound information.

A disc replicator has a problem with your master CD

Many disc replicators require that the master be recorded in DAO Mode, not available in Toast 4 Standard.

DAO mode is a feature of Toast 4 Deluxe.

You hear noises between audio tracks

If the source CD sounds OK in an audio CD player, extract a couple of tracks, and then use Toast to audition the samples and make sure they sound clean. If they do, you can eliminate the source CD as the cause of the problem.

Another possible cause may be noise from other devices, chatter from your hard drive, your computer environment, or your cables. Do what you can to eliminate unnecessary devices, dampen noise in your computer space, and make sure your cables are connected properly.

Finally, some versions of recorder firmware can cause clicks between tracks. Contact the recorder manufacturer to get a firmware update.

Toast reports that your recorder doesn't support index generation

In TAO Mode, some CD recorders ignore index markers. If your recorder supports index markers and you want to preserve index-points, you need to record in disc-at-once mode (DAO).

Only the first session on a multisession audio CD plays in your CD player

Consumer audio CD players are incapable of accessing multiple session of an audio CD. Only the first sessions tracks can accessed by an audio CD player.

Toast reports buffer underruns (or crashes) while recording an audio CD from your CD-ROM drive

The source CD may be scratched or dirty, or the CD-ROM drive may be too slow for the recorder. Check the source CD and clean it. Change the Write Speed in the Recorder menu. Then try again in Simulation Mode.

Specific extensions are another possible cause of the problem.

Disable all extensions except Apple CD-ROM, Foreign File Access, and ToastSupport extensions. Here are the steps to follow:

1. To bring up the Extensions Manager control panel, press and hold down the spacebar as you restart or power up your Macintosh.
2. In the Extensions Manager control panel, uncheck all boxes, except for the Apple CD-ROM, Foreign File Access, and ToastSupport extensions.
3. Close the Extensions Manager and allow the system to continue powering up.

With Apple CD-ROM, Foreign File Access, and Toast Support the only extensions enabled, open Toast and try your recording session again. We recommend that you use Simulation Mode first, to verify the problem has been resolved. (For details, see "Using Check Speed and Simulation Mode" on page 2-2.)

For more information on buffer underruns, see "Buffer Underruns During Recording" on page 5-8.

DISC Copy Format

DISC Copy is one of the basic formats. For more information about its use, see “Recording with DISC Copy Format” on page 2-20.

Your CD-ROM drive can’t read a CD copy of a SCSI hard disk

If you try to copy an MS-DOS formatted hard disk directly, you won’t be able to read the CD.

Mount the hard disk on your Macintosh and record it in Files & Folders format (see “Recording with Files & Folders Format” on page 2-7) rather than DISC Copy.

Toast reports that it can’t copy a CD directly

You may receive an error message when you use the Check Speed feature or as you start the writing process. If you are trying to copy a CD containing mode2 form2 (such as video CD, CD-i, CD Extra, or photo CDs), it cannot be copied directly.

General Problems

Occasionally, you may encounter problems not directly related to a specific format choice. Here are some suggestions.

Checking the Data Transfer Rate

It is not necessary to use the Check Speed feature every time you record, but it can be useful in some circumstances. For more information, see “Using Check Speed and Simulation Mode” on page 2-2. The following problems may occur when you use Check Speed.

Toast reports Error code = 2

Your Macintosh cannot read the selected data. You may be trying to copy a disc containing mode2 form2 or audio sectors.

To extract audio, you can use Toast Audio Extractor.

Toast tells you it doesn't recognize the SCSI driver

Some drivers on your Macintosh (for example, for background application) may cause problems during recording.

Restart your Macintosh holding down the Shift key to turn off all extensions. Or use Extensions Manager to turn off non-essential extensions.

The recorder can't write a CD-ROM XA track on a CD-ROM

Some recorders can't mix formats on a disc.

Select the data in Files & Folders format.

Toast can't allocate the space needed for a temporary hard disk cache

The data you selected contains many small files, and Toast wants to save them in a temporary hard disk cache to avoid speed problems during recording. The currently selected hard disk doesn't have enough available disk space to save all the required files.

Choose Preferences from the Edit menu and select a hard disk with adequate free space.

Write Session isn't available in the Start Writing Now dialog box

There are several possible causes:

- You selected more than 625 MB of data to write.
- There's not enough free space on the disc to write more sessions after the current one.

If there won't be enough space for another session, Toast disables the Write Session option.

To regain the option, insert a blank CD-R.

Toast tells you your recorder can't write a disc in a particular format

Not all recorders can record all disc formats.

Consult your recorder manufacturer. There might be a firmware update for your recorder that enables it to write these formats.

You want to do a test recording without wasting a blank CD

To complete the normal recording process without actually writing any data, use Simulation Mode. During simulation, Toast performs various checks to verify the integrity of your hardware setup and software settings.

There are two ways to use Simulation Mode:

- Choose Simulation Mode from the Recorder menu
- Click Write CD in the Toast main window. In the Start Writing Now dialog box that appears, activate the Simulation Mode check box. Then select Write Session or Write Disc for the simulation.

For more information, see "Using Check Speed and Simulation Mode" on page 2-2.

Toast won't let you record another session on a CD that's got only a small amount of data recorded on it

When you click Write CD in the Toast main window, the Start Writing Now dialog box appears. In that dialog box you have the options Write Disc and Write Session. If you select Write Disc, the disc is closed when Toast finishes that recording session. For multiple sessions, you must select Write Session.

To learn more about a CD inserted in your CD recorder, choose Disc Info from the Recorder menu. For details, see "Disc Info" on page 3-6.

Buffer Underruns During Recording

Once Toast begins to record, or "burn," the data to a CD, it cannot stop, or even slow down, until all the selected data has been written to the CD. Data must be transferred to the CD recorder at a rate that is as fast, or faster, than the recorder Write Speed setting. (To see the speed selected, choose Write Speed from the Recorder menu. Or click Write CD in the Toast main window, and note the Speed in the Start Writing Now dialog box.) If data is not provided to the recorder fast enough, the storage buffers within the recorder run out of data to write, causing the write process to end. This condition is known as a buffer underrun, and when it occurs, the partially written CD is unusable.

A faulty hardware setup can reduce the data transfer speed of all devices on the SCSI bus and contribute to buffer underrun errors. Incorrect termination, poor quality SCSI cables, cable lengths exceeding 3 feet, too many devices, or a faulty device have been known to cause SCSI bus data corruption resulting in SCSI bus failures, or multiple command/data retries.

Check all devices for proper termination. Make sure individual external cables do not exceed 3 feet in length and that each cable meets the required standard. Be sure not to exceed the maximum number of devices allowed on the bus, and make sure each device is properly configured. If the recorder is one of several devices connected, try removing the other devices and terminating the recorder.

After you verify the hardware setup and make any necessary changes, record in Simulation Mode to see if the problem has been resolved. For more information, see "Using Check Speed and Simulation Mode" on page 2-2.

Error Messages

Some error messages come from Toast, others come from your recorder or your operating system. If you get an error that isn't explained in this chapter, please write down the error number or the sense code and description before you request technical support. The information is a big help in solving your problem.

Another way to record an error message is to take a screen snapshot. To do this, press and hold down one of the following key combinations:

- Command + Shift + 3 = entire screen
- Command + Shift + 4 = custom size
- Caps Lock + Command + Shift + 4 = a particular window

The snapshot files (Picture 1, Picture 2, and so on) are automatically saved on your hard disk. To open a file, double-click it, and then you can print it.

Description = BUFFER UNDERRUN

The recorder's data buffer ran over while writing the CD. The recording has been aborted, and the disc is unusable.

Turn off all non-essential extensions. Remove unnecessary devices from the bus (SCSI, USB, etc.). Choose a lower Write Speed from the Recorder menu. Choose Preferences from the Edit menu and increase the RAM Cache. For SCSI, check cables and termination and replace them as needed. See also, "Buffer Underruns During Recording" on page 5-8.

Description = TRACK FOLLOWING ERROR

The problem is with calibration. The write laser can't find the last bit of data on the disc.

Possible causes:

- The recorder may not be level.
- The inserted CD-R may be damaged.
- The recorder's calibration mechanism is defective.
- The brand of CD-R may be incompatible with your recorder.

Error code = 2

Your Macintosh cannot read the selected data. You may be trying to copy a disc containing mode2 form2 or audio sectors. Toast cannot copy such a disc.

Error code = –35

Resolve Aliases is checked (activated), and aliases in the data you are copying point to a volume Toast can't find.

Mount the missing volume or deactivate Resolve Aliases. If you deactivate Resolve Aliases, Toast records the aliases as unresolved aliases, displaying them in italics.

Error code = –50 (while trying to copy audio CDs)

There are two possible causes, one related to recording from a source CD, the other related to reading the source CD.

- **Recording**—Third-party CD-ROM drivers (for example, FWB CD-ROM Toolkit) may cause problems if they are enabled when Toast tries to record an audio CD. As an alternative, control the CD-ROM with CD-ROM SpeedTools product from InTech USA (www.intechusa.com).

  If the source CD is scratched or dirty, do what you can to clean it. It is sometimes possible to polish off superficial scratches. Also try extracting the audio from the source CD in your recorder. (This requires Toast CD Reader.)

- **Reading**—The only driver we support for reading from your recorder is the Toast CD Reader.

Result code = -43

Toast cannot find a file or folder you've dragged and dropped on the Toast main window. To resolve the problem, rebuild the desktop by restarting the Macintosh while you simultaneously press and hold down the Option and Command keys.

SCSI error—an unstable SCSI connection

Cables, terminators, or SCSI ports might be damaged.

Check cable connections and termination. In normal disk operations your computer system is more tolerant, but recording a CD requires

perfect SCSI connections. For additional information, see “Setting Up and Turning On Your CD Recorder” on page 1-4.

Sense Key = HARDWARE ERROR

The recorder may be damaged.

Sense Key = MEDIUM ERROR

Data on the source disk may be corrupted. If possible, run a repair program (such as Disk First Aid) on the disk.

It is also possible that the brand or batch of CD-Rs you are using is not working out. Change brands. There are big differences in quality.

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Glossary of Terms

AIFF

Audio Interchange File Format, created by Apple as a standard format for saving sound files of any type.

Apple Extensions

In the ISO 9660 format, Settings panel, there is an option you can check called "Use Apple Extensions." When you use this option, you preserve the resource fork in Macintosh files. ISO 9660 format is available only with Toast 4 Deluxe.

Audio Sectors

Audio sectors are made up of the sound data you hear plus error correction data.

Audio Tracks

Audio tracks are simply a collection of audio sectors. These tracks are playable on standard audio CD players. For the audio CD players to be able to recognize and play the tracks, the tracks must always be in the **first** session on the CD.

Blue Book

The Blue Book specifies the CD Extra standard for interactive CDs. Also known as Enhanced CD, a CD Extra disc is a multisession CD which contains two sessions. The first session consists of pure audio tracks; the second session consists of a data track in a restricted format.

If you insert a CD Extra into an audio CD player only the audio tracks are visible; the data session cannot be played.

Not all CDs containing an audio session and an additional data session are CD Extras. The data tracks must contain special information such as MPEG still pictures. Special software is needed to create a CD Extra file structure or a QuAC file.

CD

A CD (Compact Disc) consists of up to approximately 333,000 sectors.

CD Extra - see Blue Book

CD-i - see Green Book

CD-Recordable (CD-R)

CD recordables are special CDs that can record data by using a special laser that "burns" microscopic holes in the recording layer. These pits can then be read by standard CD readers. Recordable CDs are somewhat more fragile than standard CDs, so care should be taken in their storage and handling. The label side is particularly delicate.

CD-ROM Tracks

CD-ROM tracks are made up of mode 1 sectors, type 2 (see "About CDs" on page 3-10) and are used for many file systems such as HFS/HFS+, ISO 9660, and others.

CD-RW

A CD-rewritable disc can be written to, erased, and re-recorded many times.

CD TEXT

CD TEXT is a recent addition to the CD audio specification allowing disc and track related information to be added to standard audio CDs for playback on suitably equipped CD audio players.

CD TEXT is compatible with the ITTS (Interactive Text Transmission System) standard. CD TEXT-equipped players can provide a range of display formats. The specification also allows for additional data in the future, such as JPEG coded images.

CR/LF Format

CR/LF stands for carriage return/line feed, the end-of-line characters used in standard PC text files. On the Macintosh, only the carriage return (CR) is used. In UNIX, only the line feed (LF) is used.

Disc-At-Once (DAO)

Disc-at-once is a method of recording CDs whereby the entire CD is recorded in one pass without turning off the laser. DAO is a feature of Toast 4 Deluxe.

Enhanced Music CD /CD Extra - see Blue Book

Green Book

The Green Book describes the details of the CD-i format.

CD-i, developed by Philips, is a computer system able to read CDs in the following formats: CD-i, Video CD, and PhotoCD. A disc in CD-i format consists of one CD-i track with mode2 sectors, types 4 and 5. (For details, see “About CDs” on page 3-10.) Unlike other CD-ROM XA discs, a CD-i track has no entry in the TOC (table of contents).

HFS/HFS+

Hierarchical File System. HFS/HFS+ is the standard Macintosh file system. Because of the Macintosh computer's ability to use long file names and the unique data fork/resource fork structure of Macintosh files, HFS is not conformant to the ISO Standard. On a CD recorded in HFS/HFS+ format, each session is represented as a separate volume on the desktop.

Files & Folders format creates CDs in the HFS format. For more information about creating CDs in the HFS+ format, see "Recording a CD in HFS+ Format" on page 3-9.

The ability to create HFS+ format is available only with Toast 4 Deluxe.

Index / Index Point

Every sector contains an index which is a number between 0 and 99. Index 0 and 1 have special meanings: 0 indicates a pause sector and the beginning of data in a track.

ISO 9660

ISO 9660 format is a standard for cross-platform CD-ROMs. Discs created in this format can be read by many different operating systems, including Mac, Windows, DOS, UNIX, etc.

Under ISO 9660 the Macintosh does not support long file names, custom icons, or saved directory settings (that is, "view by Icon"). For this reason, ISO 9660 is not ideal if your CDs are intended only for Macintosh users.

ISO 9660 format is available only with Toast 4 Deluxe.

ISRC-Code

The ISRC-Code holds the "serial number" of each track in a standardized format (as prescribed by the Red Book). ISRC codes cannot be set in Toast, *Adaptec Jam* has to be used to define these codes. (See also "Red Book" on page 6-7.)

Media Catalog Number

The Media Catalog Number (MCN) is a unique identification number for the CD (UPC/EAN Bar-Code). It is issued centrally by the EAN authority and consists of a series of 13 consecutive digits. You can define the MCN only in *Adaptec Jam*.

Mixed Mode CD

A Mixed Mode CD consists of one data track and several audio tracks. Data and audio are written in one session. The data track is always placed before the audio tracks on the CD and this order cannot be changed.

The Mixed Mode format has generally been superseded by the audio/data multisession format, where the first session consists of audio tracks and the second session consists of data (CD Extra or second session in HFS/HFS+, ISO 9660 XA, Mac/ISO Hybrid XA format).

Mixed Mode format is available only with Toast 4 Deluxe.

MPEG

MPEG is a standardized compression method for audio and video data. Because of its very high compression rates, MPEG makes it possible to play full screen/full motion video from a CD. MPEG tracks consist entirely of mode2 form2 sectors and are mostly found on video CDs and CD-i discs.

Multisession

A multisession CD consists of multiple sessions, each recorded at a different time. Each of the sessions are linked together in such a way that only one logical device appears when the CD is mounted. Not all CD-recorders can record this type of CD and not all CD-ROM drives can read them.

Multivolume

A multivolume CD consists of multiple sessions, each recorded at a different time. Each of the sessions are completely independent of one another so that when the CD is mounted, each session appears as an individual logical volume. Not all CD-recorders can record this type of CD and not all CD-ROM drives can read them.

Note: HFS/HFS+ CDs can only be multivolume, not multisession.

Orange Book

The Orange Book is the name of the standard developed by Sony and Philips for recordable CDs (CD-Rs). Part II of the Orange Book describes the structure of an empty CD-R and the recording procedure on a physical level.

Pause

A data CD recorded in TAO Mode contains 150 sectors (2 seconds) of pause and 2 run-out sectors between tracks.

On a Mixed Mode CD (data + audio) written in TAO Mode, the gap equals 377 sectors: 375 of pause and 2 run-out sectors.

A CD with multiple audio tracks written in TAO Mode has gaps of 150 sectors pause and 2 run-out sectors. CDs recorded in DAO Mode do not have a fixed number of sectors between tracks.

Q-Codes

Q-Codes contain extra information about sectors such as the ISRC code, the MCN, and the indexes.

QuAC File

In 1995 Apple introduced the QuickTime Audio Containable standard for documents that contain information for music CDs as well as pictures and optional interactive controls. QuAC files can be created with the Apple Interactive Media Toolkit (AIMT). AIMT can be obtained on the Web, but is no longer available through Apple Computer.

Red Book

The Red Book is the original CD-DA (Compact Disc Digital Audio) standard developed by Sony and Philips. The Red Book defines the format in which an audio CD must be recorded so that an audio CD player can play it. It also specifies what a CD player must do to play audio CDs correctly. A CD recorded in accordance with the Red Book standard can be played in any CD-player.

Run-Out Sectors

Run-out sectors are created because the write laser beam cannot be turned off immediately upon termination of data recording. Consequently, 2 sectors are allocated to be "wasted" as the laser shuts down.

Scrambling

Data on a CD is scrambled (the bits of data are not recorded one after another in sequential order; the data is mixed up in a predefined pattern.) The recorder scrambles the data while writing and the CD player descrambles it when reading.

Session

A session is a collection of one or more tracks. Each recording procedure generates a session that contains all the tracks recorded at that time. A CD recorded in multiple recording sessions is known as a multisession CD.

TOC

The TOC (table-of-contents) contains a list of the contents of a CD. The TOC contains an entry for each session and each track which lists the absolute start time of each track (except CD-i tracks which have no entry in the TOC). This information is used by CD players to access each track, allowing fast random access to tracks and supporting features such as shuffle. (The end or length of the track or session is not recorded in the TOC.)

Track

The track is the smallest logical unit on a CD. A track is a minimum of 600 sectors in length, and a CD can contain up to 99 tracks. There are three types of tracks: audio tracks, CD-ROM tracks, and XA/CD-i tracks.

In most cases, each track must be preceded by 150 empty sectors. However, a CD recorded in DAO Mode requires the 150 sectors only before track 1.

Track-At-Once (TAO)

The Track-At-Once Mode records each track of a CD individually with 150 empty sectors immediately preceding it. Run-out sectors are created at the end of each track. For more information, see "Track-At-Once (TAO) Recording" on page 3-9.

Video CD - see White Book

White Book

The White Book describes the data format of a video CD. Video CD format is used to record full-motion video or movies on a CD. Playing a video CD requires special equipment, including an MPEG decoding system.

If you want to write a White Book compatible video CD that can be played on video CD and CD-i players, use the Video CD format. A Video CD track must always be placed in the first session of a CD.

Video CD format is available only with Toast 4 Deluxe.

XA / CD-i Tracks

These tracks contain only mode2 sectors and are used for ISO 9660 XA CDs, CD-is, video CDs and photo CDs.

Yellow Book

The Yellow Book is a document that specifies all parameters for CD-ROMs. The adherence to these parameters guarantees that the CD can be used on all CD-ROM drives. The Yellow Book does not, however, specify the data structures.

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