CD Architect™ 5
Professional Red Book Audio CD Mastering Software

January 25, 2007

After CD Architect™ software is installed and you start it for the first time, the registration wizard appears. This wizard offers easy steps that allow you to register the software online with Sony Media Software. Alternatively, you may register online at http://www.sony.com/mediasoftware at any time.

Registering your product will provide you with access to a variety of technical support options, notification of product updates, and special promotions exclusive to registered CD Architect users.

Registration assistance

If you do not have access to the Internet, registration assistance is available during normal weekday business hours. Please contact our Customer Service department by dialing one of the following numbers:

Telephone/Fax	Country
1-800-577-6642 (toll-free)	US, Canada, and Virgin Islands
+608-204-7703	for all other countries
1-608-250-1745 (Fax)	All countries

Customer service/sales

For a detailed list of Customer Service options, we encourage you to visit http://mediasoftware.sonypictures.com/support/custserv.asp. Use the following numbers for telephone support during normal weekday business hours:

Telephone/Fax/E-mail	Country
1-800-577-6642 (toll-free)	US, Canada, and Virgin Islands
+608-204-7703	for all other countries
1-608-250-1745 (Fax)	All countries

Technical support

For a detailed list of Technical Support options, we encourage you to visit
http://mediasoftware.sonypictures.com/support/default.asp. To listen to your support options, please call
608-256-5555.

Note: Customers who have purchased the full version of CD Architect receive 60 days of complimentary
phone support. The complimentary support begins the date of your first call. (Registration is required to
receive this complimentary support.) Please call (608) 204-7704 if you need assistance with your full
version product.

About your rights in CD Architect software

CD Architect software is licensed to you under the terms of the End User License Agreement you entered
into with Sony Media Software.

About your privacy

Sony Media Software respects your privacy and is committed to protecting personal information. Your use
of the software is governed by the Software Privacy Policy. Please review its contents carefully as its terms
and conditions affect your rights with respect to the information that is collected by the software. For your
reference, a copy of the Software Privacy Policy is located at http://mediasoftware.sonypictures.com/
corporate/privacy.asp.

Proper use of software

CD Architect software is not intended and should not be used for illegal or infringing purposes, such as the
illegal copying or sharing of copyrighted materials. Using CD Architect software for such purposes is,
among other things, against United States and international copyright laws and contrary to the terms and
conditions of the End User License Agreement. Such activity may be punishable by law and may also
subject you to the breach remedies set forth in the End User License Agreement.

Legal notices

Vegas, Vegas+DVD, DVD Architect, Vegas Movie Studio, Vegas Movie Studio+DVD, DVD Architect Studio, ACID, Music Studio,
Sony Sound Series, Groove Mapping, Groove Cloning, CD Architect, Sound Forge, Audio Studio, and Cinescore are trademarks or registered trademarks of Madison Media Software, Inc. or its affiliates in the United States and other countries. All other trademarks or registered trademarks are the property of their respective owners in the United States and other countries.

Thomson Fraunhofer MP3

MPEG Layer-3 audio coding technology licensed from Fraunhofer IIS and Thomson.

Supply of this product does not convey a license nor imply any right to distribute content created with this product in revenue generating broadcast systems (terrestrial, satellite, cable and/or other distribution channels), streaming applications (via internet, intranets and/or other networks), other content distribution systems (pay-audio or audio on demand applications and the like) or on physical media (compact discs, digital versatile discs, semiconductor chips, hard drives, memory cards and the like).

An independent license for such use is required. For details, please visit: http://mp3licensing.com.

Microsoft DirectX programming interface

Portions utilize Microsoft® DirectX® technologies. Copyright © 1999 – 2007 Microsoft Corporation. All rights reserved.

Microsoft Windows Media 9

Portions utilize Microsoft Windows Media® technologies. Copyright © 1999 – 2007 Microsoft Corporation. All rights reserved.

Real, RealMedia, RealAudio, and RealVideo applications

2007 RealNetworks, Inc. Patents Pending. All rights reserved. Real®, Real Media®, RealAudio®, RealVideo®, and the Real logo are trademarks or registered trademarks of RealNetworks, Inc. in the United States and other countries.

Apple Macintosh Audio Interchange File Format (AIFF) file format

Apple® Macintosh® Audio Interchange™ File Format (AIFF) is a trademark of Apple, Inc. in the United States and other countries.

Table of Contents

Chapter 1 Overview of CD Technology

CDs have become the standard in audio distribution. Due to the comprehensive set of CD industry standards and formats, CDs have become the least expensive and most reliable vehicle for exchanging information.

Evolution of CD-R devices technology

To understand the CD-R (Compact Disc-Recordable) disc, it is first necessary to understand standard compact disc (CD-ROM) technology and how it has evolved. A basic knowledge of this technology will deepen your understanding of what occurs every time you listen to a CD or create your own.

Digital audio places enormous demands on the medium to which it is being recorded. For example, 60 minutes of music that is recorded in stereo at a 16-bit quantization rate and 44.1 kHz sampling rate requires a capacity of just over five billion bits. Luckily, compact discs were designed with this requirement in mind. Unfortunately, for many years musicians were not able to utilize this storage technology.

Until 1988, the only means of placing music on a compact disc was through injection molding. This process required musicians to do their testing by recording music to tape and then forwarding it on to the manufacturer. This requirement resulted in a costly and time-consuming process.

In 1988, Phillips and Sony released the specifications for CD-R discs. It was under these standards that musicians were given the tools to record information onto CDs at home or in the studio.

CD-ROM technology basics

A standard Compact Disc-Read Only Memory (CD-ROM) disc is 4¾ inches in diameter and consists of aluminum, lacquer, and clear polycarbonate plastic. During CD molding process, the polycarbonate base has minute indentations stamped into it. Next, a highly reflective layer of aluminum is applied to the polycarbonate base. The aluminum and polycarbonate is then sealed with lacquer to protect the disc's surface from scratching and dust.

How the information is stored

The information on CDs is represented by minute indentations in the polycarbonate base, called *pits*, separated by the surface of the aluminum layer, called the *land*. Both pits and lands represent zeros and the transition from one to the other represents a one.

Various lengths of pits and lands represent varying quantities of zeros, which represent the original audio signal. Generally, the frequency of the audio signal is represented by the rate of change in the numbers and the amplitude is represented by the magnitude of the numbers.

How the information is read

The CD player or drive directs a laser beam through the polycarbonate base and onto the aluminum layer. Because the CD is actually read from the bottom, pits in the CD are viewed as bumps. Light from the laser reflects off the aluminum surface and photo-detectors recognize the different intensities of the reflected light. The different intensities, caused by the pits and lands, are processed into zeros and ones. The CD player or drive then processes this binary data into music. Because nothing but light ever hits the discs, there is no degradation from repeated playings and the original audio signal never wears out.

From CD-ROM to CD-R

Commercially produced CDs have pits molded into them during manufacturing, whereas CD-Rs are blank. CD-Rs consist of a polycarbonate base and, instead of the reflective aluminum layer, CD-Rs contain a layer of organic dye. The organic dye is to the CD-R what the aluminum is to the CD-ROM: the recording medium.

There are four types of organic dye used in CD-R discs:

Organic Dye	Description
Cyanine	Considered to be the standard in recording and is characterized by its bright emerald-green color.
Metal-stabilized cyanine	Visually indistinguishable from cyanine, but it is more resistant to age degradation.
Phthalocyanine	Considered to be superior in longevity but, for the most part, is identical in quality to cyanine-based CDs. Pale blue in color. To protect the dye and serve as the reflective conduit, a thin layer of gold is applied to the dye.
Azo	As durable as phthalocyanine. The use of a silver reflective conduit produces a bright blue color.

Instead of carving the pits, the CD-R's laser burns the organic dye to create optical marks on the disc's surface. The optical marks on the CD-R disc alter the reflectivity of the metallic layer (gold on CD-R, aluminum on CD-ROM). To a CD player or CD-ROM drive, the CD-R's optical marks appear the same as the stamped pits on a standard CD-ROM. As a result, CD-R discs can be read by most CD players or CD-ROM drives.

CD-Recordable standards

There are essentially two types of standards governing compact discs: physical and logical. The physical standard defines the "container" in which the information is stored. The logical standard defines the information that can be held in the container and in what particular sequence that information must be arranged.

Both the physical and logical standards are defined within the standards developed by Sony and Philips: Red, Yellow, Green, and Orange. Although we'd like to provide a very technical and compelling reason why these books are named as they are, we cannot. The reasoning is actually quite simple: the Red Book was so named because the color of the book cover was—you guessed it—red. The same applies for the other three books—they had a yellow cover, a green cover, and an orange cover, respectively. As a musician dealing with audio, you will primarily be concerned with the Red and Orange Book standards and their respective applications.

Standard	Application
Red Book	Audio
Yellow Book	CD-Read Only Memory (CD-ROM)
Green Book	CD-Interactive (CD-I)
Orange Book	Recordable CDs

The Red Book defines the specifications of every audio compact disc in every music store throughout the world. Red Book specifications define not only the information within the disc (digital audio recorded at 44.1 kHz), but also the disc size itself and the way in which the audio is arranged. It is the Red Book standard—the foundation upon which all other CD standards are built—that enables all audio compact discs to play in all audio compact disc players or drives. It is this interchangeability that has fueled the rapid growth of the CD music industry.

The Red Book specification allows audio data to be placed into separate tracks on a disc. To further accommodate recordability, the Orange Book Standard separates the CD-R into two primary areas: the system use area and the information area.

System use area

The system use areas contains both a power calibration area (PCA) and a program memory area (PMA).

Power calibration area

Within every recordable compact disc there is a PCA that is reserved specifically for testing the power of the CD-Recorder laser being used, and a count area which keeps track of how much available space is left in this area. For each recording session, a calibration is automatically performed to determine the optimal laser power for "burning" the disc. Over time, the power level of the laser will need to be adjusted to properly respond to changes in recording speed, temperature, humidity, and the condition of the disc. Each time this calibration occurs, it is incremented in the count area. A maximum of 99 calibrations can occur on one disc.

Program memory area

The program memory area (PMA) is used to record track numbers and their corresponding start and stop times. This area is updated each time a track is written to a disc, up to a maximum of 99 tracks.

Information area

Within the information area are three primary areas: lead-in, program, and lead-out.

Lead-in area

The lead-in area comprises approximately the first two minutes on any compact disc and is generally unused for recording actual audio data. The main purpose of this area is to store the table of contents (TOC), which keeps an account of each track's location on the disc. The TOC is written to the lead-in area of the disc once all of the information has been recorded to the disc. Before the TOC is written, only the recorder can access the disc. Once the TOC has been written to the disc, any CD player or drive can play the disc.

Program area

All audio data is generally contained within tracks in the program area. The program area on a standard CD can hold 74 minutes of audio, corresponding to the 74-minute maximum playing time of a standard CD-DA (Compact Disc-Digital Audio) disc. A maximum of 99 audio tracks can be contained in the program area, with each track normally holding one song.

> **Note:** *The Red Book specification allows for a theoretical maximum of 80 minutes of audio data on a disc. However, 80-minute CDs may not play correctly on all CD players.*

Within each track on the compact disc, there are subdivided frames, 1/75th of a second in length and containing 2352 bytes. Each frame consists of audio data, parity bits, the synchronization word, and an 8-bit field, called a control byte.

The control byte is then broken down into separate subchannels—P, Q, R, S, T, U, V, and W—where each bit represents a subcode channel. All of these subchannel bits are used in the audio format.

Subcode channel P (first bit)

The P channel indicates what part of the disc is being read: lead-in, program, or lead-out. The P channel also indicates start times and end times for each track on the disc.

Subcode channel Q (second bit)

Compact disc players use the Q channel to display the music playing time. The Q channel is broken down into three modes:

Mode	Description
Mode 1	Contains the running times from both the beginning of the disc (total disc time) and the beginning of the track (track relative time).
Mode 2	Identifies the track number, who recorded the track, where it was recorded, and in what year.
Mode 3	Identifies UPC media catalog number for the disc.

A special mode of Q data is stored within the lead-in area. This Q data contains information on two- or four-channel format, copy prohibit, and pre-emphasis.

Subcode channels R through W (remaining six bits)

Some CD players ignore the R-W channels, while others use them to display additional information, such as the title of the CD, name of the artist, and track titles, if the information is available on the CD.

A common term used when recording audio to a compact disc is "PQ editing". PQ editing allows you to edit the P and Q channels on the disc. This allows you to increase the length of pause time between tracks and during Lead-In. Pause is the area on a disc that precedes audio tracks (between index 0 and index 1). The Red Book standard calls for a minimum of two seconds of pause time between tracks on all audio CDs, but with track editing, this can be virtually any length you desire.

Lead-out area

The lead-out area contains 90 seconds of silence (blank sectors) and indicates to the player that the end of the data has been reached.

The lead-out area is the portion of the disc most likely to be damaged as a result of handling. As you know, discs are most commonly handled by the edges. If audio was stored in these areas, it would likely become difficult for your CD player to read.

CD error detection and corrections

The error detection code and error correction code (EDC/ECC) found in each frame of the compact disc is essential to the success of the compact disc. Without it, any digital recording on tape or disc that has become damaged would sound just like a badly scratched LP. In fact, without error correction, the feasibility of digital audio would be destroyed.

Fortunately, when you scratch a CD, the nature of the data on the disc and the design of the CD player prevent any errors. By encoding all data recorded to the compact disc with a special error correction code, the CD player can use the code to correct damaged data and deliver the original audio. An example of how error correction works is as follows. Assume that the first line below represents information on an LP groove and that the second line represents information on a CD pit track:

With temperatures of -40ºF, Madison is the perfect vacation spot.

CD-Architect is here! CD-Architect is here!

Now place one of your fingers vertically over these two lines. This represents a scratch. As you can see, a portion of the message on the LP is gone forever, whereas the information on the CD can still be understood. By utilizing and comparing redundant data, the CD is able to read the message and overcome the effect of the damage. This error correction does have a cost though: messages using error correction require more storage space.

Before this error correction can take place, errors must first be detected. This is accomplished through the use of parity bits. A parity bit is a bit added to every data word, which makes the total number of 0s or 1s in the word even or odd. For example, a parity bit rule may state that all data words with an odd number of 1s are invalid and all data words with an even number of 1s are valid. The CD player would then eliminate all odd-numbered data words and keep all the others. Unfortunately, if a large error occurs and wipes out all of the parity bits and data, this method becomes useless. As a result, a multiple number of parity bits are used to detect errors. To provide additional help in dealing with large groups of errors, called burst errors, an error protection scheme called interleaving is used in conjunction with parity bits.

Interleaving is used to guard against burst errors and can be thought of as shuffling a deck of cards. Data is shuffled in the bit stream prior to recording so that consecutive words are never next to each other on the disc. When interleaved data is finally de-interleaved, consecutive errors are scattered throughout the disc and errors can be more easily corrected.

Interleaving is taken one step further by interleaving data numerous times over long and short time intervals. This process is called cross interleaving, and utilizes Cross Interleave Reed-Solomon Code (CIRC) to execute both parity checking, which checks for random errors, and cross interleaving, which permits parity bits to correct burst errors on the disc. By utilizing CIRC in the first two layers of error protection on each frame of the disc, the majority of all CD damage can be effectively repaired and replayed without any distinguishable difference.

It is important to remember that error correction does have its limitations. Depending on the severity and nature of the error, the damage may be so bad that no amount of ECC, EDC or TLC will bring back the music. In this case, you will hear a skip on the CD.

The CD-R technology

CD Recorder drives currently are available in a variety of different recording speeds. Single speed (1X) CD-R drives record in real time (same as the playback speed of the CD). Faster drives record at multiples of the playback speed, and as a result, reduce writing time. A six-speed (6X) drive, for example, can write a 74-minute CD in 12 minutes.

The primary concern when writing at speeds higher than 2X is ensuring that your computer can provide a fast, consistent data flow during the burning process. The biggest danger with writing CDs at high speeds is running out of data while the CD-R drive and software are working. If the computer cannot keep up with the CD-R drive being utilized, a buffer underrun will occur and your blank CD-R disc will be ruined.

Because the Orange Book specification only partially defines CD-R drives, many subtle differences among recorders have resulted. Different CD-Recorders use lasers of different intensities, which results in differences in the optimal marks created in the "burning" process. Buffers, writing modes, and interface type have also been left up to the discretion of the individual manufacturers.

Although consideration should be given to these subtle differences, keep in mind that all drive manufacturers must stay within certain defined ranges. Consequently, although lasers may be of varied intensities, they must all stay within the prescribed range of 4 to 8 milliwatts. Therefore, it is unlikely that writing quality will be significantly affected.

Writing speed, on the other hand, must be taken into consideration when choosing your CD-R disc. CD-R discs can come in one of four states: a pregrooved and time-stamped blank disc, a closed multisession disc, a finalized disc, and a partially recorded disc. CD-R discs are also formulated for optimum performance with CD-R drives recording at high writing speeds. The reason for this is simple. A laser of a certain intensity will create an optical mark depending on the speed in which the disc is spinning. Therefore, recording at a greater speed will affect the characteristics of the optical mark created. Due to this alteration, disc manufacturers have reformulated their discs to operate in accordance with the higher recording speed of the latest CD-R drives.

It is very important to find out what CD-R disc your drive manufacturer recommends. Some drives will check the make of the disc prior to playing and not let you write if it does not meet the drive specification.

Audio is recorded to the CD-R disc primarily in one of two fashions: track-at-once (TAO) or disc-at-once (DAO).

Track-at-Once

Track-at-once (TAO) writing records either one track or multiple tracks to the disc and results in a partially recorded disc. Because the data in the program area is written before the lead-in area (including the table of contents), the CD-R disc remains unplayable on most systems until you add the final track and perform a final fixation. The advantage of TAO writing is that you can record tracks onto the disc as you finish them versus waiting until you have finished your whole album. The downfalls of TAO writing lie in the loss of storage space and in the creation of run-out sectors, which are created as the laser shuts off after each writing session. Run-out sectors not only result in a loss of 13.5MB of disc space each time a session is written to the disc, but they also manifest themselves as "clicks" in the music. CD Architect™ does not use this method.

Disc-at-Once (Single Session)

Disc-at-once (DAO) writing, the method used in CD Architect, is the most common burning method in the music industry. This writing mode is used when creating a master disc to be sent to a disc manufacturer for mass replication. Disc-at-once works just as it sounds. Once the premastering software has created a cue sheet, the table of contents (TOC) is written to the lead-in area. At this point, the audio to be recorded is written to the CD in one recording session. After all of the audio has been written, a final fixation is automatically performed by writing the required silence to the lead-out area. This writing procedure is opposite of track-at-once writing, in which the TOC is written to the lead-in area after all data has been written to the disc.

Other than a computer capable of providing a fast data stream, the last item you will need to burn your own CDs is, of course, the item you just purchased: CD recording software. Undoubtedly, the most important part of the equation, CD recording software is the determining factor for operational ease, functionality, and overall performance.

Congratulations on choosing the best: CD Architect.

Chapter 2 | Introduction

Welcome to CD Architect™ software, the easiest way to create your own Red Book audio CD compilations. With CD Architect software, you can nondestructively place, arrange, and edit audio files to produce professional audio CDs based on the Red Book specifications. You can build PQ lists automatically or manually by adding tracks and indices.

CD Architect software allows you to create sophisticated mixes and arrangements in an intuitive environment that can be customized to suit your preferences.

System requirements

In order to use CD Architect software, your computer must satisfy the following minimum specifications:

- Microsoft® Windows® 2000 SP4, Windows XP, or Windows Vista™
- 500 MHz processor
- 150 MB hard-disk space for program installation
- 128 MB RAM
- Microsoft Windows-compatible sound card
- CD-ROM drive (for installation from CD only)
- Supported CD-Recordable drive
- Microsoft DirectX® Media 9.0 Run Time (included on CD-ROM)
- Internet Explorer 5.0 or later

Installing CD Architect software

Prior to installing CD Architect software, we recommend that you exit all open applications and temporarily turn off any virus protection.

> **Note:** *If you're installing CD Architect software on a system running Windows 2000, Windows XP Home, or XP Professional, your user account must be a member of the Administrators group to install CD Architect and a member of the Power Users group (or higher) to register CD Architect software.*

1. Insert the CD Architect CD-ROM. The CD Architect Installation screen appears if CD-ROM AutoPlay is enabled.

> **Note:** *If CD-ROM AutoPlay is turned off, click* **Start** *and choose* **Run**. *In the Run dialog, enter the CD-ROM drive's letter and add* **:\setup.exe**. *Click* **OK** *to begin installation.*

2. Click **Install Software** to begin the installation process.
3. Follow the on-screen prompts and enter the necessary information when required. At the final screen prompt, click **Finish**.
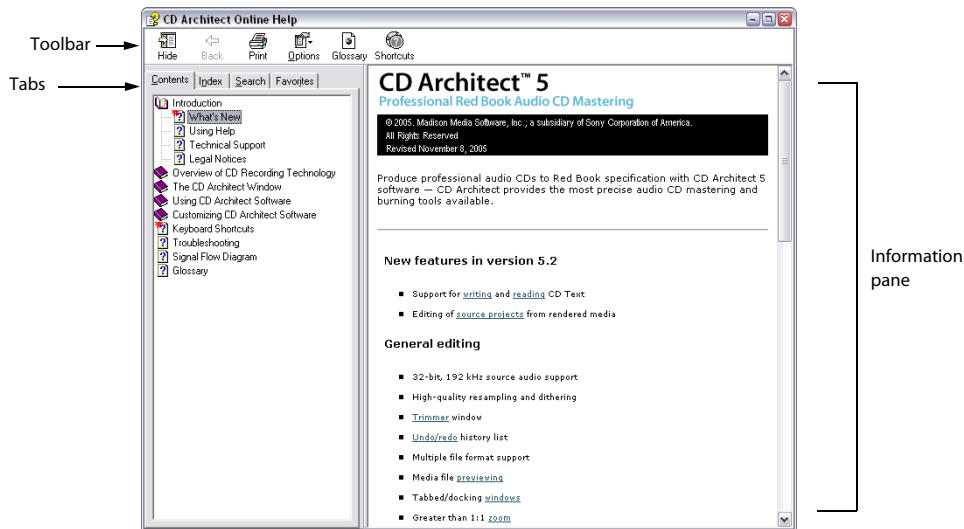
Getting help

You can access two varieties of help within CD Architect software:

- Online help
- What'sThis? help (also referred to as context-sensitive help)

Online help

To access online help, choose **Contents and Index** from the **Help** menu or press F1.

> **Note:** *To view online help, Internet Explorer 4.0 or later must be installed on your system. Internet Explorer 5.0 is included on the CD Architect CD-ROM for your convenience.*

The following table describes the four tabs of the Online Help window.

Tab	Description
Contents	Provides a list of available help topics. Click a closed book (📕) to open the pages, and then click on a topic page (❓).
Index	Provides a complete listing of the help topics available. Scroll through the list of available topics or type a word in the Type in the keyword to find box to quickly locate topics related to that word. Select the topic and click the Display button.
Search	Allows you to enter a keyword and display all of the topics in the online help that contain the keyword you have entered. Type a keyword in the Type in the word(s) to search for box and click the List Topics button. Select the topic from the list and click the Display button.
Favorites	Allows you to keep topics that you revisit often in a separate folder. To add a topic to your favorites, click the Add button on the Favorites tab.

What'sThis? help

What'sThis? help allows you to view pop-up window descriptions for menus, buttons, and dialog boxes.

Menus and buttons

Choose **What's This?** from the **Help** menu, press Shift+F1, or click the **What'sThis? help** button on the toolbar and then click any menu or button.

Dialog boxes

To use What'sThis? help in a dialog box, click the question mark button in the upper-right corner of the dialog box and then click an item in the dialog box.

Help on the Web

Additional CD Architect software help and information is available on the Sony Media Software Web site. Choose **Sony on the Web** from the **Help** menu to view a listing of Web pages pertaining to CD Architect software and Sony Media Software. The software starts your system's Web browser and attempts to connect to the appropriate page on the Sony Media Software Web site.

Chapter 3 | Learning the CD Architect Workspace

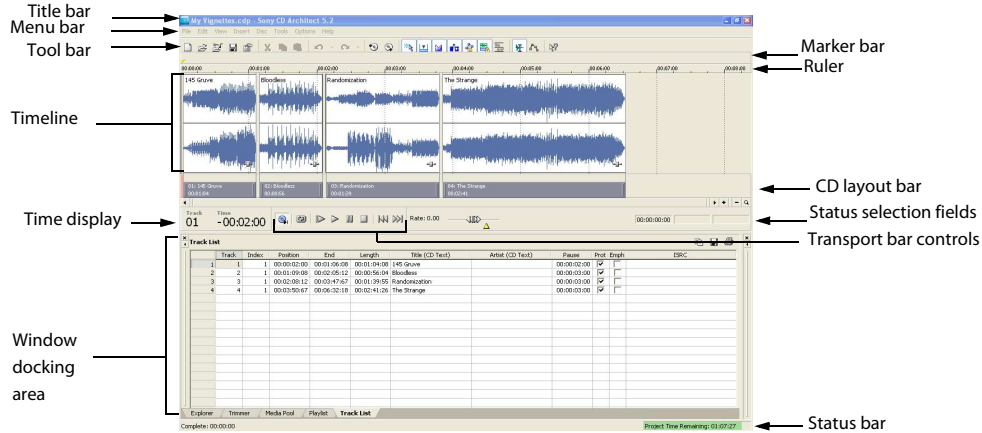CD Architect™ software is designed to be an easy-to-use program with many tools that provide power and flexibility when preparing audio files prior to premastering a CD. As you will learn, many of the operations, menu items, and shortcut keys are common to other popular software applications.

Main window

When you start the application, the main window appears.

The work area is divided into two primary area sections: the timeline and the window docking area. You can resize these sections by dragging the dividers between them.

Main window components

The following table describes the major components of the main window.

Component	Description
Title bar	Displays the file name with a .cdp file extension. Double-click to maximize and restore the window.
Menu bar	Displays the menu headings for the available functions.
Tool bar	Provides quick access to frequently used commands. For more information, see Toolbar on page 17.
Status bar	Displays the amount of time available for adding CD tracks (**Project Time Remaining**). The application bases the program length on the blank CD in your drive, or will use the default CD length. To scan your drive and update the information display, click on the bar or choose **Refresh Disc Status** from the **Disc** menu.

Toolbar

The toolbar allows you to quickly access the most commonly used functions and features in CD Architect software. From the **Options** menu, choose **Customize Toolbar** to specify which buttons are displayed.

	New: Creates a new blank project using default settings		Extract Audio from CD: Extracts tracks from an audio CD and adds them to your project as wave files
	Open: Opens an existing project or CD image file		Enable Snapping: Select this button to turn on the **Snap to Grid** and **Snap to Markers** commands
	Open media: Adds media files to your project		Automatically Create Tracks: Select this button to automatically create CD tracks when you add media to the timeline

	New: Creates a new blank project using default settings		Extract Audio from CD: Extracts tracks from an audio CD and adds them to your project as wave files
	Save: Saves the current project		Automatic Crossfades: Select this button to automatically create a crossfade when two or more events overlap.
	Properties: Opens the Project Properties dialog box allowing you to make changes to the current project		Ripple Edits: Select this button if you want to automatically shuffle existing events on tracks while cutting, copying, and pasting
	Cut: Deletes and copies the current section to the clipboard		Lock Envelopes to Events: Select this button to lock the current envelope points and position so that the envelope points follow an event when it is moved along the timeline
	Copy: Copies the current selection to the clipboard		Lock Events and Tracks: Select this button if you want tracks to follow when you move events along the timeline.
	Paste: Inserts the contents of the clipboard at the current cursor position		Use Second Audio Layer: Select this button to enable a second layer of audio in the timeline
	Undo: This command will undo the last action performed		Normal Tool: Select this button when performing normal editing functions
	Redo: Reverses the action of the **Undo** command		Envelope Tool: Select this button when you want to edit multiple envelopes without moving the actual events
	Burn CD: Burns your project to a CD		What's This? Help: Select this button and then click on any item, including menu items, in the CD Architect window to view a pop-up description

Timeline

The timeline is the area of the main window where you will be doing most of your work. You use the timeline to draw events from each track.
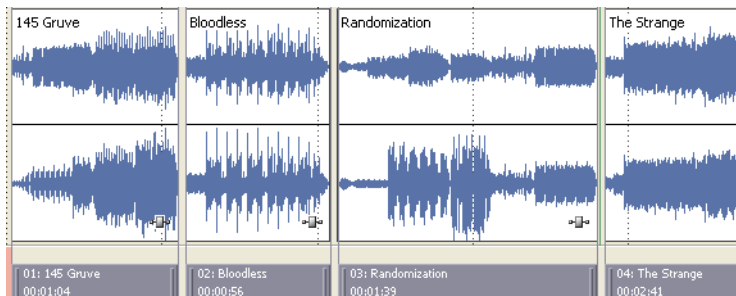
For more control over your projects, you can add a second audio layer to the timeline. Using this second layer, you can use envelopes to create more complex crossfades between CD tracks. *For more information, see Using the second audio layer on page 53*.

Marker bar

The marker bar is the area where you can place, name, and position markers and regions along the project's timeline. These informational tags can serve as cues or reminders highlighting important events in your project.
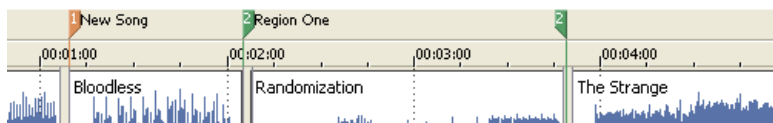
Ruler

The ruler displays the time for your project. You may specify how the ruler measures time: seconds, samples, frames, etc.
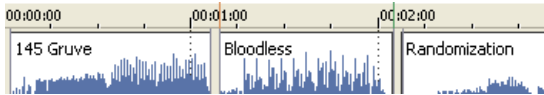
CD layout bar

The CD layout bar displays information about the tracks you've created for your CD project. Each CD track in the CD layout bar shows the track's number, active take name, and length.

Required pause time indicator
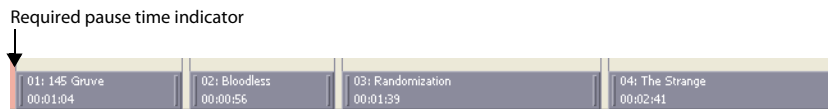
Note: *Red indicators are drawn at both ends of the CD layout bar. The first indicator represents the required pause time at the beginning of the disc, and the second indicator represents the end of the disc (if the disc length is known)*

Time display

The time display reflects the current cursor position on the timeline in minutes:seconds:frames format.

| Track | Time |
| 04 | 02:59:62 |
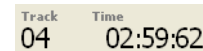
Transport bar controls

The transport bar contains the playback and cursor positioning buttons frequently used while working on and previewing your project.

	Emulate CD Player: Changes the behavior of playback controls to simulate unmute fades applied by CD players		Pause: Pauses playback and leaves the cursor in its current position
	Loop Playback: Plays only the events in the loop region in a continuous mode		Stop: Stops playback and returns the cursor to its starting position
	Play From Start: Starts playback from the beginning of the project regardless of the cursor position		Previous Track: Moves the cursor to the previous track or index
	Play: Starts playback from the cursor position		Next Track: Moves the cursor to the next track or index

Scrub control

The scrub control is used to play your project forward or backward for editing purposes. You may adjust playback speed by setting the speed control marker located beneath the scrub control. *For more information, see Scrubbing on page 44*.

Drag either forward or backward for playback

Rate: 0.00

Set playback speed
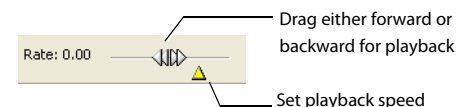
Window docking area

This area allows you to keep frequently used windows available, but out of the way, while you are working with a project. To dock a window, drag it to the docking area. Windows can be docked next to each other, subdividing the docking area, or they can be docked in a stack. When stacked, each window has a tab at the bottom with its name on it. Click the window's tab to bring it to the top.

Drag the handle on the left side of a docked window to remove a window from the docking area and float it.

Close window

Expand window

Drag the handle away from the docking area to float the window.

To prevent docking, hold the Ctrl key when dragging near the docking area.
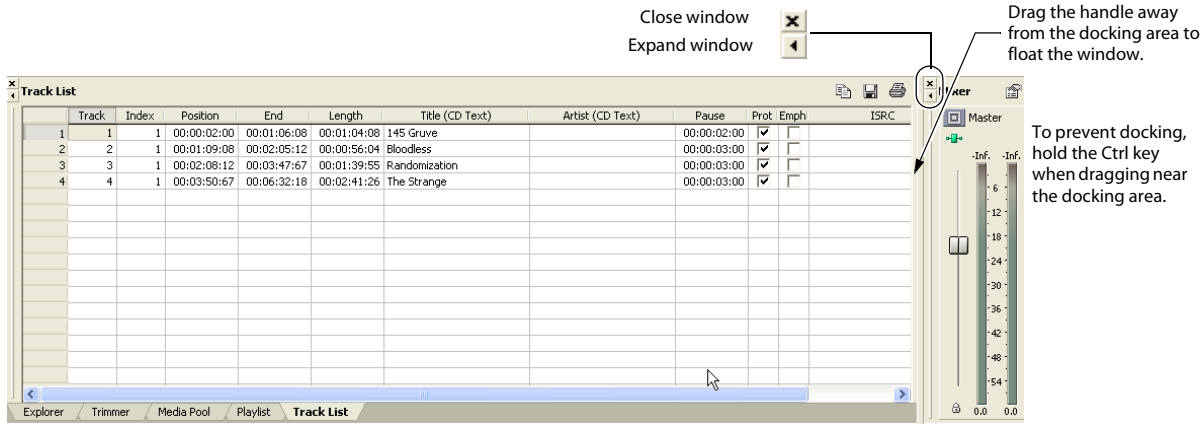
Explorer window - Alt+1

The Explorer window is similar to the Windows Explorer. Use the Explorer window to select media files to drag to the project timeline or add to the Media Pool. You can also use the Explorer window to perform common file management tasks such as creating folders, renaming files and folders, deleting files and folders. Use the **Start Preview** and **Auto Preview** buttons to preview files before adding them to the project.

Preview selected media files before placing them in the project.

Select drive or folder

Select media to place in the project by dragging or double-clicking.

Add media to the Media Pool by right-clicking a file and choosing Add to Media Pool from the shortcut menu.
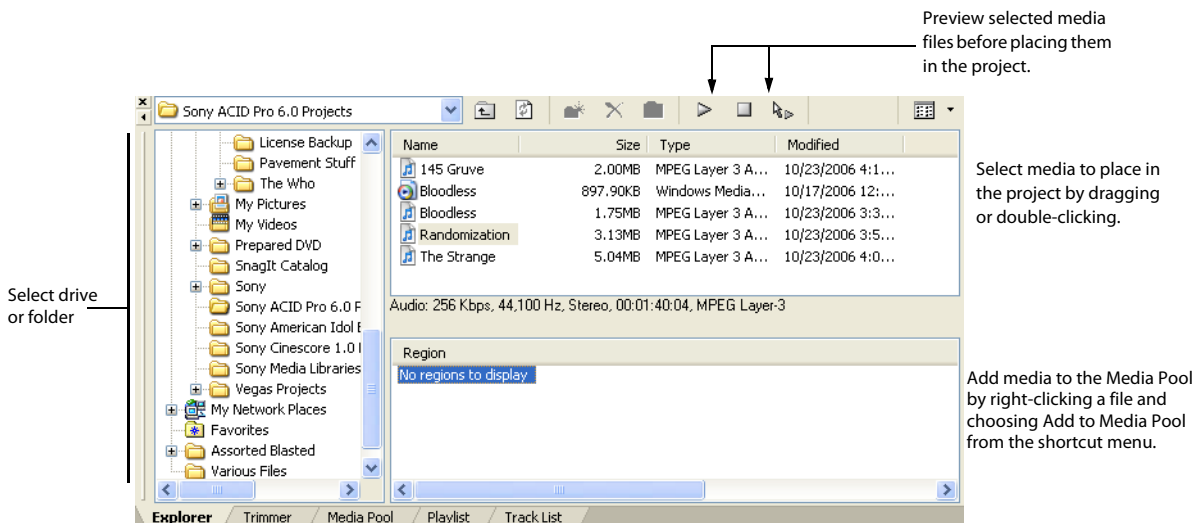
Trimmer window - Alt+2

The Trimmer window allows you to select portions of a piece of media that can be placed into events on the timeline.
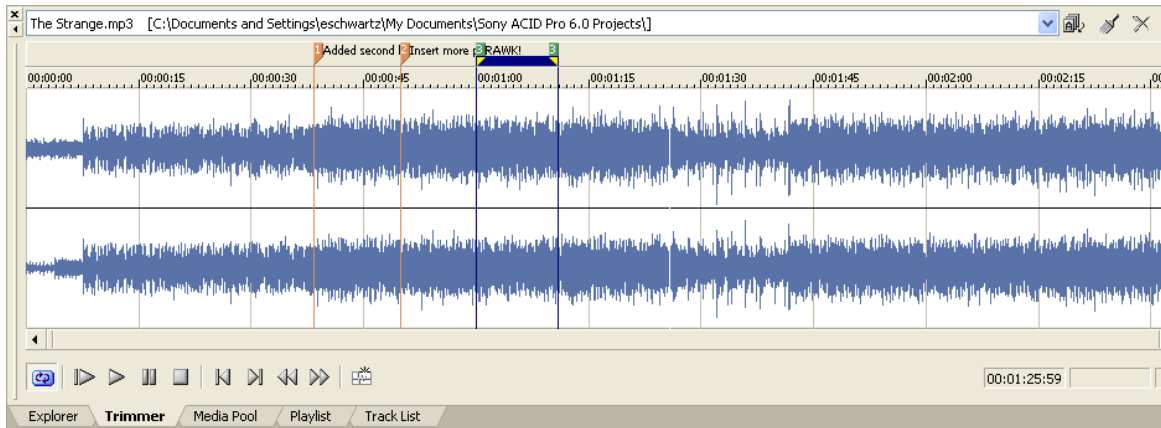
> **Note:** *When a media file is placed in the Trimmer window, any regions or markers that were previously stored in the media file are displayed in the Trimmer.*

Mixer window - Alt+3

The Mixer window allows you to access your project's audio properties, add Master FX, and access the project and preview volumes from the Explorer, Trimmer and Media Pool windows.
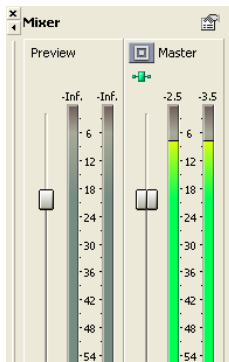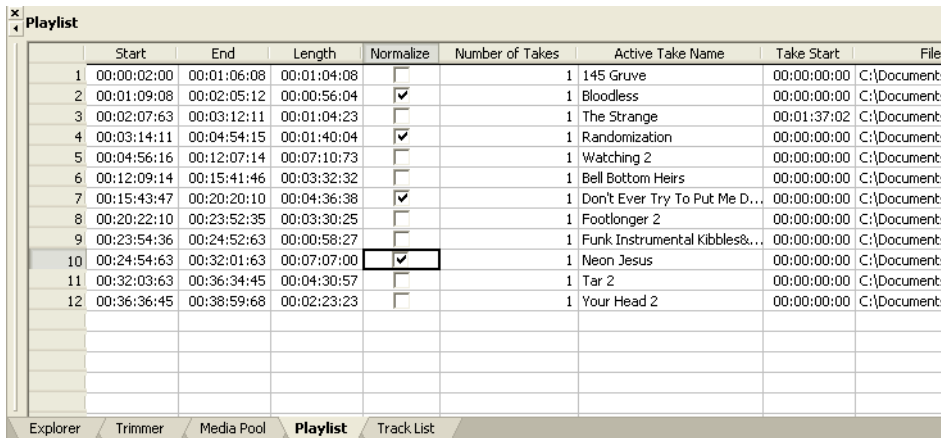
Media Pool - Alt+4

The Media Pool helps you organize and manage the media files you're using in a project. The information about these files is displayed in a highly flexible database that can be instantly sorted. Using the Media Pool, you can preview, add, or delete files, extract audio from a CD, and add files to the timeline, if desired.
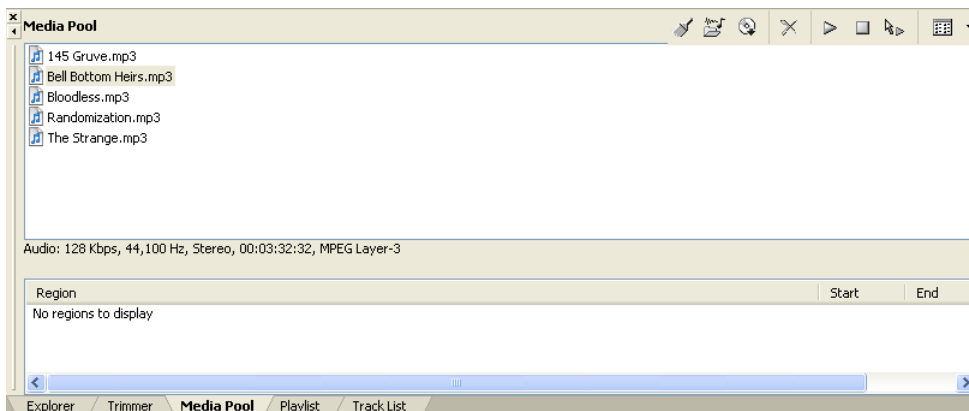
Playlist window - Alt+5
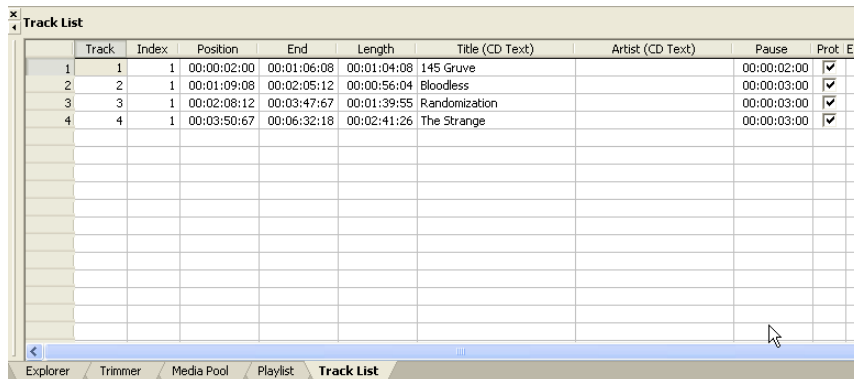
This window is a chronological list of the events in your timeline. You can use this window to edit each event's start and end times, length, and active take name. You can also normalize an event.

	Start	End	Length	Normalize	Number of Takes	Active Take Name	Take Start	File I
1	00:00:02:00	00:01:06:08	00:01:04:08	☐	1	145 Gruve	00:00:00:00	C:\Documents
2	00:01:09:08	00:02:05:12	00:00:56:04	☑	1	Bloodless	00:00:00:00	C:\Documents
3	00:02:07:63	00:03:12:11	00:01:04:23	☐	1	The Strange	00:01:37:02	C:\Documents
4	00:03:14:11	00:04:54:15	00:01:40:04	☑	1	Randomization	00:00:00:00	C:\Documents
5	00:04:56:16	00:12:07:14	00:07:10:73	☐	1	Watching 2	00:00:00:00	C:\Documents
6	00:12:09:14	00:15:41:46	00:03:32:32	☐	1	Bell Bottom Heirs	00:00:00:00	C:\Documents
7	00:15:43:47	00:20:20:10	00:04:36:38	☑	1	Don't Ever Try To Put Me D...	00:00:00:00	C:\Documents
8	00:20:22:10	00:23:52:35	00:03:30:25	☐	1	Footlonger 2	00:00:00:00	C:\Documents
9	00:23:54:36	00:24:52:63	00:00:58:27	☐	1	Funk Instrumental Kibbles&...	00:00:00:00	C:\Documents
10	00:24:54:63	00:32:01:63	00:07:07:00	☑	1	Neon Jesus	00:00:00:00	C:\Documents
11	00:32:03:63	00:36:34:45	00:04:30:57	☐	1	Tar 2	00:00:00:00	C:\Documents
12	00:36:36:45	00:38:59:68	00:02:23:23	☐	1	Your Head 2	00:00:00:00	C:\Documents

Explorer / Trimmer / Media Pool / **Playlist** / Track List

Track List window - Alt+6

This window is a chronological list of all track and index markers in your project. You can use this window to edit each track's start, end, and pause times, length, and title and artist name. You can also enable or disable copy protection and emphasis flags, and edit ISRC (International Standard Recording Code) information. *For more information, see Using the Track List window on page 80.*

	Track	Index	Position	End	Length	Title (CD Text)	Artist (CD Text)	Pause	Prot	Em
1	1	1	00:00:02:00	00:01:06:08	00:01:04:08	145 Gruve		00:00:02:00	☑	☐
2	2	1	00:01:09:08	00:02:05:12	00:00:56:04	Bloodless		00:00:03:00	☑	☐
3	3	1	00:02:08:12	00:03:47:67	00:01:39:55	Randomization		00:00:03:00	☑	☐
4	4	1	00:03:50:67	00:06:32:18	00:02:41:26	The Strange		00:00:03:00	☑	☐

Explorer / Trimmer / Media Pool / Playlist / **Track List**

Plug-Ins window - Alt+7

This window allows you to access effects and effects packages that can be applied to events and the master output. This window also allows you to rename and reorganize plug-ins. *For more information, see Adding Effects on page 85.*

Plug-Ins
FX
- Plug-Ins
  - Audio
    - Event Optimized F
    - FX
      - FX Packages

FX Packages
Nero Audio Processor
Nero Digital Audio Decoder
Nero Digital AVC Audio Encoder
Nero Mpeg2 Encoder
Nero QuickTime(tm) Audio Decoder
Nero Resize
Sony Acoustic Mirror
Sony Amplitude Modulation
Sony Audio Restoration
Sony Chorus
Sony Click and Crackle Removal
Sony Clipped Peak Restoration
Sony Distortion
Sony Dither

Keyboard command reference

CD Architect keyboard commands are shortcuts that you can use while working with your project.

Project file

Command	Keyboard shortcut
Create new project	Ctrl+N
Open existing project	Ctrl+O
Open media file	Ctrl+Shift+O
Extract audio from CD	Ctrl+R
Burn CD	Ctrl+W
Project properties	Alt+Enter
Save project	Ctrl+S
Exit CD Architect	Alt+F4

Magnification and view

Command	Keyboard shortcut
Set focus to timeline	Alt+0
Explorer	Alt+1
Trimmer	Alt+2
Mixer	Alt+3
Media Pool	Alt+4
Playlist	Alt+5
Track List	Alt+6
Plug-Ins	Alt+7
Next window	F6 or Ctrl+Tab
Previous window	Shift+F6 or Ctrl+Shift+Tab
Zoom in time (incremental)	Up arrow
Zoom out time (incremental)	Down arrow
Zoom in large increments or selection (if one exists)	Ctrl+Up arrow
Zoom out large increments or selection (if one exists)	Ctrl+Down arrow
Zoom in vertically	Shift+Up arrow
Zoom out vertically	Shift+Down arrow
Rebuild audio peaks	F5
Minimize/restore the window docking area	F11

Cursor placement, loop region, and time selection

Note: *Holding the* Shift *key in combination with cursor positioning shortcuts creates or extends a time selection.*

Command	Keyboard Shortcut
Center view around cursor	\
Go to	Ctrl+G
Set end of time selection	Ctrl+Shift+G
Go to beginning of selection or view (if no selection)	Home
Go to end of selection or view (if no selection)	End
Go to beginning of project	Ctrl+Home or W
Go to end of project	Ctrl+End or E
Toggle cursor between beginning and end of loop region	Keypad 5
Move cursor to corresponding marker or select corresponding region	0-9 keys (not numeric keypad)
Move left by grid marks	Page Up
Move right by grid marks	Page Down
Move to previous CD track	Ctrl+Comma
Move to next CD track	Ctrl+Period
Move to previous CD track or index	Comma
Move to next CD track or index	Period
Move left/right one pixel (when **Quantize to Frames** is turned off)	Left/Right Arrow
Move to previous/next marker	Ctrl+Left/Right Arrow
Move one frame left/right	Alt+Left or Right Arrow
Move left/right to event edit points including fade edges	Ctrl+Alt+Left/Right Arrow
Time select loop region	Shift+Q
Recover previous selection areas	Backspace
Set in and out points	[(in) and] (out)
Create time selection while dragging on an event	Ctrl+Shift+drag
Switch focus between audio layers	Tab

Event selection and editing

Command	Keyboard shortcut
Range select	Shift+click events
Multiple select	Ctrl+click individual events
Select all	Ctrl+A
Unselect all	Ctrl+Shift+A
Cut selection	Ctrl+X or Shift+Delete
Copy selection	Ctrl+C or Ctrl+Insert
Paste	Ctrl+V or Shift+Insert
Paste insert	Ctrl+Shift+V
Paste repeat	Ctrl+B
Delete selection	Delete
Open in audio editor	Ctrl+E
Undo	Ctrl+Z or Alt+Backspace
Redo	Ctrl+Shift+Z or Ctrl+Y
Split	S
Trim/crop selected events	Ctrl+T
Rebuild Peaks	F5
Normal editing tool	Ctrl+D
Switch to next editing tool	D
Switch to previous editing tool	Shift+D
Automatic crossfades	X
Move selected events up one layer	Numeric Keypad 8

Command	Keyboard shortcut
Move selected events down one layer	Numeric Keypad 2
Move selected events right one pixel	Numeric Keypad 6
Move selected events left one pixel	Numeric Keypad 4
Move selected events right on grid	Ctrl+Numeric Keypad 6
Move selected events left on grid	Ctrl+Numeric Keypad 4
Move selected events right one frame	Alt+ Numeric Keypad 6
Move selected events left one frame	Alt+ Numeric Keypad 4
Move selected events by the first selected event's length	Ctrl+Alt+4 or 6
Copy events	Ctrl+drag event
Slip: move media within event without moving the event	Alt+drag inside the event
Slip trim: moves the media with the edge as it is trimmed	Alt+drag edge of event
Trim adjacent: trims selected event and adjacent event simultaneously	Ctrl+Alt+drag edge of event
Slide: trims both ends of event simultaneously	Ctrl+Alt+drag middle of event
Slide crossfade	Ctrl+Alt+drag over a crossfade
Stretch (compress) the media in the event while trimming	Ctrl+drag edge of event
Group selected events	G
Ungroup selected events	U
Clear group without deleting events	Ctrl+U
Select all events in group	Shift+G
Select next take	N
Select previous take	Shift+N

Playback and preview

Command	Keyboard shortcut
Start/Stop playback	Spacebar
Play All	Shift+Spacebar
Play from any window	Ctrl+Spacebar or F12
Stop playback	Esc or Spacebar
Start/pause playback	Enter
Looped playback	Q
Previous CD track	Ctrl+comma
Next CD track	Ctrl + Period
Previous track or index	Comma or >
Next track or index	Period or <
Scrub playback	J, K, or L

Tip: *If you have a supported multimedia keyboard, you can use the Play/Pause, Stop, Prev Track, and Next Track buttons to control playback.*

Timeline

Command	Keyboard shortcut
Quantize to frames	Alt+F8
Enable/disable snapping	F8
Snap to grid	Ctrl+F8
Snap to markers	Shift+F8
Ripple edit mode	Ctrl+L
Auto crossfade mode	X
Normal editing tool	Ctrl+D
Switch to next editing tool	D
Switch to previous editing tool	Shift+D
Group selected events	G
Ungroup selected events	U
Clear group without deleting events	Ctrl+U
Select all events in group	Shift+G
Insert/show/hide volume envelope	V
Insert/remove volume envelope	Shift+V
Insert marker	M
Insert region	R
Insert CD track	T
Insert CD track index	I
Maximize timeline vertically (window docking area will be hidden)	F11

Trimmer commands

Many of the shortcuts that apply to the timeline also work in the Trimmer. This list highlights commands unique to the Trimmer.

Command	Keyboard shortcut
Add selection to end of project	A
Clear Trimmer History	Ctrl+Shift+H
Open in Audio Editor	Ctrl+E
Next media file in Trimmer	Ctrl+Tab
Previous media file in Trimmer	Ctrl+Shift+Tab

Miscellaneous

Command	Keyboard shortcut
Online Help	F1
What'sThis? help	Shift+F1
Shortcut menu	Shift+F10
Rebuild audio peaks	F5
Make fine fader adjustments	Ctrl+drag fader
Move region without changing length	Alt+drag region tag

Mouse wheel shortcuts

Command	Mouse shortcut
Zoom in/out	Rotate mouse wheel forward or back
Scroll horizontally	Shift+wheel
Move the cursor in small increments	Ctrl+Shift+wheel
Move the cursor by frames	Ctrl+Alt+Shift+wheel
Auto-scroll	Click wheel button and move mouse
Move fader/slider	Wheel up or down while hovering over slider/fader handle
Move fader/slider in fine increments	Ctrl + wheel up or down while hovering over slider/fader handle

Signal flow
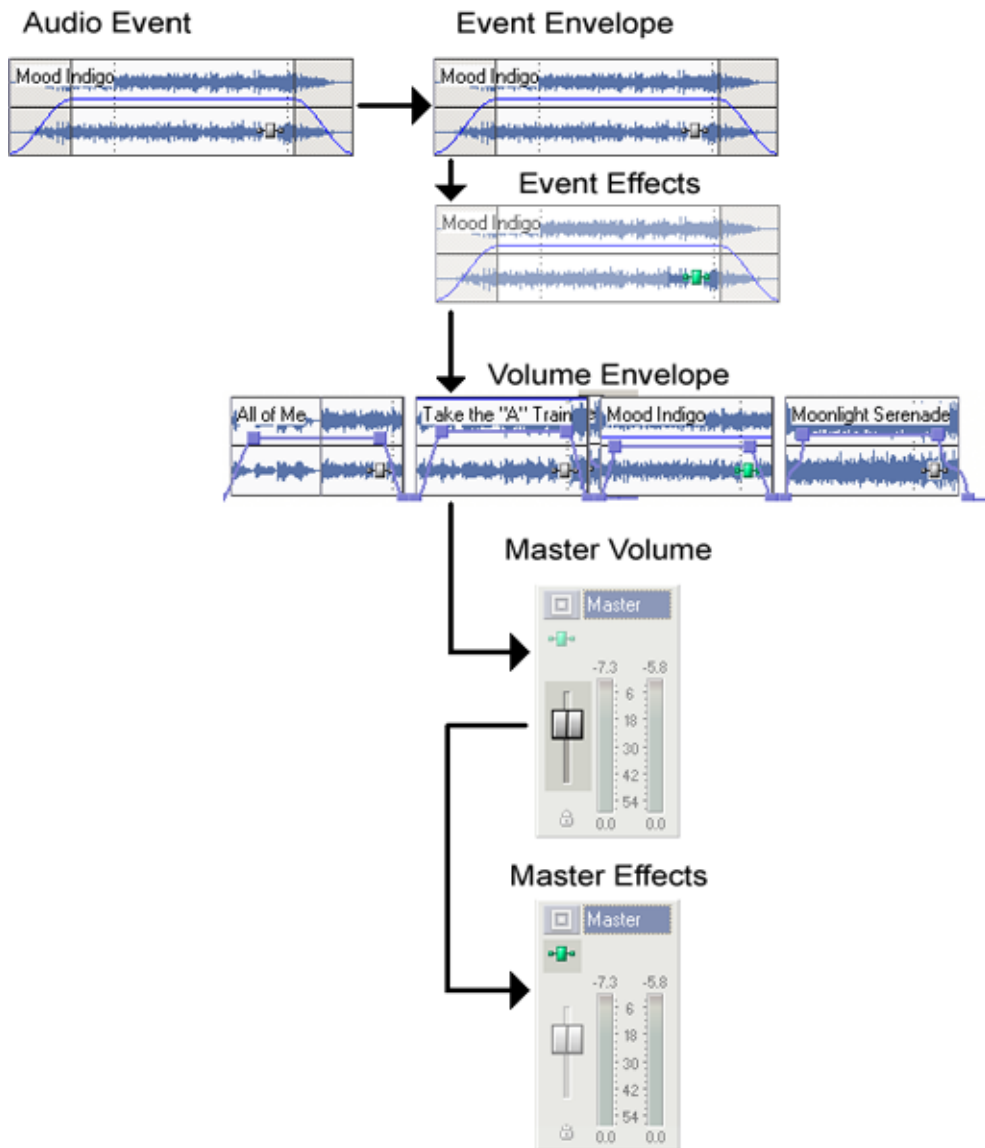
Chapter 4 # Getting Started

This chapter details the basic operations you'll need to begin arranging your audio CD using CD Architect™ software.

Creating a project

Organization is critical in the audio CD premastering process. CD Architect software handles the organization of your CD using a small project file (CDP) that saves information about source file locations, edits, cuts, and insertion points. This project file is not a multimedia file, but is instead used to create the CD when editing is finished.

Using this method, CD Architect software edits the project file rather than the original source files. When you copy, cut, paste, trim, and otherwise edit your project, the process is nondestructive. You can edit without worrying about corrupting your source files, so you have the freedom to experiment.

1. From the **File** menu, choose **New**. The New Project dialog appears.

> **Note:** *The first time you run CD Architect software, a new project will automatically be created for you.*

2. Enter your project properties on the various tabs.

3. Click **OK** to create the project.

Setting project properties

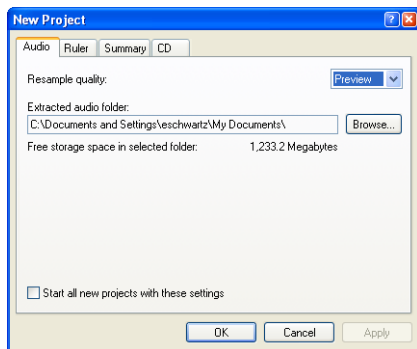CD Architect software supports a large range of formats and various types of media files. Some settings in a project's properties are simply informational details about the project, while others control how CD Architect software handles your project and its output. If you have multiple projects, CD Architect software stores the settings used for each project. These settings can be saved as templates for future use.

To view and modify project properties, choose **Properties** from the **File** menu. The Project Properties dialog displays with four tabs: **Audio**, **Ruler**, **Summary**, and **CD**.

Audio tab

The Audio tab allows you to set-up and change the data format of the current project.

Item	Description
Resample quality	Choose Preview, Good, or Best resample quality.
Extracted audio folder	Displays the path where extracted audio is stored. The Browse button allows you to select a new location to store recordings.
Free storage space in selected folder	Displays the available disk space where extracted audio is stored.

Ruler tab

The Ruler tab allows you to change ruler settings used in your project. You can also change ruler settings in the timeline. *For more information, see* Changing the ruler format *on page 102.*

Item	Description
Ruler time format	Choose a ruler time format from the drop-down list.
Ruler start time	Enter a value that the ruler will use at the beginning of your project. This feature is useful for synchronization purposes.

Summary tab

The Summary tab allows you to enter relevant information about your project. You can leave the boxes blank or, if information exists, you can enter it at any time.

Warning: *To burn a valid CD Text disc, you must specify a title for the disc; artist information is optional. If the* **Title (CD Text)** *field is left blank, then a warning will be displayed before burning so that you can choose to write the disc without CD Text or cancel burning and add title information as needed.*

Note: *You can write a maximum of 5,000 characters as CD Text.*

Property	Description
Title (CD Text)	Enter the name or title of the open project.
	If you select the **Write CD Text** check box on the Burn Disc-at-Once CD dialog, this data will be written to your disc. In order to display CD Text, your CD player must support CD Text.
Artist (CD Text)	Enter the name of the narrator, band, or artist(s) being recorded into the project.
	If you select the **Write CD Text** check box on the Burn Disc-at-Once CD dialog, this data will be written to your disc. In order to display CD Text, your CD player must support CD Text.
Engineer	Enter the name(s) of the people who mixed and edited the project.
Copyright	Enter the date and ownership rights of the project.
Comments	Enter information that identifies and describes the project.

CD Tab

The CD tab allows you to enter information for burning audios CDs from CD Architect software.

Property	Description
Universal Product Code/ Media Catalog Number	If your CD-R device supports writing UPC/MCN codes, you may specify the value in this field. If you leave the field blank, no UPC/MCN value will be written to the CD. Otherwise, the value consists of 13 digits.
First track number on disc	This sets the number for the first track on the disc.

Opening a project or CD image

From the **File** menu, choose **Open** to open a CD Architect project or CD image file.

Opening a CD Architect project

1. From the **File** menu, choose **Open**. The Open dialog is displayed.

2. Choose the folder where the project you want to open is stored:

    • Choose a drive and folder from the **Look in** drop-down list.
    - OR -
    • Choose a folder from the **Recent** drop-down list to quickly select a folder from which you have previously opened files.

3. Select a file in the browse window or type a name in the **File name** box. Detailed information about the selected file appears at the bottom of the dialog box.

> **Note:** *To limit the files displayed in the dialog, choose a file type from the* **Files of Type** *drop-down list or enter* **. *and an extension in the* **File name** *box. For example, enter* ***.cdp *to display all CD Architect project files in the current folder, or enter* *guitar*.cdp *to display all project files that have the word* **guitar** *in the file name.*

4. Click **Open**. If you have not saved the current project, you will be prompted to save your changes.

Opening a CD image file

An image file is essentially a wave file with volume, crossfades, effects, mixes, and track information embedded. Burning an image file will reduce the risk of buffer underruns since no audio processing is required.

Opening a CD image will clear all master effects.

1. From the **File** menu, choose **Open**. The Open dialog is displayed.

2. Choose the folder where the file you want to open is stored:

- Choose a drive and folder from the **Look in** drop-down list.
- OR -
- Choose a folder from the **Recent** drop-down list to quickly select a folder from which you have previously opened files.

3. Choose CD Architect Image Files (*.wav) from the **Files of type** drop-down list.

4. Select a file in the browse window or type a name in the **File name** box. Detailed information about the selected file appears at the bottom of the dialog box.

> **Note:** *To limit the files displayed in the dialog, choose a file type from the* **Files of Type** *drop-down list or enter *. and an extension in the* **File name** *box. For example, enter* ***.wav *to display all wave files in the current folder, or enter* *guitar*.wav *to display all wave files that have the word* **guitar** *in the file name.*

5. Click **Open**. If you have not saved the current project, you will be prompted to save your changes.

Closing a project

From the **File** menu, choose **Close** to close the current project. If you have not saved the project since changes were last made, a dialog appears asking if you want to save your changes.

- Click **No** if you want to close the project without saving it.
- Click **Yes** to save your changes.
- Click **Cancel** to return to your current project.

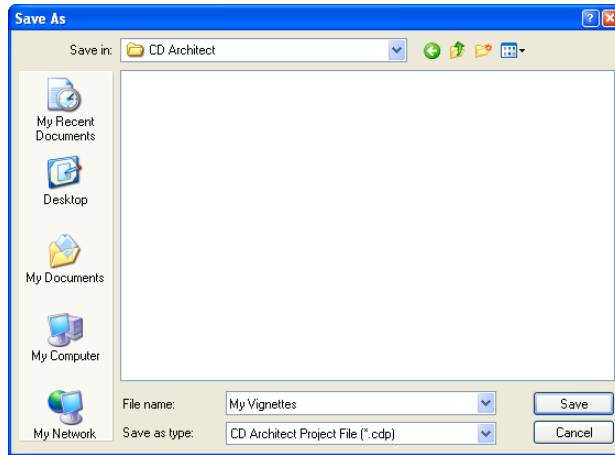## Saving a project

From the **File** menu, choose **Save** to save a CD Architect project or CD image file.

Saving a CD Architect project

When you save your work, it is saved in a project file (CDP). Project files are not rendered media files.

1. From the **File** menu, choose **Save**.

Note: *The first time you save a project, the* **Save As** *dialog appears. In subsequent saves, the dialog is bypassed, your existing file name is retained, and your project is updated to include any implemented changes.*

2. Using the **Save in** drop-down list, locate the folder where you want to save the project.

3. In the **File Name** box, enter a name for the file.

4. Click the **Save** button.

Automatically saving a project

CD Architect software automatically saves a backup copy of your project every five minutes. If your system crashes, you will be prompted to open the backup file the next time you start the application.

Backup files are saved in the location specified in the Temporary files folder box on the **General** tab of the **Preferences** dialog. Files are saved with the .autosave.cdp extension and are deleted when you close the application. If you prefer not to autosave your project, clear the **Enable autosave** check box.

Renaming a project (using Save As)

After you have been working with your project, you may use the **Save As** command in the **File** menu to save a copy of a project with a new name. This is useful for backing up different versions of a project.

Rendering a CD image file

An image file is essentially a wave file with volume, crossfades, effects, mixes, and track information embedded. Burning an image file will reduce the risk of buffer underruns (especially if you have a complex project or are using a slow computer) since no audio processing is required.

1. From the **File** menu, choose **Save As**.
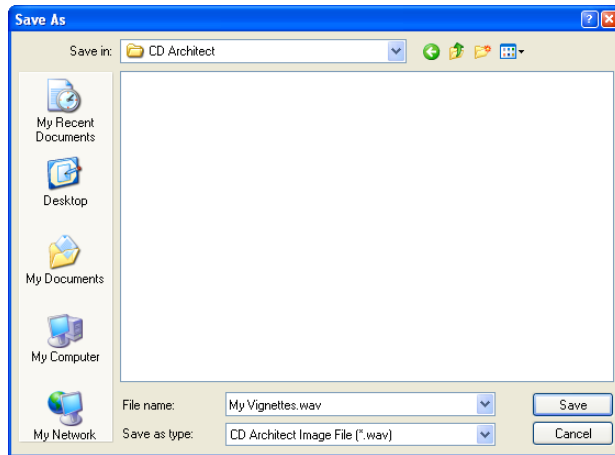
2. Using the **Save in** drop-down list, locate the folder where you want to save the project.

3. In the **File Name** box, enter a name for the file.

4. From the **Save as type** drop-down list, choose **CD Architect Image File (*.wav)**.

5. Click the **Save** button.

Note: *You can also render a temporary image automatically before you burn a CD. Temporary images work very well for slower computers. Select the* **Render temporary image before burning** *check box on the Burn Disc-at-Once Audio CD. For more information, see Burning a disc on page 97.*

Adding media to a project

After creating a project, you will need to add media to it. You can add media from a variety of sources.

Reviewing supported media file types

The following media file types are supported in CD Architect software.

Format	Extension	Definition
Audio Interchange File Format	.aif, .aiff	The standard audio format for audio used on Macintosh computers.
Dialogic VOX ADPCM	.vox	
Intervoice	.ivc	Commonly used in telephony applications. Includes G.711 μ-Law and A-Law, G.721 ADPCM (32 kb/s) and G.723 ADPCM (24 kb/s) data formats.
MPEG-1 Layer 3	.mp3	A highly compressed audio format generally used for portable digital players and Internet sharing of media.
NeXT/Sun (Java)	.au, .snd	
Ogg Vorbis	.ogg	A patent-free audio encoding and streaming technology.
QuickTime	.mov, .qt	QuickTime audio format for Microsoft Windows.
Sony Perfect Clarity Audio®	.pca	Sony proprietary lossless audio compression format.
Sony Wave 64™	.w64	Sony proprietary wave format audio file that does not have a limited file size (unlike Windows standard WAV files, which are limited to ~2GB).
Sound Designer 1	.dig, .sd	
Wave (Microsoft)	.wav	The standard audio format used on Windows-based computers.
Windows Media Audio	.wma	The Microsoft audio format used to create files for streaming or downloading via the Web.

Previewing media files

You may preview media files from the Explorer window or Media Pool before placing them in your project. The Explorer window and Media Pool both have a mini-transport bar with **Play**, **Stop**, and **Auto Preview** buttons ▷ ☐ ▷. When you preview a file, its stream is sent to the Mixer Preview bus.

1. Select the media file in the list view.

2. Click the **Start Preview** button to preview the file.

3. Click the **Stop** button, select a different file, or add the file to the timeline to stop previewing the file.

> **Tip:** *To automatically preview selections when you click a media file in the Explorer or Media Pool window, select the* **Auto Preview** *button. To turn off Auto Preview, click the* **Auto Preview b***utton again.*

Adjusting audio preview volume

The Preview control in the Mixer allows you to view and adjust the playback volume level. If the control is not visible, choose **Mixer Preview Fader** from the **View** menu.

• Fader - Drag the fader to adjust the playback volume while previewing the audio file.
• Meter - Displays the playback level. Right-click and choose a command from the shortcut menu to adjust the range of the meter, reset clip indicators, or hold peaks/valleys.

Using the Explorer window

Learning the Explorer window

Name	Description
Address Bar	Displays the current folder.
	You may also specify a particular file type to display. To specify a file type, make sure that All Files is not selected in the **Views** button and click in the text box. Type the wildcard followed by the extension. For example, *.wav or ?into?.wav will display only wave files in the selected folder.
Tree View	Displays all of the available files and folders where you can find media files.
Contents Pane	Displays the folders and media files contained in the active folder.
Up	Opens the folder one level above the active folder.
Refresh	Refreshes the contents of the active folder.
New Folder	Creates a new folder within the active folder.
Delete	Deletes the selected folder or file.
Add to My Favorites	Adds the selected folder to the My Favorites folder in the address bar. The Favorites folder contains links to folders that you use most often.
Start Preview	Plays the selected media file.
Stop Preview	Stops the playback of the selected media file.
Auto Preview	Automatically previews media files when you click them in the Explorer window.
View	Allows you to change the way the files are displayed in the list view.

- **Tree View** - Displays all available drives and folders that you may choose from to find files.
- **Region View** - Displays any regions that have been defined in the selected media file.
- **Summary View** - Displays a short description of the selected media file at the bottom of the Explorer window.
- **Details** - Displays the file size, date, and when the file was last create or last modified.
- **All Files** - Displays all file types in the active folder.

Adding files to your project and creating CD tracks

Explorer window

Double-click a file in the Explorer window or drag it to the timeline or CD layout bar. The media file is added to the Media Pool and an event and CD track are created. Note the following scenarios:

If	Then
You double-click a file	The file will be added to the end of your project.
You drag a file to the timeline	The file will be added to your project where you drop the file with no pause time. Your first track should be dropped at 00:00:02:00 on the timeline to conform to the Red Book specification.
You drag a file to the CD layout bar	The file will be added to your project where you drop the file with the default pause time before the event.

Shortcut menu

Right-click a file and choose a command from the shortcut menu:

Command	Description
Add to Media Pool	Adds the selected file to the Media Pool without creating an event on the timeline or a CD track.
Add to Timeline	Adds the selected file to the Media Pool and creates an event on the timeline without creating CD tracks.
Add to Track List	Adds the selected file to the Media Pool and creates an event and CD track on the timeline.
Add to Track List Using Regions	Adds the selected file to the Media Pool and creates an event and CD track on the timeline for each region in the media file.
Add as Takes	Adds the selected file in a single event as multiple takes.

Tips: *(1) If you don't want to create a CD track when you add an event on the timeline, click the* **Automatically Create Tracks** *button to turn off automatic track creation. You can then arrange events on the timeline and create CD tracks to indicate where each track begins and ends. (2) To add a track from an audio CD, browse to your CD drive and double-click a .cda file (or drag it to the timeline). You will be prompted to specify a name for the file before the track is extracted. After the track is extracted, it will be added to the timeline.*

Warning: *CD Architect software is not intended and should not be used for illegal or infringing purposes, such as the illegal copying or sharing of copyrighted materials. Using CD Architect software for such purposes is, among other things, against United States and international copyright laws and contrary to the terms and conditions of the End User License Agreement. Such activity may be punishable by law and may also subject you to the breach remedies set forth in the End User License Agreement.*

Using My Favorites folder

Select the **My Favorites** folder or choose **My Favorites** from the address bar to view the contents of the My Favorites folder. This folder contains shortcuts to folder that you use often.

1. Browse to the folder that you want to add.

2. Right-click the folder and choose **Add Folder to My Favorites** from the shortcut menu. The shortcut to the folder displays.

To remove the folder from the My Favorites folder, right-click the folder you want to delete and choose **Delete** from the shortcut menu.

Note: *Deleting a folder from My Favorites deletes only the shortcut to the folder; the target folder is unaffected.*

Using the Media Pool

Media files tend to be the largest files on your hard drive. It is therefore not always easy to move them around and impractical to store multiple copies of these files. You can add media files to the Media Pool to organize them before you begin editing. Once you begin working on a project, all files you add to the timeline are automatically included in the Media Pool. From the **View** menu, choose **Media Pool** to open this window if it is not already visible.
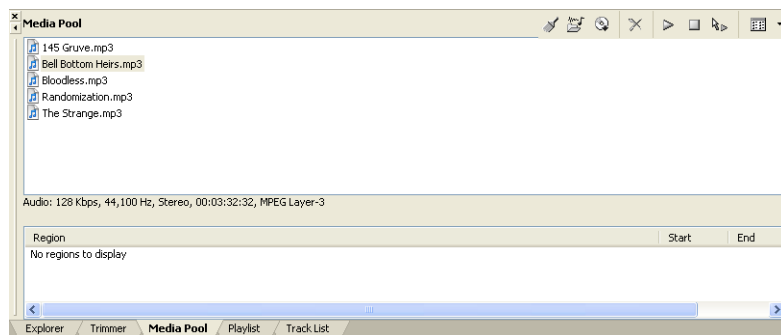
Using Media Pool views

You can control the information that is displayed in the Media Pool by clicking the **Views** button 🔳 ▾ and selecting a view.

View	Description
List	Displays a list of each file currently included in the Media Pool.
Detailed	Displays all the properties for each file. The information is presented in a table format.
	You can customize the information displayed:
	• Reorder columns (fields) by dragging the column label to a new position.
	• Hide a column by dragging the column label off of the Media Pool window. To display a hidden column, right-click the Media Pool, choose **View** from the shortcut menu, and choose the column name from the submenu.
	• Sort the files in the Media Pool according to a category by clicking the column label for that category.
	• Use the **Comments** field to add your own annotations to a file's entry in the Media Pool. Double-click the field to enter text. This information is saved with the project and is not saved with the media file itself.
Region	Allows you to view all regions for the selected file, as well as each region's start time, end time, and length.
	You can toggle this view on and off by selecting the **Region View** option. A check mark appears next to the option when the Region View is displayed

Adding media to your project without creating events

1. From the file menu, choose **Open Media** (or click the **Open Media** button 📁). The Open Media dialog displays.

2. Browse to the file you want to open and select it. You can use Ctrl or Shift to select multiple files.

3. Clear the **Add to timeline check** box.

4. Click **Open**. The media file is added to the Media Pool.

> **Tip:** *Right-click a file in the Explorer window and choose* **Add to Media Pool** *from the shortcut menu.*

Adding media to the timeline

There are multiple options for adding media files to the timeline in CD Architect software.

Using the File menu

1. From the **File** menu, select **Open Media**. The Open Media dialog appears.

2. Navigate to and select a media file to add to the timeline. You can use Ctrl or Shift to select multiple files.

3. Select the **Add to Timeline** check box.

4. Choose from the following options to tell the application how to place the media:

   • **Create Events from Media Regions** - Select this option to add all regions from the media file(s) as events to the timeline individually, with pauses between each.
   • **Create Tracks** - Select this option to add each media file to the Media Pool and create a separate event and CD track on the timeline. Each track is displayed in the Track List. A pause is automatically inserted between each event.
   • **Create Tracks from Media Regions** - This option is only available if the Create Tracks check box is selected. Select this option to create separate tracks for each region in the media file and an index marker for each marker in the media file. If there are no useful regions found in the media file, CD Architect software creates a track for the entire event.

5. Click **Open**. The media file is added to the timeline.

Dragging a media file to the timeline or CD marker bar

You can create a new track by dragging a media file from the Explorer or Media Pool to a blank area on the timeline or an area on the CD marker bar and dropping it in place. CD Architect tracks can contain multiple events, so you can place different events next to each other on a track.

1. Locate a media file in the Explorer or Media Pool.

2. Drag the media file to the timeline or CD marker bar. An event for the media file appears where you released the mouse. The event contains the media file in its entirety.

> **Note:** *Your first track should be dropped at 00:00:02:00 on the timeline to conform to the Red Book specification.*

Dragging multiple media files to the timeline

1. Select multiple media files in the Explorer or Media Pool. Select a range of adjacent media files by pressing Shift and clicking the first and last files in the range, or select nonadjacent files by pressing Ctrl and clicking individual files.

2. Right-click and drag the files to the timeline.

3. When you release the mouse, a shortcut menu appears. Select a placement option from the menu.

- **Add to Timeline:** adds selected files consecutively to the timeline.
- **Add to Track List:** adds selected files to the Media Pool and creates an event and CD track on the timeline.
- **Add to Track List using Regions:** adds selected files to the Media Pool and creates an event and CD track on the timeline for each region in the media file.
- **Add as Takes:** places the selected files in a single event as multiple takes. You will see one event on the timeline. The other events are listed as takes beneath the topmost event.

> **Note:** *A left-click drag-and-drop automatically inserts files across time.*

Creating events and tracks from the Media Pool

Double-click a file or region in the Media Pool or drag it to the timeline or CD layout bar. The media file is added to the Media Pool and an event and CD track are created.

Note the following:

If	Then
You double-click a file or region	The file or region will be added to the end of your project.
You drag a file or region to the timeline	The file or region will be added to your project where you drop the file with no pause time. Your first track should be dropped at 00:00:02:00 on the timeline to conform to the Red Book specification.
You drag a file or region to the CD layout bar	The file or region will be added to your project where you drop the file with the default pause time before the event.

> **Tip:** *If you don't want to create a CD track when you add an event on the timeline, click the* **Automatically Create Tracks** *button to turn off automatic track creation. You can then arrange events on the timeline and create CD tracks to indicate where each track begins and ends.*

Creating an entire CD project from the Media Pool

1. Click the **Views** button and choose **Detailed** from the menu.

2. Enter track numbers in the **Comment** field to assign a track order.

3. Click the **Comment** column header to sort the comments in ascending order.

4. In the Media Pool, select your tracks, right-click the selection, and choose **Add to Track List** from the shortcut menu.

Replacing media in the Media Pool

You may replace a file in the Media Pool with a different file. When changing the media file that an event contains, every occurrence of the event on the timeline is updated with the new media file contents.

1. Right-click a file in the Media Pool.

2. Choose **Replace** from the shortcut menu. The Replace Media file dialog displays.

3. In the Replace Media File dialog, browse for and select the file that you want to replace the current file.

4. Click the **Open** button. The selected file replaces the old file in the Media Pool, and any events in the timeline containing the old file are updated to contain the new media file.

Cleaning the Media Pool

You may have files in the Media Pool that are not incorporated into your project. Click the **Remove Unused Media from Project** button to remove any files that have not been used on the timeline.

Removing a media file from the project

You may have files in the Media Pool that are no longer needed or that you would like to remove. To remove all selected media files from the Media Pool and project, click the **Remove Selected Media from Project** button.

> **Note:** *If a file is in use by an event on the timeline, you will be prompted to delete the event and the media file from the project.*

Extracting audio from CDs

You can extract tracks from a CD and add them to the Media Pool window as WAV files.

> **Note:** *CD Architect software is not intended, and should not be used for, illegal or infringing purposes, such as the illegal copying or sharing of copyrighted materials. Using CD Architect software for such purposes is, among other things, against United States and international copyright laws and contrary to the terms and conditions of the End User License Agreement. Such activity may be punishable by law and may also subject you to the breach remedies set forth in the End User License Agreement.*

1. Insert the audio CD.

2. In the Media Pool window, click the **Extract Audio from CD** button (or choose **Extract Audio from CD** from the **Disc** menu). The Extract Audio from CD dialog appears.
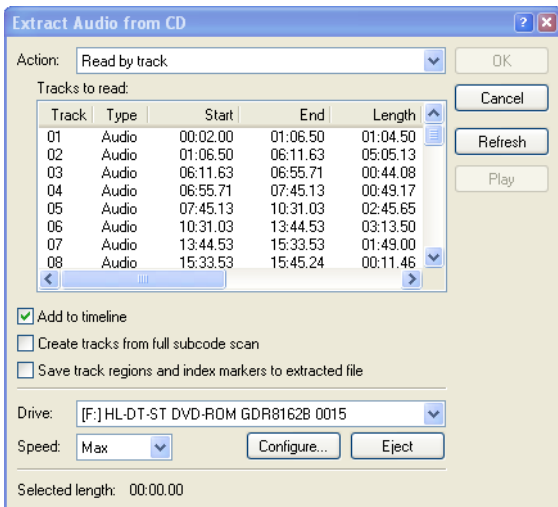
3. From the **Action** drop-down list, choose the method you want the application to use for extracting the CD audio:

   - **Read by track** - Use this option to choose the tracks you want to extract from the CD.
   - **Read entire disc** - Use this option to automatically extracts all tracks on the disc. The entire CD is extracted into one new file in the Media Pool.
   - **Read by range** - Use this option to extract audio from a specified range of time.

4. If you chose either the **Read by track** or **Read by range** option, specify the track(s) or range to extract:

   - For **Read by track**, click the track(s) you want to extract in the **Tracks to read** list. Use the Ctrl or Shift keys to select more than one track. Each track is extracted into a separate file in the Media Pool.
   - For **Read by range**, enter a time in the **Range start** field and either the **Range end** or **Range length** fields. The range of audio is extracted into one new file in the Media Pool.

   Note: *If you want to extract multiple tracks to a single file, choose **Read by track** from the **Action** drop-down list to select your tracks, and then choose **Read by range** from the **Action** drop-down list. CD Architect software will automatically insert the appropriate time range for the tracks you selected and extract the time range to a single file.*

5. Select the **Add to timeline** check box if you want to automatically add extracted tracks to the timeline. When the checkbox is cleared, extracted tracks will only be added to the **Media Pool** tab.

6. Select the **Create tracks from full subcode scan** check box if you want to create a CD track for each event that is added to the timeline. This check box is not available unless the **Add to timeline** check box is selected.

   Note: *When you select the **Create tracks from full subcode scan** check box, CD Architect software will create your track list based on the PQ data on the disc. ISRC data is added to each track if the data exists on the disc, and universal code/media catalog number information is updated on the **CD** tab of the Project Properties dialog if you extract into an empty project.*

7. Select the **Save track regions and index markers to media file** check box if you want to embed regions and markers in the extracted file to mark CD tracks and index positions.

   Note: *These markers and regions are not added to the CD Architect timeline, but you can see them in the Trimmer window. If you want to use these markers to create tracks and indices, right-click an event and choose **Create Tracks from Media Regions**.*

8. From the **Drive** drop-down list, choose the drive containing the audio CD from which you want to extract.

9. From the **Speed** drop-down list, choose the speed at which you want to extract the audio. If you experience any problems extracting audio, you can try decreasing the selected speed, or you can click **Configure** to adjust the **Audio extract optimization** setting.

   Note: *To eject the CD at any time prior to beginning the extraction process, click the **Eject** button.*

10. Click **OK**. The Save As dialog appears.

11. Select a name and location for the new WAV file.

12. Click **Save** to begin extracting the audio. CD Architect software extracts the track and displays a progress meter to indicate the percent complete. Once extraction is complete, the new WAV file appears in the Media Pool.

Working with events

Events are the most basic objects in a project in CD Architect software. An event is something that happens in time and has a specific duration.

Understanding files and events

The objects you work with in CD Architect software are referred to as media files and events.

- **Files** are objects that are stored on your hard disk. You will work with media files, such as music files. CD Architect software neither operates on nor changes these files. You can access files from the CD Architect Explorer window.
- **Events** are periods of time on the timeline that act as windows into media files, either whole or in part. When you drag a media file onto the timeline, you automatically create an event that contains that file's contents. The event window may contain only a small portion of a much larger media file. A single media file can be used repeatedly to create any number of different events, since each event can be trimmed independently.

The original media file.

An event trimmed from the original media file.

The event as it appears in CD Architect.
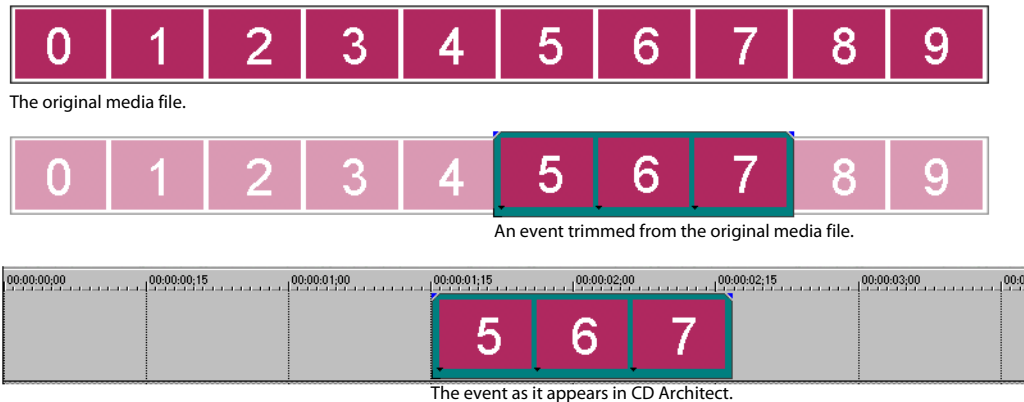
Moving events along the timeline

You can move events along the timeline individually or as a group. Events may overlap each other or be placed on top of each other. You can crossfade overlapping events automatically or with envelopes.

Moving an event

You can move an event left or right along the timeline.

1. Drag the event along the timeline.
2. Release the mouse button to place the event. The event assumes the new timeline position.

Moving multiple events

You can also move multiple events along the timeline. Selected events do not need to be consecutive. Use the Ctrl key or the Shift key to select multiple events and drag them. To select all events on the track after a given event, right-click the event and choose **Select Events to End**. *For more information, see Selecting multiple events on page 45*.

Moving events by small increments

To move an event more precisely, click the event and press "4" or "6" on the numeric keypad to nudge it by small increments. The amount of movement caused by each nudge is determined by how far the timeline is zoomed in or out. You can also use these numbers in combination with the Ctrl key to move an event by grid, or the Alt key to move an event by CD frame.

Moving grouped events

Groups allow you to move multiple events on the timeline as a single unit. You can create these groups as needed. To move grouped events, drag any event in the group to a new position. *For more information, see Grouping events on page 74*.

Editing events

An easy way to view and edit events in your project is by using the Playlist window. Every event you add to the timeline is automatically added to the Playlist. You can use the Playlist window to edit the event's start and end times, duration, active take name, and the take start.

You can also edit events directly on the timeline. *For more information, see* Trimming events *on page 50*.

Working with tracks

A project can consist of many tracks. All tracks appear within the timeline. The Track List provides information about each track. You can view track and index markers, edit track position and length, edit track title and artist, toggle protection and emphasis flags, and edit ISRC data.

> **Note:** *When you create a track using a media file that includes title and artist metadata, that information will be added to the Track List window as CD Text.*

Tracks are made up of events on the timeline. A single track can contain single or multiple events. You can either create tracks when you add events to the timeline, or you can create tracks from existing events on the timeline.

Creating tracks automatically

1. From the **File** menu, select **Open Media**. The Open Media dialog appears.

2. Navigate to and select a media file to add to the timeline. You can use Ctrl or Shift to select multiple files.

3. Select the **Add to Timeline** and **Create Tracks** check boxes.

4. Click **Open**. The media file is added to the timeline as an event, and a track is added to the Track List.

Creating tracks from existing events

1. Add media files to your project and edit events on the timeline to create the contents of your audio CD.

2. From the **Tools** menu, choose **Create Track List from Events**. The application marks each event with a track region.

    You can drag CD tracks on the timeline to rearrange tracks, drag either end of the track to change its length, or use the Track List window to edit the track's position or name.

Using the timeline

CD Architect software provides numerous options for viewing and navigating in the timeline.

Scrolling and zooming

There are several ways to scroll and zoom in the timeline.

*   Click the scroll bar arrows or drag the scroll bars to move up and down the tracks or to move forward and back along the timeline.
*   Click the **Zoom** buttons ![+][-] to reveal more or less of the timeline.
*   Drag the edge of the scroll box, found on the scroll bar, to zoom.
*   Press ⬆ and ⬇ to zoom in and out along the timeline.
*   In the lower-right corner of the timeline, click the Zoom Tool ![zoom]. In this mode, drag on the timeline to draw a rectangle that defines the zoom area.

CD Architect software also supports mouse wheel control. The default behavior of the wheel is to zoom horizontally.

*   Shift+wheel **s**crolls horizontally (through time).
*   Ctrl+Shift+wheel moves the cursor in small increments.
*   Ctrl+Shift+Alt+wheel moves the cursor in one-frame increments.
*   Clicking the mouse wheel turns auto-scrolling on and off.
*   Hover over handle and use wheel to move fader/slider.

Scroll box   Zoom tools
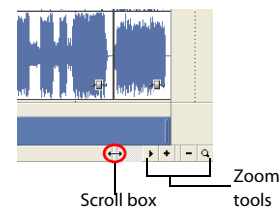
• Ctrl+hover over fader and use wheel to move fader/slider in fine increments.

Zooming directly controls the accuracy of your editing.

Viewing playbacks and previews

CD Architect software allows you to play back your project directly from the timeline.

Using playback in CD Architect software

The transport bar allows you to play back your entire project or portions of your project based on a time selection or the current cursor position.

Playing an entire project

1. Click the **Play From Start** button ▷ to begin playback at the beginning of the project.

2. Click the **Stop** button ☐ to stop playback.

Most of the time, you will only want to preview a small portion of the project to perfect a section. You can do this by creating a time selection.

Playing a time selection

1. Place the mouse pointer above the ruler on the marker bar. The mouse pointer changes to include a left/right arrow cursor ⧉.

2. Drag to select the time region. To increase or decrease the time selection, drag its start and end points. The time selection is highlighted, and the loop bar appears above the ruler on the timeline.

3. Click the **Play** button ▷ to begin playback.

4. Click the **Loop Playback** button ⧉ to continually play back the events within the time selection. Click the button again to toggle this feature off.

5. Click the **Stop** button ☐ to stop playback.

Loop bar
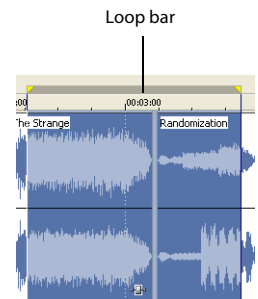
By looping the playback, you can repeatedly watch the same section of the project over and over as you make changes in real time. You can define selection areas automatically, depending on what you would like to preview. *For more information, see Selecting a time range on page 46*.

Playback reference

The following table describes all the transport bar buttons and their keyboard equivalents. You may use these playback functions at any time while working in your project.

> **Note:** *CD Architect software also supports the use of many multimedia keyboards for controlling playback.*

Button	Keyboard	Function
	None	Emulate CD player mode
	Q	Turn on/off loop playback during time selection playback
	Shift+Space	Begin playback from the start of the project
	Space	Begin playback from cursor position
	Enter	Start or pause playback, cursor stops and holds at pause position
	Space or Esc	Stop playback, cursor stops and returns to prior cursor position
	Ctrl+< or <	Place cursor at the beginning of the previous track or index
	Ctrl+> or >	Place cursor at the beginning of the next track or index

> **Tip:** *You can use the spacebar to stop or pause playback, depending on your preference. From the* **Options** *menu, choose* **Preferences**, *and on the* **General** *tab, select* **Make spacebar and F12 Play/Pause instead of Play/Stop** *to change the setting.*

Scrubbing

Scrubbing is a type of timeline playback that gives you precise control over the direction and speed of playback.

Using the Scrub control

The Scrub control can be dragged left and right to move backward and forward through your project, respectively. The farther from the center that the slider is dragged, the faster the playback, in both forward and reverse. You can use the small yellow triangle below the control to set the Normal Rate playback speed. This is the speed at which the project plays when you click the **Play** ▷ or **Play from Start** ▷ button on the transport bar.

Scrubbing with the keyboard

CD Architect software uses three letters (JKL) as a keyboard scrub control.

Press J for reverse and L for forward playback. Press K to pause playback.

There are several ways to adjust playback speed:

- Press J or L multiple times (twice for 1.5x playback or three times for 2.0x playback).
- Press and hold K while pressing J or L to emulate a shuttle knob mode. Press K+J to turn the knob to the left or K+L to turn the knob to the left. Press K again or Space to return to normal mode.

Keyboard scrub letters

J	K	L
Reverse	Pause	Forward
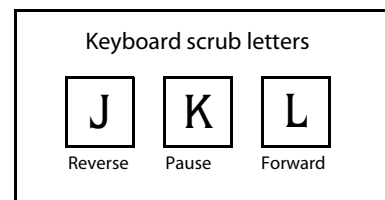
Previewing with Emulate CD Player Mode

You can use the **Emulate CD Player** button on the transport bar to simulate the playback of your project on a CD player so you can ensure that the audio at the beginning of your tracks is not being cut off. When you turn on Emulate CD Player mode, the behavior of the playback controls on your transport bar changes to reflect the unmute fades applied by CD players. Unmute time refers to the time it takes for a CD player to fade in after seeking to a track. CD players apply fades to prevent pops and clicks when you switch tracks.

If you want to adjust your unmute time, use the **CD Player unmute time** option on the **Preview** tab of the Preferences window. The average time for unmute fades is between 20 and 50 milliseconds, but some CD players take longer.

Chapter 5   Basic Editing Techniques

CD Architect™ projects are multilayer compilations of events that occur over time. The events in your project are references (pointers) to source media files. CD Architect software is a nondestructive editor, so editing events in your project does not alter the source media files in any way.

Getting around

When editing and playing back the project, the cursor identifies where you are along the project's timeline.

Changing focus

Focus is used to define where menu commands or keyboard actions happen. For example, when you click a file in the Media Pool, the Media Pool window has focus. To instantly switch the program's focus to the timeline, press Alt+0 or, from the **View** menu, choose **Focus to Timeline**.

If you are working with a project that contains two audio layers, you can switch focus between the two layers by clicking in a layer or pressing Tab. The cursor will blink to indicate which layer has focus.

Making time and event selections

CD Architect software gives you the flexibility to select one or more events, a time range, or events *and* a time range. All selection options can apply to a single layer or to both layers.

To select an event, click it.

Selecting multiple events

By using the Ctrl key or the Shift key, you may select individual or multiple events in your project. Multiple events may be selected within a CD track or across tracks.

You may include or exclude events from a selection area by holding the Ctrl key and clicking an event. You can select events by clicking them while in Normal Edit mode, which is the default editing mode. Click the **Normal Edit Tool** button ⬚ or, from the **Edit** menu, choose **Editing Tools** and the choose **Normal** to switch back to this mode.

Selecting nonadjacent events

1. Hold the Ctrl key.
2. Select the events by clicking them. To deselect an event, simply click it again to toggle the event selection on or off.

Selecting adjacent events

1. Hold the Shift key.
2. Click the first event that you want to select.
3. Click the last event that you want to select. All events between the first and last selected events are highlighted and selected.

Selecting all events to the end of the timeline

1. Right-click an event. A shortcut menu appears.
2. From the shortcut menu, choose **Select Events to End**. All events on the timeline after the selected event are selected.

Once events have been selected, they can be grouped together. *For more information, see Grouping events on page 74*.

Selecting a time range

Time selections are indicated by a shaded box and a bar that appears on the top of the timeline. You may use the time selection bar for playing back a smaller portion of your project or to apply dual-layer edits.

A selected time range affects all events, or portions of events, that occur within the range. Only those events are affected by edits or played back.

Dragging to select a time range

1. Position the mouse pointer above the ruler (on the marker bar). The mouse pointer changes to a left/right arrow cursor ⬄.

2. Drag to select a region. All events, or portions of events, within the region are highlighted.

3. Drag the yellow handles on either end of the time selection to increase or decrease your time range selection.
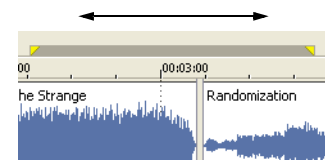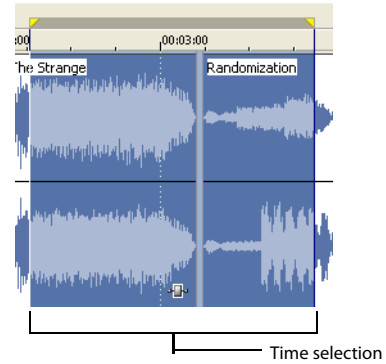
> **Note:** *You may move the entire selection range by dragging the time selection bar.*

Selecting a time range during playback

1. Click the **Play** ▶ or the **Play From Start** ▶ button to begin playback.

2. Press [where you want the time selection to begin.

3. Press] where you want the time selection to end.

4. Click the **Stop** button ◻ to stop playback.

Using shortcuts for time selections

These shortcuts can speed up the process of making precise time selections.

Description	Keys
Set time selection duration equal to an event's duration	Double-click the event
Extend the selection to the previous event or envelope fade boundary	Ctrl+Shift+Alt+Left Arrow
Extend the selection to the next event or envelope fade boundary	Ctrl+Shift+Alt+Right Arrow
Drag a time selection on an event without selecting/deselecting the event	Ctrl+Shift+drag on the event

> **Hint:** *Press* Backspace *to recall the last five time selection areas.*

Looping playback

If you want to play back the time range, click **Play** ▶ to play only the events within the time range. Click the **Loop Playback** button 🔁 or press Q on your keyboard to toggle loop playback on and off. CD Architect software continually plays back the portion of the timeline within the time selection when loop playback is toggled on.

Selecting events and a time range

Selecting a time range does not automatically select events. All items within the time range play back and are affected by **Edit** menu commands. However, you may select specific events to edit, and then select a time range.

1. Use the Ctrl key or the Shift key to select the events. *For more information, see* Selecting multiple events *on page 45*.

2. Place the mouse pointer above the ruler (on the marker bar). The mouse pointer changes to a left/right arrow cursor ⬌.

3. Drag to select the region. Notice that events that were not initially selected in step 1 remain unselected.

Editing and ripple editing events

How CD Architect software cuts and pastes material depends on whether ripple editing is enabled. The application is in ripple edit mode when the **Ripple Edits** button is selected. In ripple edit mode, cutting, pasting, or deleting material can affect the position of events appearing later in the timeline. The effect of a ripple edit depends on what is being cut, deleted, or pasted. For example, with ripple editing enabled:

- Cutting or deleting a time selection eliminates events in that section of the timeline and moves forward all events after the eliminated events.
- Cutting an event or events has no effect on the events that follow.
- Pasting an event in the timeline pushes all events after the pasted event down the timeline.

Ripple editing also affects how the application adds material from the Trimmer window. *For more information, see Using the Trimmer window on page 64*.

Copy this event...
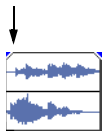
...and paste it in the timeline at the cursor position.
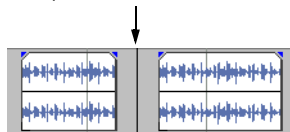
In Ripple Edit mode, the pasted event pushes the existing event down the timeline.
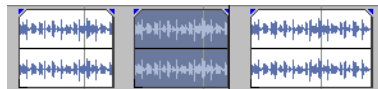
With ripple editing disabled, the pasted event overlaps the existing event.
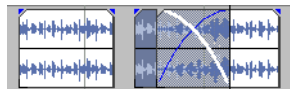
Copying events

CD Architect software allows you to copy events, or portions of events, to the Clipboard and paste them into your project. You may copy a single event or multiple events. Copying preserves the original event information, edits, and other modifications.

1. Click the events to select them. *For more information, see Selecting multiple events on page 45*.

2. Select a time range, if applicable.

3. Click the **Copy** button on the toolbar.

Copying selected events

When copied, selected events are reproduced and placed on the Clipboard. Time information is also placed on the Clipboard.

Copying a time selection

When you copy the events within a time selection, these events are reproduced and placed on the Clipboard. Time information is also placed on the Clipboard. The original events are not affected.

Copying a time selection and events

When you copy a time selection and events, selected events and portions of selected events within the time selection are reproduced and placed on the Clipboard. Time information is also placed on the Clipboard.

Cutting events

Cutting events removes them from the timeline, but places the cut information (events and time) on the Clipboard. Once on the Clipboard, you may paste the information into your project.

1. Click the events to be cut to select them or select a time range.
2. Click the **Cut** button ✂ on the toolbar.

Cutting selected events

When cut, selected events are reproduced and placed on the Clipboard. Time information is also placed on the Clipboard. When cutting selected events, ripple edit mode has no effect on later events.

Cutting a time selection

When you cut a time selection, events within the time selection are reproduced and placed on the Clipboard. Time information is also placed on the Clipboard. When cutting a time selection, ripple edit mode affects the position of material on the timeline after the cut: any events on the timeline following the cut move forward on the timeline accordingly.

Cutting a time selection and events

When you cut a time selection and events, selected events and portions of selected events within the time selection are reproduced and placed on the Clipboard. Time information is also placed on the Clipboard. When cutting a combination of time selection and event selection, ripple edit mode affects the position of material on the timeline after the cut: any events on the timeline following the cut move forward on the timeline accordingly.

Pasting events

Once information is copied to the Clipboard, you may choose a variety of ways to paste the Clipboard items. CD Architect software always pastes from the insertion point's position along the timeline.

When ripple edit mode is enabled, the application pushes material down the timeline to make room for pasted material. The exact behavior of the ripple depends on what is being pasted. If you are using both audio layers, both layers are ripple edited.

1. Move the cursor to the desired location on the timeline.
2. Click within the layer where you want to paste the event. This layer is the focus layer; there can be only one focus layer at a time.
3. Click the **Paste** button 📋 on the toolbar.

   Clipboard events are pasted at the cursor position on the track. Existing events can be overlapped with newly pasted information.

Using Paste Repeat

Use Paste Repeat to specify how many times the Clipboard events are pasted at the cursor position on the timeline, and to specify the space between each pasted event.

1. Copy a selection to the Clipboard.

2. From the **Edit** menu, choose **Paste Repeat**. The Paste Repeat dialog displays.

3. Specify the number of times to paste the Clipboard contents and the space between successive copies.

4. Click **OK** when finished.
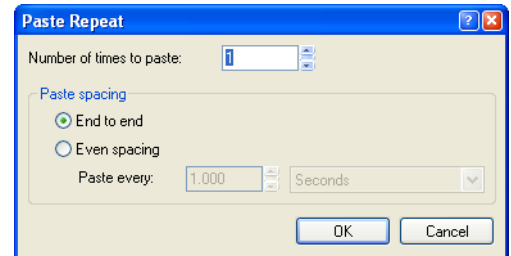
Using Paste Insert

When using Paste Insert, Clipboard events are placed at the cursor position on the timeline and existing events are moved further down the timeline by the total length of pasted information. Paste Insert affects all layers in use in the project.

1. Copy a selection to the Clipboard.

2. From the **Edit** menu, choose **Paste Insert**.

Punching-in and crossfading events

You can insert events into the middle of (on top of) existing events without altering the timing of the project. When the inserted event ends, the original event continues playing as if it had never stopped.

1. From the **Options** menu, choose **Preferences**. The Preferences dialog appears.

2. Click the **Editing** tab.

3. Select **Fade edit edges of audio events**. Specify a duration for each transition.
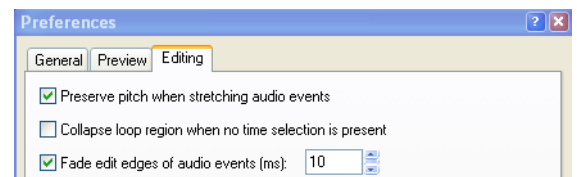
Events that have previously been inserted or punched-in are not affected by this change. The concept of punching in and out only applies when you are inserting an event that is shorter than the event that it is being inserted into. In the following illustration, the original event continues after the inserted event ends, as if it continued to play underneath the original.

Punched-in event
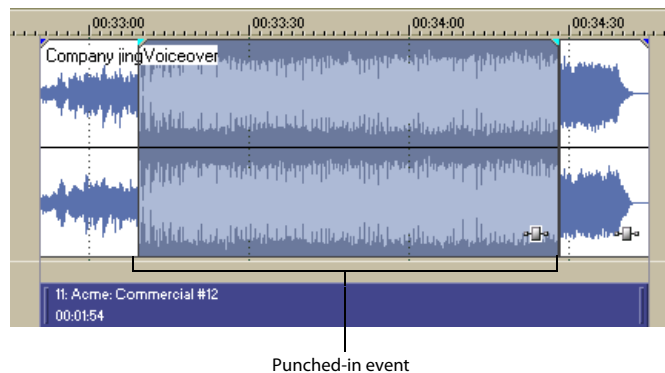
Duplicating events

Duplicating is a combination of copying and pasting in one action. The process is like moving the event to a new position while leaving a copy behind.

1. Hold the Ctrl key on your keyboard.

2. Drag the event you want to duplicate to the place where you want the new event to be positioned.

Inserting empty time

You can make space in a project by inserting a length of time into the timeline. To insert a period of time, from the **Insert** menu, choose **Time**.

Trimming events

This section describes simple ways to trim events.

Trimming an event

1. Move the cursor over the edge of the event. The cursor changes when properly positioned ⟷.

2. Drag the edge of the event to trim it.

Trimming a time selection

Trimming events removes all media *outside* the time selection. The removed information is not placed on the Clipboard. Trimming is different from cutting in that the events *within* the time selection are preserved.

1. Select a time range. *For more information, see*

2. Press Ctrl+T or, from the **Edit** menu, choose **Trim.**

The material *outside* the time selection (across both layers) is removed from the project. However, the time information (space) between events is not removed.

Events before trim	Clipboard contents	Events after trim
	Trimmed information is not placed on the Clipboard.	
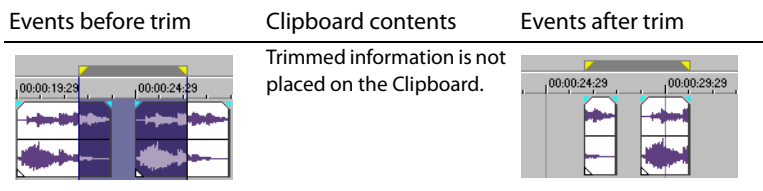
Splitting events

CD Architect software allows you to create multiple, independently functioning events from a single event by splitting it. Splitting creates a new ending point for the original event and creates a starting point for the newly created event.

Splitting an event does not alter the original media. The original media file's information is there, but omitted for playback based on where the event's starting or ending point occurs on the timeline.

When split, the two new events are flush against one another. The two events can be moved independently.

One event

Split position

Two events after split
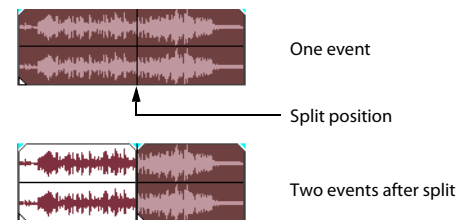
Splitting an event

1. Select the event to be split.

   To split multiple events, use the Ctrl key or the Shift key to select the events. *For more information, see*

2. Place the cursor at the timeline position where the split will occur.

3. From the **Edit** menu, choose **Split.**

The two new events can be moved independently.

Splitting a time selection

Unless locked, all events within a time selection are split at the starting and ending points of the time range, meaning that two splits are made.

Events before splitting   Events after splitting
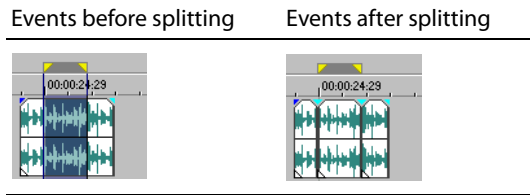
Splitting a time selection across selected events

Only selected events within a time selection are split at the starting and ending points of the time range.

Slipping and sliding events

To help you picture what happens when you slip and slide events, think of an event as a window to a media file. The window can display the entire media file or a small section. When the window displays only a portion of the media file, you can move either the window or the underlying media to adjust the media that is played by an event:

- When you **slip** an event, your event maintains its place on the timeline, but the media file moves in the direction you drag.
- When you **slide** an event, the media file maintains its place on the timeline, but the event moves in the direction you drag.

You can slip or slide grouped events (all at the same time) or slide a crossfade between two events. *For more information, see Grouping events on page 74 or Sliding a crossfade on page 53.*

Shifting the contents of (slipping) an event

Hold Alt while dragging an event. The slip cursor appears ↔.

As you drag the event, the contents of the event shift, but the event does not move. You can use this technique when you want to maintain an event's length and position, but have the event play a different section of the source media file.

Slip-trimming an event

Hold Alt while dragging the right or left edge of an event. The slip-trim cursor appears ↤.

As you drag the event edge, the opposite edge of the event remains fixed, trimming the media from the edge you drag.

Sliding an event

Hold Ctrl+Alt while dragging an event. The slide cursor appears ←⬚→.

As you drag, the relative position of the media remains fixed on the track, and the event position changes. You can use this technique when you want to maintain an event's length, but have the event play a different section of the source media file at a different point in your project.

The original media file.

The event on the timeline.
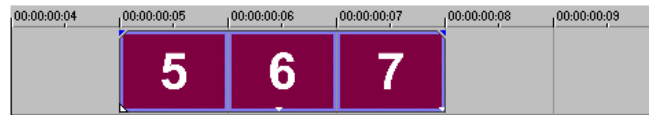
Slipping the event to the right
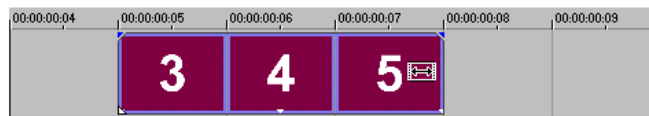
Slip-trimming the event to the right
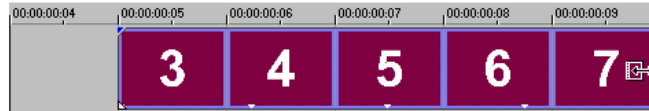
Sliding the event to the right.
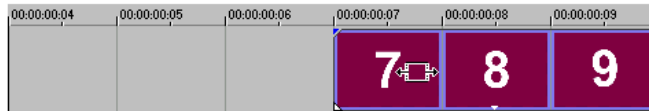
Deleting events

Deleting an event removes it from the timeline. Multiple events can be deleted and time selections can be used to modify the process. Ripple editing also applies to delete actions. Deleting operates exactly like a cutting operation, but the removed information is *not* placed on the Clipboard. *For more information, see* Cutting events *on page 48*.

1. Select the events to be deleted.

2. Press Delete.

Crossfading events

CD Architect software allows you to crossfade between two events on the same audio layer or on different layers. Crossfading fades out one event's volume while another event's volume fades in. Lines appear indicating how and when the event's volume is being affected.

Fade in volume line

Fade out volume line
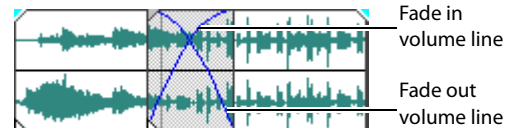
Using automatic crossfades

The automatic crossfade feature turns the overlapping portions of two events into a smooth crossfade. This feature is enabled as a default. Click the **Automatic Crossfades** button or press X to disable or enable automatic crossfades.

Events before crossfade

Events after crossfade

Drag one event to overlap the other
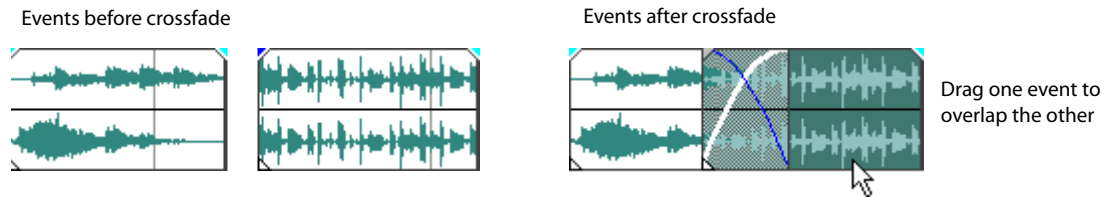
Changing crossfade curves

You can set the crossfade curves that the application uses to fade in and out between two events.

1. Right-click anywhere in the crossfade region to display a shortcut menu.

2. Choose **Fade Out Type** or **Fade In Type** to display a fade types submenu.

3. Select the desired fade type.
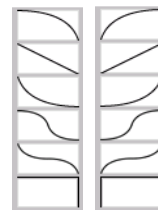
Right-click a crossfade to choose a different crossfade curve.

Sliding a crossfade

You can "slide" a crossfade between two events without affecting the total length of the two overlapping events. This process is similar to sliding and slipping events. *For more information, see Slipping and sliding events on page 51*.

Hold Ctrl+Alt while dragging the overlapping area between two events. The slide crossfade cursor appears .

As you drag, the relative position of the media remains fixed on the track, and the crossfade position changes, effectively trimming the edge of the event in the direction you drag. You can use this technique when you want to maintain the length of two combined events but want the transition to occur earlier or later.

Using the second audio layer

If you want more control over your project than simple crossfades will allow, choose **Use Second Audio Layer** from the **Options** menu to enable a second layer of audio in the timeline. By adjusting envelopes independently in your audio layers, you can create complex fades between your CD tracks.

Turning the second audio layer on or off

From the **Options** menu, choose **Use Second Audio Layer** or click the Use Second Audio Layer button on the toolbar to toggle the second audio layer on or off. When you turn the second audio layer on, your timeline is split horizontally into two layers:
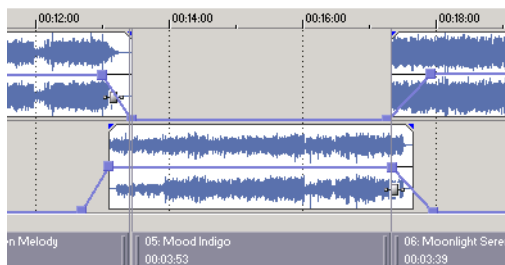
Warning: *When you turn the second audio layer off, the contents of the second audio layer are deleted from the timeline.*

Moving events between layers

1. Select the events you want to move.

2. Press 8 on the numeric keypad to move events to the first layer, or press 2 to move events to the second layer.

> **Note:** *You can also drag events across layers. The keyboard shortcuts, however, will ensure that you don't change the events' position on the timeline.*

Adding events and tracks to a two-layer project

Adding and arranging media uses the same process for one- or two-layer projects. However, when you create events in a two-layer project, the media is added to whichever layer has focus.

Click within a layer to position the cursor and select a layer. The cursor will blink to indicate which layer has focus.

For more information, see Working with events on page 41.

Cutting, copying, or pasting events in the second audio layer

Cutting, copying, and pasting events uses the same process for one- or two-layer projects.

For more information, see Editing and ripple editing events on page 47.

Adding volume envelopes in a two-layer project

1. Click to select the layer where you want to add an envelope. The cursor will blink to indicate which layer has focus.

2. From the **Insert** menu, choose **Insert/Remove Volume Envelope** to add a volume envelope to the selected layer.

3. Move or trim the events on the two layers so they overlap.

4. Add envelope points and adjust the fade curves as necessary to create your fade.

For more information, see Using timeline volume envelopes on page 71.

Using undo and redo

CD Architect software gives you unlimited undo and redo functionality while working on your project, even to the extent of being able to undo changes made before the last time a project was saved (but not closed). While you are working with a project, CD Architect software creates an undo history of the changes that you have performed. Each time you undo something, that change is placed in the redo history.

When you close the project or exit CD Architect software, both the undo and redo histories are cleared.

Using undo

Pressing Ctrl+Z or clicking the **Undo** button on the toolbar reverses the last edit performed. Repeatedly using the keyboard command or toolbar button continues undoing edits in reverse order, from most recent to oldest. In addition, you may undo the last edit by choosing it from the **Edit** menu.

Undoing a series of edits

You can undo a series of edits by using the drop-down list on the **Undo** button.

1. Click the arrow to the right of the **Undo** button .

2. From the drop-down list, choose the edit that you want to undo. Items above it (subsequent edits) are selected automatically. CD Architect software restores your project to the state prior to those edits.

When you undo an edit or a series of edits, they are added to the redo history. This feature allows you to restore your project to a previous state.

> **Note:** *From the* **Edit** *menu choose* **Undo All** *to undo all edits in the history. All edits are undone and added to the redo history.*
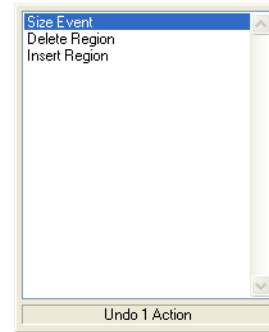
Use the mouse to select a series of edits

Using redo

Pressing Ctrl+Shift+Z or clicking the **Redo** button on the toolbar redoes the last undo performed. Repeatedly using the keyboard command or toolbar button continues redoing undos in reverse order, from most recent to oldest. In addition, you may redo the last edit by choosing it from the **Edit** menu.

Redoing a series of edits

The redo history may be viewed by clicking the arrow on the right side of the **Redo** button on the toolbar, revealing a drop-down list composed of previously undone edits. The top item is the most recent undo edit. If you redo a specific edit that appears farther down the list, all subsequent edits above it are redone as well.

When you redo an edit or a series of edits, they are added to the undo history again. The redo history is cleared when a new edit is performed.

Clearing the edit history

You may clear both undo and redo histories without closing your project or exiting CD Architect software. Once the histories have been cleared, CD Architect software begins creating a new edit history as you continue working on the project. While clearing the edit history is not usually necessary, it can free up disk space. To clear the edit history, from the **Edit** menu, choose **Clear Edit History**.

Adding project markers and regions

CD Architect software provides several types of project markers that identify parts of your project, serve as cues, and provide additional functionality:

*   **Markers** - points that you mark along the project's timeline. They are typically used to mark locations in the project for later reference or to mark timing cues.
*   **Regions** - ranges of time that you mark along the timeline. Regions identify ranges of time for your reference and can function as permanent time selections.
*   **CD layout markers** - markers that indicate CD tracks and indices for an audio CD layout. These markers are used to create CD tracks and index points when burning an audio CD.

Working with markers

Markers are useful for identifying and navigating to specific locations in longer projects. As you place markers in your project, the application automatically numbers them in the order that they are placed. Markers appear as orange tags above the ruler. You may name them and reposition them along the project's timeline.

Markers

Marker bar

Right-click the marker bar
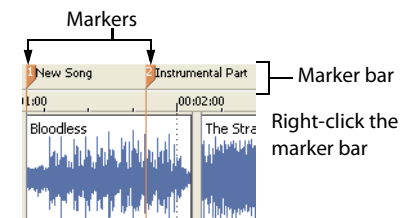
Inserting a marker at the cursor

1. Position the cursor where you want to place the marker.
2. From the **Insert** menu, choose **Marker**, or press M.
3. Type a name for the marker and press Enter. If you do not want to name the marker, simply press Enter.

Inserting a marker during playback

During playback, press M. The marker appears on the marker bar. You may name the marker after it has been set.

Naming (or renaming) a marker

1. Place the mouse pointer on the marker you want to name or rename. The pointer changes to a hand icon.
2. Right-click to display a shortcut menu.
3. From the shortcut menu, choose **Rename**. A text box opens next to the marker.
4. Type the marker name.
5. Press Enter to set the marker's name.

You can also double-click an existing name or double-click the space just to the right of a marker to rename it.
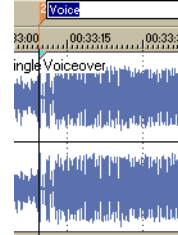
Moving markers

Markers can be repositioned by dragging them on the marker bar.

Navigating to markers

You can jump the cursor to any marker on the timeline by clicking the marker. You can also jump to a marker by pressing the number keys along the top of the keyboard (*not* the numeric keypad).

> **Hint:** *Jump the cursor to the next or previous marker by pressing* Ctrl+ ← *or* →.

Deleting markers

1. Place the mouse pointer on the marker that you want to delete. The pointer changes to a hand.
2. Right-click to display a shortcut menu.
3. From the shortcut menu, choose **Delete**. The marker is removed from your project.

CD Architect software does not renumber the tags as you remove them. For example, if you have five markers in your project and delete markers 3 and 4, the remaining markers will be listed as 1, 2 and 5. However, as you add markers again, the application begins numbering the missing sequence first, in this case 3 and 4, then 6, 7, 8, etc.

Deleting all markers and regions

1. Right-click the marker bar.
2. From the shortcut menu, choose **Markers/Regions**.
3. From the submenu, choose **Delete All**.

Working with regions

Regions identify ranges of time and provide a way to subdivide your project. A region is defined as the area between two region markers that share the same number. Regions can function as semi-permanent time selections. Region information can be displayed in the Explorer by clicking the arrow next to the **View** button and selecting **Region View**.

Inserting regions

1. Make a time selection. *For more information, see Selecting a time range on page 46.*

2. From the **Insert** menu, choose **Region**, or press R.

3. Type a name for the region and press Enter. If you do not want to name the region, simply press Enter.

Region markers display at the beginning and end points of a time selection.
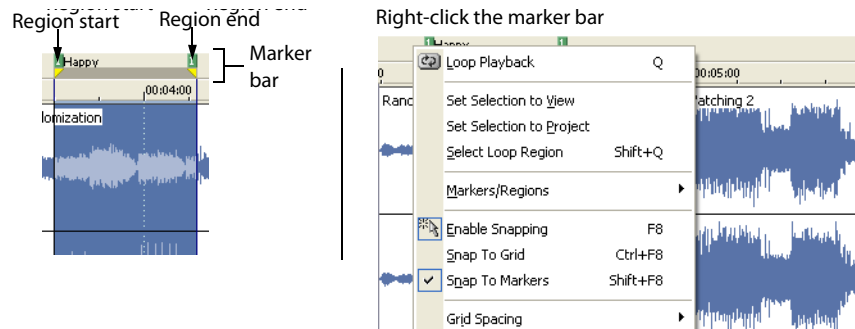
Moving regions

Drag a region marker to reposition it. To move both region markers (start and end markers) at once, hold Alt while dragging a region marker.

Naming regions

1. Place the mouse pointer on the left region marker you want to name or rename. The pointer changes to a hand icon 👆.

2. Right-click to display a shortcut menu.

3. From the shortcut menu, choose **Rename**. A text box appears next to the region marker.

4. Type the region's name.

5. Press Enter or click anywhere in the timeline to set the name.

Selecting regions

You may select the events, across all tracks, within the region for editing or playing back.

1. Right-click one of the region markers to display a shortcut menu.

2. From the shortcut menu, choose **Select Region**.

Note: *You can also select a region by pressing a number on your keyboard (not the numeric keypad) or by double-clicking a region marker.*

Navigating to regions

You can move the cursor to the start or end of a region by clicking either region marker. You may press Ctrl+ ◄ or ► to move the cursor to the next or previous region markers.

Right-click a region marker to display a shortcut menu that allows you to navigate to the beginning (**Go to Start**) or the end (**Go to End**) of a region.

Deleting regions

1. Place the mouse pointer on the region marker's starting or ending point. The pointer changes to a hand icon 🖑.

2. Right-click to display a shortcut menu.

3. From the shortcut menu, choose **Delete**. The region is removed from your project.

CD Architect software does not renumber the tags as you remove them. For example, if you have five regions in your project and delete region 3 and 4, the remaining regions are listed at 1, 2 and 5. However, as you add regions again, the application begins numbering the missing sequence first, in this case 3 and 4, and then 6, 7, 8, etc.

Deleting all regions and markers

1. Right-click the marker bar.

2. From the shortcut menu, choose **Markers/Regions**.

3. From the submenu, choose **Delete All**.

Working with CD layout markers

Markers on the CD layout bar indicate the locations of CD tracks and indices in an audio CD layout project. CD tracks distinguish songs in the project and have a starting and ending point. CD tracks are used to indicate to the CD-R device where to mark the beginning and ending of a track during the writing process. Indices are single markers used to subdivide a track, and are useful for navigating to specific areas within a CD track. However, not all CD players allow navigation to indices.

Using an external audio editing program

CD Architect software is a nondestructive editing environment, which means that the original source files remain unchanged by any editing done in the application. Destructive (constructive) edits that modify the actual source media file may be done in a separate application such as Sound Forge®. By setting up a separate audio editor, you can quickly access the program from CD Architect software via the **Tools** menu or by pressing Ctrl+E.

Setting up an audio editing program

If you already have Sound Forge loaded on your computer when you installed CD Architect software, the installation should have detected it and made it your default audio editing program. However, if you do not have Sound Forge or want to specify a different audio editor, you may do so in the Preferences dialog.

1. From the **Options** menu, choose **Preferences**. The Preferences dialog appears.

2. In the Preferences dialog, choose the **Editing** tab.

3. Click the **Browse** button to the right of the **Preferred audio editor** box. The Preferred Audio Editor dialog appears.

4. From this dialog, navigate to the application to use for editing audio files.

5. Select the application's executable icon (.exe) and click **Open** to set the application as your default audio editor.

   The application's path displays in the **Preferred audio editor** box on the **Editing** tab.
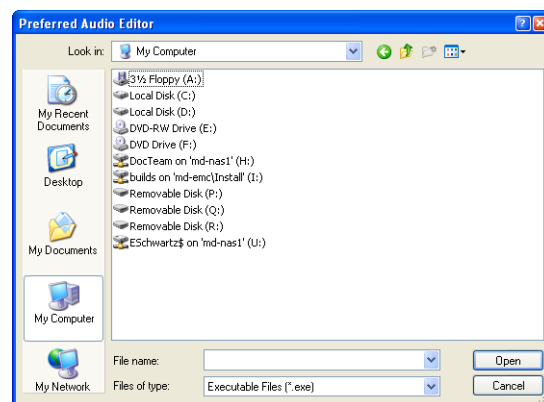
Opening an audio editor from CD Architect software

All events in your CD Architect software project are references to media files on a storage device. When you edit an audio event in an audio editor, you can choose to open the original media file or a copy of the file.

Opening a file in an audio editor

You can directly edit the media file to which an audio event is referenced. Any changes you make and save in the audio editor are permanent and are reflected in the event in your project.

1. Select the event to be edited.

2. From the **Tools** menu, choose **Open in Audio Editor**.

Your selected audio editing application opens the event's referenced media file. Make the necessary changes and save the file in the audio editor. If you keep the media file's name and location the same, its event is updated immediately in your project. However, if you change the media file's name or location (using **Save As**), you must import the edited (new) file into the application.

Opening a copy of a file in an audio editor

You can also create a copy of an audio file and open it in an audio editor. Opening a copy of a file has the advantage of preserving the original file unchanged. The modified copy is inserted into the event as a take and is automatically added to the Media Pool.

1. Select the event to be edited.

2. From the **Tools** menu, choose **Open Copy in Audio Editor**.

When you are finished editing, save the file. The application adds "Take *X*" to the end of the filename to distinguish it from the original and adds it to the project as a take. If you save it to a new file (using **Save As**), you must manually add it as a take into the project. *For more information, see* Working with takes *on page* 61.

Editing a media file's source project

When your CD Architect project uses source media files that are rendered with an embedded project path reference, you can easily open the source project in the associated application if you need to edit the media. By saving your project path reference when you render files in ACID 5.0, Sound Forge 8.0, or Vegas 6.0, you can quickly access the media from CD Architect via the **Edit Source Project** shortcut menu.

Note: *The project information in the rendered file is only a reference to a project file. If you modify the source project file after rendering, the project data will no longer match the rendered file. To edit a project using a path reference, the project file and all media must be available on your computer.*

1. Perform one of the following options:

Option	Action
I	Right-click a media file in the Explorer window.
II	Right-click a media file in the Media Pool window.
III	Right-click an event on the timeline.

2. From the shortcut menu, choose **Edit Source Project**. An ACID, Vegas, or Sound Forge window will open with the source project.

   If you are editing a source project using a computer other than the computer where the project was created, then the editing computer must meet the following requirements:

   - The software that was used to create the project must be installed and the project file extension (.acd, .acd-zip, .veg, or .frg) must be registered on the editing computer.
   - The editing computer must have the same version (or later) of the software as the computer where the project was created.
   - The project file must exist on the editing computer using the same file path as on the computer where the project was created.
   - The project's source media must exist on the editing computer. If the media files do not use the same file path as on the computer where the project was created, you will be prompted to choose a new folder or replacement files.

3. Edit the project as necessary.

4. Render the edited project using the same name as the original media file and close the editing application.

Note: *If you are editing an existing track, your project will automatically be updated with the latest rendered media file.*

Chapter 6 Advanced Editing Techniques

This chapter builds on the techniques that were introduced in the last chapter. Ripple editing, pitch shifting, and takes are just three of the more advanced editing topics that are covered in this chapter.

Snapping events

CD Architect™ software is preset to snap events into place as you drag them. Events can snap to another event's edges, to the cursor position, or to a time selection. CD Architect software also allows events to snap to grid lines and markers. As you move an event along the timeline, its edge automatically aligns to designated snap points. At the highest level, all features in the application can quantize to individual CD frames.

Enabling and disabling snapping

You can quickly enable or disable all snapping by clicking the **Enable Snapping** button   on the toolbar. The application also allows you to selectively enable and disable snapping options in the **Options** menu:

- **Enable Snapping** - controls all snapping behavior except quantizing to frames.
- **Snap To Grid** - controls snapping to grid markers. CD Architect software provides a variety of grid measurements. *For more information, see Changing grid spacing on page 103*.
- **Snap To Markers** - controls snapping to markers. The **Snap To Markers** option applies to markers, regions, and CD layout markers. *For more information, see Adding project markers and regions on page 55*.
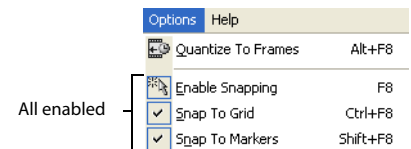
Quantizing to frames

The **Quantize To Frames** command in the **Options** menu takes snapping one step further. With this feature enabled, all edits are forced to occur on frame boundaries. Quantizing ensures that moving events, placing markers, making selections, and positioning the cursor do not occur between CD frame boundaries.

Time compressing/stretching events

Time stretching and compressing events is the process of using the same amount of source media to fill a shorter or longer event.

1. Hold the Ctrl key.

2. Drag the edge of the event toward the center of the event to compress (shorten) it or drag the edge out away from the center to stretch (lengthen) it.

You can see the results of the time compression or stretching by viewing the properties of the event. Right-click the event and choose **Properties** from the shortcut menu. Time compressing/stretching an event affects the **Time stretch/pitch shift settings**.

> **Note:** *You can time compress/stretch several events at once by grouping them first. For more information, see Grouping events on page 74*.

Working with takes

A take is a version of an audio recording. CD Architect software allows you to include a number of takes in the same location (event) of the project. You can then rapidly switch between these separate takes to see which one fits into the project the best. Although this is what takes are designed for, you can actually use any media files you want as a take, even completely different sounds. Since an event is just a container of a specific length and at a specific location, the actual content (media file) is easily changed.

Adding takes

Multiple media files can be added to the timeline at the same time to a single event as takes. You can also add regions within media files as takes. *For more information, see* Adding regions as takes *on page 66*.

Adding media files to the timeline as takes

1. Locate the media files that you want to insert as takes in the Explorer or Media Pool and select them:
   - Select a range by holding Shift and clicking the first and last file in the range.
   - Select nonadjacent files by holding Ctrl and clicking the various clips individually.
2. Right-click and drag one of the selected clips in the group to the timeline.
3. From the shortcut menu, choose **Add as Takes**.

Adding takes to existing events

Media files can also be added to existing events as takes.

1. Right-click a media file in the Explorer or Media Pool and drag it to an existing event.
2. From the shortcut menu, choose **Add as Takes**.

Selecting takes

When you add an event with multiple takes, a single event is inserted into a track. The last clip that was selected determines the duration of the event and is set as the active take.

1. Right-click an event with multiple takes.
2. From the shortcut menu, choose **Take**.
3. From the submenu, choose **Next Take** or **Previous Take** or choose the name of the take from the list at the bottom of the submenu. Alternately, click the event and press N to select the next take or Shift+N to select the previous take.

Previewing and selecting takes

CD Architect software allows you preview the takes for a given event.

1. Select the event containing multiple takes.
2. Right-click to display a shortcut menu and choose **Take** to display a submenu.
3. Choose **Choose Active**... from the submenu. The Take Chooser dialog appears.
4. Select the take that you want to preview and use the **Play** ▷ and **Stop** ☐ buttons within the dialog.
5. To use a take, select it and click **OK**. The selected take is now the active take.
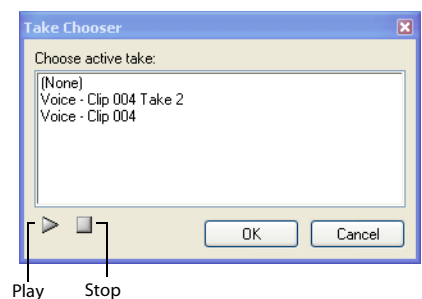
Using takes to copy event attributes to a new event

You can duplicate an event and replace it with another event while retaining the attributes (switches, envelopes, effects, etc.) of the original. Adding takes to a duplicated event in this way is an excellent method of maintaining consistency between a number of events in a project that may use a complex set of effects or plug-ins. First, duplicate an event by holding the Ctrl key while dragging an event. Then, replace the original event by adding the new file as a take and then deleting the original take. This is a quick way to copy all the attributes of an existing event to a new event.

Deleting takes

Individual takes can be deleted from an event at any time.

1. Right-click an event with multiple takes.

2. From the shortcut menu, choose **Take**.

3. From the submenu, choose **Delete Active** to immediately remove the active take or choose **Delete** to open a dialog with a list of all of the takes contained in this event.

Working with take names

Displaying take names on events

Take names may be displayed on the events in the timeline.

1. From the **Options** menu, choose **Preferences**. The Preferences dialog appears.

2. On the **General** tab, select the **Show active take name in events** check box to enable it.

3. Click **OK**.
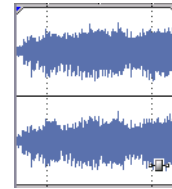
Before preference is enabled
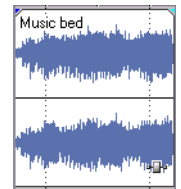
After preference is enabled

Changing take names

Changing the name of a take does not affect the source media file in any way. Typically, you may want to change an event's name after adding multiple takes into an event.

1. Select the take to be renamed. *For more information, see Selecting takes on page 62.*

2. Right-click the event to display a shortcut menu.

3. From the shortcut menu, choose **Properties**. The Properties dialog opens.

4. Type the new name in the **Active take name** box.

5. Click **OK** to set the new take name.

Using the Trimmer window

The Trimmer allows you to work with and edit one media file at a time. The entire file is opened into the Trimmer, in contrast to events on the timeline that may only contain a portion of the actual source file.

The main function of the Trimmer window is to allow you to trim a media file and place portions of it on the timeline. You can also add regions and markers to a file, preview the media file, or open it in an external audio editing program.
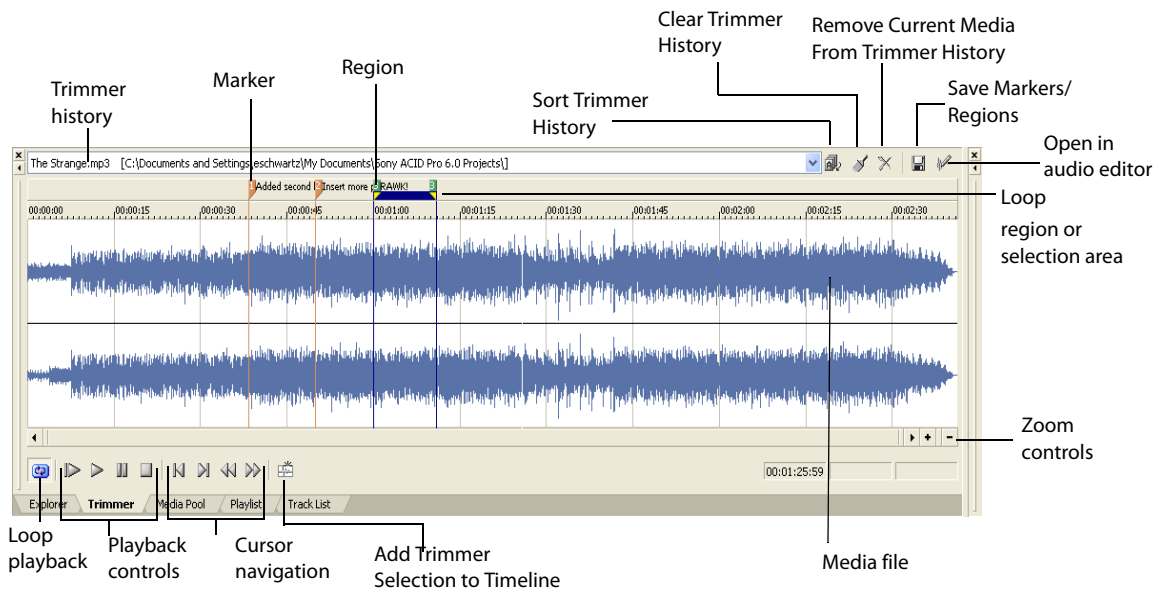
You can open any number of files in the Trimmer at the same time, selecting the one you currently want to work on from the **Trimmer history** drop-down list.

From the **View** menu, choose **Trimmer** or press Alt+2 to display the Trimmer window, if it is not already visible. The Trimmer window may be placed in the window docking area or floated over the work area. *For more information, see* Window docking area *on page 19*.

Opening a file in the Trimmer

1. Right-click an event. A shortcut menu appears.

2. Choose **Open in Trimmer**.

You can also drag files to the Trimmer from the Explorer or the Media Pool.

Making selections in the Trimmer

After you have opened a media file in the Trimmer, you may select a segment of it and place it in your project. Make a time selection to select a segment in the Trimmer in the same way you do in the project timeline. *For more information, see* Selecting a time range *on page 46*.

You can make a selection during playback by using the keyboard. Press [to mark the start of the selection, and press] to mark the end.

If you know the exact timecode of the point where you want to begin and end a time selection, you can enter it into the boxes at the lower right part of the Trimmer window.

Double-click to enter a value

Selection start

Selection end

Selection length
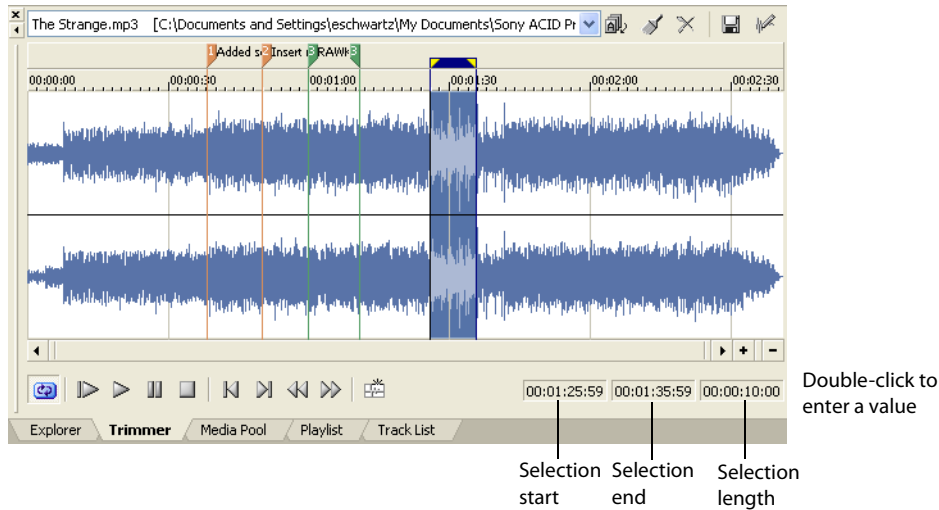
Hint: *Press* Backspace *to recall the last five time selection areas in the Trimmer.*

Adding selections to the timeline

You can use the Trimmer window to do traditional three-point and two-point editing. These editing techniques allow you to add smaller sections of files to the timeline.

Ripple edit mode affects how a selection is added to the timeline from the Trimmer. When the **Ripple Edits** button ![icon] is selected on the toolbar, adding a selection from the Trimmer selection affects the position of later events on the timeline. When CD Architect software is not in ripple edit mode, adding a selection from the Trimmer has no effect on other events. *For more information, see Editing and ripple editing events on page 47.*

Adding selections from the cursor (three-point editing)

1. Open a media file in the Trimmer.
2. Make a time selection in the Trimmer.
3. Position the cursor in the timeline at the point where you want to add the selection.
4. Click the **Add Trimmer Selection to Timeline** button ![icon] or press A on the keyboard to insert the event after the cursor.

Alternately, you can drag the selection from the Trimmer to the timeline.

Ripple editing (if enabled) applies to clips inserted from the Trimmer. *For more information, see Editing and ripple editing events on page 47.*

Filling a time selection on the timeline (two-point editing)

You can select a range of time on the project timeline and then fill it with the same length selection from the Trimmer.

1. Create a time selection in the timeline where you want to add the event. This sets the duration and position of the event that you will create.
2. Open the media file you want to use to fill the time selection in the Trimmer window.
3. Right-click the file in the Trimmer window and choose **Sync Track View Selection Time from Cursor** or **Sync Track View Selection Time up to Cursor** from the shortcut menu. A time selection is automatically created on the file in the Trimmer window.
4. Adjust the location of the time selection in the Trimmer as needed by dragging the time selection (the area between the yellow triangles) on the Trimmer marker bar.

5. Drag the event from the Trimmer to the timeline and allow it to snap into place within the time selection.

Adding and saving regions and markers to a media file

The Trimmer allows you to add markers and regions to a media file in the same way that you add them to your project. Media file markers and regions are different from project markers and regions. The difference between the two is simply that project markers and regions affect a project, while media file markers and regions are embedded in, and saved with, a media file. *For more information, see Adding project markers and regions on page 55.*

Markers and regions that are added in the Trimmer are only temporary. You must save them by clicking the **Save** button ![save] in the Trimmer window if you want to use them again after you close the project. After the markers and regions are added and saved to the media file, they are available when you open the media file in an audio editor program or in the Trimmer.

Note: *Markers cannot be saved to media files with properties set to read-only in Windows.*

Automatically saving Trimmer markers and regions with media files

1. From the **Options** menu, choose **Preferences.**

2. On the **General** tab, select **Automatically save trimmer markers and regions with media file.**

Adding regions as takes

Once regions are saved with a media file, either in the Trimmer window or in another application, you can add the regions as takes to the timeline from the Explorer window. In the Explorer window, click the arrow next to the **View** button and select **Region View** from the drop-down list. A single media file may contain a number of separate regions. These regions can be selected individually or as groups and inserted as takes into the timeline. *For more information, see Working with takes on page 61.*

Marker   Region
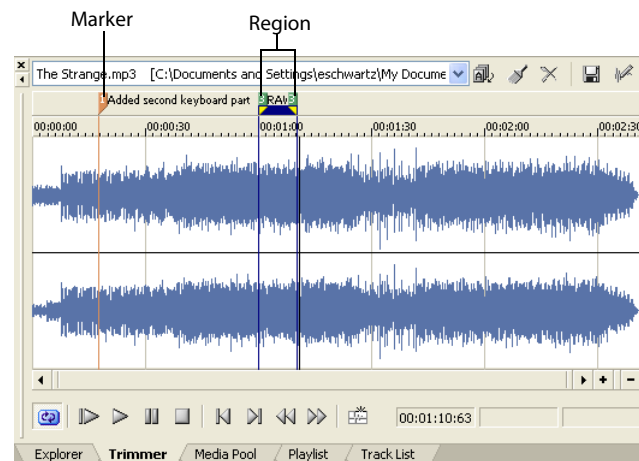
Opening a file in an external audio editor from the Trimmer

The Trimmer allows you to open your selected audio editing application (e.g., Sound Forge) to perform permanent edits to the media file. After you make the necessary changes and save the file in the audio editor, the application automatically updates the event. Make sure that the media file's name and location remain the same. *For more information, see Using an external audio editing program on page 58.*

To open the audio editor from the Trimmer, click the **Open in Audio Editor** button ![icon].

Using the Playlist window

The Playlist window displays a database for all of the media in your project. It shows information about how the files are being used and allows you to modify many of those properties. You may add or change information, rearrange columns, and edit items in the project.

This window provides an alternate method for arranging and normalizing events, and viewing and editing take information.

The Playlist window may be docked in the window docking area or may float on the workspace. *For more information, see Window docking area on page 19.*

Viewing the Playlist window

To view the Playlist window, choose **Playlist** from the **View** menu or press Alt+5. Most entries can be edited by double-clicking them or by right-clicking them to display a shortcut menu.

Right-click an entry to display a shortcut menu, or double-click an entry to edit it.
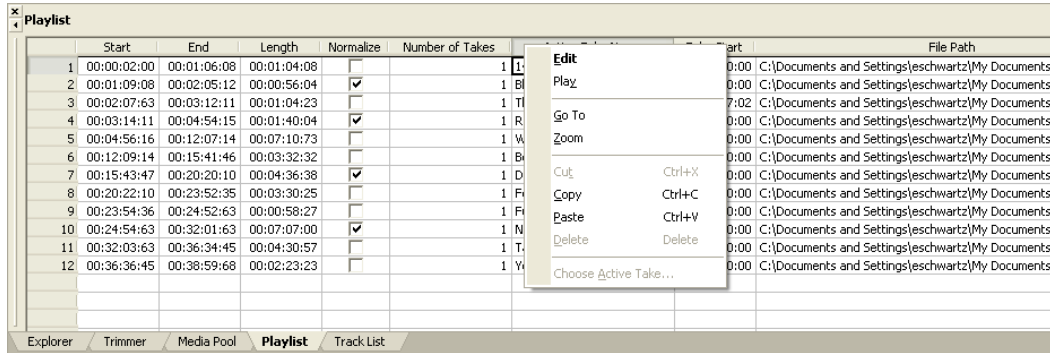
If necessary, use the scroll bar to view other columns in the window.

Event information

The following table explains each column and describes its function.

Column	Description	Edit function
Start	Displays when on the timeline the event starts playback.	Enter a different value to cause the event to begin playback sooner or later in the project (pg. 41).
End	Displays when on the timeline the event ends playback.	Enter a different value to cause the event to end playback sooner or later in the project (pg. 41).
Length	Displays the total length of the event.	Enter a different value to increase or decrease the event's playback time.
Normalize	Displays whether the event is normalized.	Toggle the event's normalize switch by clicking the check box. A check mark in the box indicates that the event is normalized (pg. 69).
Number of Takes	Displays the amount of recorded takes contained in the event.	Cannot be edited (display only).
Active Take Name	Displays the event's current take name.	Enter a different name for the current take (pg. 63).
Take Start	Displays the offset into the source media file when the placed event begins playback.	Enter a different value to cause the take to playback sooner or later from the source media file.
File Path	Displays the path of the event's media file.	Enter a new media file reference path for the event to use.

Chapter 7 : Working with Events

Events are windows into media files in a project and are the most basic unit of editing in CD Architect™ software. Media files that are inserted into the timeline are automatically contained within an event. Trimming and editing an event does not affect the source media file in any way.

Setting event switches

Event switches are important functions that are used to determine the basic behavior of events in CD Architect software. You can set switches for a single event or multiple events at the same time.

1. Right-click an event.

2. From the shortcut menu, choose **Switches**, and choose the desired switch from the submenu.

   Active switches have a check mark next to them. Choose an active switch on the menu to remove the check mark and turn it off.

> **Tip:** *You can also set switches in the* **Edit** *menu or by right-clicking an event and choosing* **Properties***. You can set the Normalize switch in the Playlist window.*

Mute

Use the Mute switch to mute an event. This prevents the event from playing back.

Loop

You can loop an event so that you can extend it along the timeline by dragging the right edge of the event. Notches appear in the top of the event to mark where the media in the event ends and then repeats.

Looping notches

Drag the right edge to extend the event

Selected event before loop

Selected event after loop is applied
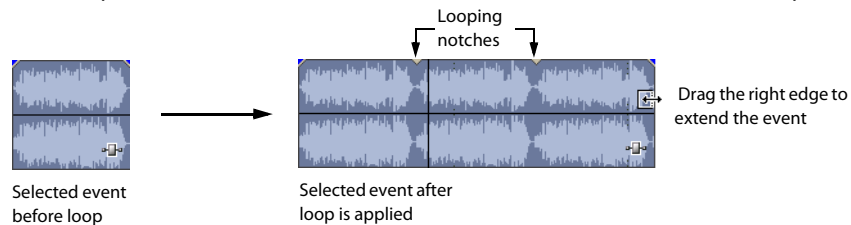
Invert phase

This switch inverts the phase of the sound data. Although inverting data does not make an audible difference in a single file, it can prevent phase cancellation when mixing or crossfading audio signals.

Normalize

You may normalize an event to maximize its volume, based on the waveform's highest peak, without clipping the event during playback.

Selected events before normalize

Selected event after normalize is applied
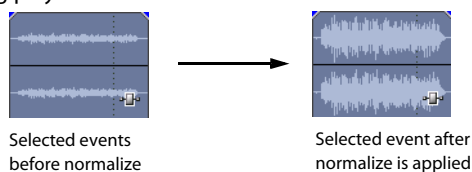
Recalculating the normalization

When you normalize an event, the application analyzes the event and raises the volume based on the waveform's highest peak and then adjusts the rest of the event accordingly. If you have adjusted the edge of an event to exclude the (formerly) highest waveform peak, you may want to recalculate the event's normalization.

1. Right-click the event to display a shortcut menu.

2. From the shortcut menu, choose **Properties**. The Event Properties dialog opens.

3. Click **Re-calculate** to normalize the event again.

Highest peak used for normalization before editing

Event edited after normalization

Highest peak used for recalculating the normalization
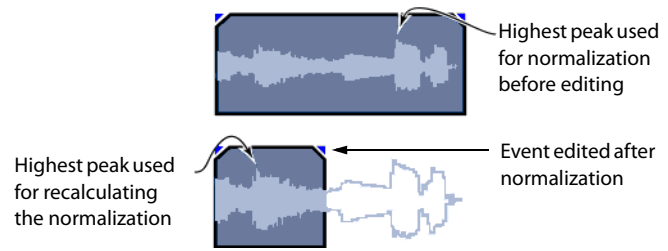
> **Tip:** *You can set the maximum decibel level used by CD Architect software to calculate the event during normalization. For more information, see* Audio tab *on page 29.*

Accessing event properties

CD Architect software automatically determines the properties of an event based on the properties of the source media file. In addition to the event switches (mute, loop, etc.) described in the previous section, event properties include the active take name and time stretch/pitch shifting.

1. Right-click an event to display a shortcut menu.

2. From the shortcut menu, choose **Properties**. The Properties dialog appears.

The **Audio Event** tab contains the properties for the event. The **Time stretch/pitch shift** section of the dialog allows you to change the pitch, duration, or both pitch and duration of an audio event. *For more information, see* Time compressing/stretching events *on page 61.*

Using audio event envelopes (ASR)

You may apply envelopes to individual events. Envelopes, also known as ASRs (attack, sustain, and release), give you the ability to control an audio event's fade-in, fade-out, and overall volume level.

Setting an audio event's volume

When you place the mouse pointer at the top of the event, the pointer changes to a hand cursor 🖑 that you can use to lower the event's overall volume.

1. Place the mouse pointer at the top of the event.

2. When you see the envelope cursor 🖑, drag the volume envelope to the desired level. As you drag, the event's decibel level displays.

Volume line

Decibel level
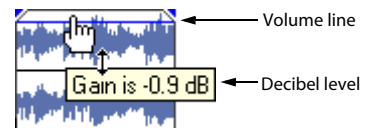
> **Note:** *An event's volume envelope is calculated before any existing timeline volume envelopes. For more information, see* Using timeline volume envelopes *on page 71.*

Setting an event's fade in and out

The event handles allow you to change an event's fade in and out volume. You can also change the type of curve that the event uses to control the volume's fade in or out.

1. Place the mouse pointer on a handle (upper corners of the event). The pointer changes to the envelope cursor ⬚.

2. As you drag, the volume envelope appears. The time in the event and the decibel level both display.

Fade in

Gain at 00:00:00.13 is 0.0 dB

Fade out

Gain at 00:00:00.21 is 0.0 dB
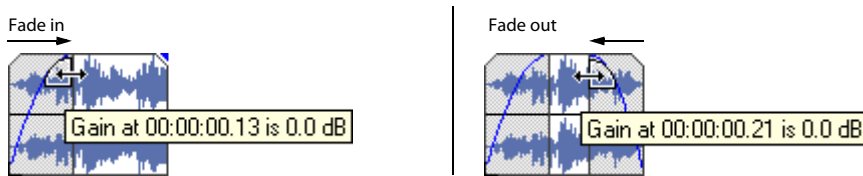
Changing an event's fade curve

You can set the shape of the fade curve (fast, linear, slow, sharp, or smooth) that an event uses to raise or lower the volume over time. To access the different fade curves, right-click anywhere in the event's fade-in or -out region and choose **Fade In Type** or **Fade Out Type** from the shortcut menu.

Right-click to select fade curve type.

Fast — Linear — Slow — Smooth — Sharp — None

Slow — Linear — Fast — Smooth — Sharp — None
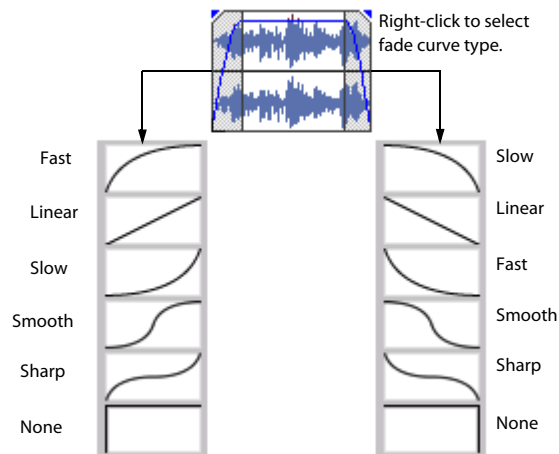
The Envelope Edit tool

While you can edit envelopes using the Normal Edit tool ⬚, you can limit your editing to envelopes only by clicking the **Envelope Edit Tool** button ⬚. You cannot move, trim, or otherwise modify events with this tool, which allows you to edit envelope points without making any other unwanted changes. *For more information, see* .

Using timeline volume envelopes

You can add a volume envelope to the timeline to precisely control the overall volume of your project throughout the timeline. A timeline volume envelope controls all events on the timeline. You can vary the overall volume by adding envelope points along the timeline. Timeline volume envelopes are calculated after individual event envelopes and any event effects.

If you're using the second audio layer, you can have a separate volume envelope for each layer and adjust each individually. The **Insert/Remove Volume Envelope** or **Show Volume Envelope** commands will affect the layer that currently has focus.

Adding or removing a timeline volume envelope

You can add or remove a timeline volume envelope to or from either audio layer. To add or remove an envelope, from the **Insert** menu, choose **Insert/Remove Volume Envelope**. If you remove an envelope, all points you set are deleted.

> **Note:** *You can hide an envelope without deleting the points or affecting playback. For more information, see Showing or hiding a timeline volume envelope on page 74.*

Adjusting the volume

To adjust the overall volume, drag the envelope line up or down. A floating tooltip shows you how much you are adjusting the envelope. As you add envelope points, you can drag each envelope point up or down to adjust the volume individually.

Adding or deleting envelope points

By default, a new timeline volume envelope contains a single envelope point. You can change the volume of your project an unlimited number of times across the timeline by adding additional envelope points. To add more points, simply double-click on the envelope line where you want to add a new point. You can then drag each envelope point up or down to adjust the volume as needed.

If you want to delete an envelope point, right click the point and choose **Delete** from the shortcut menu. You can delete all envelope points by right-clicking anywhere on the line and selecting **Reset All** from the shortcut menu.

Moving envelope points

Once the envelope points have been added, you may raise and lower them to different levels along the timeline. You may move one point at a time, even during playback, and check the results in real time. Also, you may set the type of fade curve after each envelope point.

1. Place the mouse pointer on an envelope point. The pointer changes to a hand icon 🖑 .

2. Drag the point to the desired position. As you move an envelope point, a tooltip displays both the point's location on the timeline and its decibel level/percent pan.

Set one point at a time or use the Envelope tool to select and move multiple points at a time.
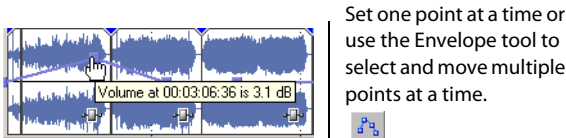
3. Click the **Play** ▷ or the **Play From Start** ▷ buttons to play back the project and check the timing of the envelope.

> **Note:** *You may also set the value of the point by right-clicking an envelope point and choosing a setting from the shortcut menu or choose **Select All** from the shortcut menu to raise or lower all points on the envelope.*
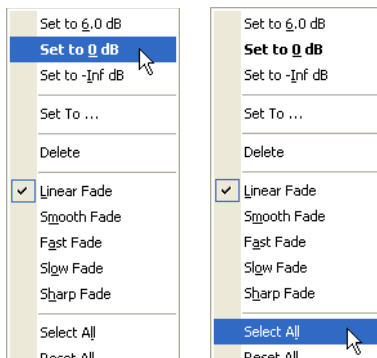
Using the Envelope Edit tool

Envelopes can also be edited by using the Envelope Edit tool. To use this tool, click the **Envelope Edit Tool** button 🔧 on the toolbar. The advantage of switching to this tool to edit envelopes is that events cannot be moved when this tool is selected, thereby protecting them from changes. This effectively locks all of the events and effects in a project while the various envelopes are being modified.

Selecting and adjusting envelope points

1. Select the **Envelope Edit Tool** button 🔧 on the toolbar. The Envelope Edit tool is active.

2. Drag along the timeline to select several envelope points, or place the mouse pointer over a single point.

3. Drag the selected envelope point(s) to a new position.

To deselect multiple envelope points, click anywhere in the event that is not part of the envelope.
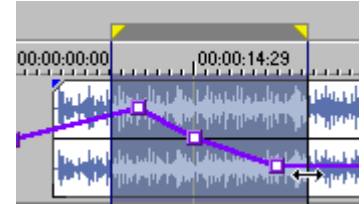
Drag to select envelope points.

Cutting, copying, and pasting envelope points

You can cut or copy envelope points and paste them to a different part of the same audio layer, or paste them to the envelope on a different layer.

1. Select the **Envelope Edit Tool** button 🔧 on the toolbar. The Envelope Edit tool is active.

2. Click within a layer to select it.

3. Drag along the marker bar to select the envelope point(s) you want to cut or copy.

4. From the **Edit** menu, choose **Cut** or **Copy**.

5. Click to position the cursor in the layer where you want to paste the envelope point(s).

6. From the **Edit** menu, choose **Paste**. The envelope points are pasted in the new position.

Copying an envelope to a different layer

You can copy the entire envelope from one audio layer and paste it to the other audio layer.

1. Select the **Envelope Edit Tool** button 🔧 on the toolbar. The Envelope Edit tool is active.

2. Click within a layer to select it.

3. From the **Edit** menu, choose **Select All**.

4. From the **Edit** menu, choose **Copy.**

5. Click within a layer to select it.

6. Click to position the cursor where you want the envelope to start.

7. From the **Edit** menu, choose **Paste**. The envelope is pasted on the layer.

Adjusting fade properties

Between each envelope point, you can adjust the fade speed individually: linear, fast, slow, smooth, or sharp. You can select either a point or a portion of the envelope to set the fade speed.

If	Then
You select a portion of the envelope	The fade speed is applied to that envelope segment.
You select a point	The fade speed is applied to the segment of the envelope after the selected point.

Note: *To change the fade, right-click and choose* **Linear Fade**, **Fast Fade**, **Slow Fade**, **Smooth Fade**, *or* **Sharp Fade** *from the shortcut menu.*

Showing or hiding a timeline volume envelope

You can display the timeline volume envelope to set the volume levels, and hide it from the view again when you are done, if desired. Hiding the volume envelope does not affect playback. The points that you set still automate the volume, even though the envelope is not visible. To show the timeline volume envelope, from the **View** menu, choose **Show Volume Envelope** (or press V). Choose this option again to hide the envelope at any time. When you display this envelope for the first time, it appears as a straight blue line in the center of your timeline.

Locking envelopes to events

Envelopes extend for the length of a layer and are independent of the events on a layer. This means that the envelope remains in place when you move the events. Carefully adjusted envelopes can be set to move with the underlying events, thus preserving the timing. If you want envelope points and their position to move with events as they move along the timeline, use the **Lock Envelopes to Events** option on the **Options** menu to toggle this lock on and off.

Grouping events

CD Architect software allows you to create groups to lock events together. Once you create a group, you can move all the events in the group as a unit and apply event-specific edits at the same time.

You can still edit properties of individual events within a group without affecting the other events in a group.

Creating a new group

Grouping is useful when you want to preserve timing of events and move events together along the timeline.

1. Select the events you want to group. *For more information, see Selecting multiple events on page 45*.

2. From the **Edit** menu, choose **Group**, and choose **Create New** from the submenu.

Adding an event to an existing group

1. Right-click an event in the existing group, choose **Group** from the shortcut menu, and choose **Select All** from the submenu to select all of the members of the group.

2. Press Ctrl and click the event to be added to the group.

3. Right-click the event, choose **Group** from the shortcut menu, and choose **Create New** from the submenu.

> **Note:** *Events can only be in one group at a time. Adding an event to an existing group essentially clears the old group and creates a new one that includes all of the selected events.*

Removing events from a group

You can remove individual events from a group without affecting the other members of the group. An event you remove from the group is not deleted from the project and remains on the timeline.

1. Select the event you want to remove from the group.

2. From the **Edit** menu, choose **Group**, and choose **Remove From** from the submenu. The event is removed from the group. The rest of the grouped events remain intact.

Clearing a group

You may ungroup all events by clearing the entire group. Clearing a group does not remove events from your project.

1. Select one of the members of the group.

2. From the **Edit** menu, choose **Group**, and choose **Clear** from the submenu. All events are removed from the grouping.

Suspending grouping temporarily

You can temporarily suspend the grouping behavior of all groups in CD Architect software by choosing **Ignore Event Grouping** from the **Options** menu.

Chapter 8 | Working with Tracks

Tracks contain the media events on the timeline of a project. Your entire CD can be created from a single event on the timeline, or each track can be created from a single event or multiple events on the timeline.

> **Tip:** *If you want to create a live CD with no silence between tracks, move your events so no space exists between them and insert silence only before the first track.*

Creating tracks from events

Tracks and events are independent in CD Architect™ software, but that doesn't mean you can't use events to lay out your CD project.

> **Note:** *CD track numbering is based on the* **First track number on disc setting** *on the* **CD** *tab in the Project Properties dialog.*

Creating tracks automatically when you add events to the timeline

When the Automatically Create Tracks button ⬜ is selected, the application will automatically create tracks when you add media to the timeline from the Explorer, Media Pool, or Trimmer.

The Open Media dialog allows you to choose whether you want to add media to the Media Pool only, create events on the timeline, or create CD tracks.

You can drag CD tracks to rearrange them, drag either end of a track to change its length, or use the Track List window to edit the track's position or name.

Creating tracks from existing events

1. Add media files to your project and edit events on the timeline to lay out your CD.

2. From the **Tools** menu, choose **Create Track List from Events**. CD Architect software marks each event with a CD track.
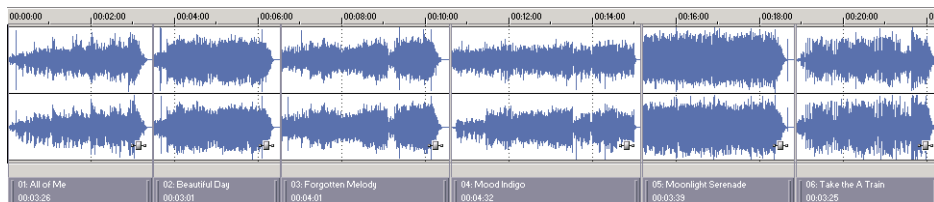
    You can drag CD tracks to rearrange them, drag either end of a track to change its length, or use the Track List window to edit the track's position or name.

> **Tip:** *When space exists between events, CD Architect software creates separate tracks for each event. If you want to create a track that spans multiple events, you can abut or overlap the events, and CD Architect software will create a single track. If you want to create a track for each event on the timeline when no space exists between events, select all of the events and choose* **Create Tracks from Media Regions** *from the* **Tools** *menu.*

Inserting CD tracks

From the **Insert** menu, choose **CD Track** to add a CD track using the current selection as the track length. If no selection exists, the Red Book minimum of four seconds is used.

Your first track should begin at 00:00:02:00 to conform to Red Book standards.

Note: *CD track numbering is based on the* **First track number on disc setting** *on the* **CD** *tab in the Project Properties dialog.*

1. Select the time range that you want to use to create a track.
2. From the **Insert** menu, choose **CD Track**. The application adds a CD track to the timeline.
3. You can drag CD tracks to rearrange them, drag either end of a track to change its length, or use the Track List window to edit the track's position or name.

Creating tracks from regions in a media file

From the **Tools** menu, choose **Create Tracks from Media Regions** to create tracks using regions embedded in the media files for all selected events.

For example, if you have a live recording that uses regions to indicate the sections of the recording, you can use this feature to create tracks without having to scan through the audio and create tracks manually.

Note: *Regions and markers in a media file are not visible on the CD Architect timeline. To see media regions and markers, open a file in the Trimmer window.*

1. Add media files to your project and edit events on the timeline to lay out your CD.
2. Select the events for which you want to create tracks using regions. If no events are selected, all events will be processed.
3. From the **Tools** menu, choose **Create Tracks from Media Regions**. The application creates a track for each region in the media file and an index for each marker in the media file. If no markers or regions exist in the file, a single track will be created for the event.

    You can drag CD tracks to rearrange them, drag either end of a track to change its length, or use the Track List window to edit the track's position or name.

Adjusting pause time between tracks

Pause time is the space between CD tracks. This space may contain silence — as in a standard commercially produced CD — or can contain audio — as in a live performance captured on CD.

The Red Book standard calls for two seconds of pause time, but you can edit the default pause time on the Editing tab of the Preferences dialog.

Automatically spacing tracks to the default pause time

From the **Tools** menu, choose **Conform Tracks to Default Pause Time**.

All tracks are moved along the timeline so two seconds exists before the first track, and the default pause time exists between all other tracks.

Adjusting pause time on the timeline

When you hover in the pause time between two tracks, the application displays the pause time.

You can edit the pause time in two ways:

• Double-click between two tracks. The display changes to an edit box where you can type a new value.

- Right-click between two tracks and choose a command from the shortcut menu.

Command	Description
Select Pause Time	Creates a time selection equal to the pause time between tracks.
Set to Default Pause Time	Moves all tracks upstream so the default pause time exists between the tracks where you clicked.
Edit Pause Time	Changes the pause time display to an edit box where you can type a new value.

Adjusting pause time in the Track List window

The Pause column in the Track List window allows you to edit the pause time between tracks. Type a new value in the box, and tracks will move accordingly in the timeline.

Creating hidden or bonus tracks

Hidden and bonus tracks are tracks that are not assigned track numbers. These tracks are not accessible by using the previous/next track buttons on your remote, but you can find them using the rewind or fast forward buttons.

Adding a hidden track at the beginning of a CD.

If your CD recorder supports it (unfortunately, very few drives do), you can add a hidden track by adding audio in the space before track 1. When the CD is inserted in an audio CD player, it will automatically start at track 1, but you can find the hidden track by rewinding past the beginning of the first track.

> **Note:** *Most CD recorders require that the space before track 1 be exactly two seconds, which eliminates the possibility of hiding tracks at the beginning of a CD. Check your CD recorder's documentation for specific information about your drive.*
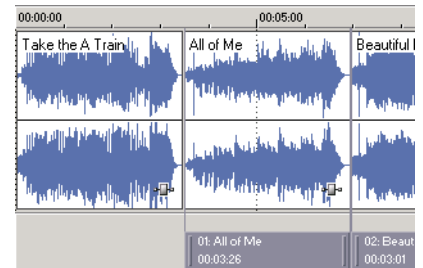
Adding a bonus track at the end of a CD

You can hide a track at the end of a CD by adding silence at the end of the last track and adding the new event after the silence. Drag the final track to the new end of the CD.

Because both events exist within a single track, they will be treated as one track by an audio CD player.
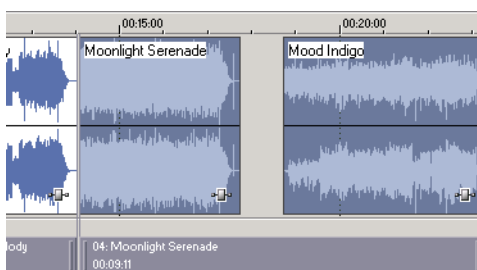
Locking events and tracks

From the **Options** menu, choose **Lock Events and Tracks** if you want tracks to follow when you move events along the timeline.

Inserting a CD index

From the **Insert** menu, choose **CD Index** to add a CD index at the cursor position.

You can use indices to subdivide a track. For example, in a track that contains an orchestral composition, indices could allow navigation to each of the movements. Each track on a Red Book audio CD can contain up to 99 indices.
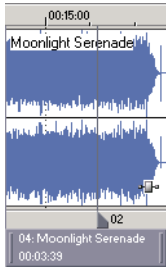
You can use the Previous Track or Index 🔙 and the Next Track or Index 🔜 transport buttons to navigate to tracks or indices on the timeline.

Reading subcodes from a CD

From the **Disc** menu, choose **Read Subcodes** to extract the track list (subcode) information from a CD and add it to the Track List window.

Extracting subcode information can help you verify a newly written CD or create a track list from an existing CD.

1. From the **Disc** menu, choose **Read Subcodes**. The Read Subcode dialog is displayed.

2. From the **Drive** drop-down list, choose the drive that contains the disc you want to read.

3. From the **Speed** drop-down list, choose the rate at which you want to read subcode information from the disc. If you experience read errors, decrease the speed.

4. Select a radio button to choose how the data will be read:

    •   Select the **TOC and CD Text only** button to only read the table of contents including CD Text. Neither indices nor pause time are read, and tracks will be added end-to-end.
    •   Select the **Full disc scan** button to read all subcode information, including CD Text, tracks, indices, and pause time.

5. Select the **Include ISRC** check box if you want to extract ISRC codes from the disc. Clear the check box to ignore ISRC information.

6. Select the **Include UPC/MCN** check box if you want to extract universal product codes/media catalog numbers from the disc. Universal product code/media catalog number information is updated on the **CD** tab of the Project Properties dialog.

7. Click the **OK** button.

> **Note:** *Not all CD-R drives can read pause times, index markers, ISRC codes, and UPC/MCN information. Check your drive's documentation to determine whether your drive supports these features.*

Using the Track List window

From the **View** Menu, choose **Track List** to toggle the display of the Track List window.

The Track List window is essentially a text representation of the events on the CD layout bar. You can use the Track List window to view track and index markers, edit track position and length, edit track names, edit pause times, toggle protection and emphasis flags, and edit ISRC data.

You can also copy, save, and print the contents of the Track List window if you need to provide a track list to a CD duplicator.

Rearranging tracks

1. Click in the numbered column to select a row.

2. Drag the row to a new position. The track is moved to the position where you drop it, and the timeline is updated.

Editing track position and length

Double-click the **Position**, **End**, and **Length** boxes and type a new value in the box to edit an event's starting or ending point or length.

Typing a new value in the boxes has the same effect as moving or resizing the CD track in the timeline:

- Editing the **Position** or **End** value moves the track forward or backward in time while preserving its length.
- Editing only the **Length** value changes the track's ending time while preserving its start time.

Editing track title and artist information

Double-click the **Title (CD Text)** and **Artist (CD Text)** boxes to edit its contents.

Tip: *To burn a valid CD Text disc, you must specify a title for each track on the disc; artist information is optional.*

Select the **Write CD Text** check box on the Burn Disc-at-Once CD dialog to write this data to your disc. In order to display CD Text, your CD player must support CD Text.

Warning: *If the* **Title (CD Text)** *field on the Track List window is left blank, a warning will be displayed before burning so you can choose to write the disc without CD Text or cancel burning and add title information as needed.*

Editing pause time

Double-click the **Pause** box to edit the pause time before a CD track.

Toggling protection and emphasis flags

Select the **Prot** check box to add a flag to the Q subcode to prevent digital copying of your CD.

Note: *In order to use copy protection, the CD player must support the copy-protection flag.*

Select the **Emph** check box to add a pre-emphasis flag to the Q subcode.

Pre-emphasis is a basic noise-reduction process that is implemented by a CD player. Emphasis involves boosting high frequencies during CD writing and cutting those frequencies during playback. The emphasis process reduces high-frequency noise without disrupting the natural frequency of the source material.

CD Architect software does not impart the pre-emphasis boost on a track; it can only set the flag. In order for pre-emphasis to occur, the CD recorder and player must support the flag. Check your CD drive documentation to determine whether your drive supports pre-emphasis flags.

Editing ISRC codes

The Track List window allows you to specify an ISRC (International Standard Recording Code) that will be used to identify the tracks on your disc.

ISRC were designed to identify CD tracks. The ISRC code is a 12-character alphanumeric sequence in the following format:

Field	A	B	C	D	E
Sample ISRC	SE	T38	86	302	12

Field	Description
A	Country — Represents the recording's country of origin.
B	First Owner — Assigned ID for the producer of the project. Each country has a board that assigns these codes.
C	Year of Recording — Represents the year the recording was made.

Field	Description
D	Recording — Represents the recording's serial number made by the same producer in that year:
	This value will use three digits (300-999) when the CD has 10 or more tracks.
	This value will use four digits (0001-2999) when the CD has 9 or fewer tracks.
E	Recording Item (1 or 2 digits) — Identifies tracks on a CD (each track can have a different ISRC code).

1. Double-click the **ISRC** box in a track row.

2. Type the appropriate code for the track.

3. Press **Enter**.

Creating a track list (PQ list or cue sheet)

If you need to share your track list information with another application or with a CD replication house, CD Architect software allows you to copy the track list information to the clipboard, save it to a text file, or print a hard copy.

Copying the track list to the clipboard

1. From the **Tools** menu, choose **Copy Track List to Clipboard** (or click the   button in the Track List window. The Copy Track List to Clipboard dialog is displayed.

2. Choose the format you want to apply to your track list information:

    • **Cue sheet for replication** — the track list is formatted so track times are listed relative to the beginning of the CD. This is the preferred format for CD replication houses.
    • **CD liner notes** — the track list is formatted so track times are listed relative to the first track on the disc.

3. Select the **Include summary information with track list output** check box if you want to include UPC/MCN, title, engineer, and comment information with the track list.

4. Click **OK** to send the track list information to the clipboard. You can then paste the information into a text editor or e-mail message.

Exporting the track list as a text file

1. From the **Tools** menu, choose **Export Track List** (or click the   button in the Track List window). The Export Track List dialog is displayed.

2. Choose the format you want to apply to your track list information:

    • **Cue sheet for replication** — the track list is formatted so track times are listed relative to the beginning of the CD. This is the preferred format for CD replication houses.
    • **CD liner notes** — the track list is formatted so track times are listed relative to the first track on the disc.

3. Choose the format you want to apply to your track list information:

    • **Export as formatted text** — formats the track information in a table. Select the Include summary information with track list output check box if you want to include UPC/MCN, title, engineer, and comment information with the track list.
    • **Export as delimited text** — you can choose the character that will separate columns of text and choose whether to include a header row to identify the columns.

4. Click **OK** to save your file.

Printing the track list

1. From the **Tools** menu, choose **Print Track List** (or click the 🖨 button in the Track List window. The Print Track List dialog is displayed.

2. Choose the format you want to apply to your track list information:

   - **Cue sheet for replication** — the track list is formatted so track times are listed relative to the beginning of the CD. This is the preferred format for CD replication houses.
   - **CD liner notes** — the track list is formatted so track times are listed relative to the first track on the disc.

3. Select the **Include summary information with track list output** check box if you want to include UPC/MCN, title, engineer, and comment information with the track list.

4. Click **OK** to send the track list information to your printer.

Moving tracks on the CD layout bar

The CD layout bar displays information about the tracks you've created for your CD project. Each CD track shows the track's number, active take name, and length. Red indicators are drawn at both ends of the CD layout bar. The first indicator represents the required pause time at the beginning of the disc, and the second indicator represents the end of the disc (if the disc length is known).
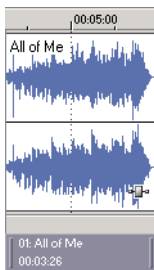
You can use the CD layout bar to perform many of the track-editing functions from the Track List window.

Changing a track's starting or ending point

Drag either end of the track to adjust the track's starting or ending position. The application displays the pause time between tracks.

Moving a track

Drag a CD track to move the track, its associated media, and the pause time before the track. The application displays an indicator to show you where the event will be moved:

If you drag a track in a project where a single event spans more than one track, the application will split the event as necessary.

> **Tip:** *Hold* Shift *while clicking CD tracks to select a range of tracks.*

If you want tracks to follow when you move events along the timeline, choose **Lock Events and Tracks** from the **Options** menu.

Chapter 9 Adding Effects

Audio effects, or plug-ins, can be used to improve the quality of the audio in a production, or can be used as special artistic effects. Additional DirectX plug-in effects, both from Sony Media Software and other third-party plug-ins, can also be used.

Using effects

There are two ways to use audio effects in CD Architect™ software: on individual events, or on the entire project through the Master bus. These effects plug-ins can be accessed by clicking the **Event FX** or **Master FX** buttons ⊞. When you use **Event FX**, it applies only to a single event. When you use **Master FX**, it applies to the master output control, which affects all events in your output. The mix of these two methods of applying audio effects is important to the final mix of a project. If you have both event effects and master effects in your project, the event effects are applied before the master effects. *For more information, see Signal flow on page 28.*

Event FX   Master FX
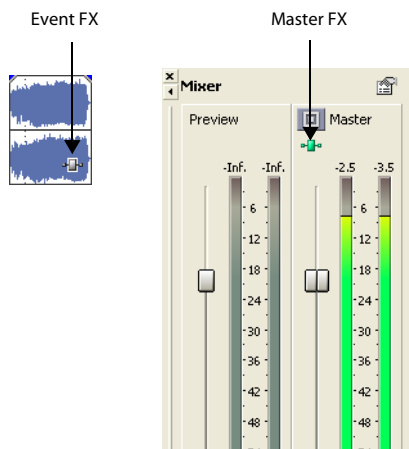
What is a plug-in chain?

A plug-in chain is a sequence of effects plug-ins to be applied to an individual event or a project (via the Master bus). A plug-in chain can contain one or more plug-ins. The same plug-in can be added to a chain more than once.

Plug-ins in a chain

After the plug-in chain is created for an event or the Master bus, the audio is processed by each plug-in in order when it is played back. The plug-ins are cumulative, so, in some cases, you may want to rearrange their order to achieve the desired sound. For information on creating plug-in chains for events, see *Adding a plug-in chain to an event* below.

Applying effects to events

Adding a plug-in chain to an event

There are two ways to add a plug-in chain to an event: using the Plug-In window or the Plug-In Chooser window.

Using the Plug-In Chooser window

1. Click the **Event FX** button ⬛. The Plug-In Chooser window appears.

> **Note:** *Before you add effects to an event, the* **Event FX** *button appears gray. Once you add an effect to an event, the button turns green for that event.*
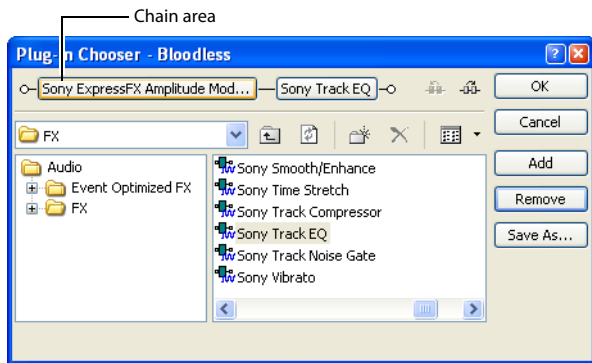
Chain area

2. Select the plug-ins you want to use in your plug-in chain. There are three ways to add a plug-in to the chain:

  - Double-click the plug-in.
  - Drag the plug-in to the chain area.
  - Select the plug-in and click the **Add** button.

3. Rearrange the order of plug-ins as needed by dragging plug-ins to different locations in the chain or by selecting a plug-in and clicking the **Shift Plug-In Left** ⬛ and **Shift Plug-In Right** ⬛ buttons. *For more information, see* Arranging the order of plug-ins *on page 90.*

4. Click **OK**. The Plug-In Chooser window closes. The Audio Plug-In window displays the plug-in chain and the settings for the plug-in last selected on the Plug-In Chooser window.

5. Click a specific plug-in and adjust the effect's parameters manually, or choose one of the presets from the **Preset** drop-down list. For more information about effect parameters, click the **Plug-In Help** button [?] in the Audio Plug-In window.
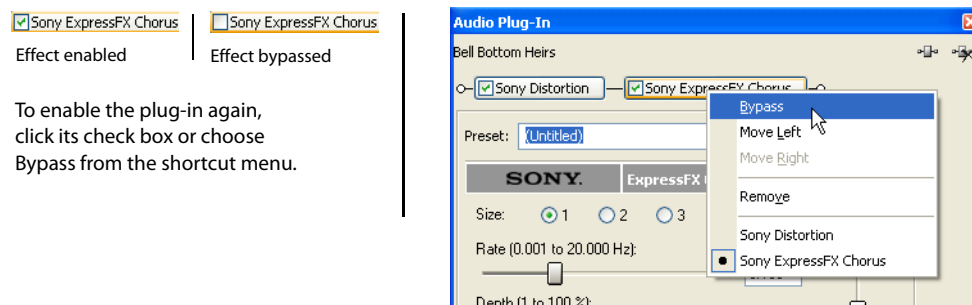
> **Hint:** *You can save an effect's parameters as a preset to be used in other projects. To save a preset, enter a name in the* **Preset** *box and click the* **Save Preset** [💾] *button.*

6. Click the **Close** button [✕] to close the Audio Plug-In window.

Using the Plug-Ins window

The Plug-Ins window is a dockable window that allows you to view and choose plug-ins to be added to an event's or master output's plug-in chain.

1. If the Plug-Ins window is not displayed, press Alt+7.

2. In the Plug-Ins window, navigate to the **Audio** folder and select the **FX** folder.

3. Drag a plug-in to an event. The Audio Plug-In window displays.

> **Note:** *You may add multiple plug-ins at the same time when you click them while pressing* Shift *or* Ctrl *and then dragging them to the desired location.*

4. Click a specific plug-in and adjust the effect's parameters manually, or choose one of the presets from the **Preset** drop-down list. For more information about effect parameters, click the **Plug-In Help** button [?] in the Audio Plug-In window.

> **Hint:** *You can save an effect's parameters as a preset to be used in other projects. To save a preset, enter a name in the* **Preset** *box and click the* **Save Preset** [💾] *button.*

5. Click the **Close** button [✕] to close the Audio Plug-In window.

Editing a plug-in chain

After you have created a plug-in chain for an event, you can adjust the chain until you have just the right sound. You can add, move, bypass, or remove effects in a plug-in chain, and you can adjust parameters for individual effects.

Adding additional effects

There are two ways to add additional effects to an existing event plug-in chain: using the Plug-In window or the Plug-In Chooser window.

Using the Plug-In Chooser window

1. Click the **Event FX** button ⬚. The Audio Plug-In window appears. The plug-ins already in the chain appear at the top of the window.

2. Click the Plug-In Chain button ⬚ in the upper-right corner of the window. The Plug-In Chooser appears.

3. Select the additional plug-ins you want to add to your plug-in chain. There are three ways to add a plug-in to the chain:

    *   Double-click the plug-in.
    *   Drag the plug-in to the chain area.
    *   Select the plug-in and click the **Add** button.

4. Rearrange the order of plug-ins as needed by dragging plug-ins to different locations in the chain or by selecting a plug-in and clicking the **Shift Plug-In Left** ⬚ and **Shift Plug-In Right** ⬚ buttons. *For more information, see Arranging the order of plug-ins on page 90*.

5. Click **OK**. The Plug-In Chooser window closes. The Audio Plug-In window displays the revised plug-in chain and the settings for the plug-in last selected on the Plug-In Chooser window.

6. Click a specific plug-in and adjust the effect's parameters manually, or choose one of the presets from the **Preset** drop-down list. For more information about effect parameters, click the **Plug-In Help** button ⬚ in the Audio Plug-In window.

> **Hint:** *You can save an effect's parameters as a preset to be used in other projects. To save a preset, enter a name in the **Preset** box and click the **Save Preset** ⬚ button.*

7. Click the **Close** button ⬚ to close the Audio Plug-In window.

Using the Plug-Ins window

1. If the Plug-Ins window is not displayed, press Alt+7.

2. In the Plug-Ins window, navigate to the **Audio** folder and select the **FX** folder.

3. Drag the plug-in you want to add to an event. The Audio Plug-In window displays. The plug-ins already in the chain appear at the top of the window.

Note: *You may add multiple plug-ins at the same time when you click them while pressing* Shift *or* Ctrl *and then dragging them to the desired location.*

4. Click a specific plug-in and adjust the effect's parameters manually, or choose one of the presets from the **Preset** drop-down list. For more information about effect parameters, click the **Plug-In Help** button in the Audio Plug-In window.
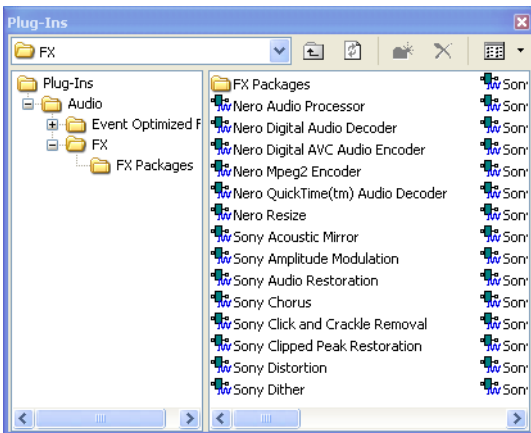
Hint: *You can save an effect's parameters as a preset to be used in other projects. To save a preset, enter a name in the* **Preset** *box and click the* **Save Preset** *button.*

5. Click the **Close** button to close the Audio Plug-In window.

Editing individual effect parameters

At any time, you can adjust the settings for any effects in your existing plug-in chain.

1. Click the **Event FX** button . The Audio Plug-In window appears.

2. In the plug-in chain, click the effect you want to edit. The settings for the effect display.

3. Adjust the effect's parameters manually, or choose one of the presets from the **Preset** drop-down list. For more information about effect parameters, click the **Plug-In Help** button ⍰ in the Audio Plug-In window.

> **Hint:** *You can save an effect's parameters as a preset to be used in other projects. To save a preset, enter a name in the **Preset** box and click the **Save Preset** 💾 button.*

4. Click the **Close** button ⊠ to close the Audio Plug-In window.

Bypassing plug-ins on the chain

You may bypass plug-ins on a plug-in chain using the Audio Plug-In window. Bypassing a plug-in prevents it from being processed on the event. The plug-in remains bypassed until you enable it again.

1. Click the **Event FX** button ⊞. The Audio Plug-In window appears.

2. Clear the check box on the plug-in you want to bypass or right-click the plug-in and choose **Bypass** from the shortcut menu.

Effect enabled   Effect bypassed

To enable the plug-in again, click its check box or choose Bypass from the shortcut menu.

3. Click the **Close** button ⊠ to close the Audio Plug-In window.

Arranging the order of plug-ins

Plug-ins are cumulative during playback. Because of this cumulative effect, you may need to arrange plug-ins in a certain order so that one plug-in's processing does not adversely affect the next plug-in on the chain. There is no right or wrong way to order plug-ins, but some plug-ins work better when arranged in a particular order.

1. Click the **Event FX** button ⊞. The Audio Plug-In window appears.

2. On the plug-in that you want to move, right-click to display a shortcut menu and choose **Move Left** or **Move Right**. Alternately, drag a plug-in to a new position.

3. Once the chain's plug-ins are in the order that you want, click the **Close** button ⊠ to save the new order and close the Audio Plug-In window.

Applying effects to the Master bus

Default master effects

CD Architect software can automatically apply an effect to your project via the Master bus. This is helpful if you tend to use the same plug-ins in your project. The original default master effect is Dither. However, you can set the default to any effect you want to use on your entire project.

> **Note:** *The Dither plug-in on the on the Master bus will have no effect on your audio if it is 16 bit and has not been processed by event envelopes, volume envelopes, or effects.*

Changing the default Master effects

1. Create or edit the master effects to create a plug-in chain. *For information on creating a chain, see Adding a plug-in chain to the Master bus on page 91. For information on editing a chain, see Editing a plug-in chain on the Master bus on page 93.*

2. Close the Audio Plug-In window when you are satisfied with your plug-in chain.

3. Right-click the Master bus and choose **Set Default Master FX** from the shortcut menu.

4. Click **Yes** to use the current Master FX as the default for all new projects.

Restoring the default Master effects

You can remove any user-defined effects and use the CD Architect software defaults.

1. Right-click the Master bus and choose **Restore Default Master FX** from the shortcut menu.

2. Click **Yes** to restore the original default Master FX for all new projects.

> **Note:** *The Master effects will not revert to the original default setting until you start a new project.*

Adding a plug-in chain to the Master bus

There are two ways to add a plug-in chain to the Master bus: using the Plug-In window or the Plug-In Chooser window.

> **Note:** *By default, CD Architect software is installed with the Dither plug-in already applied to the Master bus. If you want to create a new plug-in chain for the Master FX, you can delete the Dither effect and create a new plug-in chain, or you can edit the chain to use the effects you want to use.*

Using the Plug-In Chooser window

1. Click the **Master FX** button . The Plug-In Chooser window appears.

> **Note:** *If you have deleted all effects from the Master bus, the **Master FX** button will appear gray. If there are effects currently applied to the Master bus, the **Master FX** button will appear green.*

Chain area

2. Select the plug-ins you want to use in your plug-in chain. There are three ways to add a plug-in to the chain:

    •   Double-click the plug-in.
    •   Drag the plug-in to the chain area.
    •   Select the plug-in and click the **Add** button.

3. Rearrange the order of plug-ins as needed by dragging plug-ins to different locations in the chain or by selecting a plug-in and clicking the **Shift Plug-In Left** and **Shift Plug-In Right** buttons. *For more information, see Arranging the order of plug-ins on page 95.*

4. Click **OK**. The Plug-In Chooser window closes. The Audio Plug-In window displays the plug-in chain and the settings for the plug-in last selected on the Plug-In Chooser window.
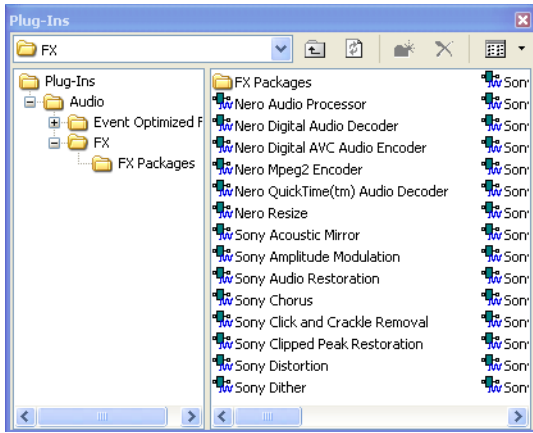

5. Click a specific plug-in and adjust the effect's parameters manually, or choose one of the presets from the **Preset** drop-down list. For more information about effect parameters, click the **Plug-In Help** button [?] in the Audio Plug-In window.
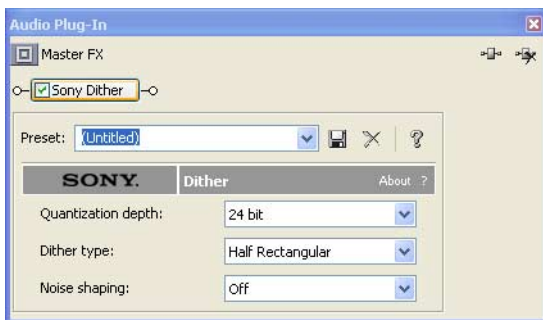
Hint: *You can save an effect's parameters as a preset to be used in other projects. To save a preset, enter a name in the* **Preset** *box and click the* **Save Preset** [💾] *button.*

6. Click the **Close** button [✕] to close the Audio Plug-In window.

Using the Plug-Ins window

The Plug-Ins window is a dockable window that allows you to view and choose plug-ins to be added to an event's or master output's plug-in chain.

1. If the Plug-Ins window is not displayed, press Alt+7.

2. In the Plug-Ins window, navigate to the **Audio** folder and select the **FX** folder.

3. Drag a plug-in to the Master bus. The Audio Plug-In window displays.

Note: *You may add multiple plug-ins at the same time when you click them while pressing* Shift *or* Ctrl *and then dragging them to the desired location.*

4. Click a specific plug-in and adjust the effect's parameters manually, or choose one of the presets from the **Preset** drop-down list. For more information about effect parameters, click the **Plug-In Help** button [?] in the Audio Plug-In window.

Hint: *You can save an effect's parameters as a preset to be used in other projects. To save a preset, enter a name in the* **Preset** *box and click the* **Save Preset** [💾] *button.*

5. Click the **Close** button ⊠ to close the Audio Plug-In window.

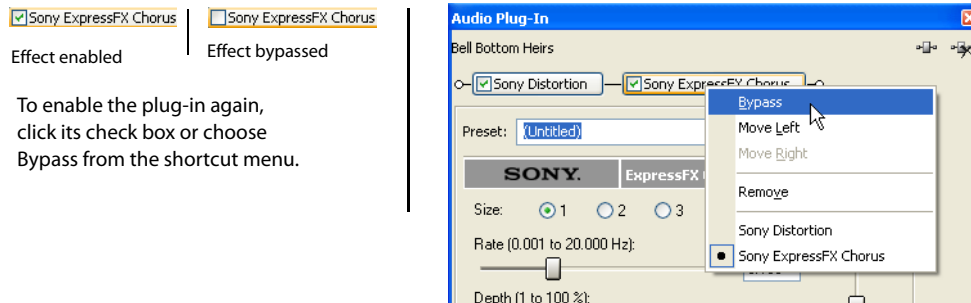### Editing a plug-in chain on the Master bus

After you have created a plug-in chain for an event, you can adjust the chain until you have just the right sound. You can add, move, bypass, or remove effects in a plug-in chain, and you can adjust parameters for individual effects.

Adding additional effects

There are two ways to add additional effects to an existing Master bus plug-in chain: using the Plug-In window or the Plug-In Chooser window.

Using the Plug-In Chooser window

1. Click the **Master FX** button. The Audio Plug-In window appears. The plug-ins already in the chain appear at the top of the window.

2. Click the Plug-In Chain button in the upper-right corner of the window. The Plug-In Chooser appears.

3. Select the additional plug-ins you want to add to your plug-in chain. There are three ways to add a plug-in to the chain:

- Double-click the plug-in.
- Drag the plug-in to the chain area.
- Select the plug-in and click the **Add** button.

4. Rearrange the order of plug-ins as needed by dragging plug-ins to different locations in the chain or by selecting a plug-in and clicking the **Shift Plug-In Left** and **Shift Plug-In Right** buttons. *For more information, see Arranging the order of plug-ins on page 95.*

5. Click **OK**. The Plug-In Chooser window closes. The Audio Plug-In window displays the revised plug-in chain and the settings for the plug-in last selected on the Plug-In Chooser window.

6. Click a specific plug-in and adjust the effect's parameters manually, or choose one of the presets from the **Preset** drop-down list. For more information about effect parameters, click the **Plug-In Help** button in the Audio Plug-In window.

> **Hint:** *You can save an effect's parameters as a preset to be used in other projects. To save a preset, enter a name in the* **Preset** *box and click the* **Save Preset** *button.*

7. Click the **Close** button ⊠ to close the Audio Plug-In window.

Using the Plug-Ins window

1. If the Plug-Ins window is not displayed, press Alt+7.

2. In the Plug-Ins window, navigate to the **Audio** folder and select the **FX** folder.

3. Drag the plug-in you want to add to the Master bus. The Audio Plug-In window displays. The plug-ins already in the chain appear at the top of the window.

> **Note:** *You may add multiple plug-ins at the same time when you click them while pressing* Shift *or* Ctrl *and then dragging them to the desired location.*

4. Click a specific plug-in and adjust the effect's parameters manually, or choose one of the presets from the **Preset** drop-down list. For more information about effect parameters, click the **Plug-In Help** button [?] in the Audio Plug-In window.

> **Hint:** *You can save an effect's parameters as a preset to be used in other projects. To save a preset, enter a name in the* **Preset** *box and click the* **Save Preset** [💾] *button.*

5. Click the **Close** button [×] to close the Audio Plug-In window.

Editing individual effect parameters

At any time, you can adjust the settings for any effects in your existing plug-in chain.

1. Click the **Master FX** button ⊞. The Audio Plug-In window appears.

2. In the plug-in chain, click the effect you want to edit. The settings for the effect display.

3. Adjust the effect's parameters manually, or choose one of the presets from the **Preset** drop-down list. For more information about effect parameters, click the **Plug-In Help** button [?] in the Audio Plug-In window.

> **Hint:** *You can save an effect's parameters as a preset to be used in other projects. To save a preset, enter a name in the* **Preset** *box and click the* **Save Preset** [💾] *button.*

4. Click the **Close** button [×] to close the Audio Plug-In window.

Bypassing plug-ins on the chain

You may bypass plug-ins on a plug-in chain using the Audio Plug-In window. Bypassing a plug-in prevents it from being processed on the event. The plug-in remains bypassed until you enable it again.

1. Click the **Master FX** button ⊶. The Audio Plug-In window appears.

2. Clear the check box on the plug-in you want to bypass or right-click the plug-in and choose **Bypass** from the shortcut menu.

☑ Sony ExpressFX Chorus
Effect enabled

☐ Sony ExpressFX Chorus
Effect bypassed

To enable the plug-in again, click its check box or choose Bypass from the shortcut menu.

3. Click the **Close** button ⊠ to close the Audio Plug-In window.

Arranging the order of plug-ins

Plug-ins are cumulative during playback. Because of this cumulative effect, you may need to arrange plug-ins in a certain order so that one plug-in's processing does not adversely affect the next plug-in on the chain. There is no right or wrong way to order plug-ins, but some plug-ins work better when arranged in a particular order.

1. Click the **Master FX** button ⊶. The Audio Plug-In window appears.

2. On the plug-in that you want to move, right-click to display a shortcut menu and choose **Move Left** or **Move Right**. Alternately, drag a plug-in to a new position.

3. Once the chain's plug-ins are in the order that you want, click the **Close** button ⊠ to save the new order and close the Audio Plug-In window.

Saving customized plug-in presets

Each plug-in has a number of preset settings that can be used to quickly determine the behavior of the plug-in. There are also a number of plug-in controls to customize the effect. Any custom configurations can be saved to a new preset.

1. Click the **Event FX** or **Master FX** button ⊶. The Audio Plug-In window appears.

2. In the plug-in chain at the top of the window, click the plug-in you want to customize.

3. Set the controls for the effect.

4. Enter a preset name in the drop-down list.

5. Click the **Save** button 🖫 to save the preset.

> **Note:** *You may delete any presets that you have saved by selecting it from the list and clicking the **Delete** button* ✗ *.*

Saving plug-in chains as FX packages

You may save and edit the plug-in chains that you added to an event or master output as an FX package. Saved chains retain the order of plug-ins and the settings that have been applied. CD Architect software stores these chains as effect packages for use in future projects. If you use the same plug-in chains regularly, saving them as packages is faster and more consistent than recreating the chain manually.

Once a chain is saved as a package, it may be used as a plug-in chain in either events or in the master output. Saved plug-in chain packages appear in both the Plug-In Chooser window and the Plug-Ins window.
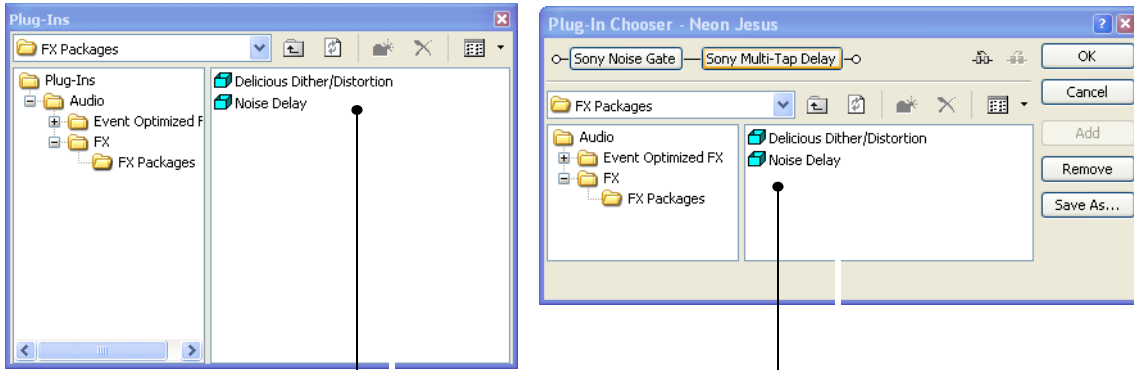
Plug-in packages that you have created and saved

1. Click the **Event FX** or **Master FX** button. The Audio Plug-In window appears.

2. Click the **Plug-In Chain** button. The Plug-In Chooser window appears with the plug-in chain displayed at the top.

3. Click **Save As**. The Save Plug-in Package dialog appears.

4. Enter a name for the package.

5. Click **OK** or press Enter to save the package.
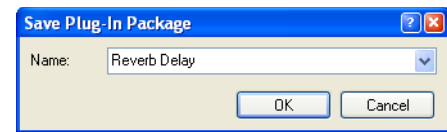

Editing saved FX packages

Plug-ins on package chains may be added, deleted, and rearranged at any time. Editing is performed in the Plug-In Chooser window.

1. Click the **Event FX** or **Master FX** button. The Audio Plug-Ins window appears.

2. Click the **Plug-In Chain** button. The Plug-In Chooser window appears with the package in the chain area.

3. Add, delete, rearrange, or change the settings of plug-ins in the package chain.

4. Click **OK** or press Enter to save the new settings.

> **Note:** Click the **Save As** button to save the newly edited chain as a package.

Organizing your plug-ins

Within the Plug-in Chooser window, you may create folders to organize the plug-ins. This is useful if third-party DirectX plug-ins are installed on your computer. You may then move these plug-ins to the newly created folders.
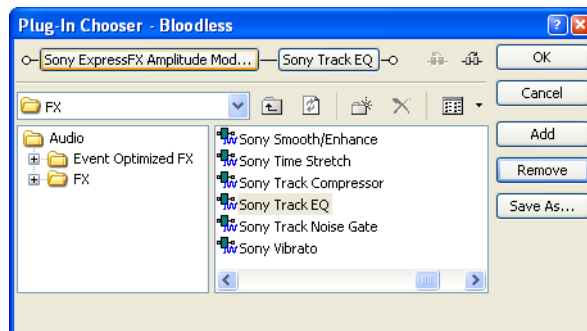
Chapter 10 Burning Audio CDs

Once you've added all of your files, events, and tracks to your project, previewed it, and are satisfied with the layout, you can use CD Architect™ software to both burn your CDs and erase the rewritable discs you used to test your mix.

Using disc-at-once burning

Disc-at-once (DAO) writing is the most common burning method in the music industry. This writing mode is used when creating a master disc to be sent to a disc manufacturer for mass replication. Disc-at-once works just as it sounds. Multiple tracks of audio are written to the CD in one recording session. This is the method used by CD Architect software to burn your audio CD.

Rendering CD image files

When you burn a disc, CD Architect software writes data directly from your hard drive to the CD. While burning, it also calculates volume envelopes, crossfades, effects, and mixes in real time. If you're using a slow computer, this load on your computer's CPU can cause buffer underruns.

If you have a complex project, consider creating an image file before you burn. An image file is essentially a wave file with volume, crossfades, effects, mixes, and track information embedded.

Burning an image file will reduce the risk of buffer underruns.

To use this option when you burn a CD, select the **Render temporary image before burning** check box on the Burn Disc-at-Once Audio CD. For more information, see *Burning a disc* below.

Burning a disc

1. From the **Disc** menu, choose **Burn CD**. The Burn Disc-at-Once Audio CD dialog appears.
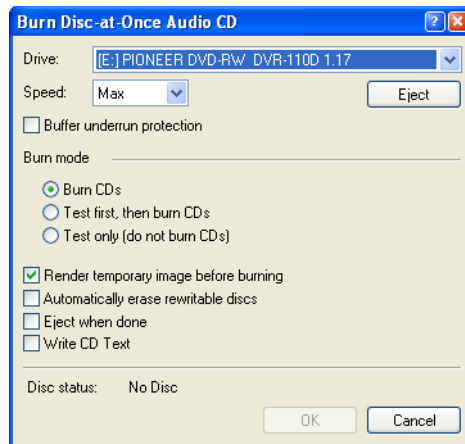
2. In the **Drive** drop-down list, choose the CD-recordable drive you want to use to burn the CD.

3. In the **Speed** drop-down list, choose the speed at which you want to burn your CD. The **Max** setting will use your drive's fastest possible speed. You can use a lower speed to prevent possible buffer underruns while burning.

4. If your CD-recordable drive supports buffer underrun protection, you can select the **Buffer underrun protection** check box to prevent underruns by allowing your drive to stop and resume burning as needed.

    Important: *Buffer underrun protection can create a disc that can be played in CD players but may contain a bit error where burning stopped and restarted. Consider clearing this check box when creating a premaster disc.*

5. Choose your burn mode:

- **Burn CDs** - records your audio to CD as soon as you press the OK button.
- **Test first, then burn CDs** - performs a test first to determine whether your CD can be written without the occurrence of buffer underruns. If the test is successful, CD Architect burns your CD at the end of the test.
- **Test only (do not burn CDs)** - performs a test to determine whether your CD can be written without the occurrence of buffer underruns. No audio is burned to the CD.

Note: *If you test or render a temporary image before burning, CD Architect software can tell you if any clipping exists in your project before burning begins. If you choose to cancel the burning process, CD Architect software will move the cursor to the first clipped sample.*

6. To further reduce the possibility of buffer underruns, select the **Render temporary image before burning** check box. CD Architect software will write the CD image to a temporary file on your hard disk before burning to the CD. This setting is also useful if you have a very complex project that cannot be rendered and burned in real time.

   This temporary file will remain until you modify your project or exit the application. If an image exists when you access the Burn Disc-at-Once Audio CD dialog, this check box is displayed as **Use existing rendered temporary image**.

7. Select the **Automatically erase rewritable discs** check box if you are burning to a rewritable disc and want to erase the CD before burning.

8. Select the **Write CD Text** check box if you want to write CD text data to your CD. In order to display CD text, your CD player must support CD text. The following information will be written:

Item	Source
Disc Title	**Title (CD Text)** box in the Project Properties dialog.
Disc Artist	**Artist (CD Text)** box in the Project Properties dialog.
Track Title	**Title (CD Text)** column in the Track List window or the Title (CD Text)box in the Track Properties dialog.
Track Artist	**Artist (CD Text)** column in the Track List window or the Artist (CD Text) box in the Track Properties dialog.

Warning: *To burn a valid CD Text disc, you must specify a title for the disc and a title for each track on the disc; artist information is optional. If the* **Title (CD Text)** *field on the Project Properties dialog or Track List window is left blank, a warning will be displayed before burning so you can choose to write the disc without CD Text or cancel burning and add title information as needed*

Note: *You can write a maximum of 5,000 characters as CD Text.*

9. Select the **Eject when done** check box if you want to eject your CD when the burning process is completed.

10. Click **OK**. A progress meter displays as the application burns the CD.

11. When the writing process is complete, a confirmation message displays. Click **OK** to clear the message.

Note: *Do not click the* **Cancel** *button after the disc-writing process has begun. As with any CD-creation process, interrupting the writing process makes your disc unusable.*

Erasing a disc

1. From the **Disc** menu, choose **Erase CD**. The Erase CD dialog appears.
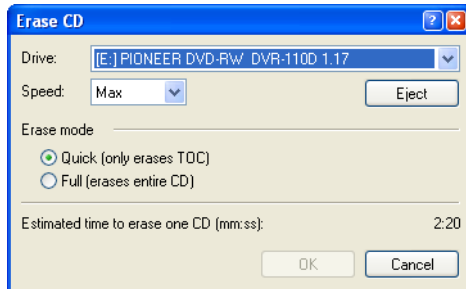
2. In the **Drive** drop-down list, choose the CD-recordable drive containing the CD you want to erase.

3. In the **Speed** drop-down list, choose the speed of your drive. The **Max** setting will use your drive's fastest possible speed. You can use a lower speed to if you usually have difficulty burning.

4. Choose an erase mode:

    a. **Quick** erases only the CD's table of contents.

    b. **Full** erases the contents of the entire CD.

5. Click **OK**. A progress meter displays as the application erases the CD.

When the erasing process is complete, a confirmation message displays. Click **OK** to clear the message.

Chapter 11 : Customizing CD Architect Software

You can customize CD Architect™ software to suit your project needs and working preferences. Many of the settings depend on your equipment or studio setup. CD Architect software can be set to work with the components that you use in your studio.

In this chapter, you will find information about functions that allow you to customize the appearance of CD Architect software, set a project's properties, and set the application's preferences.

Customizing the toolbar

Hiding and displaying the toolbar

If you prefer to use shortcut keys when working with your project, you may hide the toolbar to create more workspace. Choose **Toolbar** from the **View** menu to hide it. The check mark next to the command is removed and the toolbar disappears. The toolbar remains hidden until you choose **Toolbar** from the **View** menu to display it again.

Reordering toolbar buttons

CD Architect software allows you to change the toolbar's button order to suit your preferences. You may either reorder the buttons directly on the workspace or via the Customize Toolbar dialog.

Reordering buttons on the CD Architect workspace

1. Hold Shift and drag the button that you want to move to the new location on the toolbar. A hand icon 🖑 within an outline of the button indicates that you are moving the button.

2. Release the mouse to drop the button in its new location.

> **Note:** *If you drag the button off the toolbar, the button is removed.*

Reordering buttons in the Customize Toolbar dialog

The Customize Toolbar dialog allows you to control the order and functionality available on the toolbar. You may return the toolbar to its default settings by clicking the **Reset** button.

1. From the **Options** menu, choose **Customize Toolbar**. The Customize Toolbar dialog appears.
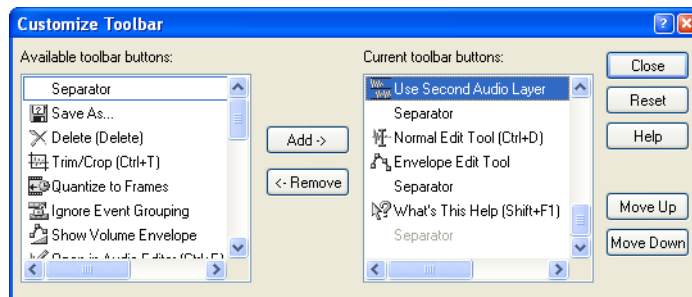
2. On the **Current toolbar buttons** pane, select the button that you want to move and click **Move Up** or **Move Down**.

3. Click **Close** to save the toolbar changes and close the dialog.

Adding buttons to the toolbar

CD Architect software includes a series of buttons that you may add to the toolbar. These buttons are listed in the Customize Toolbar dialog. You may also add separators on the toolbar to organize the buttons to suit your preferences.

You may return the toolbar to its default settings by clicking the **Reset** button on the dialog.

1. From the **Options** menu, choose **Customize Toolbar**. The Customize Toolbar dialog appears.
2. On the **Available toolbar buttons** pane, click on the button you want to add.
3. On the **Current toolbar buttons** pane, select the button you want the newly added button to proceed in order.
4. Click **Add**. The new button is added above the selected button on the **Current toolbar buttons** pane.

> **Note:** *You may also double-click a button to add it to the toolbar.*

5. Click **Close** to save the toolbar settings and close the dialog.

Removing buttons from the toolbar

You may remove buttons and separators from the toolbar. If you have added buttons to the toolbar, removing unused or unwanted buttons allows you to maximize the toolbar's space. You may remove toolbar buttons either directly on the workspace or via the Customize Toolbar dialog.

Removing buttons on the CD Architect workspace

1. Hold Shift and drag the button that you want to remove off the toolbar. A hand icon within an outline of the button indicates that you are removing the button.
2. Release the mouse to remove the button.

Removing buttons in the Customize Toolbar dialog

You may return the toolbar to its default settings by clicking the **Reset** button on this dialog.

1. From the **Options** menu, choose **Customize Toolbar**. The Customize Toolbar dialog appears.
2. On the **Current toolbar buttons** pane, click the button you want to remove.
3. Click **Remove**. The button is removed from the **Current toolbar buttons** pane and will not appear on the toolbar.

> **Note:** *You may also double-click a button to remove it.*

4. Click **Close** to save the toolbar settings and exit the dialog.

Customizing the time ruler

Changing the ruler format

You can customize the ruler to display a number of different standard formats. The format that you select affects how the ruler and time display window display time units.

To change the ruler's format, right-click the ruler and choose the desired time format from the shortcut menu or, from the **Options** menu, choose **Ruler Format** and choose the desired time unit. You can also change ruler settings on the Project Properties dialog's **Ruler** tab. *For more information, see Ruler tab on page 30.*

The following are the different time units available in CD Architect software (hh=hours, mm=minutes, ss=seconds, and ff=frames):

Time format name	Units
Audio CD Time (75 fps)	hh:mm:ss or hh:mm:ss:ff when zoomed in tightly

Time format name	Units
Samples	numbered (starting with zero)
Time	hh:mm.ss.sss
Seconds	sssss.sss (to three decimal places)
Time & Frames	hh:mm:ss.ff
Absolute Frames	frames are numbered starting with 0
SMPTE Film Sync (24 fps)	hh:mm:ss:ff
SMPTE EBU (25 fps, Video)	hh:mm:ss:ff
SMPTE Non-Drop (29.97 fps, Video)	hh:mm:ss:ff
SMPTE Drop (29.97 fps, Video)	hh:mm:ss:ff
SMPTE 30 (30 fps, Audio)	hh:mm:ss:ff

Creating a time ruler offset

If you want the ruler to start at a specific time, you can create a time ruler offset. Often, this is used in MIDI or SMPTE projects where the timeline is the main reference. However, since audio CDs must begin at 00:00:00, you cannot create a time ruler offset if your time ruler is set to the **Audio CD Time** option.

Follow these steps to create a time ruler offset:

1. Place the cursor on the timeline where you want the offset to occur. If you want the offset at the beginning of your project, you can click to place your cursor near the beginning, and then click the Previous Track button ◄◄ until your cursor is positioned at the beginning.

1. Right-click the ruler and choose the **Set Time at Cursor** option. An edit box is displayed in the ruler.

2. Type the time you want to use for your offset in the edit box and press Enter.

> **Note:** *You can also edit your ruler offset in the Project Properties window.*

The time ruler is shifted the time ruler so the cursor position matches the time you specify.

> **Note:** *The **Set Time at Cursor** option is unavailable if you have your Time Ruler set to Audio CD Time format.*

Changing grid spacing

Grid spacing is different from the ruler and provides an alternate method of subdividing a project's time. This can be useful if you want the ruler to display one format, but you need to create your music based on another format. The grid can also be set to match the ruler's time format. The grid appears across all tracks in your project and the grid's lines can be used as snap points.

To change grid spacing, choose **Grid Spacing** from the **Options** menu, and choose the desired time unit from the submenu. The grid spacing changes to reflect your selection.

> **Note:** *In some cases, the grid lines and the ruler do not match. This is because they are two independent functions.*

Setting CD Architect preferences

The preferences options are different from project properties. Project properties are unique to each project, while preferences affect how CD Architect software functions. Any changes that you make to the preferences remain set until you change them again or reset CD Architect software to use the default presets.

You can access the Preferences dialog by choosing **Preferences** from the **Options** menu. This dialog contains three tabbed pages: **General**, **Preview**, and **Editing**. The following sections explain the settings on each tab.

General tab

The **General** tab includes a variety of settings. The following is a list of these preferences and their meaning.

Preference	Description
Automatically open last project on startup	When CD Architect software is run, the last project saved automatically opens.
Show logo splash screen on startup	Briefly shows the CD Architect software logo while the program is loading. The logo does not increase loading time.
Show active take name in events	Display the name of the take that is active in an event.
Draw waveforms in events	Draws a graphical representation of an audio file's waveform.
Create undos for FX parameter changes	Allows you to undo all changes made to effect parameters.
Confirm media file deletion when still in use	When deleting media in the Explorer or Media Pool, CD Architect software warns you if any events in the project are using these files.
Show trimmer history with file name first, then folder	The trimmer history drop-down list displays the media file's name first, followed by the folder it is in. Select this to reverse the names.
Automatically save trimmer markers and regions with media file	Markers and regions created at the media file level in the trimmer can be saved to the file.
Close media files when not the active application	This allows media files to be edited in external editors (audio, for example) while they are contained in events on the timeline.
Enable multimedia keyboard support	This allows you to use a multimedia keyboard to control playback of a project.
Render large Wave files as Wave64	The WAV format is limited by a maximum file size of ~2GB. You can choose to render larger files as Sony Wave64™ files.
Automatically name regions and markers if not playing	When regions and markers are added, this option automatically prompts you for a name. This does not happen when adding markers on-the-fly during playback.
Create project file backups (.cdp-bak)	Automatically create backups of your project files.
Use Net Notify to stay informed about Sony products	Select this option to have CD Architect software periodically display information from Sony at startup.
Enable autosave	Creates a temporary project file that can aid in crash recovery. When enabled, autosave occurs every five minutes. The autosave process does not overwrite the original project file.
Use linear scrub range	When this check box is selected, the scrub control uses a linear range. When this check box is cleared, the scrub control uses a logarithmic range.
Make spacebar and F12 Play/Pause instead of Play/Stop	Changes the spacebar and F12 keys to start and pause playback rather than start and stop.
Build 8-bit peak files	CD Architect software builds 16-bit peak files as a default. Select this option to build 8-bit peak files instead.
Disable pop-up animations	Turns off the animation applied to FX properties.
Show hours in CD time display	Displays your project time as hours:minutes:seconds:frames. When the check box is cleared, project time will be displayed as minutes:seconds.frames.
Use strict Red Book specification checking	CD Architect software will adhere to Red Book specifications while you are building your projects, and display warnings when you attempt to burn a CD if your project is not following this specification.
Autoname extracted CD tracks	Select this check box if you want CD Architect software to automatically assign file names to tracks that you've extracted from CDs. File names will include the CD's UPC/MCN (or a uniquely generated name) and track number. When the check box is cleared, CD Architect software will prompt you to specify a file name for extracted tracks.

Preference	Description
Include wide SCSI devices when searching for drives	Select this check box if you want CD Architect software to scan for wide SCSI CD drives when you attempt to extract data from or burn CDs.
	When the check box is cleared, CD Architect software will not scan for wide SCSI devices, which can increase compatibility with some USB device drivers that incorrectly identify themselves as wide SCSI.
Skip drive database, autodetect drive capabilities on startup	When the check box is cleared, CD Architect software will use an internal configuration file to determine your drive's capabilities.
	If you encounter problems burning CDs, select this check box, and CD Architect software will test your drive to determine its capabilities.
Overwrite CD Text autodetection results	Select this check box to turn on CD Text writing for your drive if CD Architect software incorrectly detects that your CD recorder is not able to write CD Text.
	Note: Please check your documentation that is provided with your CD recorder to accurately determine whether the drive is able to write to CD Text.
Do not read disc capacity when media is inserted	Select this check box if you do not want the software to check the capacity of the media when you insert a CD. Selecting the check box can prevent a hang that can occur with some external drives.
	When the check box is cleared, the software will scan the media each time you insert a disc.
Recently used project list	Select the check box and enter a number in the edit box if you want to list your most recently used projects at the bottom of the File menu.
Temporary files folder	Displays the folder where temporary files are created. Click the **Browse** button to specify a new folder.
	When a media file is added to a project from a removable device, a copy of the media file is stored in a subfolder within this folder. This keeps the media file available for use even if the source of the media is no longer accessible.
	Be aware that these subfolders are cleared when you close the software. However, they are not cleared if the software closes inappropriately.
Free storage space in selected folder	This field displays the amount of space available in the folder specified in the **Temporary files folder** box.
Default All	Restores all General preferences to the default settings.

Preview tab

The **Preview** tab allows you to set preferences to optimize how CD Architect software uses your computer's components to handle resource-intensive audio. This tab also allows you to configure CD Architect software to the equipment that is connected to your computer.

Preference	Description
Playback buffering (seconds)	Sets the amount of memory CD Architect software uses during project playback. For more information, see Adjusting the playback buffering slider on page 106.
Audio device type	Sets the device type for audio routing. Select an option other than Microsoft Sound Mapper in order to route the master to hardware.
Default audio playback device	Sets the default device for playback.
CD Player unmute time	When the Emulate CD Player button is selected, CD Architect software will fade playback in when you click the Previous Track and Next Track buttons to simulate the time it takes for a CD player to fade in after seeking to a track. CD players apply fades to prevent pops and clicks when you switch CD tracks.
	Using CD emulation helps to ensure audio at the beginning of your tracks will not be cut off. Enter a setting (in milliseconds) in this box to adjust the unmute time.

Adjusting the playback buffering slider

The playback buffer controls how much memory CD Architect software uses when playing back your project. This preference is useful but must be carefully adjusted. If you set the buffer size too high, you may experience gapping during playback. Conversely, if you set the buffer size too low, you may experience gapping as well because CD Architect software has too little memory to work with during playback.

The playback buffer slider should be set to balance RAM usage and playback buffering. The rule is to set this slider as low as possible without introducing gapping.

1. Open a project that has multiple events.

2. On the **Preview** tab, move the **Playback buffering (seconds)** slider to 0.25.

3. Start playing back the project.

4. If the playback still gaps, increase the **Playback buffering (seconds)** slider slightly.

You may have to experiment to find the correct settings.

Editing tab

Preference	Description
Preserve pitch when stretching audio events	When this check box is selected, the pitch of an audio event is preserved when you hold Ctrl and drag the end of the event to change its duration.
	When the check box is cleared, audio events' pitch will increase when you make an event shorter and will decrease when you make an event longer.
Collapse loop region when no time selection is present	When this check box is selected, the loop region is reset when no data is selected. If the check box is cleared, the loop region will retain the last selection.
Fade edit edges of audio events (ms)	When this check box is selected, a rapid fade is added to the edges of audio events (10ms by default) to soften potentially harsh transitions that can result from cutting data or splitting events. When the command is not selected, edges of new events are not faded (fades that were applied before the check box is cleared are not removed).
	Enter a value in the box to change the length of the fade.
Default time between CD tracks	Enter a value in the edit box to specify the length of time that is inserted between events when you add media to the timeline.
Automatically detect CD length	When this check box is selected, CD Architect software will automatically detect the length of your blank CDs when you insert them in your drive.
	When this check box is cleared, you need to choose Refresh Disc Status from the Disc menu to read the available time on a CD.
Default CD Length	Enter the default length for CD media. This length is used if the software has not yet scanned your CD drive or if no CD is in your drive.
	This length is used to calculate the amount of time remaining on the disc that is displayed in the status bar, and you can update the information by choosing **Refresh Disc Status** from the **Disc** menu.
Normalize peak level (dB)	Use the slider to change the default Peak Level settings. This value will be used when you use the Normalize event switch in the Playlist window.
Preferred audio editor	Use this option to specify the location of the audio-editing application you prefer to use with CD Architect software.
	Use this option to specify the location of the audio-editing software application you prefer to use with CD Architect software. This editor will be displayed in the **Tools** menu when you want to open an event in a audio editor. If you have Sound Forge installed on your system, it automatically becomes your preferred audio editor. To specify an audio editor, click the **Browse** button and browse for the audio editor's .exe file.

Index