▾▾▾▾ Adaptec Jam

User's Guide

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Introduction

Welcome!

Thank you for purchasing Adaptec Jam!

Jam version 2.1 is loaded with powerful features that will make it easier for you to create your own audio CDs. To get the most out of your new software, please take some time to review this manual.

Jam lets you create 100% Red Book-compliant audio CDs which can be used as replication masters or played in any standard CD player. Whether you are a musician, an audio engineer, or just a music enthusiast, Jam gives you the flexibility and quality you demand.

Unlike competing solutions, Jam does not require special audio hardware. All you need is a Macintosh and a CD recorder to create your own CDs. Jam supports most available CD recorders. For automatic writing of multiple discs, Jam supports several disc transporters.

Any changes made to your tracks with Jam are nondestructive. For example, if you shorten the track length or change volume, the original data remains untouched. This allows you to create different compilations of a CD without changing the original files.

Great Features of Jam Version 2.1:

Jam is loaded with new features to give you more control over the whole CD creation process.

■ Support of Sound-Designer II (SDII), AIFF and WAV files

- Support of Sound-Designer II - Playlists

- Support of split stereo files, as used by ProTools™ and other audio sequencer programs

- Nondestructive volume adjustment, independent for each channel, on a track-by-track basis

- Nondestructive crossfades between tracks

- Trimming of tracks

- Support of nonsilence track pauses

- Fully editable list of index points

- Import of Sound-Designer II-text or numeric markers as index points

- Generates & read Disc-Images. Disc images can be edited and can even be created from scratch using standard sound editing software (including index points, nonsilence track gaps, etc.)

- Significantly improved user interface—full drag & drop support

- Jam can use the computer's RAM to extend the recorder's cache, thereby greatly reducing the probability of a buffer underrun (requires SCSI Manager 4.3)

- New, fully asynchronous recording engine featuring disconnect/reselect and overlapping I/O (requires SCSI Manager 4.3)

- Jam runs native on Power Macintosh and 68K Macintosh computers

Requirements

This guide assumes that you are already familiar with the Macintosh user interface conventions, such as how to select options using check boxes and radio buttons, how to type and edit text, and so forth.

System Requirements

Jam works with most Apple Macintosh™ computer (and compatible) models, if they meet the following requirements:

- MacOS™ compatible computer using 68030 microprocessor or better

- MacOS™, System 7.0 or newer

- 8 MB free memory (RAM)

If you use an operating system older than System 7.5, we strongly recommend the installation of Drag-and-Drop Manager, as this simplifies the whole process of CD creation.

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Installation

To install Jam:

1 Insert the Jam Installation disk into any available drive and double-click the installer.

2 Click **Continue**.

3 Another dialog box will appear, showing the software user licence agreement and other information (for example, a list of supported CD-recorders). **Please read this document carefully**.

4 You can print or save the text to disc. When you're ready, click **Continue**.

5 Another window appears, allowing you to choose a target volume and/or folder for the installation. You can choose a volume or a folder from the pop-up menu in the lower part of the window. Then click **Install**. The installer will copy all necessary files to your hard drive. The installer informs you if the installation completed successfully.

6 Click **Quit** to exit the installer.

A Checklist

Here are some guidelines to help ensure that your CD mastering goes as smoothly as possible:

■ Verify the correct setting for the RAM Cache (Preferences from the **Edit** menu).

- Make sure your recorder is connected properly, using as short a cable as possible.

- Place the recorder on a level surface.

- Verify that your SCSI chain is correctly terminated.

- Keep the entire SCSI chain as short as possible.

- If you encounter speed problems, remove all unneeded SCSI devices (*especially scanners and SyQuest drives*).

- Disable all but essential extensions when writing discs.

- Always check the data transfer rate before writing (see *The Write Procedure* on page 10-1).

- Before writing with a new system configuration or when writing in a format for the first time, test the writing of the disc using simulation mode (see *Simulation Mode* on page 10-8).

The Optimal System Configuration

Several factors affect the hardware requirements for CD recording. In general, to write at higher speed (2x, 4x, 6x, etc.) you need a faster computer and a faster hard drive.

We recommend using a Macintosh with 68040 processor or Power Macintosh with at least 8 MB of free RAM. (More RAM can help alleviate data transfer irregularities.)

Also, Macintoshes that support the SCSI Manager 4.3 are capable of significantly higher transfer rates.

Jam Requires System 7.0 or Above

The extensions **Drag & Drop Manager** and **Thread Manager**, which are part of the Mac operating system software, are used by Jam. If they are not installed, they will be added automatically during the installation.

> **Note: Drag & Drop Manager** requires System 7.1. With System 7.0 you will not be able to drag any items onto the Jam window; data can only be selected using the dialog boxes.

We strongly recommend using at least System 7.1.

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Basics

If you are new to Jam, this is a good place to start. In this chapter you will find a summary of the basics of CD manufacturing, along with helpful information about CD mastering terminology, security options, PQ-editing, and Jam's user interface. You will also find an overview of keyboard and mouse shortcuts used in the program. A list of shortcuts appears in Chapter 11.

Terminology on page 3-4 defines the terms used in the manual.

About CDs

A CD (compact disc) is a plastic disc 1.2 mm thick and 12 cm in diameter. Its data capacity is approximately 650 MB (for 74-minutes discs). The precise capacity varies from one brand of media to another.

Sectors

The data on a CD is stored in "chunks" called sectors. Each sector can hold 2352 bytes of data.

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. There are 5 different types of sectors:

■ Type 1 are audio sectors; they contain only audio samples (1 Sample = 4 bytes).

■ Type 2 to 5 are data sectors, which are used to store computer data.

– Because of the need for data integrity, types 2 and 4, which use a portion of each sector for error correction, are used for computer data.

– Type 3 is seldom used.

– Type 5 is used for compressed audio and video data.

Capacity

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

■ If only type 1 sectors are used, the 333,000 sectors on the CD 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).

Standard recordable discs are available in either 63- or 74-minute capacities.

(The capacity of a CD is measured in time rather than megabytes because CDs were originally designed to store only audio data.)

CD Areas

The data on a CD is contained in three different areas or regions, the Lead-In area, the Program area, and the Lead-Out area.

Lead-In Area

The lead-in contains the table of contents (TOC) of the CD and is the first area on the CD. It is located on the innermost part of the CD and is approximately .4 mm wide.

Program Area

As its name suggests, the Program area contains the data or audio tracks.

On a normal CD the complete musical information is contained within the program area.

Lead-Out Area

The Lead-Out area simply marks the end of the Program area.

About Audio CDs

Sample Rate & Sample Size

Before audio information can be stored on a CD, it must be converted to digital information in the format specified in the audio CD standard (known as the Red Book standard). The format for audio CDs is 16 bit/44.1 kHz, stereo. This means that each audio sample occupies 4 bytes (16 bits = 2 bytes per channel) and one second of audio contains 44,100 samples. Since 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-minute CD-R contains 333,000 sectors (4,440 * 75).

Transfer Rate

When a disc is read with a standard, single speed (1x) CD-ROM drive, 150 K of data is read each second (75 sectors * 2048 bytes in one second). Newer drives can transfer data more quickly, but this capability has influence on audio playback, which must always be at single speed.

Rotation Speed

The rotational speed of a CD varies from a low of about 200 rpm at the outside edges of the disc, to a high of about 500 rpm in the inner area.

Terminology

Like many other technologies, CD mastering has its own set of
terminology. This section provides definitions of the main terms.

AIFF

Audio Interchange File Format. Created by Apple as a standard file
format for saving sound files of any type. AIFF sound files are also
playable on PCs.

Audio Sector

CD audio sectors are made up of audible sound data plus error
correction data. Audio sectors cannot be read with a standard CD-
ROM drive. Many CD-ROM drives do, however, offer the ability to
convert audio data to computer data.

Audio Tracks

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

Copy Prohibit

For each track on an audio CD, there is a setting that indicates
whether copying the track is allowed. This information is stored in a
single data bit in the track's Q subcode channel, identifying the track
to be copy protected or not.

Note: The Copy Prohibit bit was originally intended to
prevent direct digital copying using DAT recorders.
However, virtually no recording equipment uses it. It
essentially has no effect.

Disc-At-Once

Disc-at-once is a method of recording CDs whereby the entire CD is recorded in one pass without turning off the laser. There are two principal advantages of disc-at-once:

■ No run-out sectors are generated, which means that the pause between each track can be made any length (songs can even run together).

■ If you are creating audio CDs to be commercially reproduced, it is normally necessary to record them in disc-at-once mode as run-out sectors will often be interpreted as unrecoverable errors. (Not all CD-recorders can record in disc-at-once mode.)

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 1 the beginning of the data in a track. Not all CD writers are able to write index-points. If your writer does not support index points, a Jam dialog box warns you when you try to write the CD.

ISRC-Code

The ISRC-Code holds the "serial number" of each track in a standardized format (as prescribed by the Red Book).

The digits of the ISRC code are assigned like this:

Country		Owner-			Year		serial number				
D	E	A	A	A	9	7	1	2	3	4	5
2 chars		3 chars			2 numbers		5 numbers				

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 or UPC authorities and consists of a series of 13 consecutive digits. Enter an MCN only if you obtained it from the EAN or UPC.

Pause

A pause is the gap between any two tracks on a CD. On Audio CDs the pause is silent.

A CD recorded in track-at-once mode contains 150 sectors (2 seconds) of pause and 2 run-out sectors between each track.

On a mixed-mode CD (data + audio) written in track-at-once mode, the gap equals 377 sectors: 375 of pause and 2 run-out sectors.

A CD with multiple audio tracks written in track-at-once mode has gaps of 150 sectors pause and 2 run-out sectors. CDs recorded in disc-at-once mode do not have a fixed number of sectors between tracks.

PQ-Subcode

Each sector on an audio CD contains 98 control bytes, where the so-called subchannels are located (Channel P to W). Bit one and two are needed by the CD player to find tracks and pauses. All other bits are ignored. In the past these bits were sometimes used to store additional information, for example, on a CD+g these bits contain pictures for each track.

In the Program area the P subchannel shows where the music starts and ends while the Q subchannel contains absolute and relative time information.

In the Lead-In area the Q subchannel contains the table of contents (TOC).

Pre-Emphasis

To avoid losing high frequencies in the signal while playing with older D/A converters, the pre-emphasis feature was included in the Red Book standard. If this option is turned on, the audio material is pre-emphasized (high frequencies are boosted) before copying to the CD.

Once the pre-emphasis bit is set in a track's Q-Code, the CD-player's pre-emphasis then corrects for the boost while playing the audio.

Pre-emphasis is rarely needed or used.

Q-Codes

Q-Codes contain extra information about sectors such as the ISRC code, the Media Catalog Number, and the indices.

Red Book

The Red Book is the original Jam (Compact Disc Digital Audio) standard developed by Sony and Philips. The Red Book defines the format of an audio CD 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 is playable in every CD-player.

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.

Sub-Index (see *Index / Index point* on page 3-5)

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 and lists the position of the index 1 of each track (except CD-i tracks, which have no entry in the TOC). 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 (4 seconds) 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. Each track must be preceded by 150 empty sectors. A CD recorded in disc-at-once mode requires the 150 sectors only before track 1.

Track-ID

The Track-ID marks the beginning of a track on the CD. A CD can contain up to 99 tracks.

Track List

The track list is the main element in a Jam document. It displays and lets you edit all relevant settings of an audio disc (that is, track names, length, volume, crossfades, etc.), as well as the sequence of the audio files as they will be written to CD. The track list also helps you to edit PQ subchannels and pauses. The contents of a track list can be saved to disk or printed. A track list consists of one or more (up to 99) track list elements, each of which contains all the settings for a single track. Index points can be found in a sublist contained within the track list, which can be shown/hidden at any time.

WAV Files

.WAV is a file format commonly used on DOS/Windows PCs to store audio data. WAV files are also supported by Jam.

Note: You can use only uncompressed WAV files in Jam.

Running Jam

Starting the Application

Start Jam by double-clicking its icon in the Finder.

Note: The first time your run Jam, you must personalize the software by entering your name and organization.

Upon startup, Jam automatically scans the SCSI bus for any available CD recorders.

Adaptec **Jam**™

Mick Jaeger
Rolling Bones

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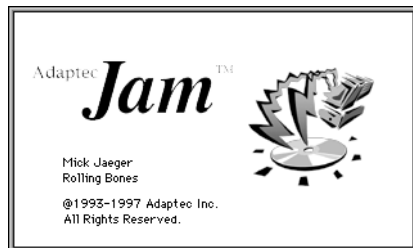
The "Beachball"-Cursor spins if Jam is doing something that cannot be interrupted.

Depending on the number of SCSI-busses available on your Macintosh, this may take a moment.

After startup is completed Jam creates a new, empty document, containing the main controls and the track list. For descriptions of all the elements contained in the main window see *Track List* on page 6-2.

The **Preferences** command lets you specify what action Jam should perform upon startup.

Quitting Jam

To quit the application, choose **Quit** from the **File** menu.

User Interface

Buttons & Display

Current Track Indicator

Volume

Removes Track(s)

Adds Track(s)

Index Indicator

Track time counter

Click to write disc

Click to check transfer rate

2.1 PPC

Add Track

Remove Track

01 6: 00:60:00

Check Speed

Write Disc

Pause	Start	Title	Length	Gain	Xfade	CP PE	ISRC

Transport controls:
Play
Stop
Fast Rewind
Previous Track
Fast Forward
Next Track

75 frames/sec ▼   Absolute Index Times ▼   Offsets: 0/0

Start / Stop Offset (as set in Preferences)

Display type of index points (absolute or relative)

Resolution of the time display

Edit Fields

Most of the edit fields used in Jam are similar to those in other Macintosh applications. However, Jam uses another special edit field, which makes it easier to enter time information:

Editable Time Field

In this kind of edit field Jam expects input of values in the format minutes:seconds:frames, where the number of frames depends on the resolution used in the time display:

00:00:60

75 frames/sec ▼

To simplify an entry into an editable time field Jam lets you use the arrow keys on the computer's keyboard to change the values within

the allowed range. Jam checks all entries for validity and corrects invalid entries on the fly.

Using Arrow Keys in Editable Time Fields

After you activate an editable time field by clicking on it, Jam highlights the value you clicked.

00:**59**:00			**basic position**

00:59:00	←	arrow left	Moves the selection to the left
00:59:**00**	→	arrow right	Moves the selection to the right
01:**00**:00	↑	arrow up	Adds 1 to selected value (Note that time display switched from 00:59:00 to 01:00:00)
00:**58**:00	↓	arrow down	Subtract s1 from selected value

Sound Player

Each Jam document contains a sound player option. It is used to play back single tracks or a whole track list using all volume changes, crossfades, etc. that you specified. This shows how your current track list will sound once it is written to CD. Jam uses the Apple Sound Manager™ for playback. This allows you to use various Sound Manager-compatible hardware to listen to your edits (internal speakers, ProTools™, Audiomedia card, etc.).

The sound player holds a global volume control and position/time display as well as standard transport controls (like those on a standard audio CD player).

current track   **current index point**   **current time format: mm:ss:ff**

global volume

playback

stop

fast rewind

fast forward

next track

previous track

```
▲
05
06
07
● 08
09
10
11
12
13
14
15
16
17
```

Clicking the track id display lets you jump to a certain track.

```
00  -0:06:00
01  00:00:00
02  00:05:01
03  00:14:56
04  00:29:12
● 05  01:30:71
06  02:02:03
07  02:22:32
08  03:14:11
09  03:49:88
```

Clicking the index point display lets you jump to a certain index point directly.

louder

0dB

softer

Clicking the volume icon displays a volume slider, where you can set the global playback volume.

Note: Setting the global volume affects previewing only; it doesn't change the volume of the tracks as they will be recorded.

Shortcuts Sound Player

space	spacebar	starts / stops playback
⏎	return	starts playback from the beginning
⌘ ⬆	cmd-arrowkey up	previous track
⌘ ⬇	cmd-arrow key down	next track
⌘ ⌥ ⬆	opt-cmd-arrow key up	previous index
⌘ ⌥ ⬇	opt-cmd-arrowkey down	next index
⌥ ctrl ⬆	control-opt-arrowkey up	fast rewind
⌥ ctrl ⬇	control-opt-arrowkey down	fast forward
⌥ ▶ ⏮	opt-click "previous Track"	previous index
⌥ ▶ ⏭	opt-click "next Track"	next index
⇧ ⌥ ⌘ ▶ 🔊	shift-opt-cmd-click "volume icon"	set original volume

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Quick Start

This chapter gives you an overview of how simple CD creation can be using Jam.

If this is the first time you are working with Jam, we recommend you first read Chapter 3, *Basics*.

If you are already a user, you'll get an overview detailing some changes to the user interface and application features.

Before you go any further make sure that

- Jam Version 2.1 is installed on your computer.

- Your CD recorder is connected properly and switched on.

- The SCSI-ID of your CD recorder is unique.

- The SCSI-chain is terminated correctly.

Creating a Compact Disc

Launching Jam

Start Jam by double-clicking its icon in Finder, or by dragging audio files onto the Jam icon.

Upon startup, Jam automatically scans the SCSI bus for any available CD recorders. Meanwhile the beachball cursor spins and the application shows the Welcome screen.

Depending on the number of SCSI busses available on your computer, this may take a few moments.

Adding Audio Files

If you started the application by double-clicking its program icon, a new empty document is created, and you are ready to import audio files.

If you prefer to use *drag and drop*, you can skip to *drag and drop* on page 4-3.

Add Track

To add audio files to the current track list, click the **Add Track** button, in the upper left of TOAST's main window.

(Instead of clicking **Add Track** you could also select its equivalent menu command from the "Disc" menu or type Command-T (⌘**T**) on your keyboard.

A dialog box appears, where you can import files, regions, or playlists. You can import multiple tracks at once.
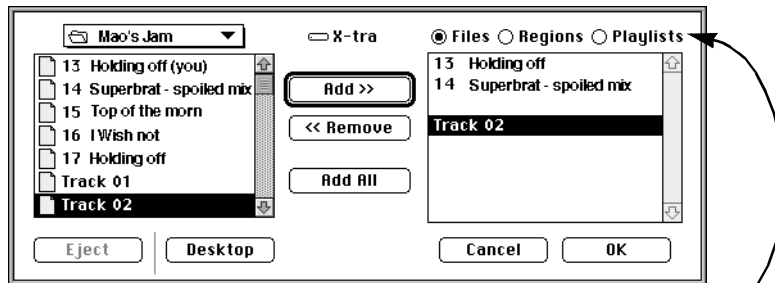
To import regions or playlists, set the corresponding option in the upper right part of this dialog box.

Jam lets you import several different audiofile types:

- Sound-Designer-II, AIFF or .WAV - files
- Sound-Designer II - regions
- Sound-Designer II - playlists

To import regions or playlists from a Sound-Designer II file, click the appropriate radio-button.

drag and drop

The easiest method to import audio files is *drag and drop*. Using *drag and drop*, you can import audio files from your hard drive by simply dragging the files into a Jam document. You can even drag folders or volumes into the Jam window. Jam then scans all dragged objects for valid audio files and appends all found files to the track list of this document. For more information about this, see *Adding Audio Files* on page 6-6.

Regardless of how you import your audio files, the result is the same: the tracks are shown in the track list of a Jam document.
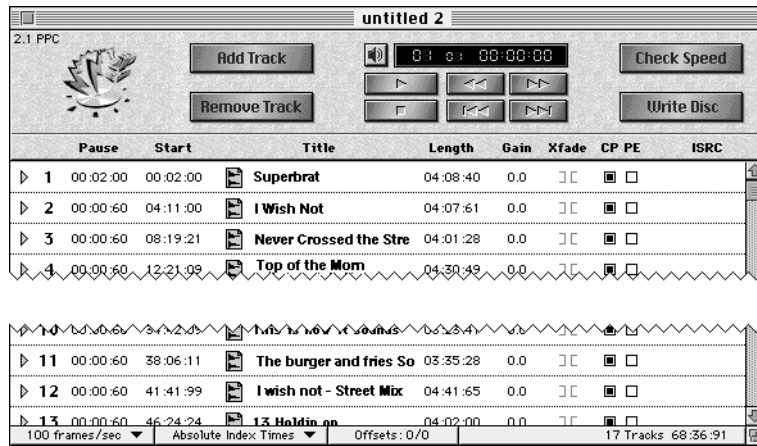
Rearranging the Order of the Tracks

To rearrange the order of the tracks in the track list

1 Select the tracks you want to move. Shift-clicking tracks allows you to select a group of adjacent tracks; command-clicking tracks allows you to select noncontiguous tracks.

2 Drag the tracks where you want to move them. A dotted outline of the tracks follows your mouse movements.

The tracks are moved to the position in the track list where you release the mouse.

A track's setting (volume, crossfade, pause, etc...) will be remembered after the move.

Adjusting Pauses

When you add tracks, they initially have the default pause assigned to them. The pause for each track is shown in the track list's first column.

		Pause	Start		Title
▷	1	00:02:00	00:02:00	📄	**Superbrat**
▷	2	00:02:00	04:12:40	📄	**I wish**
▷		00:02:00	08:22:01	📄	**Never**
▷	4	00:00:00	12:25:29	📄	**T**
▷	5	00:02:00	16:57:7⁹		

Pause BEFORE a track

The default pause can be set in the Jam Preferences dialog. Choose **Preferences** from the Edit menu.

Preferences

Default pause for new tracks: 00:02:00
☐ Adjust current tracks

☐ Automatic Imp

Note the options **Default pause for new tracks** and **Adjust current tracks.**

Enter the new default length for pauses into the edit field in the upper right of the dialog box. If you activate the **Adjust current tracks** checkbox, the new default time will be used for all tracks currently in the track list.

Click **OK** to close the dialog box and apply the changes to the tracks in the track list.

		Pause	Start		Title
▷	1	00:00:60	00:02:00	📄	**Superbrat**
▷		00:00:60	04:12:40	📄	**I wish**
▷	3	00:01:60	08:22:01	📄	**Never**
▷	4	00:00:60	12:25:29	📄	**T**
▷	5	00:00:60	16:57:7⁹		

Adjusted pauses are shown immediately

You can change the pauses between the tracks by clicking the pause column of a track once. An edit field appears where you can enter a new pause length.

Check Speed

Before writing the disc, use the **Check Speed** option to verify that your system configuration is fast enough to write the disc successfully.

1   Click **Check Speed** in the main window.

Check Speed allows checking if your system configuration is fast enough to write audio-CDs.

2   A dialog box will appear, containing a list of tracks of the current Jam document.

These tracks were checked successfully.

The transfer rate of this track was not constantly high enough.

The speed check was canceled at 22% by the user.

This track wasn't checked yet.
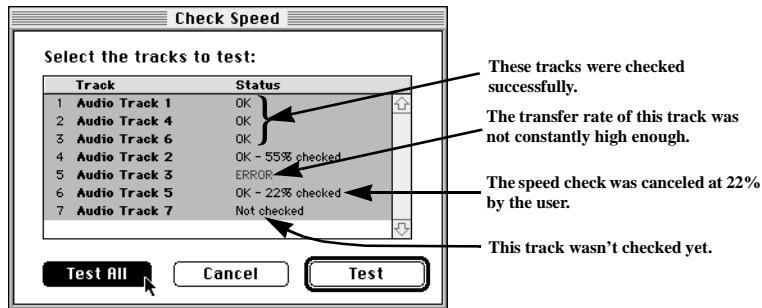
3   Click **Test All** to check the transfer rate of all tracks.

While the transfer rate is checked, a dialog box appears showing the current state of the speed check.
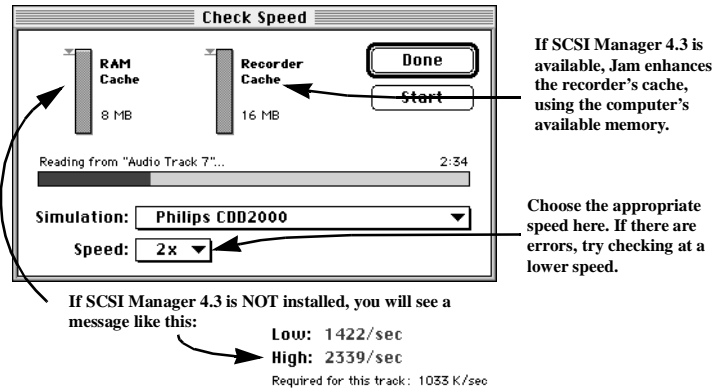
For information about what to do if there were errors during the speed check (for example, the throughput was too low) see *Insufficient Transfer Rate* on page 10-5.

To create an audio CD from audio files, there must be a minimum data throughput from your computer to the CD-recorder.

Write Speed	Minimum Throughput
single (1x)	172 kB per second
double (2x)	344 kB per second
4-times (4x)	689 kB per second
6-times (6x)	1033 kB per second

Write Disc

After successfully checking the data throughput, you are now prepared to write your CD.

Some CD formats allow you to write additional data to the CD after the audio data. These are called *multisession CDs* (that is, CD-Extra). To allow for writing additional data, your CD must not be fixed. In this case you must write your CD as a session. Jam lets you write such a session allowing you to append additional data afterwards, using a program like Adaptec Toast.

To create an audio session from your audio files, simply click the **Write Session** button. (This option is available only on multisession-

capable CD-recorders). Discs recorded in this way play in a standard CD-player just like a "fixed" disc.

Choose the desired writing speed from the Speed pop-up menu.

To create a multisession CD click the Write Session button.

To create a normal audio CD, choose Write Disc.
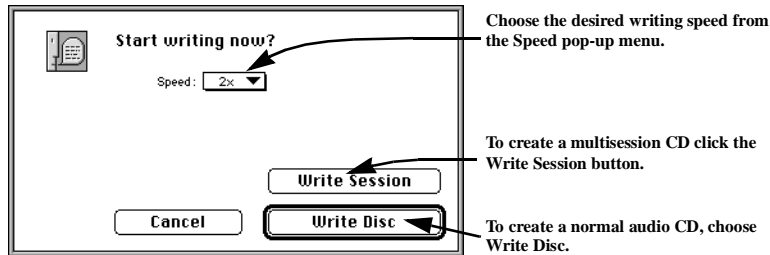
Click **Write Disc** or **Write Session** to start the write procedure. While writing, Jam shows a progress dialog showing the status of the writing process. You cannot use your computer for other work until the CD is finished.

Eject

After finishing the CD successfully, Jam beeps and asks you to eject the CD.

That's it; your CD is ready!

To learn more about what you can do with Jam, please read on.

▼▼▼▼5

Menus

This chapter covers the menus of Jam, in order as they occur on the menubar (starting on the left).

File Menu

```
┌─────────────────────────────┐
│ File                        │
│ New                    ⌘N   │
│ Open...                ⌘O   │
│                             │
│ Close                  ⌘W   │
│ Save                   ⌘S   │
│ Save As...                  │
│ Save As Text...             │
│ Revert to Saved             │
│                             │
│ Save as Disc Image...  ⌘D   │
│                             │
│ Page Setup...               │
│ Print...               ⌘P   │
│                             │
│ Quit                   ⌘Q   │
└─────────────────────────────┘
```

New

This command creates a new empty Jam document, where you can gather and adjust the tracks to be written to your CD.

✓ **Note:** You can use the **Preferences** command to have Jam create a new empty document whenever you launch Jam.

Open

This command opens an existing Jam document or imagefile (see *Adding Image Files* on page 9-4). If you open a document, Jam creates a copy of it in memory (RAM). If the document is already open, it is brought to the foreground.

Other ways to open a Jam document are:

■ Double-click a Jam document in the Macintosh finder.

■ Click a Jam document once and then select **Open** from the File menu in the Finder.

Close

This command closes an existing Jam document and removes it from memory (RAM). If you made changes to the document, you'll get the chance to save them. If you close a document without saving the changes, they will be lost!

Save / Save As

This command saves the contents of the active, frontmost Jam document. Because Jam only contains references to the selected tracks, the files are relatively small and you can save them to any writable volume (even on a floppy disk).

> **Note:** A Jam document only contains settings and references to the original audio files. This means if you delete an original audio file, or move it to another volume or drive, Jam will not be able to find it.

Save As Text

This command saves the contents of the active, frontmost Jam document as a text document, which can then be read and edited in any text processor.

The created text contains all the pertinent information about the current track list (that is, track titles, number of tracks, total time, and all the information you entered in the disc info dialog (see *Disc Info* on page 5-14). It also contains information about the complete

track list, as well as the subindices. (The text is tab-separated, so you can easily create formatted track lists or databases.)

Revert To Saved

This command returns you to the last saved version of the current Jam document. Any changes made since the last time you saved the document are lost. Before executing the command, Jam gives you the chance to cancel and return to the current document.

Save As Disc-Image

This command saves any audio data contained in your current track list to one single file, called an image file. To create an image file, you need approximately as much disc space as the original audio files occupy, because all the audio data is copied into the image file.

You might want to create a disc image

- If your Mac is too slow to write on-the-fly

- If you are writing data from a network volume or CD that doesn't have sufficient speed to write directly to the new CD

- If you want another person to write the discs, but don't want them to be able to change the contents or layout of the disc

- If you want to be able to make multiple exact copies of the disc over time

Page Setup

This command opens the Page Setup dialog box, where you can choose paper sizes and other printing options.

Print

If you have connected a printer to your computer, you can print the contents of the current track list. (Remember to set your page setup options before printing.)

The printed document contains any important information about your track list, as well as the information that you entered (if any) in the **Disc Info** dialog box (see *Disc Info* on page 5-14).

An example appears on page 5-4.

Holding off - THE ALBUM 8 Tracks 31:10:48 Page 1 of 1
All times are minutes:seconds:frames (1 sec = 100 frames)

Date:	Mon, 22. Sep 1997
Title:	Mr Mao - Holding off - 'The Album'
Artist:	Mr Mao
Producer:	Del Mar Productions
Copyright:	1997 Del Mar Productions
Comment:	MR 9/97

Start Offsets:	0 CD Sectors	**Stop Offsets:**	0 CD Sectors
Track 1 Start Offset:	0 CD Sectors	**UPC/EAN Code:**	4009880984925

	Start at	Title	Length	Stop at	Pause	Ind	ISRC	DCP	Emph
1	**00:02:00**	**Superbrat**	04:08:40	04:10:40	00:02:00	1		•	
	00:00:00	–0:02:00 Index 0 Pregap							
	00:02:00	00:00:00 Index 1 Audio Start							
2	**04:11:00**	**I Wish Not**	04:07:51	08:18:51	00:00:50	1		•	
	04:10:40	–0:00:50 Index 0 Pregap							
	04:11:00	00:00:00 Index 1 Audio Start							
3	**08:19:21**	**Never crossed the street**	04:01:28	12:20:49	00:00:50	1		•	
	08:18:51	–0:00:50 Index 0 Pregap							
	08:19:21	00:00:00 Index 1 Audio Start							
4	**12:21:09**	**Top of the morn**	04:30:49	16:51:59	00:00:50	1		•	
	12:20:49	–0:00:50 Index 0 Pregap							
	12:21:09	00:00:00 Index 1 Audio Start							
5	**16:52:19**	**Comeback to us, now!**	03:25:41	20:17:60	00:00:50	1		•	
	16:51:59	–0:00:50 Index 0 Pregap							
	16:52:19	00:00:00 Index 1 Audio Start							
6	**20:18:20**	**Waiting for you to pay**	03:26:17	23:44:37	00:00:50	1		•	
	20:17:60	–0:00:50 Index 0 Pregap							
	20:18:20	00:00:00 Index 1 Audio Start							
7	**23:44:97**	**Holding off**	03:13:89	26:58:87	00:00:50	1		•	
	23:44:37	–0:00:50 Index 0 Pregap							
	23:44:97	00:00:00 Index 1 Audio Start							
8	**26:59:47**	**Mr Maos Groove**	04:11:17	31:10:54	00:00:50	1		•	
	26:58:87	–0:00:50 Index 0 Pregap							
	26:59:47	00:00:00 Index 1 Audio Start							

Example: "Track-Sheet" (reduced size) that is created by Jam's print command

Quit

This command exits Jam. If you changed one of the open Jam documents, you will get the chance to save your changes first.

Edit Menu

Edit
Undo   ⌘Z
Cut   ⌘X
Copy   ⌘C
Paste   ⌘V
Clear
Select All   ⌘A
Preferences...

Undo

This command reverses the last edit. **Undo** is available for only some commands.

Cut

This command removes tracks and track lists from the active document and moves them to the clipboard, replacing anything that was on the clipboard before.

All current settings (pause, pre-emphasis, copy-prohibit, ISRC...) are saved with the track data on the clipboard.

Copy

This command copies tracks and track lists, as well as other current settings (pause, pre-emphasis, copy-prohibit, ISRC, etc.) from the active document and puts them onto the clipboard, replacing anything that was on the clipboard before.

Paste

This command appends the contents of the clipboard to the current track list.

Clear

This command removes tracks (or whole track lists) from the active, frontmost Jam document. Unlike what happens with the **Cut** command, the contents of the clipboard are *not* replaced.

Select All

This command selects (and highlights) all tracks of the current document. You can also hold down the **Shift** key and click on each track title to select all tracks.

Preferences

This command opens the **Preferences** dialog box, where you can set global preferences that affect the currently opened documents and any new documents. The settings from the **Preferences** dialog box are saved in the **Preferences** folder within your active system folder and are used in any newly created document.
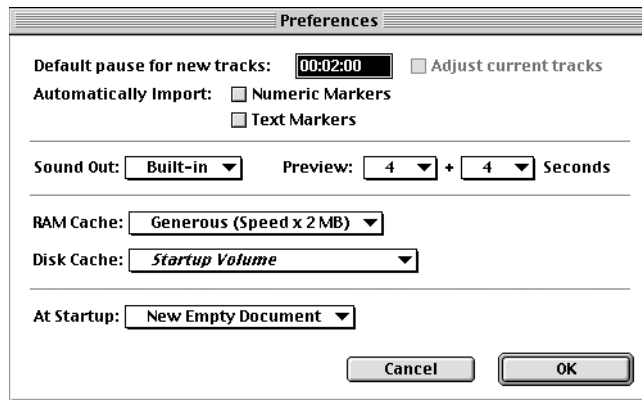
Default pause for new tracks

Whenever you import a new audio track into a Jam document, a pause between the previous track and the current track is created. This option lets you decide how long this pause should be.
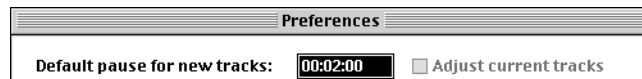
Adjust current tracks

Checking this option sets the pauses of the current document to the value entered in *Default pause for new tracks* on page 5-6.

Automatic import of numeric markers

If this option is checked, each time you import a Sound Designer II file, Jam will import the numeric markers contained in the Sound Designer II document (if any) and use them as index points.

Automatic import of text markers

If this option is checked, each time you import a Sound Designer II file, Jam will import the text markers contained in the Sound Designer II document (if any) and use them as index points.

If both of these options are checked, Jam merges the imported markers chronologically.

Sound Out

If you use specialized hardware (like DigiDesign's ProTools™), you can tell Jam to use the audio-outputs of this hardware (or any other Sound Manager-compatible hardware) as audio output.

```
                    ┌──────────────┐
                    │  Digidesign  │◄──
        Sound Out:  │ ✓ Integriert │
                    └──────────────┘
```
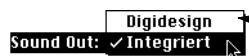
If you use other Sound Manager™ compatible hardware, it will be appended to this list.

Note: If you have specialized hardware but do not see it in the pop-up menu, check with your hardware supplier to obtain a Sound Manager-compatible driver.

Preview

Using the **Preview** command from the disc menu, you can verify the transition between tracks. This **Preview** option lets you set how much of the beginning and end of each track you will hear when you preview. In the pop-up to the left you select the duration before a track change; in the one to the right, you select the duration after a track change.
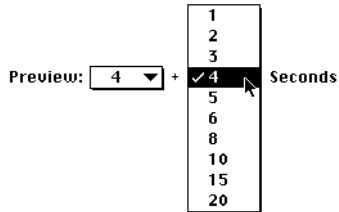
RAM Cache

Jam can use the computer's RAM to extend the recorder's cache, thereby greatly reducing the probability of a buffer underrun. The amount of RAM used (in megabytes) is specified in the RAM cache pop-up menu.

> **Note:** Do not select a value for the RAM Cache that exceeds the amount of free memory on your Macintosh after Jam is loaded. You can verify the amount of free memory by selecting ABOUT THIS MACINTOSH or ABOUT THIS COMPUTER from the Apple menu while in the Finder.
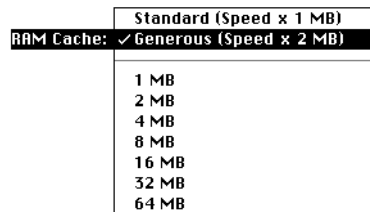
To use RAM Cache, you need SCSI-Manager 4.3 or newer.

If your computer does not support SCSI-Manager (or if it is not installed) Jam shows an error message:

For more information on SCSI-Manager, see *SCSI Manager 4.3* on page 10-5.

If a correct SCSI-Manager is installed, you can select from these options:

```
 ┌─────────────────────────────┐
 │  Standard (Speed x 1 MB)    │
RAM Cache: ✓Generous (Speed x 2 MB)
 ├─────────────────────────────┤
 │  1 MB                       │
 │  2 MB                       │
 │  4 MB                       │
 │  8 MB                       │
 │  16 MB                      │
 │  32 MB                      │
 │  64 MB                      │
 └─────────────────────────────┘
```

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.

Note: RAM Cache requires SCSI-Manager 4.3 and an asynchronous hard disk driver installed. Contact your local APPLE dealer if you're not sure if your Mac meets this specification.

Disk Cache

In addition to RAM Cache, Jam sometimes uses a portion of your hard drive to temporarily store Crossfades. This lets you create very long crossfades, without having large amounts of RAM installed.

For best results, use a fast, defragmented hard drive as a temporary disk cache.

- Select the fastest drive that has sufficient free space.

- Don't select an optical drive or other slow storage devices as the Disk Cache.

The Disk Cache option lets you choose which hard drive to use as a temporary drive.

Jam shows the amount of free space on each volume here.
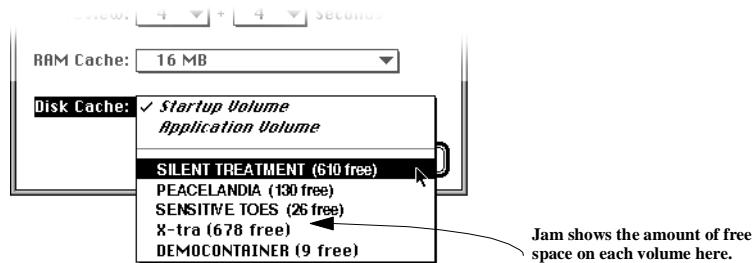
By default, the option **Startup Volume** is selected. Click the pop-up menu for other choices:

- Startup Volume - the volume where your active system folder resides.

- Application Volume - the volume where Jam itself resides.

- Any other connected hard drive.

Generally you can use any volume, but keep the following things in mind:

- Is there enough free disc space on the volume?

- Is the drive fast enough to provide a constant data rate?

If there is not enough disc space available on the selected drive, an error message appears:
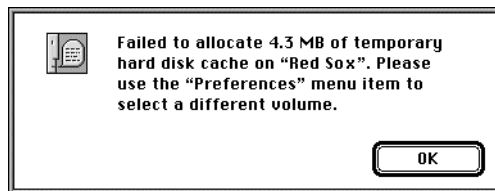
In this case, choose another volume as your disk cache.

The more free space available on the Disk Cache, the longer your crossfades can be.

At Startup

From the **At Startup** pop-up menu you can select which action Jam should perform upon startup. Three options are available:

```
☐ Adjust current tracks
              Nothing
At Startup: ✓New Empty Document
              Open Dialog
        Built-in ▼
```

- ■ Nothing - Jam starts and waits for user input.

- ■ New Empty Document - A new and empty Jam document is created and brought to front.

- ■ Open Dialog - A standard file-open dialog box is presented, where you can open an existing Jam document or image file.

The default setting is **New Empty Document**.

Disc Menu

```
┌─────────────────────────────────┐
│ Disc                            │
├─────────────────────────────────┤
│ Add Track...              ⌘T    │
│ Remove Track...                 │
│ Edit Index Points...      ⌘I    │
│                                 │
│ Disc Settings...                │
│ Disc Info...                    │
│                                 │
│ Preview Disc              ⌘K    │
│ Preview Track             ⌘L    │
│ Play Disc                       │
└─────────────────────────────────┘
```

Add Track...

This command displays a dialog box where you can select files, regions, or playlists to be added to the currently active track list. To learn more about adding tracks, see *Using the Add Track Button* on page 6-6.

.
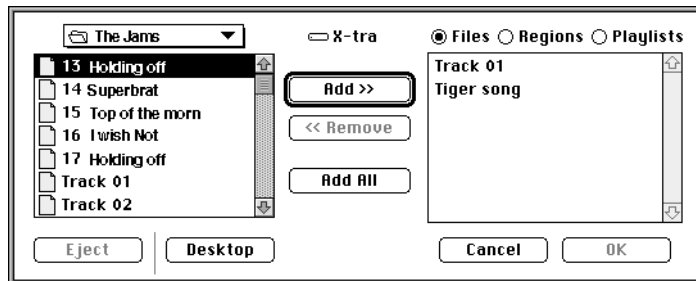
For simplified import options using drag & drop, see *Add Track (drag and drop)* on page 6-9.

Remove Track

This command removes a single track or whole track list from your currently active document. This command is identical to the **Clear** command. Unlike what happens with the **Cut** command, the contents of the clipboard stay untouched.

Hitting the backspace key on your computer's keyboard has the same effect as selecting **Remove Track** from the disc menu.

Edit Index Points

This command opens the Index Points window, where you can create, import, and edit index points. You will learn more about index points in Chapter 7, *Index Points*.

```
┌─────────────────────────────────────────┐
│ ▤    Index Points    ▤                   │
├─────────────────────────────────────────┤
│  1  ▣  Superbrat                         │
│  ┌─────────┐  ┌─────────┐  ┌─────────┐   │
│  │   New   │  │ Import  │  │ Delete  │   │
│  └─────────┘  └─────────┘  └─────────┘   │
│      Time              Title             │
│  ┌───────────────────────────────────┬─┐ │
│  │ 1  00:00:00   Track Start         │⇧│ │
│  │ 2  01:03:00   Chorus              │ │ │
│  │ 3  01:33:12   Verse & BG VOX      │ │ │
│  │ 4  02:22:63   Groove Loop         │ │ │
│  │ 5  03:03:24   Attack Loop         │ │ │
│  │ 6  03:40:01   Ad Libs             │ │ │
│  │                                   │ │ │
│  │                                   │⇩│ │
│  ├───────────────────────────────────┴─┤ │
│  │ Silent Pause    ▼    6 Index Points │ │
│  └─────────────────────────────────────┘ │
└─────────────────────────────────────────┘
```
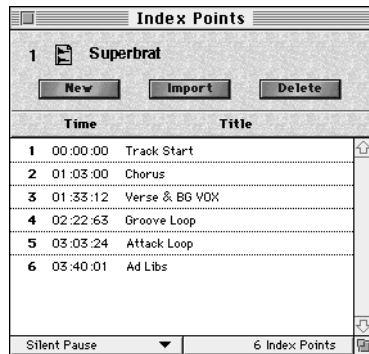
The Index Points window lets you create, import and edit index points.

Disc Settings

This command opens the Disc Settings window, where you can set advanced parameters.

```
┌═════════════════════════════════════════┐
│ ═══════════   Disc Settings   ═══════════│
├──────────────────────────────────────────┤
│                                          │
│   Start/Stop Offsets: ▣30▣ / │0│  CD Sectors │
│                                          │
│   Track 1 Start Offset: │10│  CD Sectors │
│                                          │
│   UPC/EAN Code: │4009880984925│ (13 digits) │
│                                          │
│      ┌──────────┐   ┌──────────────┐     │
│      │  Cancel  │   │      OK      │     │
│      └──────────┘   └──────────────┘     │
└──────────────────────────────────────────┘
```
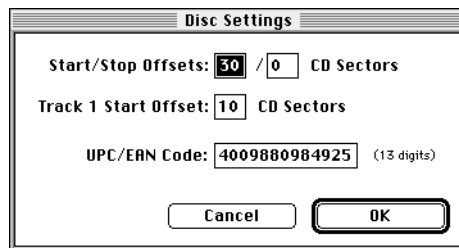
Disc Settings dialog

Start/Stop Offsets

Start or Stop Offset is used to create a pause between track start *(Index 1)* and the audio start of every track on the disc. Start Offset creates a pause directly after trackstart (*Index 1*) and Stop Offset inserts a pause directly before the end of track.

This feature is used primarily to allow a short warm-up period for
CD players that don't unmute quickly enough and therefore cut off
some of the sound during playback.

Start and Stop Offset
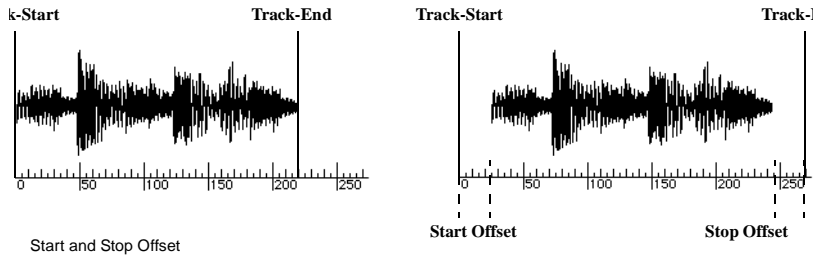
Using Start- or Stop-Offset changes the total length of your playlist

Track 1 Start Offset:

Track 1 Start Offset is a special start offset option that affects only
track one.

UPC/EAN Code

This setting is used to record a standard UPC or EAN barcode
number on the CD. These numbers are assigned by the UPC or
EAN.

Disc Info

This command opens the Disc Info window, where you can enter
more information about your production. The entries are saved or
printed with the current Jam document, but are not written to the
CD.

```
┌─────────────────────────────────────────────┐
│ ▤▤▤▤▤           Disc Info           ▤▤▤▤▤     │
├─────────────────────────────────────────────┤
│    Date:  │ Mon, 22. Sep 1997 │   [ Today ]  │
│   Title:  │ Mr Mao - Holding off - " The Album" │
│  Artist:  │ Mr Mao │                          │
│ Producer: │ Del Mar Productions │             │
│ Copyright:│ 1997 Del Mar Productions │        │
│  Comment: │ MR 9/97 │                         │
│           │                                   │
│                                               │
│           [ Cancel ]      [   OK   ]          │
└─────────────────────────────────────────────┘
```

Click the Today button to enter the current date into the date field.
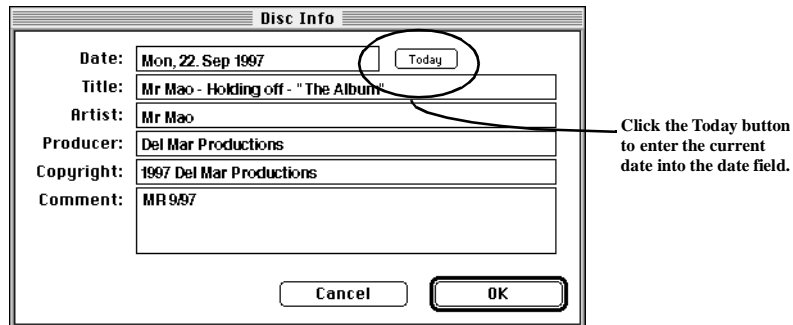
Preview Disc

This command lets you preview the whole track list. It plays back
transitions from one track to the next, according to your settings in
the **Preferences** dialog box. It simplifies the verification of
crossfades and volume changes from one track to another.

Preview Track

This command lets you preview the transition from the current song
to the following. It plays the transition from the current track to the
next one, using the current pause, crossfade and volume settings.
This helps you to tune transitions between tracks especially when
using hard cut crossfades.

Play Disc

Play Disc plays back the complete track list, using all current
settings (like crossfades, volume changes, pauses). You could even
use this command to create a 1:1 copy of your CD master to an audio
recorder connected to your sound outputs.

Recorder Menu

Write Speed

Using this command, you can set the speed of your CD recorder manually.

Upon startup, Jam sets the maximum writing speed for the connected CD recorder (if any). However, sometimes you may want to set the writing speed manually, especially if

■ Your CD recorder was not powered on at Jam's startup. (Jam has no information about your CD recorder's properties.)

■ Audio Files on your hard drive are fragmented, so you cannot write your CD at maximum speed. (See *Check Speed* on page 10-2).

■ You don't want the error correction of the firmware of your CD recorder to influence the audio material.

You can also set the writing speed in the Write Disc window (see *Write Disc* on page 10-7).

Simulation Mode

This command activates the simulation mode, a special mode that simulates the whole write process. Simulation Mode allows you to run through the entire process of writing the disc, exactly like the real writing process, except that the laser is not turned on in the recorder, so nothing is actually written to the disc.

The main purpose for a simulation mode is to find out if the write process would succeed with all the current settings. If you are having problems with your system configuration, using simulation mode before writing is strongly recommended.

Note: Not all CD recorders support simulation mode. Please refer to your CD recorder's manual for more information.

Recorder Info

This command displays technical information about the connected CD recorder, including the firmware version.
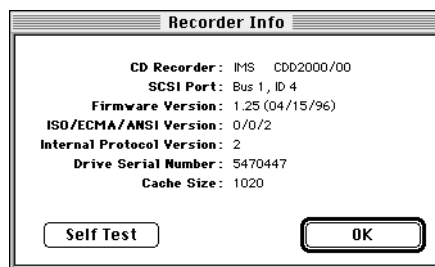
Recorder Info dialog displays technical information about the connected CD recorder

Your CD recorder's firmware may be updated from time to time, to correct possible errors, or to enhance your CD recorder's properties (for example, writing of multisession CDs). Ask your computer dealer if you're not sure if your CD recorder's firmware is current.

This information may also be useful if you need technical support.

Self Test

Clicking the **Self Test** button runs an internal test in your CD recorder. This shows you if your CD recorder is functioning properly.

Eject

Use this command to eject a CD from your recorder. If there is no CD in the recorder, this command is not available.

Search

You may need the Search command if

■ Your CD recorder was off during Jam's startup.

■ There is more than one CD recorder connected to your computer, and you want to decide which CD recorder to use.

In both cases you would use the **Search** command. Jam then looks for available CD recorders.

If Jam doesn't find a CD recorder, check to make sure

■ Your CD recorder is switched on.

■ The SCSI chain is properly connected and terminated.

■ The CD recorder has a unique SCSI-ID.

> ⚠ **Caution:** Always shut down your Macintosh if you modify the SCSI settings or cable routing to avoid damaging your CD recorder or Mac (or both).

Using Multiple CD Recorders

If there is more than one CD recorder connected to your computer, clicking the **Search** button multiple times lets you step through the list of connected CD recorders. As soon as another CD recorder is found, a dialog window is displayed for a few seconds, to show you some information about the CD recorder and SCSI-ID:

**PHILIPS CDD2000
SCSI BUS 1,ID 4**
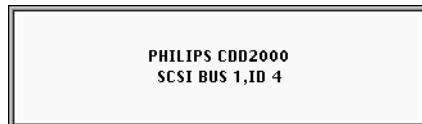
If another CD recorder is found, some information about the recorder is displayed.

Options Menu

Options
Autoloader...
Edit with SoundDesigner II...
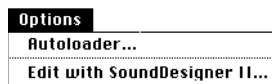
Autoloader

This command allows you to write multiple CDs automatically in succession using a disc transporter or autoloader.

Even if you don't own an autoloader system, this command can be very useful. If you set Jam to **Use Autoloader** (see below), Jam ejects each finished CD automatically and waits for the next blank CD to be inserted. You can create a whole series of CDs without starting the write procedure manually every time.

> **Note:** If the Autoloader function is active when you start writing a CD, you will be prompted to specify the number of discs you want to write. If multiple Jam windows are open, you will be asked to specify the number of discs for each window.

Selecting the **Autoloader** option displays a dialog box, where you can select from other options:
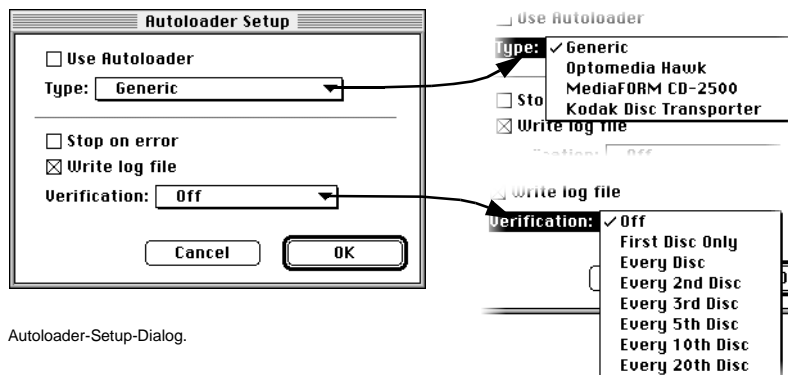
Autoloader-Setup-Dialog.

- Use Autoloader: Check this option if you want to use an autoloader system.

- Stop on error: Check this option if you want to stop the write procedure on any error. Normally you should check this option.

- Write log file: Select this command to have Jam keep a log file of all events during a writing session. The log file is created in the folder where Jam resides (see *Batch Log File* on page 10-12).

■ Verification: This command lets you specify which discs should be verified while writing multiple discs with an autoloader system.

❒

▼▼▼▼**6**

Tracks

Anatomy of Tracks

Each element in the track list of a Jam document is called a **track**. A track can be an **audio file**, a **region,** or a **playlist**. Jam uses audio data from various kinds of files. Either stereo or mono files can be used. The minimum length of an audio file (or a track) is 4 seconds (shorter elements are extended to this minimum with silence).

Track Type Icons

Jam displays each of the supported track types with a different icon:

Icon	Filetype
	Sound Designer II™ - file
	Sound Designer II™ - region
	Sound Designer II™ - playlist
	Split Stereo- file (sometimes called *Dual mono*)
	AIFF - file
	Microsoft.WAV - file
	Adaptec Jam Image

A track can be any of these file types using a sample rate of
44.100 Hz and a **16-bit resolution**. (Compressed audio files are not
supported.)

The track list displays important information about each audio file.
It also allows editing of many settings (that is, pauses, copy
protection, volume, etc.).

Track List

The track list is the main part of a Jam document. It displays
important information and settings for each track (that is, volume,
crossfades, etc.) and shows the tracks in the order they will be
written to the CD. It also allows editing basic PQ information like
track start, pause, index points, etc. A track list can be printed or
saved to your hard disc as a text file.

Anatomy of a Track List Element

A track list consists of one or more (up to 99) track list elements. Each element shows the settings for a single track. Index points are displayed in a sublist within the track list and can be opened and closed at any time.

Here's a brief overview of the information displayed in a track list:
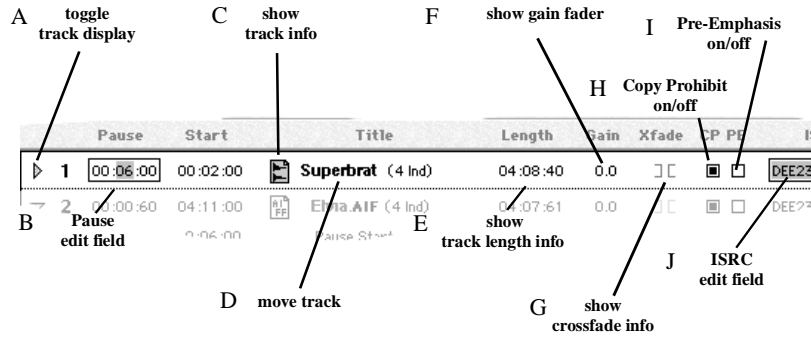
A.Toggle track display: A track list element can be shown in two ways: collapsed (closed) or expanded (open). In the expanded view all index points, track start and track end are displayed as well. Double-clicking an index point opens the Index window. The track display is toggled by clicking the triangle icon to the left of each track. If you hold down the option key while clicking on the icon, the track display for all tracks is opened/closed.
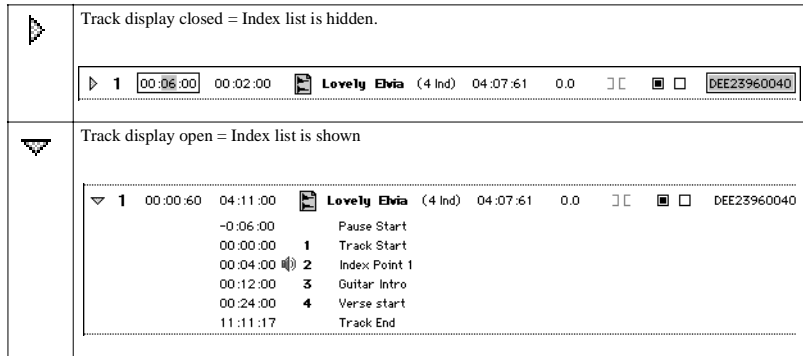
B. Pause edit field: shows the pause before the track.

Click on the pause edit field once lets you enter the length of the pause manually. You can use the arrow key on your keyboard to cycle through each field of the pause display:

←	arrow key left	Moves the selection to the left
→	arrow key right	Moves the selection to the right
↑	arrow key up	Increments the selected value by 1.
↓	arrow key down	Decrements the selected value by 1

C. Show track info: The track type icon shows the kind of element used for this track (see *Track Type Icons* on page 6-1). Click this icon once and hold down the mouse button. A pop-up window appears, showing information about this track and the audio file the track is derived from.
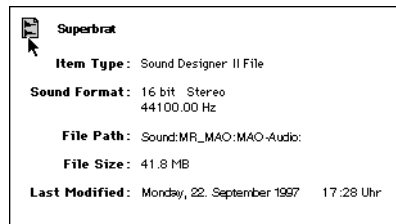
D. Move track: Shows the track's title and is used to select and/or move the track.

Double-clicking the track's title opens the index window.

E. Track length: Shows the length of this track as it is seen by the CD player.

Click this icon once and hold down the mouse button to show a pop-up window containing some information about the track's start, length, and end. From there you can open the **Sound Data Trim** dialog box (see *Sound Data Trim* on page 6-21):
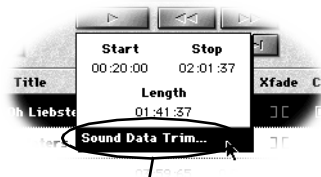
To open the **Sound Data Trim** dialog box, select this option.
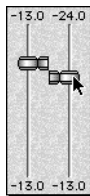
F. Volume/Gain: Click this icon and hold down the mouse button to display the gain fader. It allows to adjust the gain of each track separately.

> **NOTE**: Even if you want to write a mono file to the CD, the gain fader shows two sliders, beacuse the audio tracks on a CD always consists of two channels.

To learn more about using the gain fader, read *Adjusting the Gain* on page 6-23.

G. Crossfade: Click this icon and hold down the mouse button to display a pop-up window showing some information about the crossfade used for this track. You'll find further information about crossfades in *Anatomy of a Crossfade* on page 8-2.

Length	Type
00:12:00	冭
Set Crossfade...	

H. Copy Prohibit: This checkbox activates / deactivates copy protection for this track (see *Copy Prohibit* on page 3-4).

I. Pre-Emphasis: This checkbox activates / deactivates pre-emphasized playback for this track (see *Pre-Emphasis* on page 3-6).

J. ISRC field: Here you can enter the track's ISRC (**I**nternational **S**tandard **R**ecording **C**ode). ISRC uses this format:

country code		owner code			Year		serial number				
D	E	A	A	A	9	7	1	2	3	4	5
2 chars		3 chars			2 digits		5 digits				

Jam requires entries to be in the correct format.

Shortcuts in the Track List

These shortcuts allow you to edit the track list quickly:

▶▶ *TRACK*	double-click on track title	opens index window
➡	arrow key right	opens index-list
⬅	arrow key left	closes index-list
➡	opt-arrow key right	opens index-list of all tracks
⬅	opt-arrow key left	closes index-list of all tracks
▷	opt-click on triangle	opens index-list of all tracks
▽	opt-click on triangle	closes index-list of all tracks

	opt-click on Copy Prohibit	activates/deactivate Copy Prohibit of all tracks
CP	opt-click on Copy Prohibit	activates/deactivate Copy Prohibit of all tracks
PE	opt-click on Pre-Emphasis	activates/deactivates Pre-emphasis of all tracks
	shift-cmd-click on column **Gain**	resets both channels to 0.0dB
	shift-opt-cmd-click on column **Gain**	resets both channels of all tracks to 0.0dB
	shift-cmd-click on column **Crossfade**	deletes crossfade
	shift-opt-cmd-click crossfade-icon	deletes crossfades of all tracks

Adding Audio Files

You can add audio files to a *TOAST CD-DA* tracklist in the following ways.

Dragging Audio Files Onto the Jam Program Icon

A simple way to add audio files is to drag audio files onto the Jam program icon in Finder. Jam then opens a new, untitled window and displays all dragged files in its track list. For pauses between the tracks, it uses the default pause setting (see *Preferences* on page 5-6).
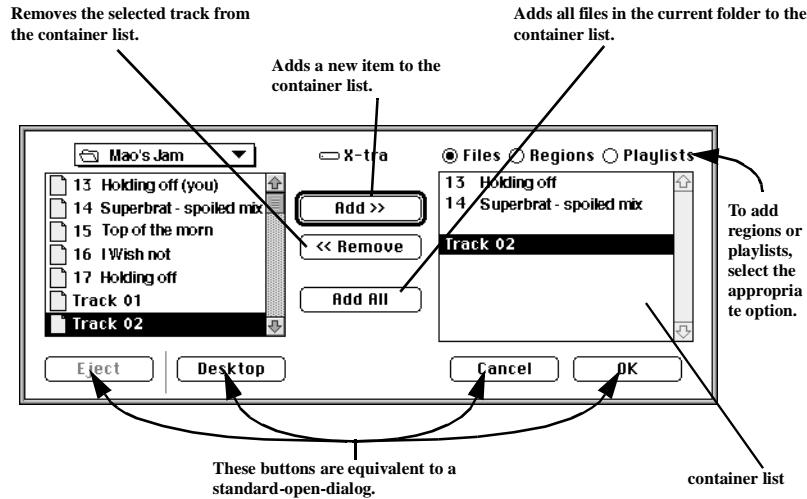
If you hold down the **Command** key when you release the mouse button, a dialog box appears containing a list of files, regions, and playlists of the dragged files. You can add all or some of these items by selecting the desired items from the list (see *Add Files (drag and drop)* on page 6-9).

Using the Add Track Button

Click the **Add Track** button (in the upper left of the main window) or type `Command-T` on your keyboard.

A dialog box appears, containing a list of files on the selected disc. You can add files, regions, or playlists.

Removes the selected track from the container list.

Adds a new item to the container list.

Adds all files in the current folder to the container list.

To add regions or playlists, select the appropriate option.

These buttons are equivalent to a standard-open-dialog.

container list

The dialog box contains two lists and various buttons. The buttons below the lists are equivalent to those in a standard file dialog. In the left window you can select an audio file. In the right window all files you wish to add are collected.

Add Files

To add an audio file, select a file from the left window and then click **Add.** The chosen file appears in the right window. Repeat this process until you have all the files you want in the list.

To add split-stereo files it is only necessary to select either one of the stereo pair. Jam then adds both files as a single track automatically (as long is one is named "*Filename.L*" and the other "*Filename.R*".)

You will find more information on split-stereo files in *Notes on Split Stereo Files* on page 6-13.

Add All (Files)

Add All (Files) adds all sound files shown in the left window to the list in the right window. This option is available only if the option **Files** is activated.

Remove (Files)

To remove files from the right window, click **Remove**. This option is available only if the option **Files** is activated.

Add Regions

To add regions, click the **Regions** option in the upper right of the dialog box.

To add regions to the *TOAST CD-DA* tracklist you must first activate the *regions* option.
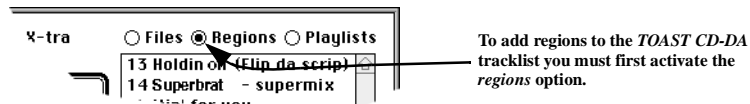
If the audio file selected in the left window contains regions, these regions are displayed in the right window. Select the regions you wish to add in the right window, then click **OK**.

Add Playlists

To add playlists, click the **Playlists** option in the upper right of the dialog box.

To add playlists to the *TOAST CD-DA* tracklist you first have to activate the *playlists* option.

Then continue as described in *Add Regions* (see above).

Click **OK** to confirm your selection.

Using this method, you can only add tracks of the same type in a single step (Files *OR* regions *OR* playlists). To find out how to add tracks of different types to the track list, read *Add Track (drag and drop)* on page 6-9.

You can add audio files of the following types:

- Sound-Designer-II, AIFF, or .WAV files
- Sound-Designer II - regions
- Sound-Designer II - playlists

Add Track (drag and drop)

The preferred method to import audio files is *drag and drop*, which is fully supported by Jam. *Drag and drop* allows you to drag audio files directly from your hard disk into the *TOAST CD-DA* tracklist. If the track list already contains some tracks, a position marker shows where the tracks will be inserted. Files are added in the order they were selected in the Finder.

The "*Drag and Drop Manager*" system extension must be installed to use this feature. If it is not installed, it will be added automatically to your system during the installation of Jam.

If *drag and drop* is used, you can import files whether Jam is the active application or not.
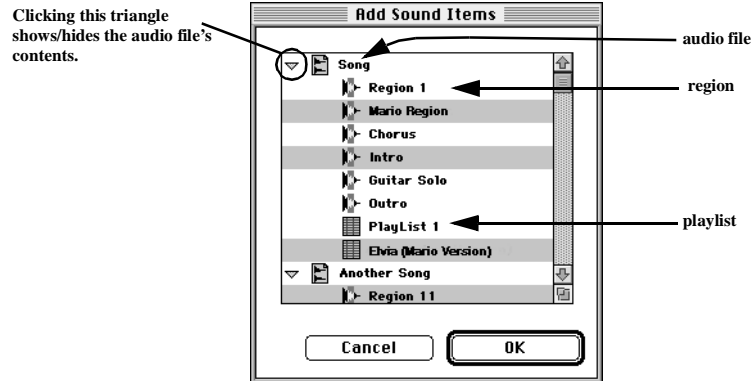
Add Files (drag and drop)

To add files to a *TOAST CD-DA* tracklist:

1   Create or open a Jam document.

Shift-Click all files you wish to add in Finder. Select as many files as you like.

2   Drag the desired files onto the *TOAST CD-DA* tracklist. *You don't need to make* Jam *the foreground application.*

If the track list already contains some tracks, a thick position marker indicates where the files will be inserted into the track list.

3 Release the mouse button when the position marker indicates the desired position. Jam then adds the file in the order it was selected in Finder.

If you press the **Command** key while dragging the audio files onto the program icon (or the track list), the **Add Sound Items** window appears, allowing you to add files, regions and/or playlists all at once.

Add Regions or Playlists (drag and drop)

If you wish to add regions and/or playlists, keep the **Command** key pressed when *releasing* the mouse button. Jam then displays the **Add Sound Item** dialog box, showing a list of sound items contained in the dragged files.

Clicking this triangle
shows/hides the audio file's
contents.

Add Sound Items

audio file

▽ Song
  ▶ Region 1   region
  ▶ Mario Region
  ▶ Chorus
  ▶ Intro
  ▶ Guitar Solo
  ▶ Outro
  PlayList 1   playlist
  Elvia (Mario Version)
▽ Another Song
  ▶ Region 11

Cancel   OK

Clicking the triangle to the left of a file icon expands the list,
showing the audio file's contents (regions or playlists). Clicking the
triangle again hides the contents.

Note: To show or hide the contents of all displayed audio
files at once, hold down the **Option** key while clicking the
triangle icon.

Now select the item(s) you wish to add to the track list. Shift-click to
select multiple contiguous items. Command-click to select multiple
noncontiguous items.

Click **OK** to confirm your selection.

Add Files in Folders (drag and drop)

Jam lets you add folders or even volumes all at once. To import a
folder or volume, simply drag the desired folder(s) or volume(s)
directly onto Jam's track list.
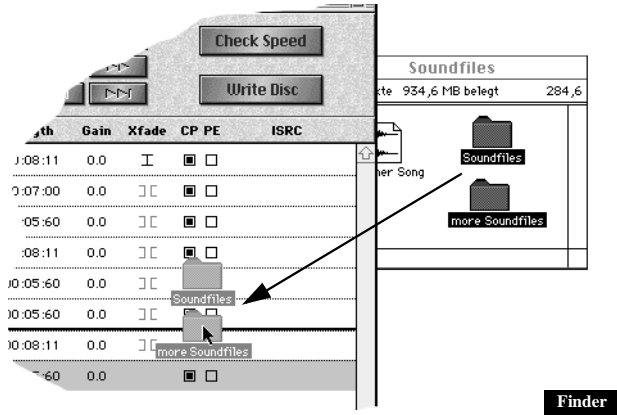
Jam scans the folder for valid audio files and adds all compatible files to the current track list.

Add Files in Volumes (drag and drop)
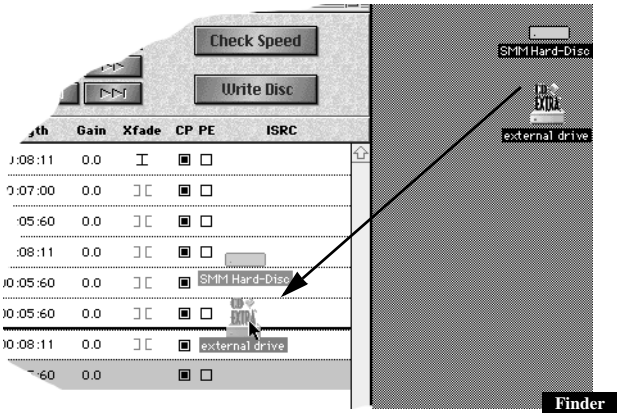
You can use this technique to import files, files in folders, and files in volumes all at once. To import regions and playlists follow the steps in *Add Regions or Playlists (drag and drop)* on page 6-10.

Drag files, folders and volumes at once
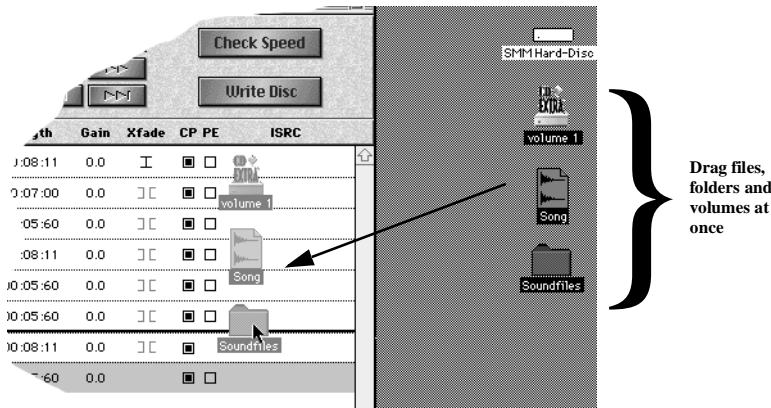
Notes on Split Stereo Files

Most audio-sequencing and hard disc recording programs are track-based, that is, they use a single mono file for each audio track. To create a stereo effect, two files are combined to a virtual stereo track. Adding either one of the files to the track list adds both files as a stereo pair if these conditions are met:

Jam combines two mono files with the same name

- *And* ending (.1) "Monofile.1" (left) and "Monofile.2" (right)

- *Or* ending (.L) "Monofile.L" (left) and "Monofile.R" (right)

- *And* located in the same folder

- *And* having the same length

- *And* consisting of a single (mono) channel

Some audio-sequencer programs use a separate hard disc for each channel (that is, track 1 creates the left channel, track 2 creates the right channel). To write those files to a CD as a stereo track, you don't need to copy the files to a single volume. Simply create an alias file from one of the files and copy this alias file to the folder where the opposite item resides. Jam resolves this alias file automatically, as if the files were located in the same directory.

Add Split Stereo Files

Adding split stereo files to a TOAST CD-DA track list is similar to adding stereo audio files to a track list (*Adding Audio Files* on page 6-6). It doesn't matter, however, if you add one or both of the stereo files. Jam combines both files into a stereo pair and shows this icon for the track in the track list.
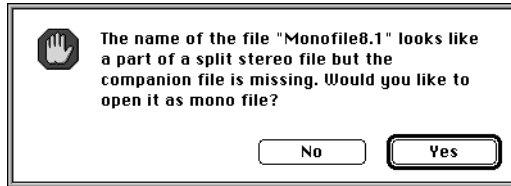

Split stereo files must be of equal length. If they are not, an error message appears:
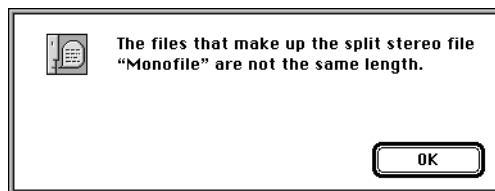
Split stereo files must not have more than two audio channels. If you try to mix mono and stereo files or try to combine two stereo files, this error message appears:
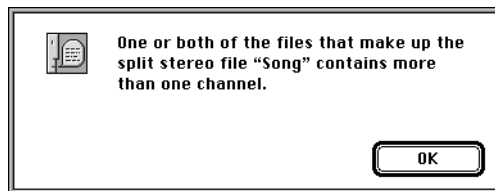
If you select a file with the ending ".L", ".R", ".1" or ".2" Jam tries to find the alternate file in the same folder. If the file isn't found there, you can add the file as a mono file.

> ✋ The name of the file "Monofile8.1" looks like a part of a split stereo file but the companion file is missing. Would you like to open it as mono file?
>
> [No]   [Yes]

Rearranging the Playback Order

You can rearrange the order of the tracks simply by dragging the track's title to a new location.

1   Select the tracks you want to move. Shift-click to select contiguous tracks; command-click to select noncontiguous tracks.

▷	1	00:00:60	00:00:60	📄	Audio Track 1	00:08:11	0.0	][	■ □
▷	2	00:00:60	00:09:31	📄	Audio Track 2	00:05:60	0.0	⋀	■ □
▷	3	00:00:00	00:15:51	📄	Audio Track 3	00:05:60	-6.0 -3.0	][	□ □
▷	4	00:00:60	00:21:71	📄	Audio Track 4	00:04:00	0.0	][	■ □
▷	5	00:00:60	00:26:31	📄	Audio Track 5	00:05:60	0.0	][	■ □
▷	6	00:00:60	00:32:51	📄	Audio Track 6	00:05:60	0.0	][	■ □

2   Click the title of one of the selected tracks and drag the selection to a new location.

▷	1	00:00:60	00:00:60	📄	Audio Track 1	00:08:11	0.0	][	■ □
▷	2	00:00:60	00:09:31	📄	Audio Track 2	00:05:60	0.0	⋀	■ □
▷	3	00:00:00	00:15:51	📄	Audio Track 3	00:05:60	-6.0 -3.0	][	□ □
▷	4	00:00:60	00:21:71	📄	Audio Track 4	00:04:00	0.0	][	■ □
▷	5	00:00:60	00:26:31	📄	Audio Track 5	00:05:60	0.0	][	■ □
▷	6	00:00:60	00:32:51	📄	Audio Track 6	00:05:60	0.0	][	■ □

3   After you release the mouse button, the tracks are moved to the new location.

▷	1	00:00:60	00:00:60	🖹	**Audio Track 1**	00:08:11	0.0	][	▣ ☐
▷	2	00:00:60	00:09:31	🖹	**Audio Track 4**	00:04:00	0.0	][	▣ ☐
▷	3	00:00:60	00:13:91	🖹	**Audio Track 6**	00:05:60	0.0	][	▣ ☐
▷	4	00:00:60	00:20:11	🖹	**Audio Track 2**	00:05:60	0.0	⅄	☐ ☐
▷	5	00:00:00	00:26:31	🖹	**Audio Track 3**	00:05:60	0.0	][	☐ ☐
▷	6	00:00:60	00:32:51	🖹	**Audio Track 5**	00:05:60	0.0	][	▣ ☐

Track settings (that is, pause, crossfade, gain) are preserved, even if you move or rearrange tracks.

Adjusting Pauses

The pause between two tracks is displayed in a track's first column. Keep in mind that this is the pause **BEFORE** the track (sometimes called the pre-gap.) Your CD player shows this pause as a negative time. Jam simulates this behavior when playing or previewing and shows the pause as a negative time:

In the pause an index id zero is shown   **The pause between two titles is shown as a negative time.**
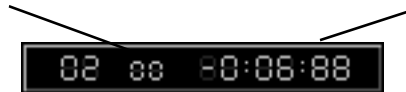
Fig. 6-1: Pause display

Note, that Jam shows an index id 0 while the pause counts down to zero. According to Red Book standards, the pause starts at index id 0 and ends at index id 1 (you'll find more information on the use of index points in Chapter 7, *Index Points*). A CD player identifies the end of a track by reaching index id 0.

A pause of any length can be set between two tracks (as long as the tracks fit on the CD). A usual setting is 2 to 4 seconds. Pauses are filled with digital silence. A setting of 00:00:00 means that there is no pause between the tracks (in other words, a hard cut). This setting is required if you wish to enter a crossfade between the tracks. But you could also use this setting to separate a live recording into several tracks without having to introduce pauses.

If you need silence between track start and the start of the audio material, you could use a start offset setting (see *Start/Stop Offsets* on page 5-13).

Entering Pauses in a Track List

To set a pause between tracks:

1 Click once on the pause field of a track. An edit field appears.

2 Enter the new length. Jam checks your entry for validity and corrects wrong entries immediately (for more information refer to *Edit Fields* on page 3-10 and page 6-4).

You can enter a pause of any length (see *Pause Before Track 1* later in this chapter).

.

3 To confirm your entry, click somewhere in the window or press the **Enter** key.

Pause Before Track 1

The pause length displayed in the pause column is the pause BEFORE trackstart. Generally, pauses may be any length, but the pause before track 1 has a limitation; it must not be less then 150 frames = 2 seconds. If the pause you entered does not match this

requirement, Jam brings up a dialog box and gives you the option to correct this problem:
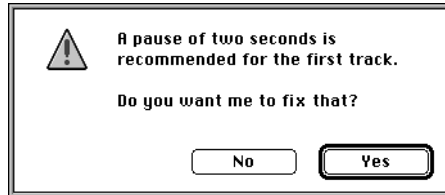
If you click **No**, Jam cannot write the CD and returns to your track list without any changes.

If you need some silence between the first track's track start and the start of your audio signal, you can insert a piece of silence after trackstart. You'll find this (rarely needed) option in Disc Settings (see *Start/Stop Offsets* on page 5-13).

Pause Modes

Jam supports three different pause modes:

■ Silent Pause

■ Audio starts in Pause

■ No Pause

You select one of those modes from the pop-up menu in the lower part of the index window.
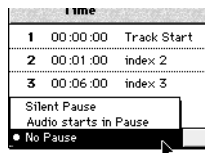
Silent Pause (default setting)

Silent Pause is the default pause mode. After the end of the audio material the pause starts. It ends at the beginning of the next track start, which is usually the beginning of the audio signal of the next track, unless you defined a start offset (see *Start/Stop Offsets* on page 5-13). The space between the tracks is filled with digital silence.

Trackend/Pause-Start   Trackstart

Silence
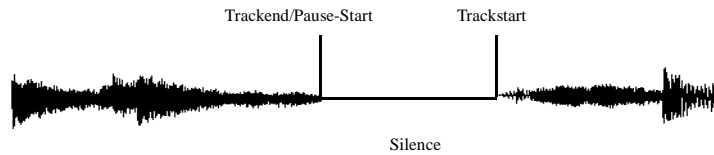
Audio Starts in Pause

You may want to use the pause to append one track to the other.

For example: You have a live recording; there is applause after each piece of music.If you set the track IDs at the beginning of each track, the applause is added at the end of the previous track, and this will result in a wrong track-time.

To avoid this problem, set the start of your audio to the start of the applause. In the Index window, choose **Audio Starts in Pause** from the pop-up menu. Measure the applause and enter the length of the applause into the pause field of the given track. Now the previous track ends with music, then the pause starts. The pause is filled with applause and the next track starts with music.

Trackend/Pause-Start   Trackstart

Applause
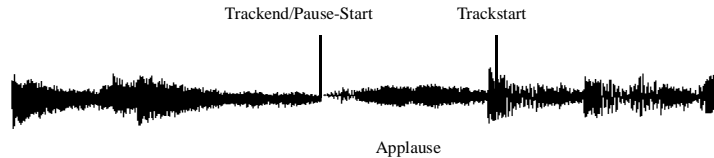
To move audio into the pause:

1 Double-click the desired track.

2 The Index window appears.

Choose **Audio Starts in Pause** from the pop-up menu.

```
Silent Pause
● Audio starts in Pause
No Pause
```
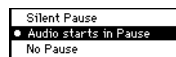
3 Measure the length of the audio signal that should be moved into the pause.

4 Enter the measured time into the pause field of the given track.

The applause is moved into the pause.

No Pause

This option has the same effect as entering 00:00:00 into the pause field. Playback switches from one track to the next without any crossfade.

Trackend/Trackstart

Applause
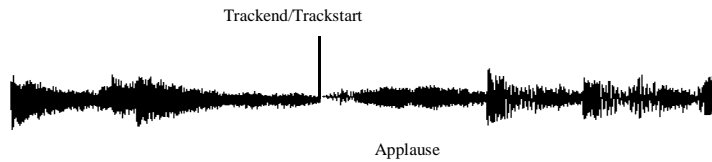
If there were any entries in the pause field, they are remembered by Jam. If you don't like your **No pause** setting, you can go back to the previous setting at any time.

> **Note:** You can use the **No Pause** option instead of entering 00:00:00 into the pause field, or if you want to use a crossfade, see *Adjusting Crossfades* on page 8-7.

Default Pause for New Tracks

Another way to set pauses between tracks is to let Jam set the pause length automatically:

1 Choose **Preferences** from the **Edit** menu. The preferences appear.

2 Enter the desired pause length in the **Default pause for new tracks** field.

Now if you add new tracks to the track list, Jam uses this new length as a pause between tracks.

Preferences

Default pause for new tracks: 00:02:00
☐ Adjust current tracks

☐ Automatic Im

> **Note:** The settings entered in the **Preferences** dialog box are saved globally and are used in all Jam documents.

Adjust Current Tracks

To change the pause setting of all tracks currently in the track list, check the **Adjust Current Tracks** checkbox and enter the desired time into the **Default pause for new tracks** edit field. Confirm your setting by clicking **OK**. The pause setting of all tracks will change.

To switch from one track to the next without any crossfade, enter 00:00:00 into the edit field.

Sound Data Trim

Jam allows you to adjust a track's length by ignoring part of the beginning or end of the track. This is called Trimming. Trimming a track is nondestructive (your original audio data isn't changed.)

Use this option to

- Define regions in an audio file

- Cut noise at the beginning or end of a track

- Create extending crossfades
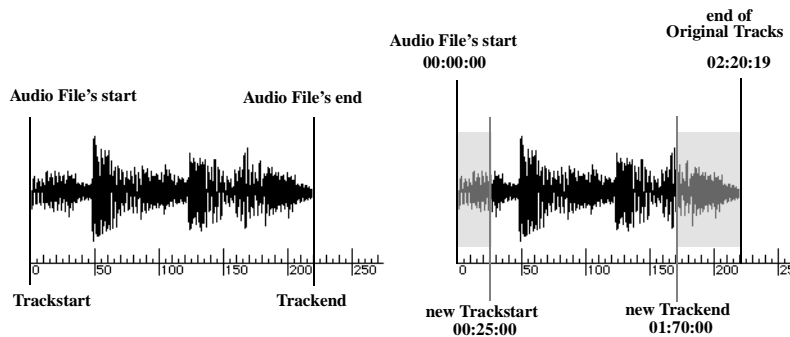
To change the track length

1 Click on the Length column of the given track. A pop-up menu appears, displaying basic information about the track's start, end, and length.

2 Choose **Sound Data Trim** at the bottom of the pop-up menu.

The **Sound Data Trim** dialog box appears.
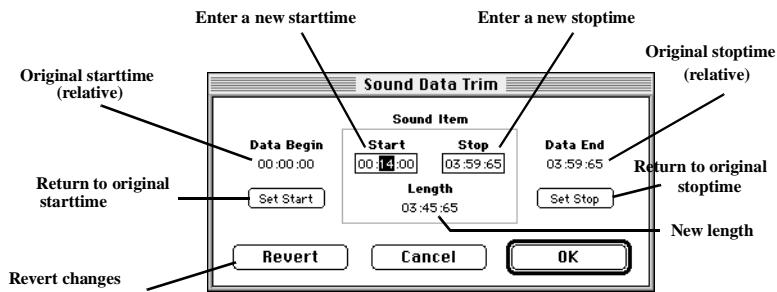
3 Data Begin and Data End mark the start time and stop time of the original track.

If you enter a new start time in the Set Start field, the track's length will also be changed. The new track length is displayed under Length.

If you enter a new stop time in the Set Stop field, the track's length will also be changed. The new track length is displayed under Length.

4 Confirm your changes to apply them to the track list.

5 To split the track into multiple regions, duplicate the track in the track list. (Select the track and choose **Copy** and then **Paste** from the **Edit** menu. Then repeat steps 1–4 to define another region.

Using **Sound Data Trim** allows you to split a big audio file (or region or playlist) into multiple small parts without using audio editing software.

Other options in the **Sound Data Trim** dialog box:

■ **Set Start** sets the start of the new region back to the original track start,

■ **Set Stop** sets the end of the new region back to the original track end,

■ **Revert** reverts all current changes.

Adjusting the Gain

You can adjust the gain of each track (and each channel) separately. The gain change is nondestructive.

Even if you add mono files to the track list, two channels per track are written to CD. Therefore, you could set the gain for each channel of a mono file separately.

If you start playback before using the gain fader, you can listen to your gain changes while moving the fader.

Range

The gain can be adjusted from -96dB to +12dB, usually in 1 dB increments. If the fine-tuning option is chosen, then the increments are 0.1 dB.

Caution: Unlike analog overload, in digital overload the peaks are not compressed, they are clipped, which results in unpleasant clicks in the sound. Be **VERY CAREFUL** when increasing the gain of a track. Even when the audio sounds good, clipping can occur! Be especially careful if you will be using the track in a crossfade, because then the sample amplitudes of the tracks are combined, which may cause clipping.

Standard Operation

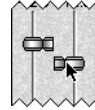Click the Gain column and hold down the mouse button.

The Gain Fader appears.
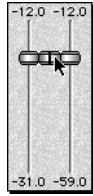
Moving the slider in the **CENTER** of the pop-up fader changes the gain of both channels in unison.
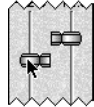
Moving the slider in the **LEFT** pop-up fader changes the gain of the left channel only

Moving the slider in the **RIGHT** pop-up fader changes the gain of the right channel only

Move the mouse in the center of the pop-up fader to adjust the gain of both channels together.

If you move the mouse to the right or left, the opposite channel slider jumps back to its original value and you can adjust one channel at a time.

When you are satisfied with the setting simply release the mouse button. The pop-up fader disappears and the setting will be displayed in the gain column of the track list.
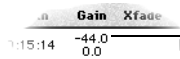
The Gain column of a track displays the gain setting for either /or both channels

Adjusting Both Channels in One Step

In Jam you can also make separate adjustments to each channel in one step. (To adjust the gain of both channels, see the preceding section, *Standard Operation.*)

1   To adjust the gain of one of the channels, hold the mouse button down and press the **Shift** key. Jam saves the current value of this channel. This value is shown at the bottom of the pop-up fader.

Jam displays the stored gain value here.

Jam displays the current gain value here.
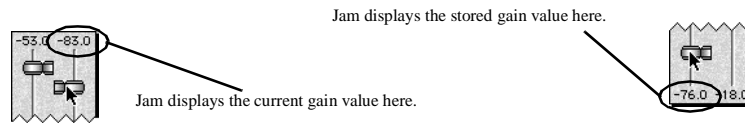
2   Now move the mouse onto the opposite channel. The first slider remains at its stored position. You can now set the gain of the other channel independently.

Repeat this procedure until you are satisfied with your setting.

To save the values of both sliders at once, move the mouse to the center of the pop-up fader and press the **Shift** key.

Parallel Fader Movement
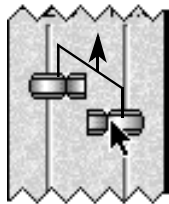
You can use Parallel Fader Movement to adjust the gain if the relation of one channel to the other is okay, but the overall level is too high or low.

If the gain value of both channels is the same, there is no problem, because you can move both sliders at a time.

If the gain value of one channel doesn't match the value of the other, Parallel Fader Movement can help. It offers a way to adjust the gain value of both channels proportionally to each other. To do this, hold down the **Command** key *before* you click on the gain column to activate the pop-up fader. This activates parallel fader movement. Now, if you move the mouse up or down, both sliders move by the same amount, starting at their original position.

Note: If you move the mouse over the center of the pop-up fader, the second slider jumps to the mouse position.
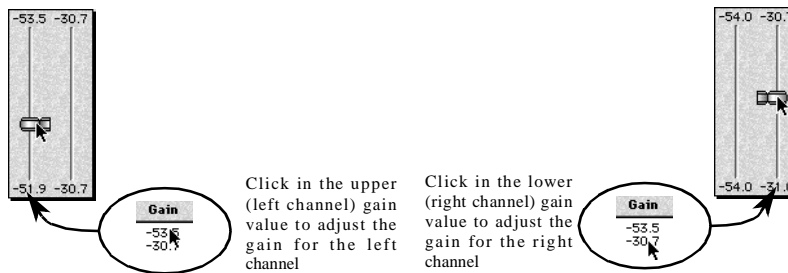
Fine-Tuning

Sometimes an adjustment of 1 dB is too coarse to get a satisfying result. Jam can also make adjustments in increments of 0.1 dB.

To do this, hold the **Option** key down *before* you click in the gain column of the given track. This activates Fine-Tuning.

Adjusting gain now works as described under *Standard Operation*, except that it uses 0.1 dB increments.

Note, that the size of the pop-up fader doesn't change, just the display range. As a result it's possible that only one of two sliders will be visible (because the gain value of the other one is outside the visible area). To change the left channel in this case, click the upper value in the gain column of the given track. To change the right channel, click the lower value.

If one of the sliders is out of view:

Click in the upper (left channel) gain value to adjust the gain for the left channel

Click in the lower (right channel) gain value to adjust the gain for the right channel

Fine-Tuning and Parallel Fader Movement

To activate both Fine Tuning and Parallel Fader Movement, hold down the **Option** key and the **Command** key while clicking in the gain column of the given track.

7

Index Points

Index points provide a way to mark positions within a track. With Jam, each track can have up to 50 index points, ranging from 0 to 49. (Index 0 and Index 1 are normally used for the pause and track start.)

> **Note:** Most CD players do not support index points!
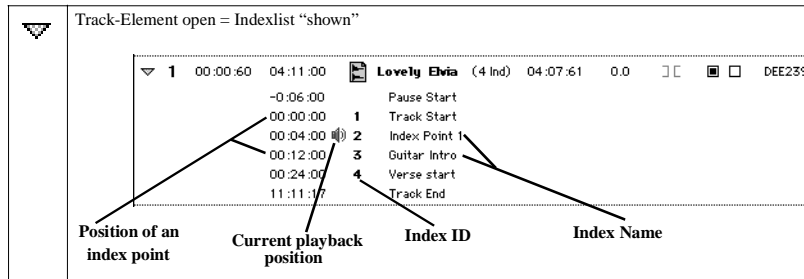
Displaying Index Points

In Jam, you can display index points:

- In the track list
- In the Index window

The Index List

To display a list of index points within the track list, click the triangle icon of the given track:
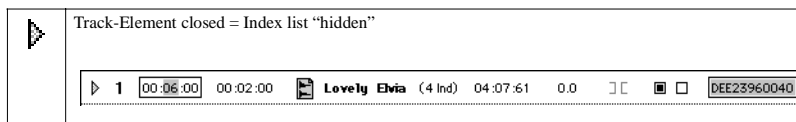
Clicking the triangle icon expands the track list and shows the index list just below the track information.

The index list contains 4 columns:

■ The index point's position (absolute or relative)

■ Playback option (a speaker symbol indicates the current playback position)

■ The index point's ID (Index 1 marks the trackstart)

■ The index point's name

Click the triangle icon again to hide the index list.

> **Note:** To show/hide the index list of all tracks at once hold the **Option** key down while clicking the triangle icon.

Relative Index Time

Relative index time means that the displayed index time is the time elapsed since the track start (in case of the pause, it is the time until the track start is reached). Index 1 marks the track start and is located at position 00:00:00 within the given track.

To switch between relative and absolute index times, select the appropriate option from the pop-up menu at the bottom of the main window.
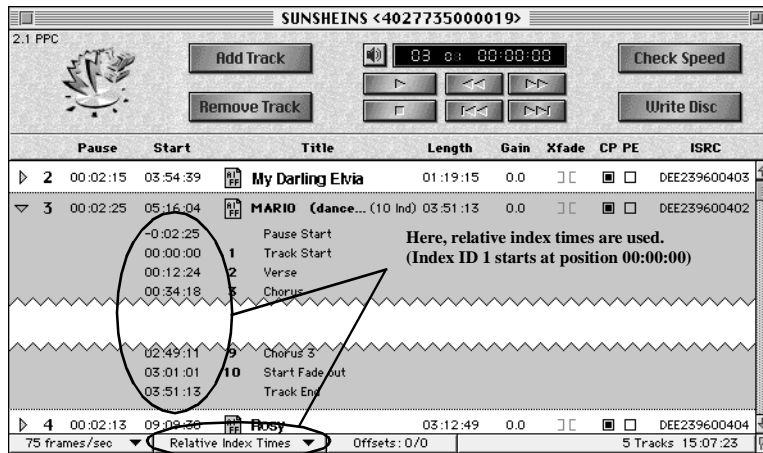
Absolute Index Time

If **Absolute Index Times** is selected, the displayed index time is calculated from the beginning of the CD.
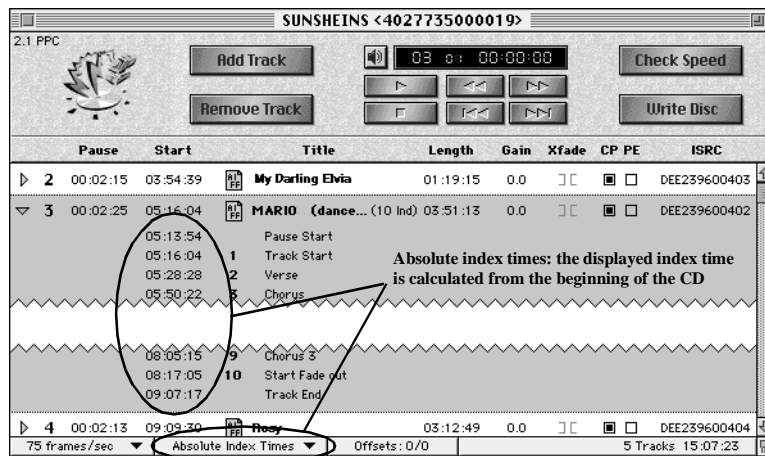
The default setting for index times in Jam is **Relative Index Times**.

Index times shown in the Index window are always relative.

Switching index times is a display option only. It doesn't change the way the index points get written to CD.

Double-clicking an index point opens the Index window. Here you can edit index points.

The Index List

Click to add an Index point

Sub-Index ID

Relative position

Pause type menu

Click to delete the current Index point

Click to import markers as index points

Total number of indexes in track

Index points in the Index window are always displayed **relative** to track start. Index 0 marks the start of the pause before track start. Index 1 marks the start of the audio. Jam sets these index points automatically.

If **Audio starts in pause** is selected, then pause start and track start fall together.

Adding Index Points

Each track of a CD can have up to 99 (optional) index points (Jam supports writing up to 50 index points per track). When adding index points to a track, keep in mind that many CD players do not support skipping to index points.

You can add index points to a track in two ways:

■ Enter them manually

■ Import markers from a Sound Designer II document.

Adding Index Points Manually

Double-click the track title of the track to which you wish to add index points.

The Index window appears, displaying all existing index points for this track. Since Jam enters the required index points automatically, you will find at least one index point in the list.
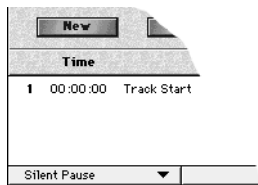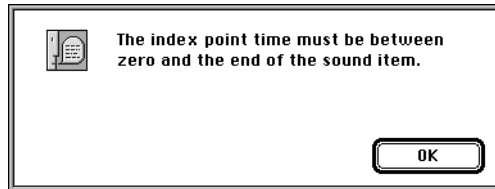

Click the **New** button to add another index point.

A dialog box appears. Enter the index point's position and title. You can chose any title you like. (The title is not written to disc; it is just for your reference.)
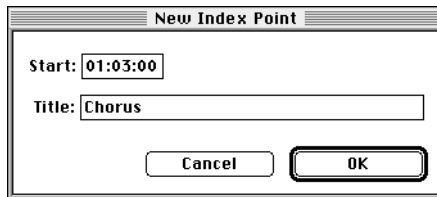

A valid position for a newly created index point is between Index 1 and Track End. If the position you entered is not within this range, this message appears:
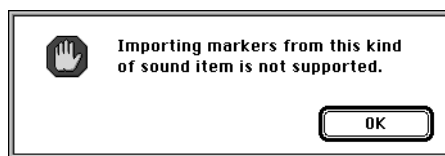
```
┌─────────────────────────────────────────────┐
│ ┌─────┐   The index point time must be between│
│ │ ▤   │   zero and the end of the sound item. │
│ └─────┘                                       │
│                                               │
│                          ┌──────────────┐    │
│                          │     OK       │    │
│                          └──────────────┘    │
└─────────────────────────────────────────────┘
```

Import Index Points

You can also import markers from a Sound Designer II file as index points. You can choose to import numeric markers or text markers or both types.

SoundDesigner Markers
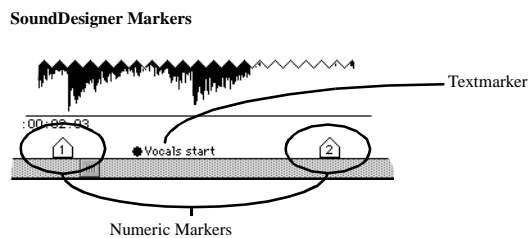
Markers are part of the Sound Designer II file specification. They are located in the resource fork of a Sound Designer II document. Please note that markers can be imported only from Sound Designer II files.

If you try to import markers from another file type, this message appears:

```
┌─────────────────────────────────────────────┐
│ ┌─────┐   Importing markers from this kind    │
│ │ ✋  │   of sound item is not supported.      │
│ └─────┘                                       │
│                                               │
│                      ┌──────────────┐        │
│                      │     OK       │        │
│                      └──────────────┘        │
└─────────────────────────────────────────────┘
```

Otherwise a dialog box appears, displaying information about the number of markers found in the file.

To import markers as index points select the
appropriate option.

Import Index Points

Import ☒ 2 Text Markers
☒ 4 Numeric Markers

From File "We are The Gorditos"?

[Cancel]   [**OK**]

If the file doesn't contain any markers, the text
appears grayed out.

☐ No Text Markers
☐ No Numeric Markers
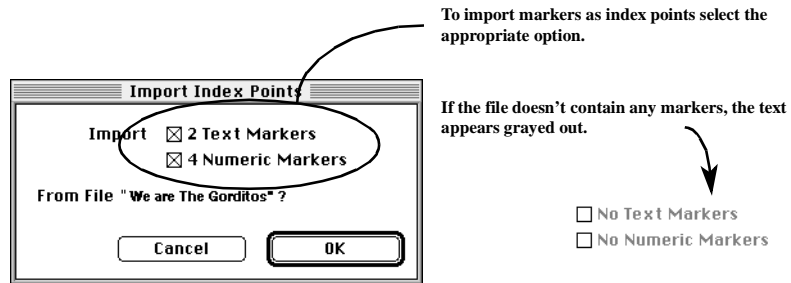
Automatic Import of Index Points

The **Preferences** dialog box provides two options for setting the
automatic import of index points:

☐ Automatic Import of Numeric Markers
☐ Automatic Import of Text Markers

Automatic Import of Numeric Markers

If this option is selected, then all numeric markers contained in the
audio file are added as index points when the audio file is added to
the track list.

Automatic Import of Text Markers

If this option is selected, then all text markers contained in the audio
file are added as index points when the audio file is added to the
track list.

Markers must be created within your sound editing application.
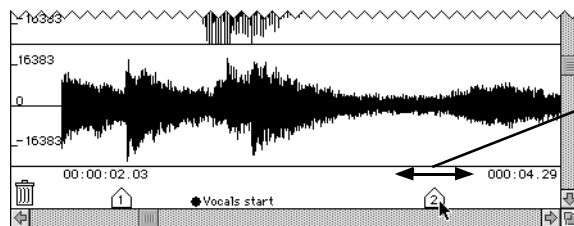
In audio editing
software (for
example, Sound
Designer II) it is
easy to position
index points.

00:00:02.03   000:04.29
Vocals start

Editing Index Points

With the exception of Index 0 and Index 1, you can edit an index point's title and time manually. Jam then sorts and numbers the index points automatically according to your entry.
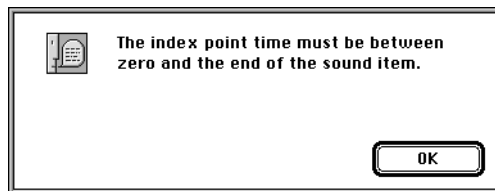
Editing index points is possible only in the **Edit Index Point** dialog box.

To edit an index point, double-click the index point in the index list of the Index window.

A dialog box appears, in which you enter the title and position of the index point.
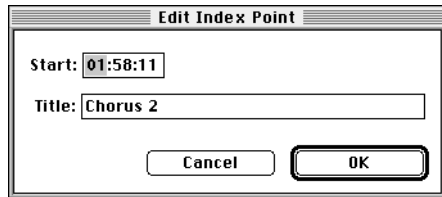
Keep in mind that the index point's new position must be between Index 1 (00:00:00) and Track End. Otherwise, Jam displays this message:

Note: Index points are editable only in the **Edit Index Point** dialog box.

Deleting Index Points

To delete an index point, select the index point in the index list of the Index window and click **Delete**.

❐

▼▼▼▼**8**
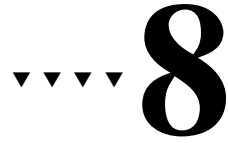
Crossfades

In addition to hard cuts from one track to the next, Jam supports crossfades. Typically a crossfade is a smooth transition between two sound files. The crossfade's length is limited by the current track's length and your hard disk's free space.

Seamless transitions can be used in orchestral or live productions to add track IDs to the beginning of a piece of music, even if there is no pause in the audio. Longer crossfades can create smooth transitions from one song to another or "hide" noise at the beginning or end of the audio material.

Jam allows the creation of a virtually unlimited number of crossfades of any length.

Crossfades are nondestructive.

Basics

In Jam crossfades can be either

- Overlapping
- Extending

Overlapping crossfades change the total length of the track list, because two consecutive tracks overlap for a specified amount of time.

Extending crossfades do *not* change the total length of the track list, because the tracks will be extended (if possible) for a specified amount of time. These extensions are used to create the overlap of the crossfade. Normally, extending crossfades *cannot* be created, if

the track's start and/or end time is equal to the sound file's or region's start and/or end time.

To create a crossfade, the audio portions of two consecutive tracks must "touch" each other.

Anatomy of a Crossfade
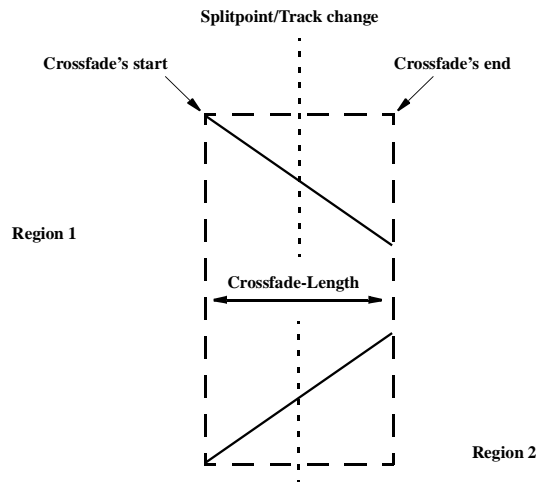
A crossfade is an overlap of two audio files for a certain amount of time, during which the first track fades out and the next track fades in. The default setting is that the following track is moved onto the previous track (overlapped), thus changing the total length of the track list. The diagram shows a linear, overlapping crossfade. While playing back (or writing to CD), Region 1 will be faded out with a linear fade curve, while Region 2 will be faded in with a linear fade curve.

Various linear and nonlinear crossfades and overlapping cuts are possible.

For best performance, Jam preprocesses the crossfades on your hard disk. You can set the hard disk used for the crossfade cache in the **Preferences** dialog box (see *Disk Cache* on page 5-9).

Usually the track change happens exactly in the center of the crossfades. If you use pre- or post-splice crossfades, the track change happens at the end or beginning of the crossfade, respectively.
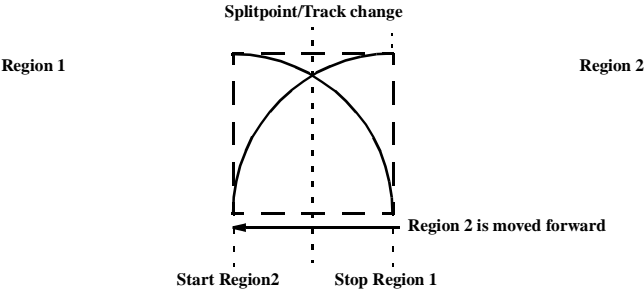
Seamless Transition

Setting the pause between two tracks to 00:00:00 results in a hard cut. In other words, if you play back the tracks, they switch from one to the other with no crossfade or pause. This comes in handy if you want to split an orchestral or live recording into two different tracks.

Splitpoint/Track change

Region 1   **Region 2**

Stop Region 1
Start Region 2
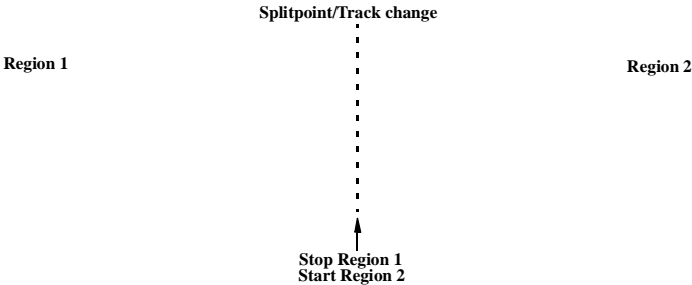
To create a seamless transition, enter 00:00:00 as the pause setting for the given track.

Overlapping Crossfade

Choosing this type of crossfade overlaps two consecutive tracks for a specified amount of time.

Splitpoint/Track change

Region 1   **Region 2**

Region 2 is moved forward

Start Region2   **Stop Region 1**

Overlapping Pre-Splice Crossfade

This transition creates a crossfade *before* the track change. The track change occurs exactly at the end of the crossfade.
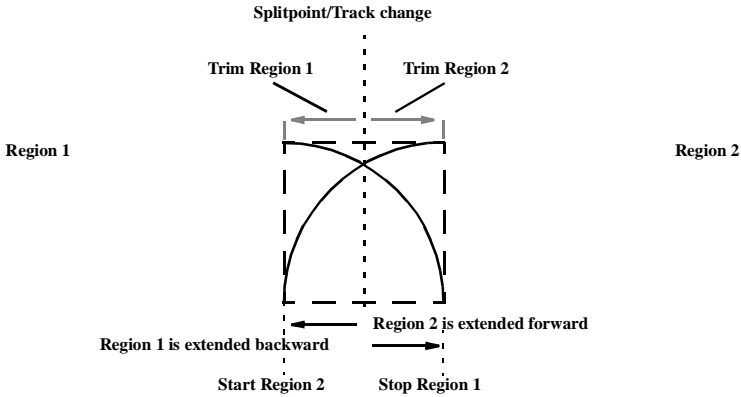
Splitpoint/Track change

Region 1 **Region 2**

Region 2 is moved forward

Start Region2 **Stop Region 1**
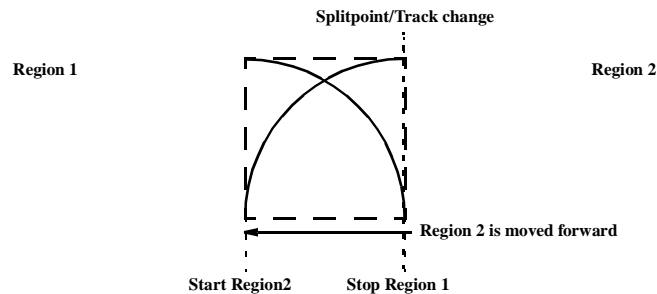
Overlapping Post-Splice Crossfade

This transition creates a crossfade *after* the track change. The track changes exactly at the beginning of the crossfade:

Splitpoint/Track change

Region 1 **Region 2**

Region 2 is moved forward

Start Region2 **Stop Region 1**
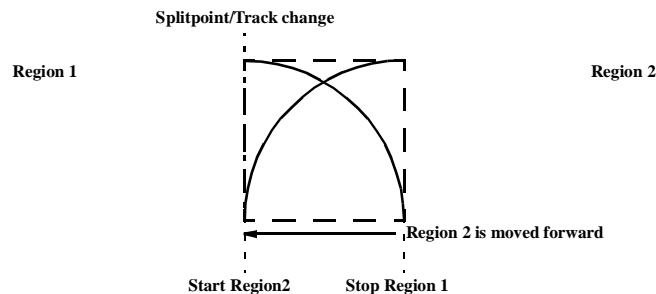
Extending Crossfade

An extending crossfade extends the track forward or backward. The total length of the track list is not changed. Extending crossfades cannot be created if the track's start time or end time is equal to the audio file's start or end time. To shorten the tracks for this purpose, you must use the Sound Data Trim option (see *Sound Data Trim* on page 6-21).

Splitpoint/Track change

Trim Region 1   **Trim Region 2**

Region 1   **Region 2**

Region 2 is extended forward

Region 1 is extended backward

Start Region 2   **Stop Region 1**

Crossfade Types

Jam offers seven different crossfade types. Each crossfade can be
used centered, pre-splice, or post-splice.

post-splice crossfade ⟨|✕⟩ ⟨✕⟩ ⟨✕|⟩ **pre-splice crossfade**

centered
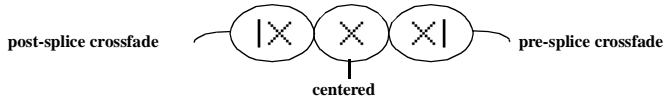
Hard Cut

⊥

This transition type is not really a crossfade. When used, playback
switches from one track to the next without a crossfade. This is the
default transition type, if the pause between two tracks is set to
00:00:00.

Linear Crossfade

|✕   ✕   ✕|

The linear crossfade is the most popular type. The ending track
fades out with a linear curve, while the following track fades in with
a linear curve.

Equal Power Crossfade

|⼈   ⼈   ⼈|

This crossfade type creates a smooth fade curve between the tracks that gives nearly equal volume/power throughout the fade. It is most commonly used to keep a high output level across the whole crossfade.

Slow Out, Slow In Crossfade

|⼴   ⼴   ⼴|

This type of crossfade takes the current track out slowly as it slowly fades in the next track.

Fast Out, Slow In Crossfade

|⤬   ⤬   ⤬|

In this crossfade, the current track fades out quickly, while the next track fades in slowly.

Slow Out, Fast In

|⤬   ⤬   ⤬|

In this crossfade, the current track fades out slowly, while the next track fades in quickly.

Overlapping Cut

|⊡   ⊡   ⊡|
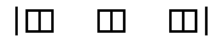
This crossfade is similar to the hard cut, but the two files are overlapped. Overlapping cuts are useful if the audio already contains a fade in or out.

Note: If two tracks with high sample amplitudes overlap, signal overload may occur, which often results in digital clicks.

Adjusting Crossfades

If you click the **Crossfade** icon in the track list, a pop-up menu appears, showing the current crossfade settings.

Length	Type
00:00:00	I

Set Crossfade...

This option opens the Crossfade window
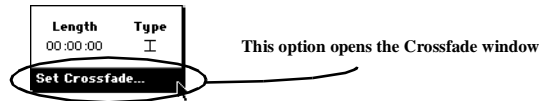
If the crossfade icon is grayed out, make sure that

- The track's length is more than 4 seconds.

- The track pause is set 00:00:00.

Now choose **Set Crossfade** from the pop-up menu.

The Crossfade window appears, where you can set type, length, and position of the crossfade. Jam displays the maximum available length of the crossfade using the current settings.

Maximum shows the maximum length of the cross-fades an.

Placement: Pre-Splice / ● Centered / Post-Splice

Crossfade

Length	Type	Placement:	Centered ▼
Current: 00:00:00	I		

Maximum: 04:07:61

Mode: Overlapping ▼

Cancel   OK

Mode: ● Overlapping / Extending

Type
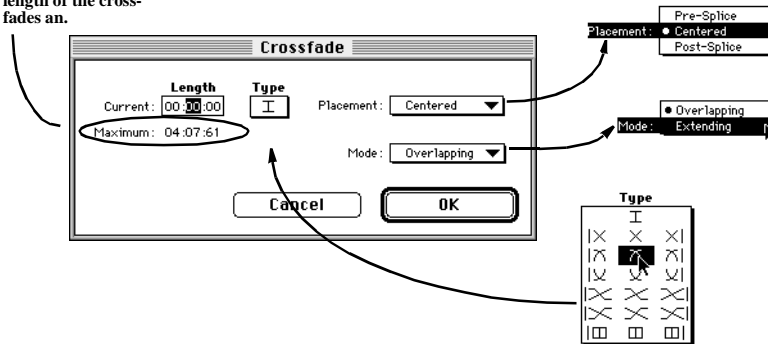
If you notice that the maximum length for the crossfade is much shorter than the tracklength, it could be that this track is already used at its other end for another crossfade. An existing crossfade cannot be part of another crossfade.

Keep in mind that extending crossfades cannot be created if the track's start time or end time is equal to the audio file's start or end

time. To shorten the tracks for this purpose you must use the Sound Data Trim option (see *Extending Crossfade* on page 8-4).

The position of the crossfade (pre- or post-splice or centered) can be set either in the **Type** pop-up menu or in the **Placement** pop-up menu. The result is the same.

When you close the Crossfade window, Jam calculates the crossfade.

Example: Creating an Extending Crossfade

Preparation

Add two audio files to the current track list. For this example use files that are at least 20 seconds in length.

Sound Data Trim

First you must create some space at the beginning and end of the file, to allow extending this file later on. Shorten the tracks where the crossfade will occur (at the end of track 1 and at the beginning of track 2).

1 Select the **first** track from the track list.
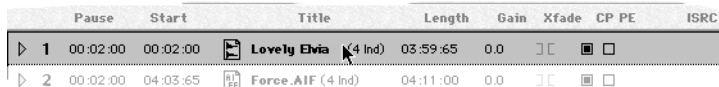
2 Click once onto the Length column and hold the mouse button down.

The **Sound Data Trim** pop-up menu appears, showing some information about the first track.

Select **Sound Data Trim**.

3   The **Sound Data Trim** dialog box appears.
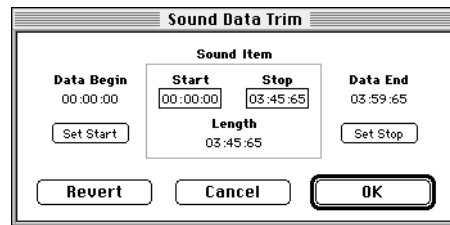
Shorten the track at the end, by entering a new time into the Stop field. Click **OK** to confirm your changes.

4   Now select the second track.

5   Click once onto the Length column of the second track. The **Sound-Data-Trim** pop-up menu appears, showing some information about the second track.
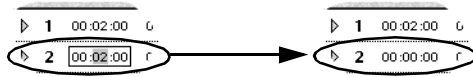

Select **Sound Data Trim**.

6   The **Sound Data Trim** dialog box appears.
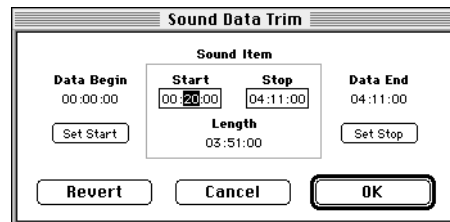
Shorten the file at the beginning, by entering a new time into the Start field. Confirm your changes with **OK**.

Adjusting the Pause

1 Click once on the Pause column of track 2 and enter "00:00:00".

Once the pause between track 1 and track 2 is set to 00:00:00, the crossfade icon is activated.

The crossfade icon is now available.

Adjusting the Crossfade

1 Click the Xfade column of track 1 and hold the mouse down.

The **Crossfade** pop-up menu appears.

2 Choose **Set Crossfade.** The Crossfade window appears. Note that Jam already calculated the maximum length for the crossfade.
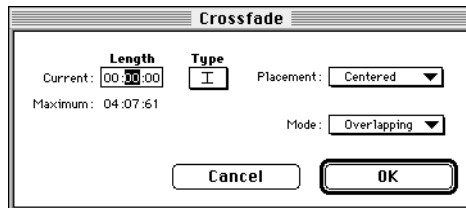
3 Select **Extending** from the **Crossfade**-**Mode** pop-up.

● Overlapping
Mode :   Extending

4 Set a *centered, equal power crossfade*:

The crossfade's length is
limited to the
maximum length.

Length   Type

Current: 00:30:00

Maximum: 04:07:61

Choose an equal
power crossfade from
the Crossfade-Type
pop-up menu.

Type

Jam uses the portion of the track you trimmed earlier using **Sound
Data Trim** to calculate the extending crossfade.

Scheme:

Track change

| Track 1 | Track 2 |

Base position

Region's end

File's end

Track 1 is an audio file

Track 2 is an audio region within the file

Prepeare Sound Data Trim

Track 1 is shortened at the end

Track 2 is shortened at the beginning

Sound Data Trim

Track 1 moves backward

Track 2 moves forward

Adjusting the Crossfade

Track 1 gets "extended" backwards

Track 2 gets "extended" forward

Unlike what happens with an overlapping crossfade, the track list's
overall length is **NOT CHANGED**.

Removing the Crossfade

To remove a crossfade, set the pause to a length other than 00:00:00 or select the **Silent Pause** option (see *Silent Pause (default setting)* on page 6-18).

Alternatively, you can set the crossfade to a hard cut ⊥, or remove it by pressing this keyboard shortcut.

⇧ ⌘ ▶ ⌥	**Shift-command-click** on the Crossfade column

❐
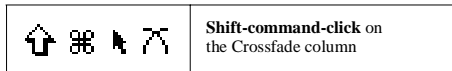
▼▼▼▼9

Image Files

Basics

Jam can save the entire contents of your CD, including all the audio data, to a file on your hard disk. This is known as an image file.

You use Image files if

■ The audio files you want to write are located on several hard drives, server volumes, etc., and you cannot get your computer to supply a steady stream of data to the recorder.

■ Your Mac is too slow, or the files are too fragmented, so your computer cannot supply a data rate high enough for the write process.

■ You want another person to write the discs, but don't want them to be able to change the contents or layout of the disc.

■ You want to create a single track from all tracks in the track list.

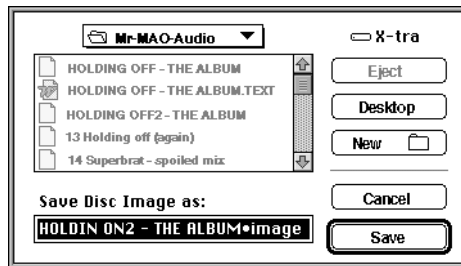There are some advantages of an image file over a track list:

■ Image files contain all needed data (including crossfades, gain changes, and index points), as opposed to a track list, which contains references only to the audio files.

■ Image files can be edited using audio editing software such as Sound-Designer II.

■ Image files are self-contained so it is not necessary to calculate crossfades and gain changes before sending data to the CD recorder.
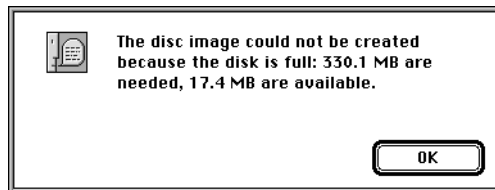
Creating an Image File

To create an image file, open a Jam document (or create a new one).

Select **Save as Disc Image** from the **File** menu. A standard file dialog box appears.

Enter a new name for the image file and click **Save**.

```
┌─────────────────────────────────────────────────────┐
│  ┌──────────────────────┐                            │
│  │ 🗀 Mr-MAO-Audio    ▼ │      ⊂⊃ X-tra              │
│  ├──────────────────────┤                            │
│  │ 🗋 HOLDING OFF – THE ALBUM      ⬆ │  ┌──────────┐  │
│  │ 🗋 HOLDING OFF – THE ALBUM.TEXT   │  │  Eject   │  │
│  │ 🗋 HOLDING OFF2 – THE ALBUM       │  ├──────────┤  │
│  │ 🗋 13 Holding off (again)         │  │ Desktop  │  │
│  │ 🗋 14 Superbrat – spoiled mix   ⬇ │  ├──────────┤  │
│  └──────────────────────────────────┘  │ New   🗀 │  │
│                                         └──────────┘  │
│  Save Disc Image as:                    ┌──────────┐  │
│  ┌──────────────────────────────────┐   │  Cancel  │  │
│  │ HOLDIN ON2 – THE ALBUM•image     │   ├──────────┤  │
│  └──────────────────────────────────┘   │   Save   │  │
│                                         └──────────┘  │
└─────────────────────────────────────────────────────┘
```

Keep in mind that an image file contains all data from the track list in one big file. You may need up to 700 MB free space on your hard disk. If there is not enough free space on the hard disk, an error message appears.

```
┌──────────────────────────────────────────────────┐
│  ┌──┐   The disc image could not be created       │
│  │🗋│   because the disk is full: 330.1 MB are     │
│  └──┘   needed, 17.4 MB are available.            │
│                                                    │
│                                                    │
│                              ┌─────────────┐       │
│                              │     OK      │       │
│                              └─────────────┘       │
└──────────────────────────────────────────────────┘
```

✔ **Note:** You can save CPU cycles if you use a defragmented hard disc volume, because the computer needs much less time to find the required data. To defragment your hard disc, use a commercial disc optimizer (for example, Norton™ Speed Disk) before creating an image file.

While writing the image file to disc, Jam displays a progress box:

Jam beeps after the image file is written successfully. Now all crossfades, index points, and gain settings are contained within the image file. Track IDs and other related information are saved in the resource fork of the image file. Consequently, you could open this image file with Jam and write a CD.
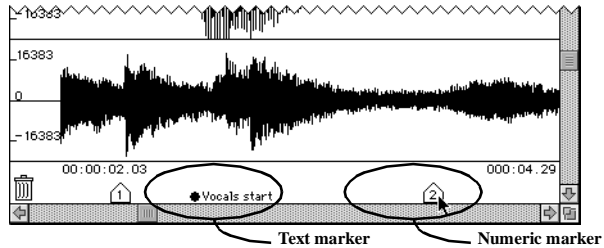
Editing Image Files

Image files are stored in the Sound Designer II file format. They are audio files and contain all the data needed to write the CD. This allows you to edit such an image file with any Sound Designer II compatible audio editing software. You can use most of the standard audio editing tools (that is, Normalizing, Fading, De-noising, etc.). You can also move, create or delete index points.

Caution: Not all audio editing applications are able to edit text markers or numeric markers. If you use such an application to edit your file, you could lose all index points! This may happen especially if you change the length of the files or move the audio data within the file.

Caution: Do not convert a Jam Image file to another audio format (for example, AIFF) if you want to use it in Jam again. Other audio formats may not contain a resource fork, or may not know about markers. In most cases you would lose all the information for track IDs, markers, etc. Jam cannot retrieve this information. It's not likely that you could convert the file "accidently"so don't worry!

Text marker   Numeric marker

Adding Image Files

You can add an image file to a Jam document in two ways:

- Recreate the original track list
- Add as a single track

Recreate Original Track List

To recreate the original track list, you use the same procedure as opening a Jam document:

Choose **Open** from the **File** menu to open the image file as a Jam document.

Crossfades and gain changes are contained within the audio data. Consequently, you will not see crossfades in the Jam track list, but they will be in the finished disc.

The image file is opened in a new, untitled document.

Adding an Image File as Single Track

Because the image file is an audio file, you can use any of the standard file-import options (see *Adding Audio Files* on page 6-6).

If you import the whole image file as a single track, Jam displays a standard icon in the track list:

All original track IDs are ignored. The image file gets a new start
time and a new (single) track ID.

❏

....10

The Write Procedure

This chapter provides a step-by-step review of all factors that are important for the successful creation of an audio CD.

The Transfer Rate

The transfer rate is the speed in which data can be transferred from your computer to the CD recorder.

To successfully write a CD, your computer must supply a steady stream of data to the recorder. This chart shows the transfer rates required for different CD recorders and writing speeds:

Writing Speed	Transfer Rates
single speed (1x)	172 kB / sec
double speed (2x)	344 kB / sec
quarter speed (4x)	689 kB / sec
six times speed (6x)	1033 kB / sec

Most CD recorders support writing CDs at speeds faster than real-time (1x). How fast the data must be supplied depends on various factors. Jam allows you to set the writing speed depending on your system configuration.

When Jam detects a supported CD recorder at startup, it sets the fastest writing speed automatically.

Write Speed

You can set the writing speed in two different ways:

1 Choose **Write Speed** from the **Recorder** menu and select the desired writing speed from the submenu. If Jam was able to detect your CD recorder, only the available writing speeds are enabled.
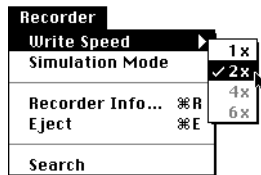
2 You can also set the writing speed in the Write Disc window (see *Write Disc* on page 10-7).

Upon startup Jam sets the highest writing speed for the connected CD recorder (if any). You probably will not need this option often.

You may want to set the writing speed manually if

- Your CD-Recorder was not powered on at Jam's startup. (Jam has no information about your CD recorder's properties.)

- Audio Files on your hard drive are fragmented, so you cannot write your CD at the fastest speed.

- You do not want the error correction of the firmware of your CD recorder to influence the audio material.

Check Speed

To minimize wasted discs, Jam gives you two different tools for verifying that you have adequate transfer rates: Check Speed and Simulation Mode (Simulation Mode is covered later in this chapter).

Check Speed allows you to check the transfer rate before writing to see whether your system is fast enough to write at the desired speed.

To run the Check Speed procedure, click the **Check Speed** button in the upper right area of the main window. (Make sure you have selected your data first!)

This dialog box is displayed:
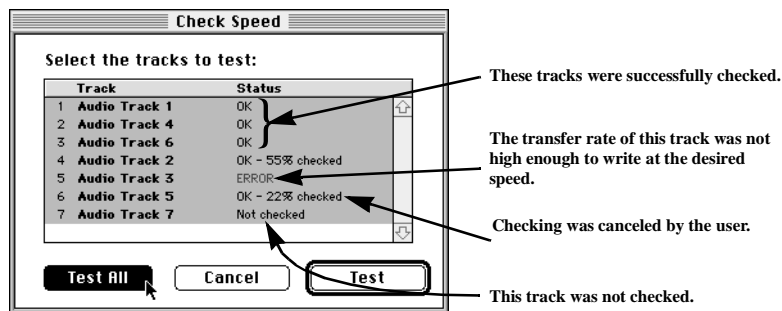
Click the **Test All** button to check the transfer rate for all tracks. If you want to check only some tracks:

- Hold the **Shift** key down and click to select *contiguous* tracks.

- Hold the **Command** key down and click to select *noncontiguous* tracks.

Select the desired tracks and click **Test** to check them.

Any errors uncovered while checking the transfer rate are displayed in the **Check Speed** window.

Unchecked files are marked **Not checked**.

While checking the transfer rate, Jam displays a progress window, which informs you about the current state.
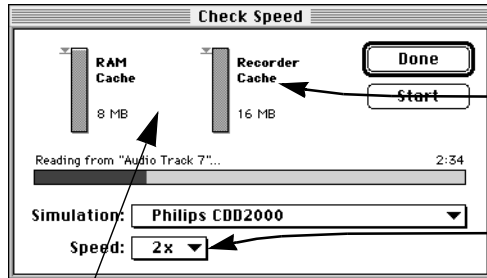
If SCSI Manager 4.3 is installed, Jam expands the CD recorder's internal cache.

Select the desired speed from this pop-up menu (this does not set the Write speed.)

These bars indicate the current state of the RAM Cache and Recorder Cache.

If either one of the bars hits bottom before the track is done, the test fails.

If your CD recorder was not available when Jam was launched, you can set the recorder and speed for the check manually.
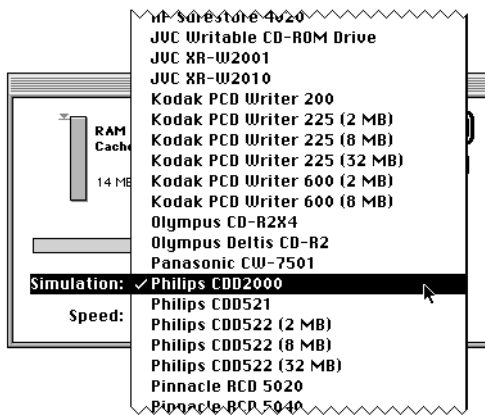
The speed check proceeds as follows:

■ The RAM cache is filled with data read from the source volume.

■ The Recorder cache is filled.

■ Audio data is read from your hard drive for each selected track at the speed specified.

The two vertical bars indicate how much data is currently stored in the RAM caches. The downward-facing arrows mark the lowest point that the caches reach during the checking process. If each one of the caches hits bottom before the track is complete, the test will fail. You can try a slower recording speed.

SCSI Manager 4.3

Macintoshes that support the SCSI Manager 4.3 are capable of significantly higher transfer rates. System 7.5 has SCSI Manager built in; earlier Systems require an Apple extension. (Most Quadras and PowerMacs support the new SCSI Manager; most PowerBooks do not.) If you're not sure whether your Mac supports SCSI-Manager ask your computer dealer or Apple.

Insufficient Transfer Rate

If there were errors while checking the transfer rate, Jam displays the FAILED indicator.
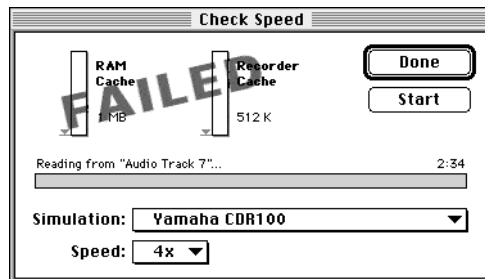
Do not write the disc with these settings, as the write procedure will most likely fail and the CD will be wasted.

Several factors could cause the speed check to return the Failed message:

■ Your computer system is too slow: Even if you are able to successfully write CD-ROMs with your system, the system may be too slow to create audio CDs. (Audio CDs are written in "Disc-at-once" mode which needs a higher transfer rate than writing a CD-ROM.)

■ System extensions are interfering with the write process. To maximize your success, turn off all but essential extensions

when writing CDs. With System 7.5.1 or higher, you can disable all extensions (by holding the **Shift** key while starting up.) On earlier Systems you must enable at least THREAD MANAGER and MACINTOSH DRAG & DROP.

■ Your hard disk is too fragmented. This may lead to a buffer-nderrun (the CD recorder's cache ran out of data).

■ Your hard disk stopped momentarily to perform thermal recalibration. Use an AV hard disk with no thermal recalibration while writing (please refer to your dealer for details about your hard disk).

■ Network access interrupted the write procedure. Turn off all network connections when writing data placed on local volumes.

■ SCSI problems. Remove all devices from your SCSI chain that are not needed at this time. Some devices slow down the SCSI bus (especially removable media drives and scanners).

■ SCSI chain not correctly terminated. Check the cables and the terminator. Slightly defective cables or terminators may slow down the SCSI bus, even though the effect may not be noticeable in normal use.

If your Mac supports SCSI Manager 4.3:

■ Increase the RAM Cache setting (see *RAM Cache* on page 5-8)

■ Make sure your hard disk driver is able to work in asynchronous mode (check with the publisher of your drive formatting software).

With System 7.5 the driver information is displayed in the **Get Info** dialog box for the hard disk in the Finder.

To see if SCSI Manager 4.3 is active, choose **Recorder Info** from the **Recorder** Menu. If "Bus x ID y" is displayed, your Macintosh supports the SCSI Manager 4.3; if only the SCSI ID is displayed (no bus), it does not.

The Write Procedure

After satisfying yourself that the transfer rate is adequate, you are ready to write the disc.

■ Click the **Write Disc** button in the main window.

Write Disc

■ If there is no CD in the CD-recorder, you are asked to insert a CD.

Please insert a recordable CD!

Cancel

■ Insert a blank CD-R.

■ If the disc already contains data, this message appears:

This disc contains audio tracks. You can not write to this disc.

OK
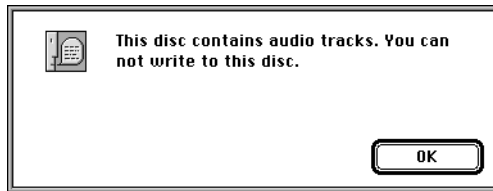
Write Disc

The **Write** dialog box lets you set a variety of options for the writing process:

Start writing now?

Speed: 2x

Select the writing speed from the Speed pop-up menu.

Write Session

Click "Write Session" to create a multisession CD.

Cancel   Write Disc

Click "Write Disc" to "close" the disc.
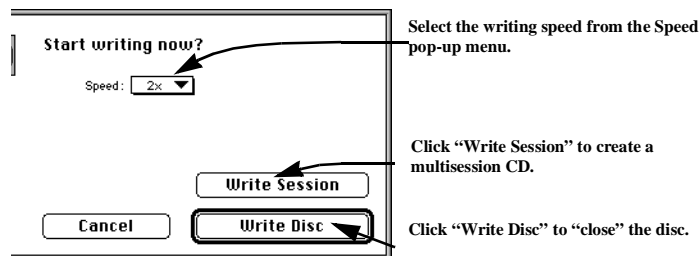
Write Speed

Use the **Speed** menu to select the desired writing speed (this menu is a duplicate of the **Write Speed** menu in the **Recorder** menu). Only those speeds which apply to your recorder are available (see *Write Speed* on page 10-2).

Simulation Mode

Simulation Mode allows you to run through the entire process of writing the disc, exactly like the real writing process, except that the laser is not turned on in the recorder, so nothing is actually written to the disc. Simulating the write procedure takes the same amount of time as writing.

If simulation mode is activated, *** Simulation Mode*** is displayed in the menu bar in red letters.

Simulation mode helps you to determine if the write procedure would succeed using the current system configuration. If you have encountered problems writing CDs with your current system configuration, using simulation mode first is strongly recommended.

The simulation mode gives more exact results than Check Speed since the data is actually transferred to the writer.

Create Disc Image First

If your Mac is not fast enough to write at the desired speed, you can create a disc image of the selected audio data before writing the disc (see *Creating an Image File* on page 9-2). Jam creates the disc image and then proceeds automatically to writing the disc from that image.

Write Session / Write-Disc

Click **Write Session** if you want to be able to add additional data to the disc at a later time. You should choose **Write Session** unless the disc is to be used as master for a duplication plant, when it should always be closed (using the **Write Disc** option).

A CD containing multiple sessions is called a *multisession CD* and is most often used for nonaudio data. CD-EXTRA (*or Enhanced Music CD*) also uses the multisession format (videos and other multimedia data are written into the second session). Jam can only write the first

session to a disc; to add data sessions to your CD you need a standard CD mastering software like Adaptec Toast.

The **Write Session** command is *NOT* available if

■ The combined length of the selected audio tracks is more than about 71 minutes.

■ There would not be enough space left on the disc to write another session.

Click **Write Disc** or **Write Session** to start the write procedure. While writing the data to CD, Jam displays a progress dialog showing the current state of the write procedure.

After all data is written to CD, Jam asks you to eject the CD.

Session or Disc

To create multimedia CDs (for example, CD-EXTRA), you must write additional data to the CD. Therefore it is important that you do not close the disc. Use the **Write Session** option if you are not sure whether you will add more sessions to the disc later.

Autoloader Mode

To automatically write a series of discs, select **Autoloader** mode. After writing one disc, Jam waits for a new disc to be inserted and starts writing when the recorder is ready. Choosing **Autoloader** brings up the **Autoloader Setup** dialog box, containing various options:
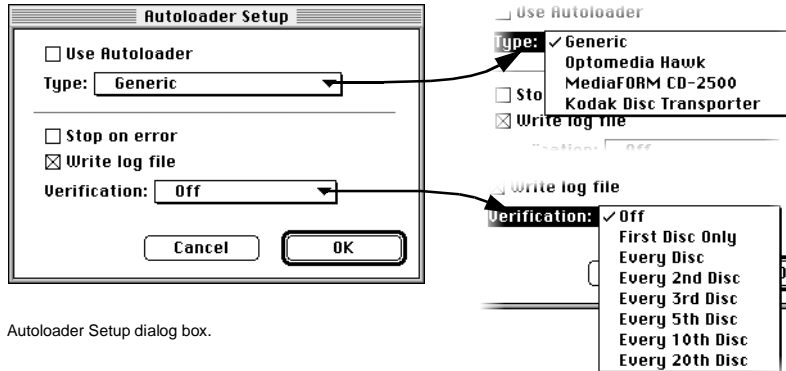
Autoloader Setup dialog box.

- Use Autoloader: Check this option to use the **Autoloader** option.

- Type: Select the desired autoloader type. To use this function even if you have no autoloader system, select the Generic option. You can then insert a new disc yourself as soon as one disc is finished. If you want to write several discs with the same contents, this function helps to save time and avoid errors.

- Stop on error: Checking this option causes Jam to stop writing any additional discs if it encounters an error while writing or verifying. We recommend always using this option.

- Write log file: Select this command to have Jam keep a log file of all events during a writing session.

- Verification: The Verification command lets you specify which discs should be verified while writing multiple discs with an autoloader system:

If you write a session or a disc with the **Autoloader** option activated, the following dialog box appears:

```
┌─────────────────────────────────────┐
│  Batch Job...                        │
│                                      │
│       Number of Copies:  [5    ]     │
│       □ Fixate Discs                 │
│                                      │
│                                      │
│        ( Cancel )    (( Start ))     │
└─────────────────────────────────────┘
```
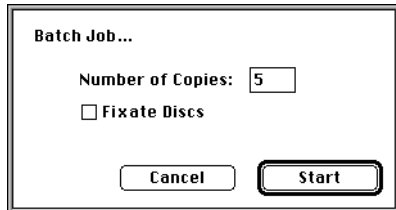
- Number of copies: Enter the number of CDs to be written.

- Fixate Discs: If you want the discs to be closed so that no further data can be added later, check the option **Fixate Discs**.

When you click **Start,** the following dialog box appears:

```
┌─────────────────────────────────────┐
│  Discs to write:     2               │
│  Discs written:      0               │
│  Errors:             0               │
│  Type ⌘-. to stop after the current disc │
│                                      │
│  Waiting for the first disc...       │
│  [████████████████████████████████]  │
└─────────────────────────────────────┘
```
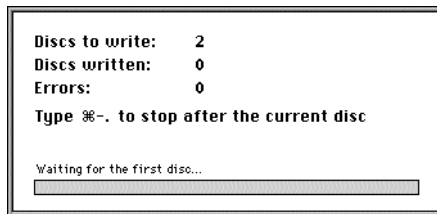
Jam creates a Batch Log file that contains information about the Batch Run.

```
┌──────────────────────────────┐
│ ▦▦  Toast CD-DA f   ▦ │
│ 20 Objekte   745,6 MB belegt  │
│                           ⇧   │
│         ┌───┐                 │
│         │≡≡≡│                 │
│         └───┘                 │
│ Batch Run 1.11.1996 21.04.18 Uh⇩│
│ ⇦         ▯▯▯  ⇨ ▣            │
└──────────────────────────────┘
```

Batch Log File

The Batch Log file is saved to the folder where Jam resides.


```
Batch Run 24.11.1996 14.50.51 U

Autoloader Log 24.11.1996 14:50:51 Uhr

Disc Format: SUNSHEINS CDDA
Audio: 15:07:23  (5 Tracks)
Total Size: 15:07:23
Number of copies: 3

Fixate: No
Speed: 2x
Verification: Off
Stop on error: No


Waiting for the first disc... Done.
Writing disc 1 of 3... Done.

Waiting for the next disc... Done.
Writing disc 2 of 3...
ERROR: The drive reported an error:
Sense Key = MEDIUM ERROR,
Sense Code = 0xAF
(Optimum power calibration error).
ERROR: The drive reported an error:
Sense Key = ILLEGAL REQUEST,
Sense Code = 0x2C
(Command Sequence Error).
ERROR: Couldn't set up the track for writing.


••• 1 out of 3 discs written, 2 errors.

Log file closed 24.11.1996 15:02:49 Uhr
```

If there were errors during the write, Jam creates an error report.

Multiple Track List Batch Mode

If you have multiple Jam documents open *and* the **Autoloader** option is on when you click the **Write CD** button, the following dialog box appears

This lists shows the batch settings for each open track list.

```
Batch Setup...
Disc                   Copies    Fixate
Mike's Greatest Hits      1         •
Mega Compilation II       1

                  Cancel        Ste
```

Double-click an item in the batch list to change its settings.

```
Mike's Greatest Hits
Number of Copies:  1
⊠ Fixate Discs
        Cancel        OK
```
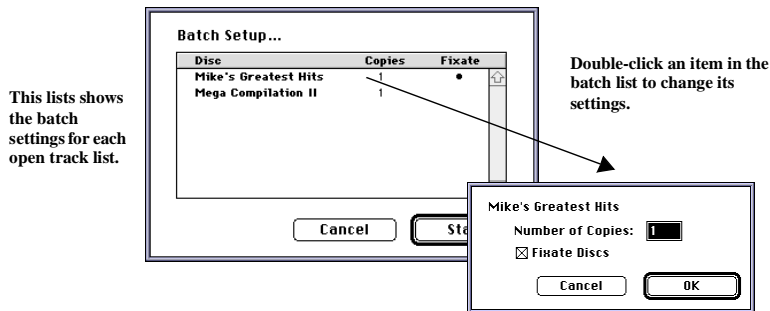
You can specify the number of copies and finishing options for each disc. Click **Start** to begin the batch.

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Shortcuts

Shortcuts Drag-and-Drop

	command-drag	Opens the **Add Sound Item** - dialog box

Shortcuts Sound Player

space	spacebar	starts / stops playback
	return	starts playback from disc begin
	cmd-arrow key up	previous track
	cmd-arrow key down	next track
	opt-cmd-arrow key up	previous index
	opt-cmd-arrow key down	next index
	control-opt-arrow key up	fast rewind
	control-opt-arrow key down	fast forward
	opt-click "previous Track"	previous index
	opt-click "next Track"	next index
	shift-opt-cmd-click "volume icon"	set original volume

Shortcuts Track List

TRACK	double-click on track title	opens index window
	arrow key right	opens index-list
	arrow key left	closes index-list
	opt-arrow key right	opens index-list of all tracks
	opt-arrow key left	closes index-list of all tracks
▷	opt-click on triangle	opens index-list of all tracks
▽	opt-click on triangle	closes index-list of all tracks
CP	opt-click on Copy Prohibit	activates/deactivate Copy Prohibit of all tracks
PE	opt-click on Pre-Emphasis	activates/deactivates Pre-emphasis of all tracks
	shift-cmd-click on column **Gain**	reset both channels to 0.0dB
	shift-opt-cmd-click on column **Gain**	reset both channels of all tracks to 0.0dB
⬊	shift-cmd-click on column **Crossfade**	delete crossfade
⬊	shift-opt-cmd-click crossfade-icon	deletes crossfades of all tracks

Shortcuts Index Window

		return	opens selected index
	TRACKNAME	double-click on track name	opens main window
		opt +close index window	opens index-list of the track list

Shortcuts Add Sound Item Window

	▷	opt-click on triangle	opens audio file's content
	▽	opt-click on triangle	closes audio file's content

Shortcuts Gain-Slider

at gain slider activation

	cmd - drag	parallel fader-movement
	opt - drag	finetuning (in 0,1 dB steps)
	cmd-opt - drag	parallel fader-movement & finetuning

during gain slider action

	shift down	store current gain value as temporary reset value

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Toast Audio Extractor

The Toast Audio Extractor, or TAE, is a simple application that allows you to save tracks from an audio CD as Mac sound files in a variety of formats. It requires a CD-ROM drive that supports audio extraction.

Getting Started

Launch TAE by double-clicking its icon in the Finder. After a moment the main window is displayed. If an audio CD is already mounted, its contents will be 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

Operation controls

Zoom controls

Previewed tracks

Track display area

Current sound format setting
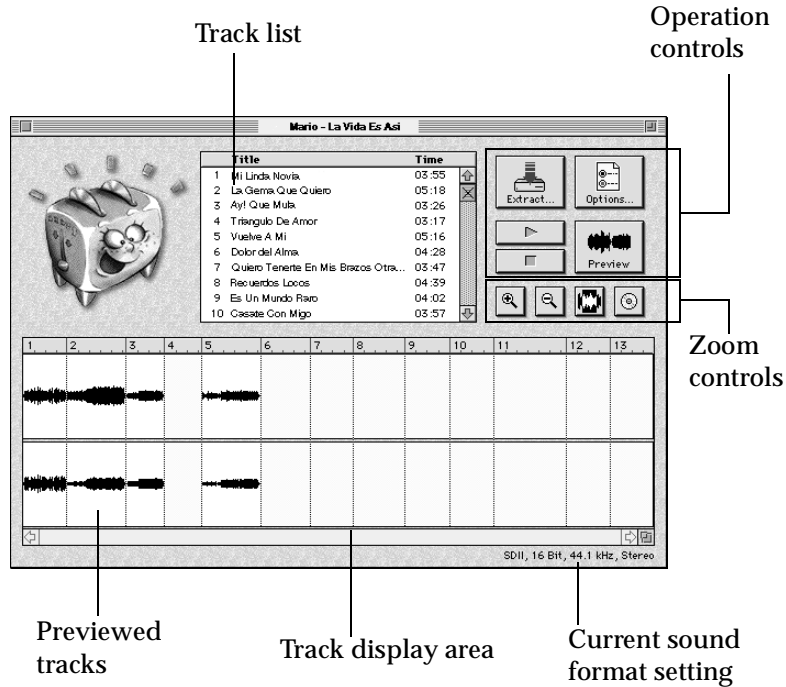
Track List

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

Naming the Disc and Its Tracks

To edit the names with TAE, double-click on any item in the track list to display the naming dialog box:

```
┌──────────────── Track 5 ─────────────────┐
│                                           │
│  Title:     Vuelve A Mi                    │
│                                           │
│      Start Time: 16:00:32 (minutes:seconds:frames)│
│          Length: 05:16:44                  │
│     Size on Disk: 53.3 MB (16 Bit, 44.1 kHz, stereo)│
│       Copy Flag: Copy Prohibited           │
│                                           │
│  CD Title:  Mario – La Vida Es Asi         │
│                                           │
│   [ < ] [ > ]        [ Cancel ]   [  OK  ] │
└───────────────────────────────────────────┘
```

Enter the desired disc 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 and are available to any applications that use that data (Toast, TAE, and AppleCD Audio Player, among others).

The Track Display

The track display area shows a graphic representation of each track on the disc. Initially, each track will be indicated by an open rectangle (as show here).
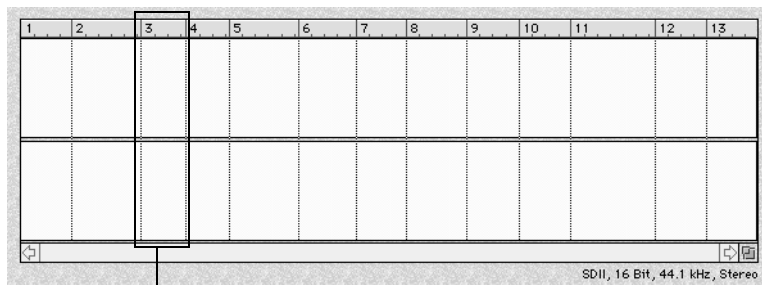
Each track on the disc is
indicated by a rectangle

To view the waveform of one or more tracks, simply select them in the track list or track display and click the **Preview** button. The progress window will appear while TAE 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.
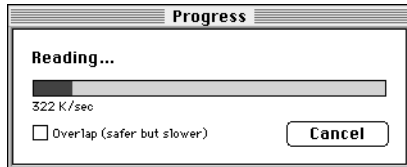
About the Overlap Option

TAE 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 appear as clicks when you listen to the sound files. If you experience this problem, check the **Overlap (safer but slower)** option in the extraction progress window. When the **Overlap** option is checked, TAE verifies the data before saving it, to ensure accurate extraction.

The waveforms are displayed:
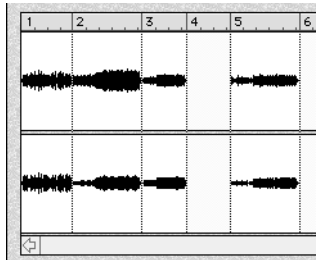
Note: TAE stores the data for the waveform display in a folder called *TAE Waveform Cache ƒ* located in the same folder as the Toast Audio Extractor application. If you delete these files, the waveforms must be re-created the next time you use that particular disc.

Operational Controls

This 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.
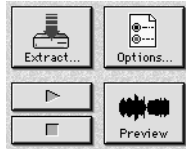
Extract

Clicking the **Extract** button begins extraction of any selected tracks. If no tracks are selected, the entire CD is extracted.

Options

The **Options** button brings up this window, which lets you specify the desired format for the extracted tracks:
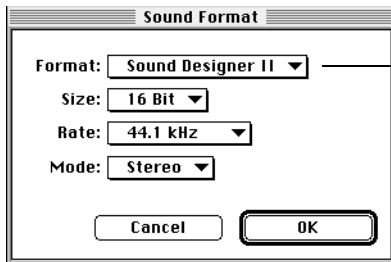
Specify your preferred sound file format here.

> **Note:** If you select Jam **Image File** as the sound format, TAE saves a single file containing all the items you've selected for extraction. (Jam *will recognize the individual tracks within the image file.*) All other formats save one file for *each* track.

The selected format is indicated in the lower right corner of the main window too:

SDII, 16 Bit, 44.1 kHz, Stereo
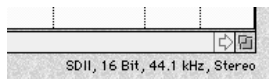
Zoom Controls

This section of the main window contains the Zoom controls. They affect what you see in the Track Display area.

Zoom In button will increase the magnification of the selected track(s)

Zoom Out button will decrease the magnification of the selected track(s)

Show All button will show all the tracks in the Track Display area

Zoom to Selection button will zoom the selected track(s) to the full width of the Track Display area
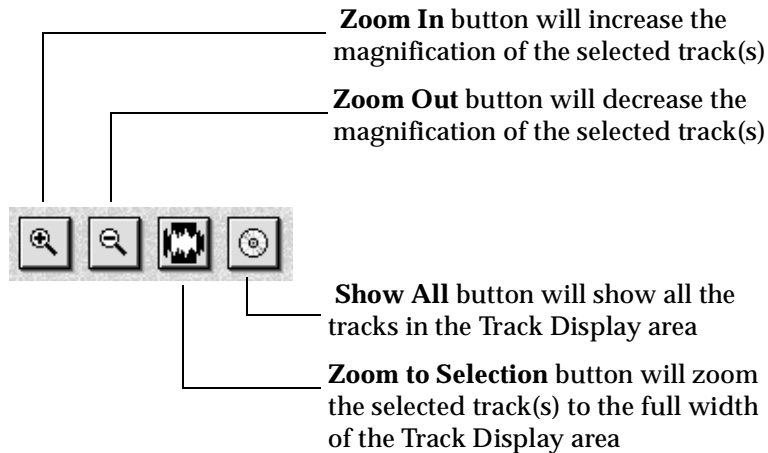
This is very useful if you want to select just a portion of a track for extraction.

Extracting Tracks

To extract tracks from the CD, simply select the desired track or tracks and click the **Extract** button. TAE presents a standard file naming window; specify the name and location for the extracted files and click the **Save** button.

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. TAE immediately begins extracting the chosen items to that location.

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