



WaveBurner

User Manual



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An Introduction to WaveBurner

WaveBurner is an application that lets you assemble, master, and burn audio CDs using a SuperDrive or CD burner supported by Mac OS X.

Audio CDs created with WaveBurner can be played back on any audio CD player, and can be used as pre-masters—for mass production.

WaveBurner supports all Red Book options for CD audio data storage. You can add up to the maximum 99 tracks and 99 subindexes per track allowable by the Red Book standard, include ISRC codes for each track, set copy prevention and pre-emphasis flags for each track, and add UPC/EAN codes for the CD. WaveBurner also supports the CD TEXT standard, allowing you to add text information that can be read by any CD TEXT-compatible player.

You create a CD by adding audio files to a WaveBurner project. The audio files appear as regions in the project window, where you can edit and arrange them graphically or numerically. You can add effects to both individual regions and the overall project—using the included effects, or Audio Unit plug-ins installed on your computer. You can edit pauses between tracks and add fade-ins, fade-outs, and crossfades. When your project is complete, you can burn the project to a CD.

Creating a CD With WaveBurner

WaveBurner makes it easy to create professional-quality audio CDs, in a straightforward, no-fuss way. The following outlines the workflow of a typical WaveBurner project.

Step 1: **Add audio files**

You start by creating a new project and adding audio files. When you add an audio file, it is imported as a region, which you can arrange and edit in the Wave View area and the *Region list*. A track is created for each new region. You can edit the track in the Wave View area and the *Track list*.

Step 2: **Edit regions and tracks**

You can edit regions and tracks in a variety of ways—either graphically in the Wave View area, or numerically in the Region and Track lists. You can copy, reorder, trim, split, adjust gain, and normalize regions. It's also possible to combine several regions into one track, or create several tracks with one region. As you work, you can play all, or any part, of the project to hear the results of your edits immediately.

Step 3: **Adjust crossfades**

When you add a region, WaveBurner creates a track and adds track markers—to define the pause between tracks. You can create crossfades between overlapping regions, and adjust the crossfades in the Wave View area. You can also insert index markers to create index points within a track.

Step 4: **Add effects**

You can add effects to individual regions and to the overall project mix, to enhance and shape the sound. A set of professional-quality mastering effects is bundled with WaveBurner, including equalization (EQ), compression, limiting, and noise reduction, as well as analysis tools that will help you to optimize the overall mix. You can adjust effect parameters and save and recall settings, including chains of effects and their settings. You can also use Audio Unit effect plug-ins from Apple or third-party manufacturers.

Step 5: **Burn the project to a CD**

You burn your project with supported CD burning hardware that is connected to (or installed in) your Macintosh. Prior to burning the project to a CD, you can make use of the Burn Test mode to determine the maximum speed that your system can reliably write data to a blank CD-R.

Quick Start

You can quickly burn a CD, using existing audio files and default settings for pauses and crossfades.

To quickly burn a CD:

- 1 Open WaveBurner.
- 2 Choose File > New to create a new project.
- 3 Drag the desired audio files into the Region list or Wave View area—in the order that you want them to appear on the CD.
- 4 Click the Burn button.

The Burn dialog appears at the top of the window. The name of the CD burner is shown in the Burn dialog. If there is no blank disc in the CD burner tray, the Burn dialog prompts you to insert one.

- 5 Insert a blank CD-R disc, if you have not already done so.
- 6 Click the Burn button in the Burn dialog.

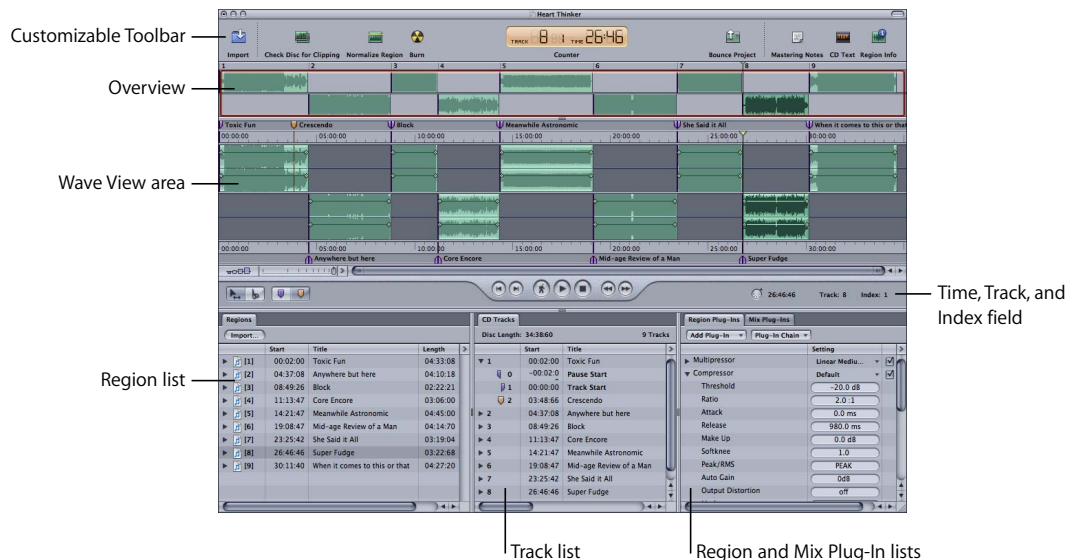
WaveBurner will immediately begin burning (writing) your project to the blank CD. The Burn dialog shows the progress of the burn process. When the write is complete, the CD is ejected from the CD burner and is ready to play.

The WaveBurner Interface

1

You create your projects in the main WaveBurner window.

You can add and organize the regions in your project, graphically edit regions, pauses, and crossfades, play the project to preview your changes, and add effects plug-ins in the WaveBurner window.



The WaveBurner interface features the following main areas:

- **Customizable Toolbar with Counter (if visible):** You can customize the Toolbar by adding a Counter and buttons for the commands you use most often. See “Customizing the Toolbar” on page 23 for further information.
- **Overview:** Displays a timeline of the entire project, including all regions.
- **Wave View area:** Displays the regions in time order. You can graphically edit regions, track markers, pauses, and crossfades in the Wave View area.
- **Time, Track, and Index field:** Displays the current track number, index number and the position of the position line.

- *Region list:* Lists the regions in chronological order. You add and organize regions in the Region list.
- *Track list:* Lists tracks in the order that they will appear on the CD, and displays information for each track.
- *Region and Mix Plug-In lists:* You add effects plug-ins and adjust plug-in parameters in the Region and Mix Plug-In lists.

Note: You can freely adjust the relative sizes of each section of the WaveBurner interface by click-dragging on the parallel lines found on the borders of the various panels. Vertical borders may be dragged horizontally, and horizontal borders may be dragged vertically.

The Toolbar

WaveBurner's Toolbar is customizable (see "Customizing the Toolbar" on page 23). It contains a number of default tools that may include; the Import, Check Disc for Clipping, Normalize Region, Burn, Bounce Project, Mastering Notes, CD Text, and Region Info buttons, amongst others. It may also contain the Counter.



Counter

The Track field of the Counter displays the number of the track, with the smaller index marker shown to the right. The current location of the position line is shown in minutes and seconds in the Time field. The counter updates in real time as you play the project. The Counter is designed to emulate the display of a CD player. A more accurate display is available in the time ruler.

Note: The information shown in the Counter is also displayed in the Time, Track, and Index fields below the Wave View, allowing you to remove the Counter, if desired.



Overview

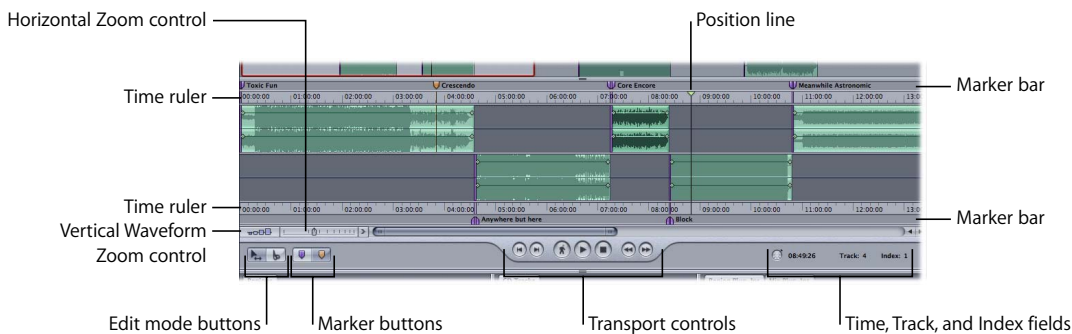
The Overview displays the entire duration of the project. A red rectangle in the Overview indicates the part of the project currently visible in the Wave View area. You can navigate to a different part of the project while simultaneously zooming in or out on the Wave View, by dragging horizontally (move) and vertically (zoom) in the rectangle.



Wave View Area

The Wave View area is the main workspace for your projects. You view and graphically edit regions and markers in the Wave View area. Regions are arranged, alternately, between the top and bottom rows in the Wave View area. The two rows are functionally identical—the reason for two of them is to simplify the editing of overlapping regions.

Each region is displayed as a green rectangle, containing a waveform. Each region also features a volume level line, which you can adjust. Track start markers are displayed as purple flags, index markers as brown flags.



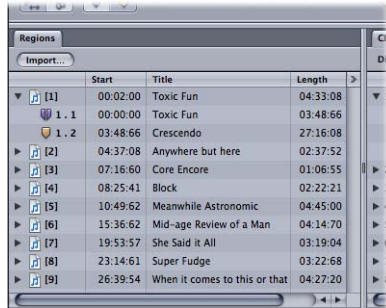
The Wave View area includes the following features:

- **Marker bars:** You add and arrange markers in the marker bars, located at the top and bottom of the Wave View area.
- **Time rulers:** These show time units, enabling you to precisely place regions and transitions at specific locations. Clicking the arrow button to the right of the Zoom control opens a menu that allows you to change the ruler time format. You can also access this menu by Control or right-clicking the time rulers. If you enable the CD Track Time option in the menu, the time rulers will display the track time (rather than the disc time).

- *Position line*: This shows the current point in time (audible if the project is playing), or the playback start position (if stopped).
- *Transport buttons*: You control the playback, stop, and forward/rewind functions, and the location of the position line with the transport buttons.
- *Edit mode buttons*: Click one of the buttons to choose either of the edit pointer modes, to perform different region editing tasks in the Wave View area. Press Command to change between the two edit pointer modes.
- *Marker buttons*: Click one of the buttons to select either marker type, before adding them to the marker bar. Press Command to alternate between the two edit pointer modes.
- *Time, Track, and Index fields*: These fields show the current location of the position line, the current track, and the current index point (if the project contains index markers). This information is identical to that shown in the Counter, allowing you to remove the Counter, if desired. Clicking the clock icon (beside the time field) opens a menu that allows you to switch the time display between the following formats: Track Time Elapsed, Track Time Remaining, Disc Time Elapsed, Disc Time Remaining.
- *Vertical Waveform Zoom control*: Click to set the zoom level of the vertical waveform display.
- *Horizontal Zoom control*: Click the control or drag the slider to zoom in or out.
- *Scroll bar*: Drag to change the visible area of the project. Click-dragging the Zoom Scroll buttons at either end of the scroll bar zooms the display in or out to fit the window.

Region List

You add and organize your project's regions in the Region list. Regions are listed chronologically (in time order) from top to bottom. When you select a region in the Region list, the region is also selected in the Wave View area. Click-holding the audio file icon in the first column allows you to reorder regions by dragging them up or down. Option-dragging region names copies them.



The Region list displays the following information about each region and its marker points:

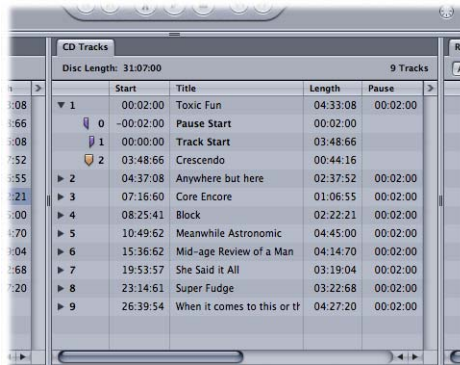
- Number
- Start time
- Title
- Length
- Comment

The arrow menu in the upper right corner of the Region list allows you to change the time format. You can also determine if the time display of markers will be shown in absolute (elapsed time since CD start), or relative values (elapsed time since track start).

You may freely swap column positions by click-dragging on the column name field, and moving it left or right. Column widths may be resized by click-dragging on the vertical lines that separate the column name fields. Click-dragging on the vertical line between the Region and Track list enables you to set the width of the Region list, thereby hiding or showing columns.

Track List

The Track list displays the track order as it will appear on the CD, and shows information about each track.



The Track list includes the following information for each track and its marker points:

- Number
- Start time
- Title
- Length
- Copy Protection state (SCMS)
- Pre-emphasis state (PE)
- ISRC code
- Pause start time
- Comments

The arrow menu in the upper right corner of the Track list allows you to change the time format. You can also determine if the time display of markers will be shown in absolute (elapsed time since CD start), or relative values (elapsed time since track start).

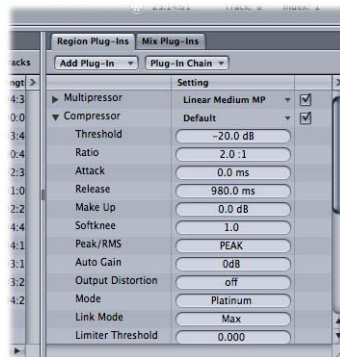
You may freely swap column positions by click-dragging on the column name field, and moving it left or right. Column widths may be resized by click-dragging on the vertical lines that separate the column name fields. Click-dragging on the vertical line between the Region and Track list enables you to set the width of the Track list, thereby hiding or showing columns.

Region and Mix Plug-In Lists

You add and organize plug-ins in the two Plug-In lists. The Region Plug-In list shows the plug-ins for the currently selected region.

Note: If none, or more than one, region is selected, the Region Plug-In list does not display any plug-ins.

The Mix Plug-In list shows plug-ins used on the overall project. Click on the corresponding tab to select either list.



The Add Plug-In menu enables you to load a plug-in. Click on the menu, and browse to the desired plug-in name. Click the name, and the plug-in will be added to the list, below any existing plug-ins, if applicable. The Plug-In Chain menu allows you to load and set up plug-in chains.

Plug-in Windows

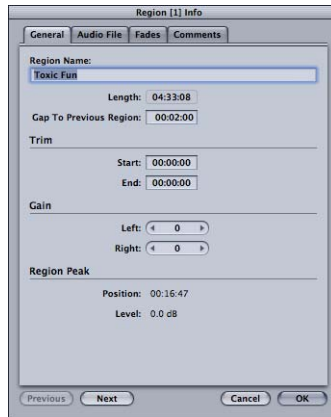
Each effect plug-in has its own window, offering controls that enable you to adjust plug-in parameters. The controls can include sliders, buttons, and value fields, each labeled to indicate the parameter being controlled. For details on the effect plug-ins included with WaveBurner, please refer to the *Logic Studio Instruments and Effects* manual.

To open a plug-in's window:

- Double-click on the plug-in name in the Region or Mix Plug-In list.

Region Info Window

The Region Info window allows you to view and edit information about the currently selected region and its source audio file.



To show the Region Info window, do one of the following:

- Select a region, then choose Region > Region Info (or press Command-R).
- Double-click on the desired region.

The Previous and Next buttons allow you to step between the preceding and ensuing regions in the Region list. This can accelerate the editing of a particular parameter in several regions.

The Cancel and OK buttons cancel or execute any changes made in the Region Info window.

Note: The Cancel button only works for the currently selected region: If you edited a Region, then used the Next or Previous button to step to another region, followed by a click on Cancel, only the changes made to the currently displayed region are canceled.

General Tab

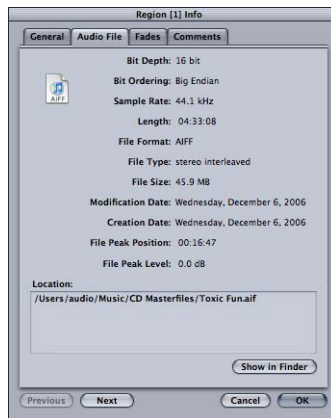
The General tab of the Region Info window displays the following information:

- *Region name:* Double-click, and type in a new name to edit.
- *Length*
- *Gap To Previous Region:* The length of the gap between the start of the selected region and the end of the previous region. Negative values refer to overlapping regions—in other words, a given region starts before the previous region has ended.
- *Trim Start and Trim End:* These two values show the points at which the region begins (after the start of the audio file) and ends (before the end of the audio file). As long as the region spans the complete audio file, Trim Start and Trim End will have values of 0.

- *Gain Left and Gain Right:* These fields show the gain settings for the left and right audio channels. Adjust by click-holding on the arrows on either side of the numerical value, or double-click directly on the value and type in a new one.
- *Region Peak Position and Level:* Indicate the position (relative to the start of the region, not the audio file) and level of the highest audio peak in the region. Any volume changes made in WaveBurner (using the region's volume envelope, for example) are not taken into account.

Audio File Tab

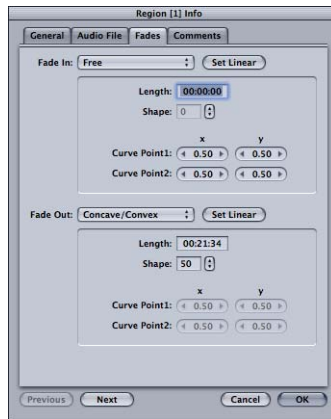
The Audio File tab of the Region Info window displays the following information about the region's source audio file.



- Audio file format, including bit depth and ordering, sample rate, and file type
- File length and size
- Creation and modification dates
- Peak position and level
- Location of the audio file on disk. Use the Show in Finder button to display the file in the Finder.

Fades Tab

The Fades tab of the Region Info window allows you to view and edit the following information about the fades for the Fade In (top) and Fade Out (bottom) of your region.



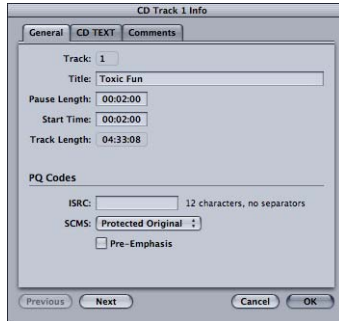
- *Fade-In and Fade Out menu:* Click to choose a fade type. Choices include No Fade, Free, S-Curve, and Concave/Convex fade curves. Click the Set Linear button to reset the fade curves to linear (straight line).
- *Fade Length:* Click to input the desired fade length.
- *Shape:* If a fade curve type other than Free is selected, the Shape parameter allows you to edit the points of the fade curve. Small shape values result in a shallower curve—a value of zero equals a straight line.
- *Curve points x/y coordinates:* Indicate the positions of the fade curve envelope points—as seen in the Wave View area. If the curve type is set to Free, you can edit the curve point coordinates manually in the value fields.

Comments Tab

The Comments tab of the Region Info window enables you to add notes and information about a region.

Track Info Window

The Track Info window allows you to view and edit information about the selected track (in the Track list).



To show the Track Info window, do one of the following:

- Select the track in the Track list, then choose Disc > CD Track Info (or press Command-T).
- Click the track start marker for the track, then choose Disc > Track Info (or press Command-T).
- Double-click the track start marker for the track.

The Previous and Next buttons allow you to step between the preceding and ensuing tracks in the Track list. This can accelerate the editing of a particular parameter in several tracks.

The Cancel and OK buttons cancel or execute any changes made in the Track Info window.

General Tab

You can view or edit the following information in the General tab of the Track Info window:

- Track Number
- Title
- Pause Length: The pause before the track starts.
- Start Time: Start time of the track as it would appear on the CD.
- Track Length
- ISRC Code
- SCMS (Serial Copy Management System)
- Pre-Emphasis

CD Text Tab

The CD TEXT tab of the Track Info window allows you to view or edit the following information:

- Track number
- Title
- Performer
- Songwriter
- Composer
- Arranger
- Message

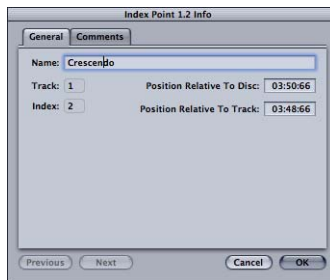
Note: CD TEXT can only be written to your disk if your CD burner supports CD TEXT and the Write CD TEXT Data option is checked in WaveBurner > Preferences > Burn. Only CD TEXT compatible CD players will display CD Text.

Comments Tab

The Comments tab of the Track Info window enables you to add notes and information about a track for mastering purposes. These comments will not appear on the CD.

Index Point Info Window

The Index Point Info window allows you to view or edit information about the currently selected index point.



To show the Index Point Info window:

- Select the desired index marker, then choose Disk > Index Point Info (or press Command-I).
- Double-click on the desired index marker.

The Previous and Next buttons allow you to step between the preceding and ensuing Index Points.

The Cancel and OK buttons cancel or execute any changes made in the Index Point Info window.

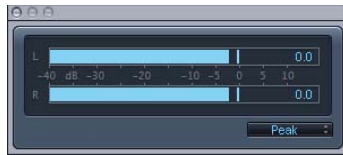
The General tab of the Index Point Info window displays the following information:

- Index Point Name
- Track Number
- Index Point Number
- Position (of the index point) Relative To Track
- Position (of the index point) Relative To Disc

The Comments tab allows you to enter notes for the selected index point.

Level Meter

The Level Meter window displays the volume level of the left and right channels of your project—in real time, as the project plays.



To show the Level Meter window:

- Choose Window > Open Level Meter (or press Command-L).

Customizing the Toolbar

You can customize the WaveBurner Toolbar by adding buttons for the commands you use most often.

To customize the WaveBurner Toolbar:

- 1 Control-click (or right-click if you have a two-button mouse) the Toolbar, then choose Customize Toolbar from the shortcut menu.
- 2 Drag the buttons you want to add from the Customize Toolbar dialog to any empty area in the Toolbar. If you drag a button to a location between two existing buttons, they will move to make space for the new button.
- 3 Click Done when finished.

Note: You may also choose to drag the entire “default set” from the bottom of the Customize Toolbar dialog, if you don’t like your customizations.

To remove a Toolbar item:

- Control-click (or right-click if you have a two-button mouse) on the desired icon, then choose Remove Item from the menu.

The shortcut menu and Customize Toolbar dialog’s Show menu also allow you to view Toolbar items as Icon & Text, Icon Only, or Text Only.

You assemble CDs in a WaveBurner project. A project contains audio regions and CD tracks, that are created when you add audio files.

All region and track edits, effect plug-ins, track and index markers are contained in the project. A project can also include CD TEXT, disc and mastering information.

Projects do not include the original audio files—only references to file locations on your computer hard disks. This keeps the size of the project file relatively small. The original audio files are not changed when performing edits in WaveBurner.

Note: If you bounce your project, WaveBurner calculates the complete project off-line, and renders it to one continuous audio file. The bounce file is actually a Mac OS X package containing one continuous audio file, the document data, and mastering information.

Elements of a Project

The main elements of a WaveBurner project include audio files, regions, and tracks.

- *Audio files:* Audio files are the source material for regions in your projects.
- *Regions:* When you add an audio file to a project, a region is created. The region can include the entire source audio file or any continuous section of the audio file. When you edit a region in the Wave View area or the Region list, the edits only affect the region, not the source audio file.
- *Tracks:* Tracks are the individual selections on a CD, which a listener chooses with the track number or forward and back buttons on a CD player. Tracks can include multiple regions, and one region can span multiple tracks.

Creating, Opening, and Saving Projects

The first step in making a CD in WaveBurner is the creation of a new project.

To create a new project:

- Choose File > New (or press Command-N).

A new blank, untitled project document appears. You can name the project when you first save it.

- ▶ **Tip:** Dragging audio files onto the WaveBurner icon in the Finder or Dock creates a new project. The audio files are automatically added to the new project.

To open an existing project:

- 1 Choose File > Open (or press Command-O).
- 2 Locate and select the project in the Open dialog, and click Open.

Note: You can open old WB 2 (Mac OS 9) documents in WaveBurner 1.5. When opening such a document, the document format will be converted to the WaveBurner version 1.5 format. When saving this document for the first time, a file selector dialog will be opened, so that the old document will not be overwritten automatically. Once saved in version WB 1.5 format, a document can no longer be opened with versions prior to version 1.1.

To save a project:

- Choose File > Save (or press Command-S).

Note: You can set preferences for various aspects of WaveBurner in the Preferences window. Some preferences apply to the current project, and others apply when you create a new project. You may want to set some preferences before you begin working on your projects. Please see “Setting WaveBurner Preferences” on page 59 for details.

Adding Audio Files to a Project

WaveBurner supports the following audio file formats:

- AIFF
- WAV
- SDII
- AAC
- MP3

Audio files can be mono, split stereo, or interleaved stereo, and can be in any combination of the following sample rates and bit depths:

- All sample rates from 11 kHz to 192 kHz
- 8, 16, and 24 bit depths

To add one or more audio files to a project, do one of the following:

- Drag the audio files from the Finder into the Region list or Wave View area.
- Drag the audio files onto the WaveBurner icon in the Finder or Dock. The files are inserted at the end of the project.
- Choose File > Import Audio File (or press Command-F), select the audio files you want to use, then click Add.
- Click the Import button in the upper left corner of the Region list, and choose the audio file from the file selector.

Name Handling in WaveBurner

There are four name types in WaveBurner: the file name, region name, track name, and CD Text track title name. You might expect a connection between the track title shown in the Track list and the CD TEXT track title panel in the CD Track Info window. These are separate entities, as you may want to use an alternate entry for CD TEXT, shown on appropriate CD players. As an example, you may wish to differentiate between a concert (live) version of a particular track, and the studio version.

Auditioning Projects and Controlling Playback

While working on a project, you'll want to hear the regions, tracks, pauses, and crossfades. You can control project playback with the Transport buttons, or by moving the position line.

Using the Transport Buttons

You can control project playback and set the location of the position line with the Transport buttons, located at the bottom center of the Wave View area.



The Transport buttons include, from left to right:

- *Go to previous track start marker:* Moves the position line to the previous track start marker. If the project is currently playing, playback continues from this point. Hold Option while clicking this button to move the position line to the previous index marker.
- *Go to next track start marker:* Sets the position line to the next track start marker. If the project is currently playing, playback continues from this point. Hold Option while clicking this button to move the position line to the next *index* marker.
- *Catch:* Turns Catch mode on or off. When Catch mode is turned on, the visible part of the Wave View area scrolls, ensuring that the position line always remains visible.

- *Play/Pause*: Starts playback from the current position line location.
- *Stop*: Stops playback.
- *Back*: Scrubs (shuttles while audio is heard) towards the start of the project. Click-hold on the button to operate.
- *Forward*: Scrubs (shuttles while audio is heard) towards the end of the project. Click-hold on the button to operate.

To start playback, do one of the following:

- Click the Play button in the Transport (or press the Space bar).
- Double-click either time ruler to start playback from that point.

To stop playback, do one of the following:

- Click the Stop button (or press Space bar) in the Transport. A second click on the Stop button (or pressing the Space bar) moves the position line to the beginning of the project.
- Double-click either time ruler to stop playback and move the position line to the clicked location.

Moving the Position Line

You can move the position line directly to any location.

To move the position line, do one of the following:

- Click once at the point you want to move the position line to—on either time ruler.
- Click-drag the position line to the desired point.

Selecting a region, track, or marker in the Track or Region lists sets the playback position to the beginning of the region, track, or marker.

Looping Playback

You can loop (or cycle) a section of your project, so that it plays back repeatedly. This can be useful when editing a part of the project, and you want to hear the results of your edits in real time. You can loop playback by defining a cycle area in either time ruler.

To define a cycle area:

- In either time ruler, drag from the desired loop start position to the point where you want looping to end.

Click-dragging the cycle area handles allows you to resize an existing cycle area.

To remove the cycle area:

- Click anywhere outside the current cycle area in the time ruler. Note that this will move the position line to the clicked point.

Navigating in the Wave View Area

Navigation in the Wave View area is performed with the zoom controls and scroll bar. You can also move to different parts of the Wave View area by using the rectangle in the Overview.

You can zoom in to make precise edits, or zoom out to see more of your project.

The zoom control slider uses a graduated scale. Moving the slider left, or clicking the left side of the scale, zooms in for a closer view of a section of the Wave View area. Moving the slider right, or clicking the right side of the scale, zooms out for a wider view. You can also zoom in or out with menu commands, by click-dragging on the Zoom Scroll buttons, or by vertically dragging inside the Overview rectangle.

To zoom in, do one of the following:

- Drag the Zoom slider left.
- Click the left part of the Zoom control.
- Choose View > Zoom In (or press the Down Arrow key).
- Click-drag downwards on the red rectangle in the Overview.
- Minimize the scroll bar by click-dragging the Zoom Scroll buttons at either end of the scroll bar. Shift-click-dragging a Zoom Scroll button allows you to zoom in on one side (of a waveform).
- Move the mouse wheel down.

You can also choose View > Maximum Zoom In (or press Option–Down Arrow) to set the display to the highest possible zoom level.

To zoom out, do one of the following:

- Drag the Zoom slider right.
- Click the right part of the Zoom control.
- Choose View > Zoom Out (or press the Up Arrow key).
- Click-drag upwards on the red rectangle in the Overview.
- Maximize the scroll bar by click-dragging the Zoom Scroll buttons at either end of the scroll bar. Shift-click-dragging a Zoom Scroll button allows you to zoom out on one side (of a waveform).
- Move the mouse wheel up.

You can also choose View > Maximum Zoom Out (or press Option–Up Arrow) to show as much of your project as possible in the Wave View area.

Note: Activating WaveBurner > Preferences > General > Zoom To Position Line ensures that the position line remains centered in the Wave View area when zooming.

You can navigate to different parts of your project by dragging the horizontal scroll bar or red rectangle in the Overview—to the left or right. You can also use a number of transport keyboard shortcuts. See “Transport Operations” on page 64.

Regions are the building blocks of your WaveBurner projects. Regions can include the entire source audio file or any continuous section of an audio file.

The edits you make to a region do not change the source audio file, so you can always revert to the original, if necessary.

When you add an audio file to a project, a region is created. The new region appears in the Wave View area and in the Region list. Regions are displayed chronologically in the Wave View area—from left to right. Regions are alternately displayed in the upper or lower half of the Wave View area, making it easier to view any overlapping areas between two regions. Regions are displayed in chronological order—from top to bottom—in the Region list.

Once a region is added to your project, it is automatically assigned a track start marker, which contains the track number displayed by the CD player during playback. This track start marker is mirrored by a newly created track that uses the new region, and appears in the Track list.

You can edit regions in a variety of ways. You can copy, reorder, trim, and split regions, adjust volume levels, normalize, add fade-ins, fade-outs, and crossfades.

Selecting Regions

You must first select a region before editing it.

To select a region:

- Click the region name in the Region list or the waveform in the Wave View area.

Note: You can select more than one region by either Command or Shift-clicking (consecutive regions) on the desired regions. You can also use rubber-band selection for consecutive regions.

Selected regions appear darker in the Wave View area.

Copying Regions

You can copy a region in the Region list.

To copy a region:

- Option-drag the region's icon up or down in the first column of the Region list.

As you Option-drag, a dark, horizontal line will indicate the target location for the region copy.

Reordering Regions

Regions are displayed in their order of appearance in the project—from top to bottom in the Region list, and left to right in the Wave View area. You can reorder regions in the Region list.

To reorder region positions:

- Drag the region's icon (left column of the Region list) up or down.

Moving Regions

You can move a region to a new time position, along with its markers, by dragging the region in the Wave View area.

To move a region to a new time position:

- Drag the region to the left or right in the Wave View area.

As you drag, all subsequent regions are also moved. If you want to move the selected region in isolation, press and hold Option before selecting and dragging it. All subsequent region positions remain intact. The gaps at the beginning and end of the region being moved are changed accordingly.

When you drag a region to the right, the pause length (the duration between the track start marker and its pause start point) increases. When you drag a region to the left so that it overlaps the previous region, the pause length is set to zero, and fades are automatically added to the moved region (fade in) and the previous region (fade out), crossfading the overlapped area.

You can adjust the crossfades. For information about adjusting crossfades, see “Adding and Adjusting Fades” on page 36.

Note: The track start marker behavior outlined above only works when you have not manually edited the track start marker (See “Automatic Positioning of Track Start Markers” on page 47.)

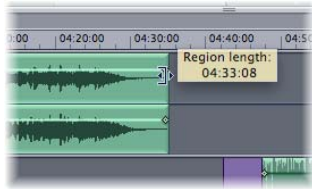
Trimming Regions

You can trim (shorten) a region by adjusting either (or both) the start and end points.

To trim the start or end point:

- 1 Move the pointer over the left or right edge of the region.

The pointer changes to the Resize pointer.



- 2 Drag the edge of the region. You can drag the start point to the right, or drag the end point to the left.

Note: As you drag, the region is trimmed, and all subsequent regions are moved—in order to retain their relative positions. Pressing Option while dragging allows you to trim a region without moving adjacent regions.

Important: Please note that the audio material's absolute position is shifted when you trim the start point of a region. Changing the end point of a region doesn't affect its absolute position. Only the absolute position of the end point is changed.

Splicing Regions

You can splice a region into two regions. This is useful if you want to remove a portion of a region, or move part of the region to another location within the project.

To splice a region:

- 1 Click the Splice (scissors) button.
- 2 Click on the desired region splice position in the Wave View area.

The region is split in two, and the portion of the region that follows the splice point appears in the opposite half (upper or lower) of the Wave View area. By default, a track marker is created at the beginning of the new region. You can press Option when cutting a region to prevent the insertion of the track marker.

Adjusting Levels

A horizontal line—known as the region's *level envelope*—is overlaid on top of each region in the Wave View area. The line shows the volume level for the region. You can adjust the region's volume level by moving it up or down.

To adjust the level of a region:

- 1 Move the pointer over the horizontal level envelope that you want to adjust.
The pointer changes to a vertical line, with arrows pointing up and down.



- 2 Drag the envelope up or down to a new value.

Note: Pressing Option while dragging allows you to manipulate the level independently for each stereo side.

Checking a Region for Clipping

You can check regions for clipping.

To check regions for clipping:

- 1 Select the regions in either the Wave View area or the Region list.
- 2 Choose Region > Check Region for Clipping.

After completing the process, a detailed log displays the results of the clipping analysis.

A screenshot of a software window titled "Results". Inside the window is a "Result Log" table. The table has five columns: "Region Name", "Result", "Clipping at", "Peak at", and "Peak Value". The first row of data shows "Anywhere but here" in the Region Name column, "Successful" in the Result column, "No Clipping" in the Clipping at column, "00:05:29" in the Peak at column, and "0.00 dB" in the Peak Value column. There are several empty rows below the first one. An "OK" button is located at the bottom right of the window.

Region Name	Result	Clipping at	Peak at	Peak Value
Anywhere but here	Successful	No Clipping	00:05:29	0.00 dB

Normalizing Regions

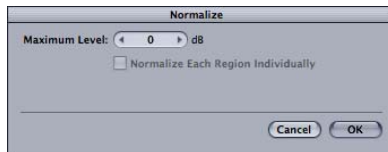
Typically, you want the volume level of your audio regions to be as high as possible, without causing clipping. Changing the level of a region to the maximum possible value—without causing clipping—is known as *normalizing*.

When a region is normalized, it is boosted so that the signal peak reaches (but doesn't exceed) the set digital level (maximum: 0 dB, but see below). All other portions of the region are boosted by the same amount, so that the original dynamic range of the recording is maintained. This ensures that the region will play at maximum level, without clipping.

- ▶ **Tip:** You should not choose 0 dB in the Normalize dialog, as this may result in clipping should you wish to increase the gain of the overall signal afterwards, say with an EQ. A further issue is that many CD players clip signals that reach 0 dB. As a good rule of thumb, you should leave at least 3 to 6 dB of “headroom,” to allow for further audio processing tasks, such as mixing, and effects processing.

To normalize regions:

- 1 Select the regions in the Region list or Wave View area.
- 2 Choose Region > Normalize Region.
- 3 In the Normalize window, set a target level lower than the maximum peak level (0 dB) if desired.



- 4 If several regions are selected, choose to either:
 - Maintain the relative volumes of the regions by deactivating the Normalize Each Region Individually checkbox.
 - To normalize each individually (by activating the Each track Individually option).Although the latter option results in higher volume levels, it also may cause a change in the relative volumes between regions.

Adding and Adjusting Fades

Fade-ins and fade-outs are commonly used at the beginning and end of songs in music production. Commercially recorded albums make frequent use of these types of edits to create a sense of continuity when moving from one track to the next.

To add a fade-in:

- 1 Move the pointer over the fade-in handle located on the volume envelope—at the left edge of the region.

The pointer changes to a left-right arrow.



- 2 Drag the envelope point to the right to set the length of the fade-in.



As you drag, the envelope changes to show the length of the fade.

To add a fade-out:

- 1 Move the pointer over the fade-out handle located on the volume envelope—at the right edge of the region.

The pointer changes to a left-right arrow.

- 2 Drag the envelope point to the left to set the length of the fade-out.

As you drag, the envelope changes to show the length of the fade.

When you drag a region (in the Wave View area) to a position that overlaps an adjacent region, the overlapping portions of the regions are automatically crossfaded—a fade-out is added to the earlier region, and a fade-in is added to the later region.

Note: This automatic fade functionality only applies if you haven't already created a fade manually.

To reactivate the automatic setting of a manually edited fade:

- 1 Move the Fade length handle to the position that coincides with the beginning (or end) of the other overlapping region.



- 2 When the cursor changes to a chain icon, release the Fade length handle.

The automatic fade function will be restored.

If you move the region to a position where it doesn't overlap another region, and then move the corresponding Fade length handle to the zero position, the automatic fade function is reactivated.

Note: Press and hold Option to prevent reactivation of the automatic fade setting at the chain position.

You can adjust fade-ins and fade-outs by dragging the fade handles of the region envelope. By default, the fade curve is linear, which means that the level increases evenly (linearly) for the duration of the fade. You can adjust the fade curve to increase the level more quickly or slowly as the fade progresses.

Note: You can also edit your fades numerically in the Fade tab of the Region Info window. For further information, see the Region Info window section on page 18.

Bouncing Regions

When you bounce a region in WaveBurner, the region's audio, inclusive of any edits you've made (such as changes, fades, and trims) and the effects of all region plug-ins are rendered into a new audio file.

Note: Region plug-ins are included when you bounce a region, but Mix plug-ins are not.

Bouncing a region saves processing power. The computer simply reads the bounced audio file, and does not need to process the edits or plug-ins in real time.

To bounce a region:

- 1 Select the region in the Region list or Wave View.
- 2 Choose Region > Bounce Region.
- 3 In the Bounce dialog, browse to the target save location for the bounced file and set the desired File options: You can choose the file format (AIFF, SDII, WAV), bit depth, stereo type (interleaved stereo, split stereo, left channel, right channel), and dithering mode, if applied.
- 4 Click Save.

Dependent on the WaveBurner > Preferences > Bounce options, the original region may automatically be replaced with the bounced audio file.

Note: You can also bounce the entire project by choosing File > Bounce Project. This calculates the complete project off-line, and renders it to a single audio file. The bounce file is actually a Mac OS X package containing one continuous audio file, the document data, and mastering info.

Renaming Regions

When a region is created, it is assigned the name of the source audio file by default. You can rename regions in the Region list.

To rename a region:

- Double-click the region name in the Region list, and type in a new name.

Deleting Regions

You can remove a region from the project if you decide you no longer want to include it.

To delete a region:

- Select the region, then choose Edit > Delete (or press Delete/Backspace).

Tracks are the individual selections on a CD, which a listener chooses with the track number or forward and back buttons on a CD player.

By default, a track is created for each region in a project. It's also possible to combine several regions into one track, or to create several tracks with one region. Tracks are defined by a track start marker and a corresponding pause start point—automatically inserted when you add a region. You can move this marker from its default position, and insert additional markers. For information about inserting and moving markers, see “Working With Markers” on page 43.

The Track List

Tracks are displayed chronologically in the Track list, from top to bottom. If you reorder regions in the Region list, the Track list is updated to reflect the new order.

The Track list displays information about each track, including the track name, track length, start time, and track pause. You can edit the track information in the Track list. You can add comments, add ISRC codes, and set pre-emphasis flags for the track.

Adding Comments

Comments allow you to save notes and information about a track for mastering purposes. These comments are WaveBurner-specific, and will not appear on the CD.

To add track comments:

- Click the track's Comments field, and type in the desired text.

Adding ISRC Codes

The International Standard Recording Code, or ISRC, serves as a unique registration code for phonograph and audio-visual recordings. The ISRC standard was established in 1986 by the ISO (International Standards Organization) in ISO document No. 3901. The IFPI (International Federation of the Phonographic Industry) was designated as the international registration agency in 1989. The IFPI recommends that members include the ISRC in the subcode as a “fingerprint” for all digital recordings. In 1992, all member companies received their “first owner” codes.

The ISRC is permanently stored in the subcode of a recording. When the recording is altered or edited, a new ISRC has to be used. An ISRC can only be allocated once. The first owner can integrate ISRCs into an existing coding system, as long as doing so requires no more than five digits (designation code). A complete ISRC contains 12 characters, such as that shown below:

DE-K22-05-256-12

- Country code (compliant with ISO 3166, in this case, Germany)
- First owner code (record company, in this case, Polydor)
- Year of recording code (2 digits)
- Designation code (5 digits)

The ISRC is used by radio stations to archive recordings. Royalty collection societies such as GEMA or MCPS/PRS also use the code to automatically generate transmission logs, thus simplifying licensing accounting. For commercial recordings, the ISRC should only consist of the code provided by the record label. If the record label company has not been issued a first owner code, you should contact the IFPI.

To add an ISRC code:

- Click the track’s ISRC field, then type the ISRC code in the field.

Note: You can only input numbers. The ISRC field does not allow spaces or hyphens.

The CD Track Info Window

The CD Track Info window is the best place to view and edit track information, including copy protection and pre-emphasis flags.

To show the Track Info window, do one of the following:

- Select the track in the Track list, then choose Disc > CD Track Info (or press Command-T).
- Click the track start marker for the track, then choose Disc > Track Info (or press Command-T).
- Double-click the track start marker for the track.

Setting the Copy Prohibit Bit

You can set a Copy Prohibit Bit for a track. When a track's Copy Prohibit Bit is set, the track cannot be digitally copied more than once—by recording devices that support the Serial Copy Management System (SCMS). These devices automatically write a Copy Prohibit Bit to prevent further generation of digital copies (of the track).

Consumer-level DAT recorders (and a handful of professional-level units) are usually equipped with SCMS. Given the number of recording devices that do not include this type of copy protection, setting the Copy Prohibit Bit does not guarantee that the track cannot be copied multiple times. WaveBurner provides the option to set the Copy Prohibit Bit in order to comply with the Red Book standard.

To set the Copy Prohibit Bit, do one of the following:

- In the Track List, choose Free, Protected Original, or Protected Copy from the SCMS pop-up menu.
- In the General tab of the CD Track Info window, choose Free, Protected Original, or Protected Copy from the SCMS pop-up menu.

Setting Track Pre-Emphasis

The use of pre-emphasis dates from the early days of digital sound reproduction, when 14-bit A/D converters (without oversampling) were frequently used. The high frequencies of digital recordings were boosted or “emphasized” during conversion (similar to the RIAA EQ process for vinyl records), then were attenuated (de-emphasis) after D/A conversion. This tended to mask the inaccuracies of the conversion process.

With today's advanced digital recording technology, it is recommended that you leave pre-emphasis turned off, because modern converters are capable of delivering linear conversions that produce far fewer errors than de-emphasis filters.

Note: WaveBurner only supports pre-emphasis so that old digital recordings (that were processed with a pre-emphasis algorithm) can be marked as such. WaveBurner's Pre-emphasis is only a flag intended for the CD player, and does not change the way that the audio is processed when you burn a CD.

To turn on pre-emphasis, do one of the following:

- Click the PE checkbox in the Track list.
- Click the Pre-Emphasis checkbox in the General tab of the CD Track Info window.

Bouncing Tracks

You can bounce a track. As with bouncing a region, bouncing a track has two benefits: it lets you save a processed version of the track, including plug-ins and so on, and it can help conserve processing power.

To bounce a track:

- 1 In the Track list, select the track.
- 2 Choose Disc > Bounce CD Track.
- 3 Choose a save location and name for the track in the Save dialog, then click OK.

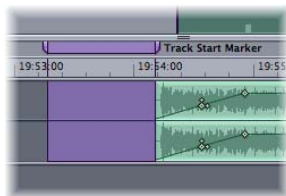
Markers are integral to the Red Book CD format standard.

You can use markers to indicate a specific point in time on the CD.

Types of Markers

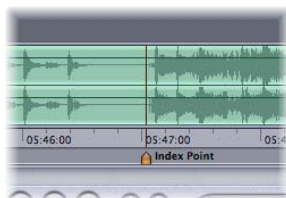
WaveBurner uses the following types of markers:

- *Track start markers:* Indicate the start of a track—they appear as track numbers on the CD player's display, and are used for navigation with the forward, back, or track number controls of a CD player.



Track start markers are comprised of the actual track start marker (a purple flag pointing to the right) and the pause start point (a purple flag pointing to the left). The pause start point indicates the pause before the track start point.

- *Index markers:* Indicate the position of index points—these are additional submarkers within a track. Not all CD players can recognize and locate index points.



Inserting and Deleting Markers

When you add an audio file to a project, a track start marker is inserted at the beginning of the region. The track start marker is tied to a pause start point that is inserted at the end of the preceding region (including the first region in the project). The default pause length—the amount of time that elapses between the pause start point and track start markers—initially depends on the Default Pause Length parameter, defined in the General Preferences tab. For information about setting the default pause length, see “General Preferences” on page 59. You can use the default placement of markers, or move them to adjust the pause length.

Note: The Disc > Set Pause Length function allows you to change the existing pauses of selected tracks in the Track list. If you check Ignore Tracks without Gap, title borders without pauses will not be changed. If this is unchecked, the new pause length is applied to all title borders. If you check Shift Regions, the regions will be moved by the pause length change.

You can insert track start markers manually. Inserted track start markers are always accompanied by a corresponding pause start point.

To insert a track start marker:

- 1 Click the Track Start Marker button (the purple marker button to the left of the Transport buttons).



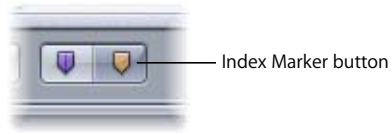
- 2 Click the marker bar (above or below the region) at the position you want to insert the track start marker.

A track start marker and corresponding pause start point are inserted at the clicked position. To change the length of the pause that precedes the track start point, move the left portion of the marker (pause start point) to the left.

Index markers indicate submarkers, which are specific time positions within a track. You should note that not all CD players can recognize index points.

To insert an index marker:

- 1 Click the Index Marker button (the orange marker button to the left of the Transport buttons).



- 2 Click the marker bar (above or below the region) at the position you want to insert the index marker.

Markers are always “attached” to a region. This ensures that markers retain their relative positions. In other words, if the position of a region on the CD is moved at some later stage, markers attached to that region are moved along with it; markers attached to the previous region retain their absolute position on the CD. If you insert a marker at a location where two regions overlap, you can determine which region you want to attach the marker to by placing it in the appropriate marker bar (above/below) in the Wave View area.

To toggle between marker pointers:

- While pointing at the marker bar, press Command to alternate between the track and index marker pointers.

To delete a marker:

- Click the track or index marker to select it, then press the Delete key.

To select more than one marker, you can either:

- Hold Shift while clicking the markers in the Track list.
- Click-hold on the background of the marker row and rubber-band select a group of markers.

Moving Markers

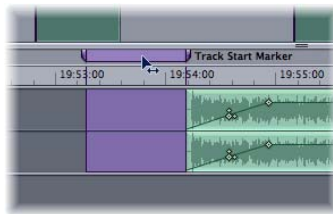
You can move track start and index markers in the Wave View area. The track start marker and pause start point can be moved together, or separately.

Moving the Track Start Marker and Pause Start Point Together

You can simultaneously move the track start marker and pause start point—to change the track start time, while preserving the pause length.

To move both track start marker and pause start point:

- 1 Place the pointer between the pause start point and the track start mark.
The pointer changes to a left-right arrow.



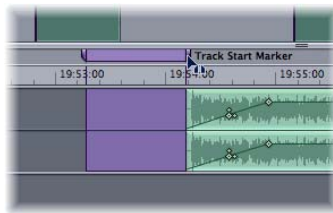
- 2 Drag the markers to the desired position.

Moving the Track Start Marker and Pause Start Point Separately

You can move the track start marker and pause start point separately, thereby changing the pause length in the process.

To move a track start and pause start point separately:

- 1 Place the pointer directly over the portion of the track marker that you want to move.
The pointer changes to a split track marker symbol.



- 2 Drag the marker portion—either track or pause—to the desired position.

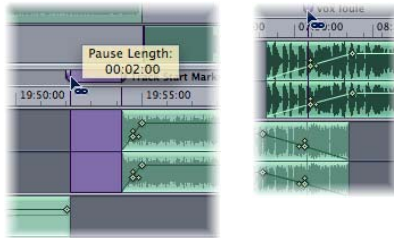
Note: As long as there is no pause set (in other words, the track marker is still in one piece), moving the right portion of the marker will move both. In this situation, move the left portion to the left; this will split the track marker and create a pause. Following this split of the track marker, either portion can be moved separately.

Automatic Positioning of Track Start Markers

Track start markers are repositioned automatically when regions are moved: In overlapping regions, these are located at the center of the overlapping sequence. In non-overlapping regions, a pause start is located at the end of the first region, and a track start at the beginning of the second region.

If you manually change the marker positions, the automatic function is switched off.

If you have edited a track start marker manually, and want to move it to the automatic position, release it as soon as a “chain” icon appears in place of the mouse cursor.



If you want to move a track start marker near to the chain position, but don't want it to be positioned automatically, press and hold Option.

You can add effects to individual regions or to the overall project mix. Effects let you modify and shape the sound of regions or projects in a variety of ways.

You add effects to your project with plug-ins. WaveBurner includes a complete set of professional-quality effect plug-ins that can be used to master a CD. You can also add Audio Unit format effect plug-ins, including those developed by third-party vendors. You can freely adjust the parameters of effect plug-ins to attain the precise sound you're after.

Effects Plug-ins Included With WaveBurner

WaveBurner includes a full suite of effects for use in your projects. The effects bundled with WaveBurner include:

- *Amp Modeling*: Bass Amp, Guitar Amp Pro
- *Delay effects*: Delay Designer, Sample Delay, Stereo Delay, Tape Delay
- *Distortion effects*: Bitcrusher, Clip Distortion, Distortion, Distortion II, Overdrive, Phase Distortion
- *Dynamics*: Adaptive Limiter, Compressor, DeEsser, Enveloper, Expander, Limiter, Multipressor, Noise Gate, Silver Compressor, Silver Gate
- *Equalization*: Channel EQ, DJ EQ, Fat EQ, High Cut, High Pass Filter, High Shelving, Linear Phase EQ, Low Cut, Low Pass Filter, Low Shelving, Match EQ, Parametric EQ, Silver EQ
- *Filter*: AutoFilter, EVOC 20 Filterbank, Fuzz-Wah, Spectral Gate
- *Imaging*: Direction Mixer, Stereo Spread
- *Metering*: BPM Counter, Correlation Meter, Level Meter, Multimeter, and Tuner
- *Modulation*: Chorus, Ensemble, Flanger, Microphaser, Modulation Delay, Phaser, RingShifter, Rotor Cabinet, Scanner Vibrato, Spreader, Tremolo
- *Pitch*: Pitch Correction, Pitch Shifter II, Vocal Transformer
- *Reverb*: AVerb, Enverb, GoldVerb, PlatinumVerb, SilverVerb, Space Designer

- *Specialized:* Denoiser, Exciter, Speech Enhancer, SubBass
- *Utility:* Gain

Please see the *Logic Studio Instruments and Effects manual* for a full description of each effect.

Using Audio Units Effects Plug-ins

In addition to the included effects plug-ins, you can add plug-ins in the Audio Units format. Audio Units plug-ins are available from Apple and third-party manufacturers. When adding third-party plug-ins to your computer, be sure to read the documentation, including any Read Me and installation files that came with the plug-in.

Apple Audio Unit plug-ins appear in the Apple submenu of the Add Plug-In pop-up menu. Third-party Audio Unit plug-ins appear in submenus featuring the manufacturer's name in the Add Plug-In pop-up menu.

You add Audio Unit plug-ins in the same way as the included effects, by choosing the plug-in from the appropriate submenu of the Add Plug-In menu. You adjust Audio Unit plug-in parameters, view plug-in windows, and delete plug-ins just as you would with the included plug-ins.

Using the Audio Units Manager

WaveBurner uses the Apple AU Validation Tool to ensure that only plug-ins which fully comply with the Audio Unit specification are used. This minimizes problems that may be caused by third-party Audio Unit plug-ins when running WaveBurner.

The validation process takes place automatically when:

- WaveBurner is first opened.
- WaveBurner is updated.
- You install new Audio Unit plug-ins, or update existing ones.

You can see the results of the scan in the Audio Units Manager.

To open the Audio Units Manager:

- Choose WaveBurner > Audio Units Manager.

The results of the test are shown in the Compatibility column. Audio Unit plug-ins that “failed” the validation test, can be enabled—but be aware that these plug-ins can cause problems. Use of plug-ins that have failed the validation can negatively affect the test results of subsequently scanned plug-ins, can cause WaveBurner to quit unexpectedly, or even lead to data loss (destroyed project files).

It is strongly recommended that you check the manufacturer's website for updated versions of Audio Unit plug-ins which fail validation.

The Audio Units Manager also allows you to disable Audio Units plug-ins that you don't want to use in WaveBurner, even if they pass validation. Simply uncheck the corresponding checkbox in the Use column to disable any plug-in. You can store your choice of Audio Unit plug-ins by clicking OK.

Click the Reset & Rescan All button to run another validation test, after installing plug-ins/updaters or moving components in the Finder, while WaveBurner or the Audio Units Manager are open.

Note: If you press Control-Shift while launching WaveBurner, AU Safe Mode is used: Only plug-ins that pass the validation test will be available; manually activated plug-ins that failed the validation test will not be available.

Adding and Deleting Plug-ins

You add plug-ins to selected regions in the Region Plug-Ins list, and add plug-ins to the overall project in the Mix Plug-Ins list.

To add a plug-in to a region:

- 1 Click the Region Plug-Ins tab to show the Region Plug-Ins list.
- 2 In the Region list, click the target region that you want to add the plug-in to.
- 3 Choose the category of plug-in you want to add from the Add Plug-In pop-up menu, then choose the plug-in from the submenu.

The plug-in appears in the Region Plug-Ins list, below any plug-ins already added to the region.

To add a plug-in to the overall project:

- 1 Click the Mix Plug-Ins tab to show the Mix Plug-Ins list.
- 2 Choose the category of plug-in you want to add from the Add Plug-In pop-up menu, then choose the plug-in from the submenu.

The plug-in appears in the Mix Plug-Ins list, below any plug-ins already added to the project.

If you no longer want to use a plug-in, you can delete it from the list.

To delete a plug-in:

- Select the plug-in in either the Region Plug-Ins or Mix Plug-Ins list, then press the Delete/Backspace key.

Note: Plug-ins can be copied by Option-click-dragging the name of the desired plug-in to the bottom of the Plug-In list.

Bypassing Plug-ins

You can bypass a plug-in in order to hear the region or project without the plug-in, without losing the changes you've made to the plug-in's parameters.

To bypass a plug-in:

- Click the checkbox to the right of the desired row in the Plug-In list. Click the checkbox again to hear the plug-in.

Adjusting Plug-in Parameters

Each plug-in contains a set of parameters which control the way the plug-in shapes the sound. You can view and adjust a plug-in's parameters in either the Plug-In list or the plug-in window.

To access plug-in parameters in the Plug-In list:

- Click the triangle to the left of the plug-in name in the Plug-In list. This will expose all plug-in parameter settings. Individual parameter values can be altered by click-dragging on the value shown in the Setting column.

Note: You may load existing plug-in settings by clicking on the name shown in the first Setting column of a plug-in. This will open a pop-up menu, allowing you to load and save plug-in settings.

To access plug-in parameters in the plug-in window:

- Double-click the name of the plug-in in the Plug-In list.

The plug-in window will open. You can adjust plug-in parameters by moving the sliders or knobs, typing in the fields, or clicking the buttons.

The arrow menu to the right of the Plug-In list window enables you to quickly open or close all plug-in windows.

Note: Any changes made to plug-in parameter values in either the plug-in window or the parameter list (shown in the Setting column) are reflected in the other.

Changing the Plug-in Order

Changing the order of plug-ins can radically change the sound of the region or mix being processed. Feeding a region through a reverb → chorus → delay chain delivers very different tonal results to feeding the same region through a delay → chorus → reverb, even when identical settings are used for all three effects. This difference in tone is due to particular frequencies in your region being emphasized/de-emphasized by each effect, and then magnified or suppressed, by the ensuing processes.

To change the plug-in order in the Plug-In lists:

- Click-hold on the plug-in name, and drag it up or down to the desired position.

Using Plug-in Chains

You can save plug-in chains that you have set up in the Plug-In lists. You can also load previously saved plug-in chains. Simply select the appropriate function from the Plug-In Chain menu, beside the Add Plug-In menu.

Using the Level Meter

You can monitor the audio output levels of your projects with the Level Meter. As a project plays back, the levels in each stereo channel change constantly. The Level Meter shows these changes as blue bars that run from left to right; the farther right, the higher the level for that channel. Momentary peaks are shown as thin yellow bars in each channel.

The bars in the Level Meter turn red past the 0 dB mark, acting as clipping indicators.

You can check your project for clipping.

To check a project for clipping:

- Choose Disc > Check Disc for Clipping.

When your project is complete, you can burn the project to a CD.

The resulting audio CD conforms to Red Book standard and can be played on any audio CD player.

Getting Ready to Burn a CD

Before burning your project to a CD, there are several things you should do to prepare:

- Check that the CD burner is connected, turned on, and working.
- Check that WaveBurner recognizes the CD burner.
- Set Disc Options for the project.
- Preview the transitions between tracks.

Supported CD Burners

WaveBurner works with all CD burners supported by Mac OS X, including SuperDrives and external third-party CD burners.

Setting Disc Options

You can set many disc options for a project, including the following:

- Adding a UPC/EAN code
- Setting offsets for start points, end points, and indexes
- Setting the default pause length
- Adding a period of silence at the end of the CD
- Adding CD TEXT information, including title, performer, songwriter, composer, and arranger information, and a text message

Adding a UPC/EAN Code

Commercially produced CDs typically include a Universal Product Code (UPC) and a European Article Number (EAN). These contain information about the record company producing the CD, and may contain additional information.

To add a UPC/EAN code:

- 1 Choose Disc > Disc Options, then click the General tab if necessary.
- 2 Type the code in the UPC/EAN Code field.
- 3 When you are finished, click OK.

Setting Offsets

You can globally change the position of start point, end point, and index markers by setting an offset. The value unit for offsets is one CDDA frame (1/75th of a second). When you set an offset, the markers are moved immediately before the project is burned to a CD, then moved back to their original positions after the CD is burned.

The purpose of offsets is to compensate for inaccurate timing in some CD players, particularly older units.

The Disc Options window includes offset fields for the first start point, other start points, end points, and index points, allowing you to offset any, or all, of these markers.

The first start point is a special case, because the Red Book standard stipulates that there must be a two to three second pause before the first track begins. Typing a value greater than 0 (zero) in the First Start Point field inserts a corresponding period of silence before the first track. All subsequent tracks are shifted by the amount of time required to maintain this period of silence. The overall length of the CD is increased by the number of CDDA frames required to maintain the initial period of silence.

To set offsets:

- 1 Choose Disc > Disc Options, then click the General tab if necessary.
- 2 Type the offsets you want to set in the First Start Point, Other Start Points, Stop Points, and Indexes fields. (in CDDA frames)
- 3 When you are finished, click OK.

Saving Mastering Notes

You can add mastering information notes for your project in WaveBurner, in case you need to refer to it later. You can save details on the session, the client, the plug-ins and dithering used, and information about each track.

- Session Info includes the Session ID, date and time, company, studio, engineer, source media, bit depth, and sample rate.
- Client Info includes the disc title, client, artist, producer, and copyright.
- Comments allows you to add notes and information about a session.

To add mastering information to a project:

- 1 Choose Disc > Mastering Notes to show the Mastering Notes window.
- 2 Click the Session or Client tab, as applicable.
- 3 Type the desired information in the appropriate field.
- 4 Click Apply.

Previewing Transitions

Before burning a CD, it's advisable to preview transitions—to ensure that everything is as you want it.

To preview all track transitions:

- 1 Open the Preview tab of the Preferences window and set the number of seconds to be played at the beginning (Pre-Roll) and end (Post-Roll) of a title.
- 2 Select Disc > Preview Disc. The beginnings and ends of all tracks on the CD will be played.

Note: Disc > Preview Track allows you to preview the beginning and end of a track chosen in the Track list.

Burning the CD

After completing the steps outlined in “Getting Ready to Burn a CD” on page 55, you are ready to burn the project to a CD.

To burn a project to a CD, do the following:

- 1 Choose File > Burn.

The Burn dialog appears, with the name of the CD burner listed in the dialog. If you have not previously inserted a blank CD-R in the tray of the CD burner, the Burn dialog prompts you to insert a blank CD-R.

- 2 Insert a blank CD-R in the CD burner tray, if you have not already done so.

Note: The CD-R must be blank. WaveBurner does not support burning to a CD-R disc that contains other CDDA sessions, as this would not comply with the Red Book standard.

- 3 In the Burn dialog, click Burn.

The Burn dialog displays the progress of the burn process. When the burn process is complete, the CD is ejected.

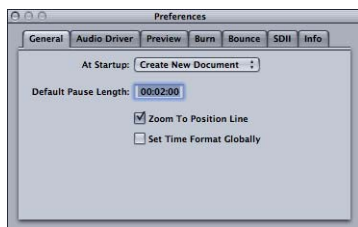
You can set preferences for various aspects of WaveBurner in the Preferences window.

Some preferences apply to the current project, and others apply when you create a new project. You may want to set several preferences before working on projects.

To open the Preferences window:

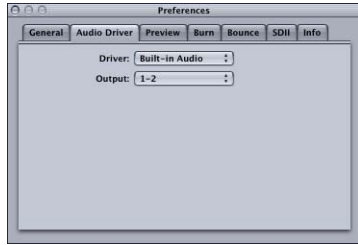
- Choose WaveBurner > Preferences (or press Command-comma).

General Preferences



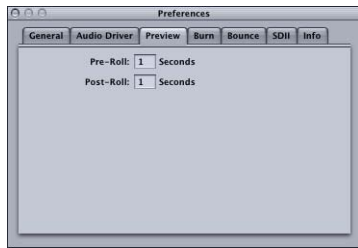
- *At Startup:* Sets the default behavior when you open WaveBurner. You can choose Create New Document (which creates a new, blank project), Open Document (which displays an Open dialog), Open Last Document (opens the document you were working on when WaveBurner was last closed), or Do Nothing.
- *Default Pause Length:* Sets the default pause length which is inserted when you add a region. Changing the Default Pause Length does not affect the currently open document(s). It only applies to documents opened after setting a new value.
- *Zoom To Position Line:* When turned on, the position line remains centered in the Wave View area when zooming.
- *Set Time Format Globally:* When active, changing the time format in the Region list, Track list or Wave View area will change the format in all other views.

Audio Driver Preferences



- *Driver:* Choose the (output) audio device from the pop-up menu.
- *Output:* Choose the output channel, or channels, from the pop-up menu. The number of channels available depends on the device selected in the Driver pop-up menu.

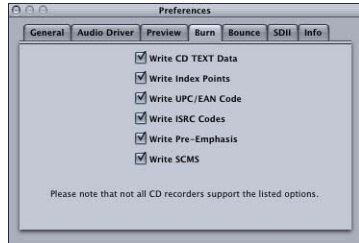
Preview Preferences



If the preview function is active (Disc > Preview Disc or Preview Track) WaveBurner plays a short audio segment surrounding each track marker—in consecutive order.

- *Pre-Roll:* Playback time (in seconds) that precede a track pause marker (playback of the last x seconds of the preceding track).
- *Post-Roll:* Playback time (in seconds) that follow a track start marker (playback of the first x seconds of the following track).

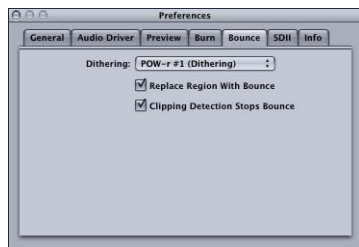
Burn Preferences



- *Write CD TEXT Data*: Turn on to include CD TEXT on the CD.
- *Write Index Points*: Turn on to include index point information on the CD.
- *Write UPC/EAN Code*: Turn on to include UPC/EAN code on the CD.
- *Write ISRC Codes*: Turn on to include ISRC codes on the CD.
- *Write Pre-Emphasis*: Turn on to include pre-emphasis flags on the CD.
- *Write SCMS*: Turn on to include SCMS on the CD.

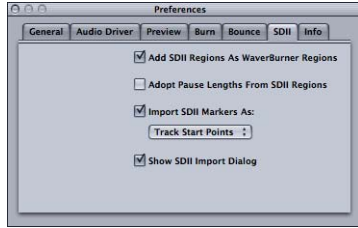
Note: CD TEXT can only be written to your disk if your CD burner supports CD TEXT. Only CD TEXT compatible CD players will display CD Text.

Bounce Preferences



- *Dithering*: This pop-up menu allows you to choose the type of dithering that is applied when the project is bounced or burned. The choices are: POW-r #1 (Dithering), POW-r #2 (Noise Shaping), POW-r #3 (Noise Shaping) and No Dithering. For information about when to use dithering, and the differences between the dithering types, see the *Logic Pro 8 User Manual*.
- *Replace Region with Bounce*: When turned on, the new audio file created by choosing Region > Bounce Region replaces the original region (this does not work if the original file is in stereo and the bounced audio file is in mono—as information would be lost when the stereo file was replaced by the mono file).
- *Clipping Detection Stops Bounce*: When turned on, the bounce process is stopped when clipping is detected—in the region or project being bounced.

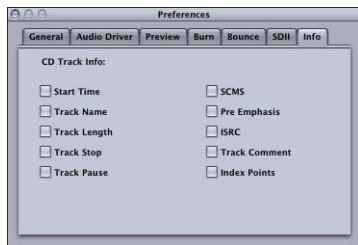
SDII Preferences



WaveBurner can import files and regions in SDII (Sound Designer II) format. The SDII preferences determine how WaveBurner handles the import.

- *Add SDII Regions As WaveBurner Regions:* If turned off, an SDII file will be imported as a single WaveBurner region. Switch on to add multiple SDII regions to WaveBurner. If the SDII file does not contain region definitions, a dialog will ask if you want to add the whole file as one region.
- *Adopt Pause Lengths from SDII Regions:* Turn on to use the pause lengths of the (original file's) SDII regions for your CD.
- *Import SDII Markers As:* You can choose to use SDII markers as either index markers or track start markers.
- *Show SDII Import Dialog:* If you enable this option, the SDII Import dialog appears every time you import an SDII region, allowing you to change the SDII import preferences. If the Show SDII Import Dialog preference is disabled, the import dialog does not appear. The files are imported as specified by the preferences. Enabling the Don't Show Again option in the SDII Import dialog deactivates the Show SDII Import Dialog preference.

Info Preferences



This preference tab allows you to set the types of CD Track information that should be included in the mastering information. You can switch on/off the start time, track name, track length, track stop, track pause, copy prohibit, pre-emphasis, ISRC code, track comments, and index points.

WaveBurner Keyboard Shortcuts

File Commands

Function	Keyboard shortcut
New	Command-N
Open	Command-O
Close	Command-W
Save	Command-S
Save As	Command-Shift-S
Import Audio File	Command-F
Burn Disc	Command-B

Editing Commands

Function	Keyboard shortcut
Undo	Command-Z
Redo	Command-Shift-Z
Cut	Command-X
Copy	Command-C
Paste	Command-V
Select All	Command-A

Disc Operations

Function	Keyboard shortcut
Preview Disc	Command-D
Preview Track	Command-K
CD Track Info	Command-T
Index Point Info	Command-I
Eject Disc	Command-E

Region Commands

Function	Keyboard shortcut
Region Info	Command-R

View Commands

Function	Keyboard shortcut
Zoom In	Down Arrow
Zoom Out	Up Arrow
Maximum Zoom Out	Option–Down Arrow
Maximum Zoom In	Option–Up Arrow

Transport Operations

Function	Keyboard shortcut
Start/Stop Playback	Space bar, Enter
Return to the Disc Start	Return
Go to Next Track Start	Right Arrow
Go to Previous Track Start	Left Arrow
Go to Next Index Marker	Option–Right Arrow
Go to Previous Index Marker	Option–Left Arrow
Go to Next Region	Option–Shift–Right Arrow
Go to Previous Region	Option–Shift–Left Arrow

Wave View Area Commands

Function	Keyboard shortcut
Toggle between Scissor and Pointer tool	Command when mouse pointer is over region
Toggle between Track and Index Marker pointer	Command when mouse pointer is over marker bar
Insert track start marker at position line	T
Insert index marker at position line	I
Go to next marker	Option-Right Arrow
Go to previous marker	Option-Left Arrow
Move track start without moving pause start mark when track marker is closed	Command-drag track start mark to the right
Trim region end without the subsequent regions following	Option-drag region end
Trim Region Start without the subsequent regions following	Option-drag region start

Window Commands

Function	Keyboard shortcut
Minimize	Command-M
Open Level Meter	Command-L

Help Commands

Function	Keyboard shortcut
WaveBurner Help	Command-? (question mark)