



Rio 800 User Guide

About the User Guide

The Rio 800 User Guide includes the following information:

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[Frequently asked questions \(FAQ\) and troubleshooting](#)

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To learn more:

- Refer to the Getting Started Guide for the basics on how to set up and start using your Rio.
- Click the RealJukebox, iTunes or AudibleManager software Help menus for step-by-step instructions on how to use the software to convert CD tracks into compressed digital audio formats, get audio from the Internet or transfer tracks to your Rio.
- Visit the [Rio Web site](#)

Navigating and printing the User Guide

The User Guide is in Adobe Acrobat (.PDF) file format.

Important: We strongly recommend that you use Adobe Acrobat Reader version 4.0—available on the Rio software CD—to view and print the Rio User Guide.

Click [links](#) (blue underlined text) to jump to another location in the document or to a location on the World Wide Web.



Click the Index icon at the top of any page (by the page number) to go to the index. You can also click the Index bookmark. Click page numbers in the Index to jump to a topic.

Using Acrobat toolbar icons



Click the Show/Hide Navigation Pane icon in the Acrobat toolbar to show a list of bookmarks. Bookmarks are links to the contents of the User Guide. Click any bookmark in the list to jump to the page in the User Guide that contains the topic.



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Second Edition, August 2001.

Part Number 75550139-002.



Introduction

The Rio 800 provides the ultimate listening experience while you exercise, commute, or relax. Create and mix your favorite selections on your PC or Mac for playback on your Rio. Your player is similar in function to a portable cassette or CD player. However, it has no moving parts, so it delivers skip-free music under any conditions. Plus, the convenient rechargeable battery and voice recording option make the Rio 800 the premier digital audio player. The Rio interfaces with your computer through the USB port. Use the software included on the CD-ROM to:

- Organize digital audio tracks on your computer.
- Organize tracks on your Rio.
- Record (encode) your audio CDs.
- Search for tracks on your computer or on the Internet.
- Create a custom CD-ROM—if you have CD burning hardware and your computer supports it.

In addition, there are many cool accessories you can purchase separately to customize your Rio. Visit the [Rio Web site](#) for information about accessories or to place an order online.

Sources on the Internet for digital audio content include:

Riohome.com

WindowsMedia.com

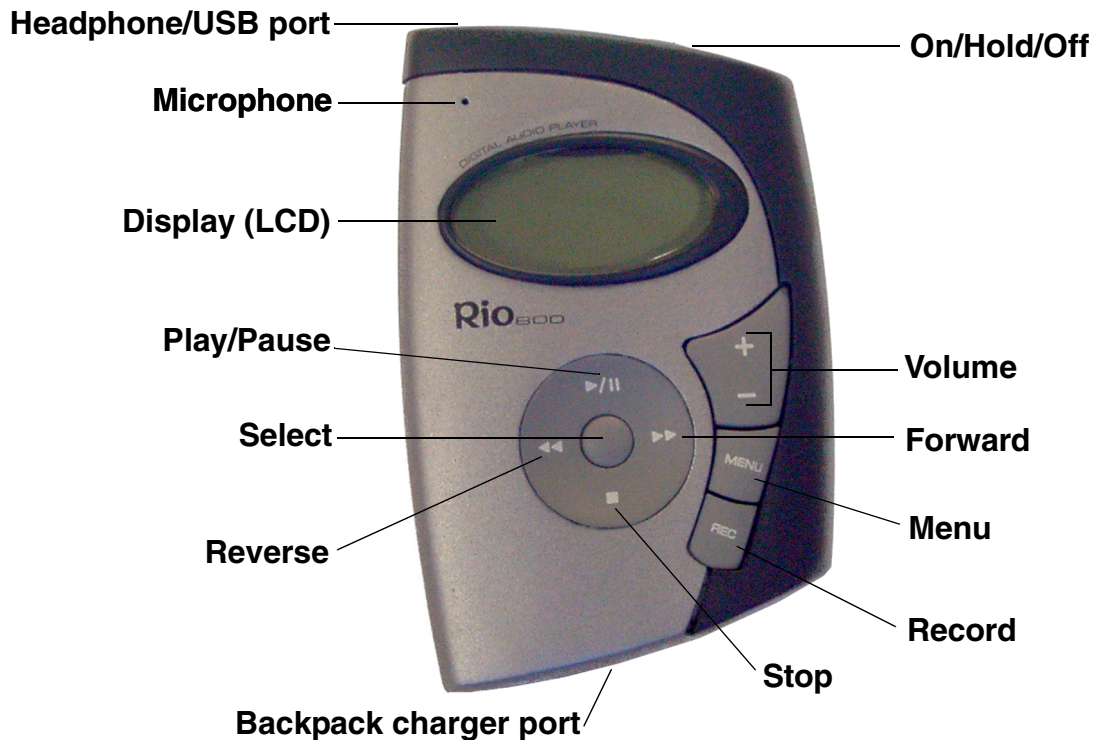
Audible.com—for spoken audio

Using your Rio

This section explains what you need to know about:

[Using buttons and controls](#)

[Using the rechargeable backpack](#)

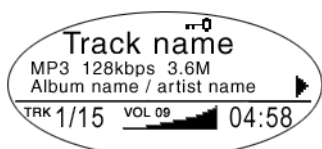


Using Rio buttons and controls

- **Select**: The center navigation button. In play mode, press and hold **Select** for about two seconds to jump to a list of tracks you can pick from to play. To set a bookmark, press **Select** while the Rio is in pause mode. In menu mode, press **Select** to choose a menu or dialog option.
- **▶ / ||**: Play/Pause; the top navigation button. In play mode, press **▶ / ||** once to play a track; press it again to pause. When paused, the play/pause icon appears as two blinking vertical bars on the LCD. If your Rio is left in Pause mode for an extended period of time, it goes into sleep mode to conserve battery life. Press **▶ / ||** to wake your Rio from sleep mode. In menu mode, press **▶ / ||** to navigate up through menu options.
- **■**: Stop; the bottom navigation button. In play mode, press **■** to stop playing the current track. Press and hold **■** for about two seconds to put your Rio into sleep mode to conserve battery life. In menu mode, press **■** to navigate down through menu options.
- **▶▶**: Forward; the right navigation button. In play mode, press and release **▶▶** to skip to the next track on your Rio. Press and hold **▶▶** to fast-forward through the track currently playing. In menu mode, press **▶▶** to navigate through menu options.



- **◀**: Reverse; the left navigation button. In play mode, press and release **◀** to skip to the beginning of the track currently playing on your Rio. Press and hold **◀** to fast-rewind through the current track. In menu mode, press **◀** to navigate through menu options.
- **+** and **-** (Volume): Press **+** to increase the volume; press **-** to decrease the volume. Volume level ranges from 0-20.
- **Menu**: Press the **Menu** button to display the Rio menu options. Press **▶/||**, **▶▶**, **◀◀**, and **■** to navigate through menu options. Press **Select** to choose a menu option. Generally, pressing **Menu** while in menu mode before saving any changes returns the Rio to play mode without saving.
- **Rec**: The Record button on the Rio. Press **Rec** to display the Recorder options menu, where you can choose to record your voice or play a recording. See the section on [Recording and Playing Voice](#) for instructions and more information.
- **Display (LCD)**: In play mode, the LCD or Liquid Crystal Display provides the following information—clockwise from the right:



Rio 800 display

- **Play/Pause icon**: Displays either a **Play** icon (triangle) or a **Pause** icon (two vertical bars), to show the current action of the Rio.
- **Divider line**: Graphically organizes the display.
- **Current song position**: Displays the play location in the current track in minutes:seconds (mm:ss) form. For Audible content the display includes hours (hh:mm or hh:mm:ss).
- **Volume level**: Displays the volume setting in both digital and graphic form. The bar-graph disappears as volume is reduced and re-appears as volume is increased. Volume level ranges from 0-20.
- **Track display**: Displays the number of the currently selected track and the total number of tracks on your Rio. If a playlist is active, the track count shows the number of tracks in a playlist.
- **Album name/artist name**: Album name displays in this field for a few seconds, followed by artist name. If the name is longer than the width of the display, the name scrolls.
- **Track information**: Track information includes the codec type (MP3, WMA, and so on), the bitrate (XXX kbps), and the track time (XX:XX min:sec).
- **Track name**: Displays the title of the currently selected track. Song name scrolls if the name is longer than the width of the display.
- **Hold icon (key)**: Appears if the Rio is set to Hold mode. Hold locks all settings except the Power switch on the Rio.



Using the rechargeable backpack

Calibrating the battery ensures accurate battery level display. The first time you charge the battery backpack, it is important to calibrate it and give it a full charge until the calibration timer expires, as described in the “Charge your Rio” section of the Rio 800 Getting Started Guide. You do not need to charge the battery before you calibrate it.

Note: You do not have to calibrate the battery each time you charge it—only the first time.

For instructions and more information, refer to the section on [Battery Calibration](#) in the Rio 800 User Guide.

For subsequent chargings you can charge the backpack until the charge lamp goes off for a quick charge—after about 1.5 hours—or leave the backpack charger/AC adapter attached for about 2.5 hours for a full charge.

You can leave the backpack plugged into the backpack charger/AC adapter after charging is complete to maintain the charge. In addition, you can use your Rio to play music while the backpack is charging.

Warnings: Do not remove the rechargeable battery from the backpack.

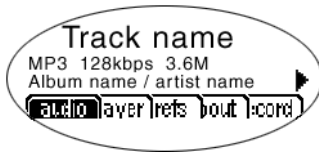
Batteries may explode or leak if disposed of in fire, inserted backwards or disassembled.

Never plug the backpack charger/AC adapter into the headphone/USB port on top of the Rio. Only plug the backpack charger/AC adapter into the backpack charger port on the bottom of the Rio.



Using menu options and settings

When the **Menu** button is pressed, the Rio displays these menu options:



- [Audio](#): Preset and custom equalizer settings.
- [Player](#): Random and repeat play options, delete track, pick a track, bookmark, and playlist functions.
- [Prefs](#): Player settings including power saving (time to sleep), LCD display backlight and contrast, time and date, battery level and calibration, and recorder.
- [About](#): Various player status information including firmware version, internal and external memory used, battery level, calendar, and codec information.
- [Record](#): Voice recording and playback options.

Using Audio functions

Audio functions include built-in and custom equalizer (EQ) settings. Custom EQ lets you set the Treble and Bass values on a range from 1 (low) to 9 (high).

Selecting built-in EQ settings

- 1 Press **Menu**.
- 2 Press the ◀ or ▶ buttons to navigate to **Audio**.
- 3 Press **Select**.
- 4 The EQ settings display.

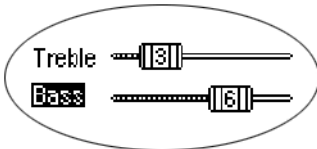


- 5 Press the ▶ / II , ■ , ◀ or ▶ buttons to highlight the desired setting.
 - To save the setting press **Select**.
 - To return to play mode without saving any changes, press **Menu**.



Setting the Custom EQ

- 1 Press **Menu**.
- 2 Press the ◀ or ▶ buttons to navigate to **Audio**.
- 3 Press **Select**.
- 4 The EQ settings display.
- 5 Press the ▶ / || , ■ , ◀ or ▶ buttons to navigate to **Custom**.
- 6 Press **Select**.



- 7 Press the ▶ / || or ■ buttons to navigate between **Bass** and **Treble**.
- 8 Press the ◀ or ▶ buttons to increase or decrease the **Bass** or **Treble** value from 1 (low) to 9 (high).
 - To save the settings press **Select**.
 - To return to play mode without saving any changes, press **Menu**.



Using Player functions

Player functions include:

- [Play options](#): Repeat or randomize tracks.
- [Delete tracks](#): Remove content from the Rio.
- [Pick a track](#): Select and play a track.
- [Bookmarks](#): Play or delete bookmarks.
- [Playlist](#): Select playlists, create new playlists, manage playlists or remove playlists from the Rio.

Setting Repeat and Random play options

- 1 Press **Menu**.
- 2 Press the ◀ or ▶ buttons to navigate to **Player**.
- 3 Press **Select**.
- 4 Navigate to **Play Options**.
- 5 Press **Select**.
- 6 Press the ▶ / || or ■ buttons to navigate between **Repeat** or **Random**.
- 7 Press the ◀ or ▶ buttons to change the **Repeat** or **Random** setting.

Repeat settings include:

- **All**: All tracks repeat.
- **Track**: Current track repeats.
- **Off**: Turns off repeat function.

Random settings include:

- **On**: All tracks play in random order.
- **Off**: Turns off random function.

- 8 Press **Select** to save the settings. To return to play mode without saving any changes, press **Menu**.



Deleting tracks from the Rio

- 1 Press **Menu**.
- 2 Press the ◀ or ▶ buttons to navigate to **Player**.
- 3 Press **Select**.
- 4 Press the navigation buttons to highlight **Delete Tracks**.
- 5 Press **Select**. A list of all tracks displays.



- 6 Press the ▶ / || or ■ buttons to navigate to the track you want to delete.
- 7 Press **Select**.
 - Highlight **Yes** on the Delete dialog, then press **Select** to delete the track.
 - Highlight **No** on the Delete dialog, then press **Select** to return to the track list without deleting the track.
 - To return to play mode without saving any changes, press **Menu**.

Picking a track to play

In play mode, you can press and hold **Select** for about two seconds to jump to the **Pick a track** list.

- 1 Press **Menu**.
- 2 Press the ◀ or ▶ buttons to navigate to **Player**.
- 3 Press **Select**.
- 4 Press the navigation buttons to highlight **Pick a track**.
- 5 Press **Select**. A list of tracks displays.
- 6 Press the ▶ / || or ■ buttons to navigate to the track you want to play.
- 7 Press **Select**. The track immediately begins playing.



Adding bookmarks

- 1 Press ▶ / II during playback to pause.
- 2 Press **Select** to create a new bookmark. If you press and hold **Select** the **Pick a track** list displays.

Playing or deleting bookmarks

- 1 Press **Menu**.
- 2 Press the ◀◀ or ▶▶ buttons to navigate to **Player**.
- 3 Press **Select**.
- 4 Press the navigation buttons to highlight **Bookmarks**.
- 5 Press the ▶ / II or ■ buttons to highlight **Play Bookmark** or **Delete Bookmark**.
- 6 Press **Select**.
 - If **Play Bookmark** is selected, a list of bookmarks displays. Press the ▶ / II or ■ buttons to highlight a bookmark. Press **Select** to play the bookmark.
 - If **Delete Bookmark** is selected, a list of bookmarks displays. Press the ▶ / II or ■ buttons to highlight a bookmark. Press **Select** to choose the bookmark to be deleted. Press the ◀◀ or ▶▶ buttons to highlight **Yes** or **No** on the **Delete Bookmark?** dialog. Press **Select** to remove the bookmark and return to the bookmark list.



Working with Playlists

Playlist options include:

- **Choose:** Select a playlist from playlists stored on the Rio.
 - **New:** Build a new playlist.
 - **Edit:** Modify an existing playlist.
 - **Remove:** Remove a playlist from the Rio.
- 1 Press **Menu**.
 - 2 Press the ◀ or ▶ buttons to navigate to **Player**.
 - 3 Press **Select**.
 - 4 Navigate to **Playlist**.
 - 5 Press **Select**.
 - 6 Press the ◀, ▶, ▶ / || or ■ buttons highlight **Choose**, **New**, **Edit** or **Remove** playlist options.
 - 7 Press **Select**.

Choosing a playlist

- 1 Select the **Choose** playlist option. Any existing playlists display.
- 2 Press the ▶ / || or ■ buttons to highlight the desired playlist.
- 3 Press **Select**.

Building a playlist

- 1 Select the **New** playlist option. New playlists are numbered in sequential order starting at "01".
- 2 After a few moments, the playlist editor displays all tracks on the Rio.



- 3 Press the ▶ / || or ■ buttons to highlight a track.
 - Press **Select** to assign a playlist order number to the track. The number is the order in which the track plays in the playlist.
 - Press the ◀ or ▶ buttons change the track order number.
- 4 When you are finished, highlight **-done editing-** at the bottom of the playlist editor, and press **Select** to save the new playlist and exit to the playlist options menu.



Modifying a playlist

- 1 Select the **Edit** playlist option.
- 2 Press the ▶ / II or ■ buttons to navigate to the playlist.
- 3 Press **Select**.
- 4 The playlist editor displays tracks and their playlist order numbers in the left column.
 - To add or remove tracks from the playlist, highlight a track and press **Select** to tag or untag the track with a number in the left column. This number is the order in which the track plays in the playlist.
 - To change the track order number in the playlist, highlight a track and press the ◀◀ or ▶▶ buttons.
- 5 When you are finished, highlight **-done editing-** at the bottom of the playlist editor and press **Select** to save the new playlist and exit to the playlist options menu.

Removing a playlist

- 1 Select the **Remove** playlist option.
- 2 Press the ▶ / II or ■ buttons to highlight the playlist you want to delete.
- 3 Press **Select**.
 - Highlight **Yes** on the Delete dialog, then press **Select** to delete the playlist.
 - Highlight **No** on the Delete dialog, then press **Select** to exit without saving any changes.
 - To return to play mode without saving any changes, press **Menu**.



Setting Preferences

Preferences include these Rio settings:

- [Power saving](#) (time to sleep).
- [Time and date](#).
- [Display backlight and contrast](#).
- [Battery level display and calibration](#).
- [Recorder](#).

Adjusting the power saving setting

You can adjust the time to sleep (suspend) setting from one to nine minutes. To turn off the power saving feature, set the time to sleep setting to 0 (zero).

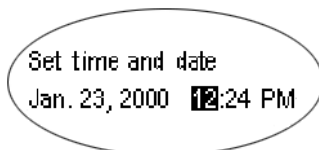
- 1 Press **Menu**.
- 2 Press the ◀ or ▶ buttons to navigate to **Prefs**.
- 3 Press **Select**.
- 4 Press the navigation buttons to highlight **Power Saving**.
- 5 Press **Select**.



- 6 Press the ◀ or ▶ buttons to adjust the power saving setting.
 - To save the setting press **Select**.
 - To return to play mode without saving any changes, press **Menu**.

Setting time and date

- 1 Press **Menu**.
- 2 Press the ◀ or ▶ buttons to navigate to **Prefs**.
- 3 Press **Select**.
- 4 Press the navigation buttons to highlight **Time/Date**.
- 5 Press **Select**.



- 6 Press the ◀ or ▶ buttons to highlight each of the time and date fields.
- 7 Press the ▶ / || or ■ buttons when any of the fields are highlighted to change the value. The date field will not roll to a value that is not valid for the selected month and year.
- 8 Press **Select** to save the time/date settings. To return to play mode without saving any changes, press **Menu**.



Adjusting LCD display backlight and contrast

- 1 Press **Menu**.
- 2 Press the ◀ or ▶ buttons to navigate to **Prefs**.
- 3 Press **Select**.
- 4 Press the navigation buttons to highlight **Display**.
- 5 Press **Select**.



- 6 Press the ▶ / || or ■ buttons to navigate between **Backlight** and **Contrast**.
- 7 Press the ◀ or ▶ buttons to adjust the **Backlight** or **Contrast** settings.

Backlight settings include:

- timed **1, 2, 5, or 10 seconds**.
- **always on**.
- **always off**.

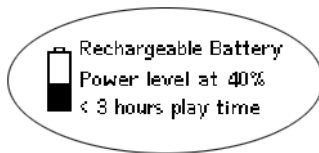
Contrast settings range from **1** (minimum) to **9** (maximum).

- 8 Press **Select** to save the settings.



Displaying battery information

- 1 Press **Menu**.
- 2 Press the ◀ or ▶ buttons to navigate to **Prefs**.
- 3 Press **Select**.
- 4 Press the navigation buttons to highlight **Battery**.
- 5 Press **Select**.
- 6 Press the navigation buttons to highlight **Power level**.
- 7 Press **Select** to display battery information:



- Battery type: Rechargeable.
 - Battery charge level: The battery's charge state percentage.
 - Run time estimation: The battery's remaining play time.
 - Battery level graphic: A bar graph inside a battery icon displays the approximate remaining charge.
- 8 Press **Menu** to return to play mode.

Calibrating the battery

Calibrating the battery ensures accurate battery level display. The first time you charge the battery backpack, it is important to calibrate it and give it a full charge until the calibration timer expires. You do not need to charge the battery before you calibrate it.

Note: You do not have to calibrate the battery each time you charge it—only the first time.

- 1 Connect the backpack charger/AC adapter into your Rio's backpack port at the bottom of the backpack.
- 2 Connect the backpack charger/AC adapter power cord into an electrical outlet. The charge lamp on the backpack lights up when the backpack charger is correctly connected, and charging begins. Make sure the charge lamp stays on during initial charging.
- 3 Slide the Rio power switch to **On**.
- 4 Press **Menu**.
- 5 Press the ◀ or ▶ buttons to navigate to **Prefs**.
- 6 Press **Select**.
- 7 Press the navigation buttons to highlight **Battery** and press **Select**.
- 8 Press the navigation buttons to highlight **Calibrate** and press **Select**.
- 9 Wait overnight or until the timer expires to give the backpack a full charge.
- 10 When charging is complete, unplug the backpack charger/AC adapter from the Rio's backpack port.



Setting recorder sampling rate and volume

Record rate means the sampling rate for recordings in kHz. A higher record rate yields better quality recordings with larger file size. **Analog gain** refers to the volume of voice recordings.

- 1 Press **Menu**.
- 2 Press the ◀ or ▶ buttons to navigate to **Prefs**.
- 3 Press **Select**.
- 4 Press the navigation buttons to highlight **Recorder**.
- 5 Press **Select**.
- 6 Press the ▶ / || or ■ buttons to navigate between **Record Rate** and **Analog Gain**.
- 7 Press the ◀ or ▶ buttons to adjust the **Record Rate** or **Analog Gain** setting.
 - **Record Rate** settings include **8 kHz** and **11 khz**.
 - **Analog Gain** settings range from **1** (minimum) to **9** (maximum).
- 8 Press **Select** to save the settings.



Displaying About information

- 1 Press **Menu**.
- 2 Press the ◀ or ▶ buttons to navigate to **About**.
- 3 Press **Select**. The following information displays:



- Rio model number or message defined through the software.
 - Firmware version the Rio is using.
 - Total internal memory amount installed and a bar graph display of the amount used.
 - Total external memory installed and a bar graph display of the amount used.
- 4 Press **■** to display battery information including:
 - Battery type: Rechargeable.
 - Battery charge level: The battery's charge state percentage.
 - Run time estimation: The battery's remaining play time.
 - Battery level graphic: A bar graph inside a battery icon displays the approximate remaining charge.
 - 5 Press **■** to display clock and calendar information.



- 6 Press **■** to display codec information.



- 7 Press **Menu** to return to play mode.

Recording and playing voice

Recording your voice

Note: The recorder automatically turns off the backlight when in use to prevent background noise from the backlight from interfering with your recording.

- 1 To record your voice you can either:
 - Press the **Rec** button on the Rio, or
 - Press **Menu**, press the navigation buttons to highlight **Record**, then press **Select**.



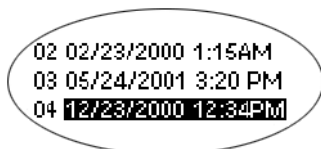
- 2 Highlight **New Recording** and press **Select** to start recording.
- 3 Press **■** to stop recording.

The Recording display includes:

- Status Message: Displays “Preparing to Record”, “Recording...”, “Recording Done”, and so on.
- Recording time elapsed: Displays duration of the present recording in hours:minutes:seconds (hh:mm:ss).
- Memory used graph: Displays how much memory is used and free for recording.
- Percentage of memory remaining: Displays how much free flash memory is left.
- Record level meter: Displays relative volume sensed at the microphone.

Playing a recording

- 1 To play a recording you can either:
 - Press the **Rec** button on the Rio, or
 - Press **Menu**, press the navigation buttons to highlight **Record**, then press **Select**.
- 2 Highlight **Play Recordings** and press **Select**. A list of recordings on the Rio displays:



- 3 Press **▶/||** or **■** to highlight a recording.
- 4 Press **Select** to play the highlighted recording.
- 5 Press **Menu** to exit to play mode.

Using the music management software

[RealJukebox \(PC\)](#)

[Audible \(PC\)](#)

[iTunes \(Mac\)](#)

Using RealJukebox

RealJukebox audio management software is included on the software CD. Use RealJukebox to:

- Organize digital audio tracks on your computer.
- Organize tracks on your Rio.
- Record (encode) your audio CDs.
- Search for tracks on your computer or on the Internet.
- Create a custom CD—if you have CD burning hardware and your computer supports it.

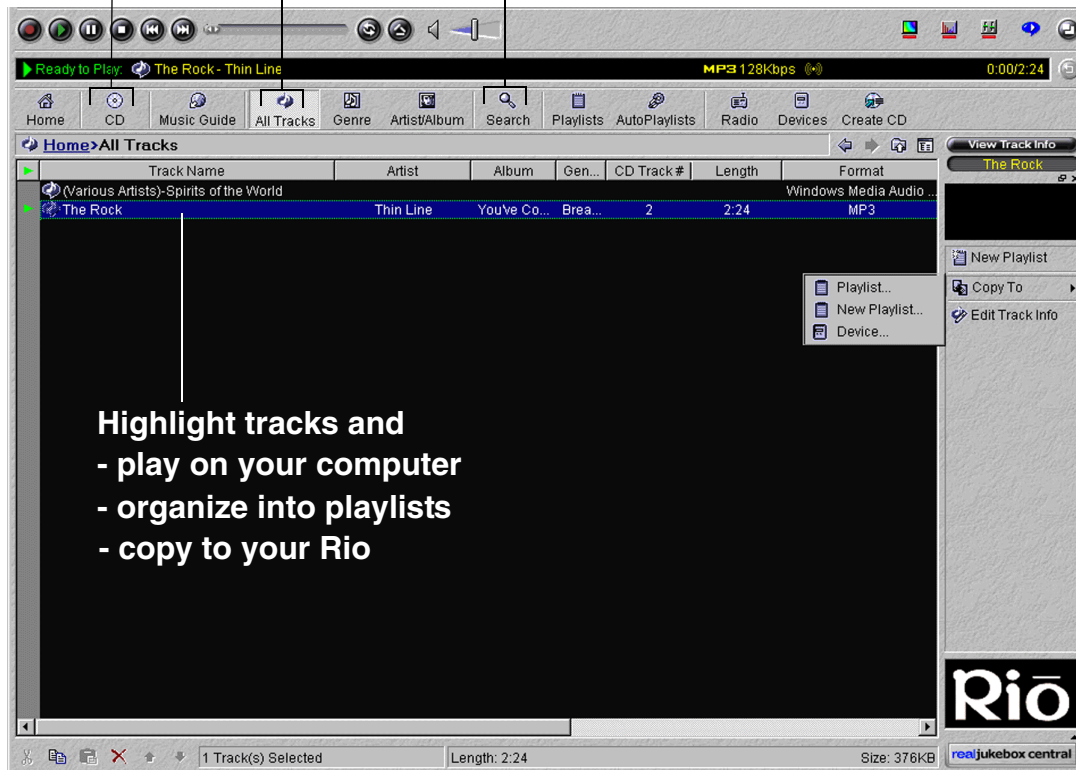
To learn more about using RealJukebox, from within the software

- Click the **Help** menu or
- Click the **Home** button, scroll down to **Real Jukebox Help**, and select **Using Real Jukebox** and/or **Frequently Asked Questions**

**Record (encode)
your audio CDs**

**Find tracks on your
computer or on the Web**

Organize your tracks



Highlight tracks and
- play on your computer
- organize into playlists
- copy to your Rio



Copying tracks to your Rio

- 1 Plug the USB cable into the headphone/USB port on top of your Rio.
- 2 Plug the other end of the cable into the USB port on your computer.
- 3 Slide the power switch on top of your Rio to **On**.
- 4 Click the **All Tracks** button on the Real Jukebox software.
- 5 Click the desired track(s).
- 6 Click the right mouse button and select **Copy to Device** or click **Copy to > Device** in the right column on the window. Click **OK** on the dialog box.
- 7 Click **Copy Files** in the right column on the window.

Encoding a CD

- 1 Put an audio CD in your computer's CD-ROM drive.
- 2 Click the **CD** button.
- 3 The software prompts you and fills in track titles and other information via the Gracenote CDDB Web site.
- 4 Check the desired track(s)—click the check box to the left of the song title or click **Check All** in the right column on the window.
- 5 Recording begins...use the convenient playback controls at the top of the window to record, play, pause, and so on.

Using AudibleManager (PC only)

The AudibleManager software supports audio books, lectures, public radio programs, newspapers, and other spoken word audio programs.

Use AudibleManager to:

- Create an Audible.com account, where you may choose from thousands of spoken word audio programs.
- Download audio programs from the Internet to your PC.
- Transfer audio programs to your Rio.

For more information, visit the [AudibleManager Web site](#).

Using iTunes (Mac)

iTunes music software takes the confusion out of managing your personal music collection. iTunes turns your Mac into a powerful digital jukebox, complete with easy-to-use tools for recording music from audio CDs (simply insert a CD to import music to MP3s), searching and browsing your entire collection, managing playlists, downloading songs to your Rio 800, and listening to Internet radio stations.

To learn more about using iTunes

- From within the software, click the **Help** menu and choose **iTunes Help** or
- Visit the [iTunes Web site](#).

Copy to your Rio: Drag files from your iTunes library or playlists to the player icon

**Full text search:
Type in this field
to search**



Create playlists of your favorite songs



Digital audio terms

AAC

Advanced Audio Coding (AAC) is one of the audio compression formats defined by the MPEG-2 specification. AAC used to be called NBC (Non-Backward-Compatible), because it is not compatible with the MPEG-1 audio formats. AAC may eventually replace MP3 since it offers better sound quality and greater file compression.

ADPCM

Adaptive Differential Pulse Code Modulation (ADPCM), is a form of pulse code modulation (PCM) that produces a digital audio signal with a lower bit rate than standard PCM. The Rio 800 uses ADPCM for voice recording. ADPCM produces a lower bit rate by recording only the difference between samples, and adjusting the coding scale dynamically to accommodate large and small differences.

Bitrate

Bitrate denotes the number of bits per second used to represent a digital music file. The size and quality of a compressed digital audio file is determined by the bitrate used when encoding the file. The higher the bitrate used, the higher the sound quality, and the larger the file size. For example, with MP3, a bitrate of 128kbps (128,000 bits per second) is generally thought of as “CD quality”, and takes up about 1 megabyte (MB) per minute of music. At a 64kbps bitrate, the sound quality is similar to that of an FM radio signal, but you can get around two minutes of music in that same 1MB of storage space. CD audio has a bitrate of 1.4Mbits per second (1,400,000 bits/second).

Codec

Depending on the context and kind of technology involved, codec can be defined as a compressed digital audio file format (like MP3, WMA, and so on), a “coding/decoding” chip used to translate between digital and analog transmissions (used in modems), or a compression/decompression algorithm. Codecs compress audio data into a file, often for efficient transmission over a network, and then decode it for playback. While all the codecs perform similar compression of digital audio, there are differences in the technology.

The Rio 800 supports the following digital audio codecs:

- MP3.
- WMA.
- ADPCM—for voice recording
- ACELP.net (Audible)

DRM, security

Digital Rights Management (DRM) technologies protect copyright ownership of digital information. DRM became an issue with the rise of MP3 technology and Internet distribution of music. DRM platforms serve as a security “wrapper” around digital audio supporting Internet distribution while at the same time protecting and managing rights related to that digital information.



Encoding, or ripping (a CD)

Encoding, sometimes referred to as “ripping”, refers to extracting audio from a music CD and converting it into a compressed digital audio format, such as MP3 or WMA, that can be played on your portable player or on the computer.

Firmware

Firmware is software—programs or data—that has been written onto read-only memory (ROM). Firmware is a combination of software and hardware that is comparable to an operating system on a computer. The Rio 800 firmware controls everything from the liquid crystal display and codec support to the Rio 800’s other functions.

[How to upgrade the Rio 800 firmware](#)

MP3

MP3 is short for Moving Pictures Experts Group Audio Layer 3. MP3 is the most well known compressed digital audio file format. This format allows for near “CD quality” sound, but at a fraction of the size of normal audio files. MP3 conversion of an audio track from CD-ROM reduces the file size by approximately a 12:1 ratio with virtually no perceptible loss in quality. This digital sound encoding and compression process was developed by the Fraunhofer Institut für Integrierte Schaltungen and Thomson Multimedia. MP3 uses perceptual audio coding and psychoacoustic compression to remove the redundant and irrelevant parts of a sound signal that the human ear doesn’t hear. It also adds a Modified Discrete Cosine Transform (MDCT) that implements a filter bank, increasing the frequency resolution 18 times higher than that of layer 2. The MP3 encoding process is well suited for the transfer of high quality audio files with small file size over the Internet. Despite the prevalence of MP3s, there are a number of competing technologies to the MP3 format.

Playlist

Playlists let you organize lists of tracks to play in the order you choose. Playlists make it easier to manage large collections of music.

Skin

The skin is the software option that lets you change how digital audio player software applications appear on your computer screen. Some software applications allow you to customize the interface color and window design by changing the skin. Some skins omit certain playback controls for simplicity.

Streaming

Streaming technology lets you play audio or video directly from the Internet without first saving it on your computer. You can listen to or watch the file right away, without waiting for it to completely download.



USB

Universal Serial Bus (USB) is the external bus standard that supports data transfer rates of 12 Mbps (12 million bits per second). The Rio 800 uses USB to communicate with the computer. A single USB port can be used to connect up to 127 peripheral devices, such as mice, modems, and keyboards. USB also supports Plug-and-Play installation and hot plugging. USB may eventually replace serial and parallel ports.

VBR

Variable Bitrate (VBR) encoding converts tracks at a variable rate, using higher bitrate encoding for complex portions and lower bitrate encoding for pauses in songs.

WMA

Windows Media Audio (WMA) is the compressed audio format created by Microsoft as an alternative to MP3. WMA offers comparable quality at greater file compression than MP3, enabling you to store more music on your PC or Rio 800.



FAQ and troubleshooting

How do you put music on the Rio?

The Rio interfaces with your computer through the USB port. You can get digital audio from numerous Internet sites or encode your own digital audio tracks from your audio CDs using the CD-ROM drive on your computer. Use the software included with the Rio to get audio from the Internet, encode tracks from your audio CDs, or download tracks to your Rio.

Can I use the Rio with Windows 95? I have the USB supplement pack.

No. The Rio USB devices can only be used with Windows 98, Windows ME or Windows 2000 operating systems, or Mac OS 9.0.4 or later. The Rio requires a newer standard of USB that is not available in Windows 95, even with the USB supplement pack.

Where is the serial number located on the Rio?

The serial number is on the back of the Rio under the backpack. Remove the backpack from the Rio to see the serial number (S/N).

The Rio is connected to the USB, why doesn't the computer recognize it?

First, make sure the Rio software is running and check to make sure the USB cable is fully connected to both the Rio and to the computer. Then, turn the Rio off and back on.

Is the Random menu function truly random?

No. The Random function uses an algorithm called pseudo-random which is common to all computers. The Rio selects a seed number and then enters a list of predetermined random numbers to play music in a seemingly random order. If the same seed is picked, the Rio may play songs in the same order.

What does the Rio Hold feature do?

The **Hold** feature on the Rio locks all buttons and controls except the Power switch. This is useful at times when the Rio may be bumped or jostled. For example, when exercising.



How much music will my Rio hold?

The amount of music you can store in your player or on your computer depends on the amount of memory you have available. The following table shows the amount of memory required to store one minute of stereo music for the given bitrate.

Table 1: Memory required to store digital audio

Bitrate (kbps)	Approximate memory required (MB) to store one minute of digital audio
64	0.5
96	0.75
128	1.0
164	1.25
192	1.5

How to calculate play time

Note: Due to different software compression algorithms, the following information may vary slightly depending on what software you are using and what program the MP3 was created by.

To determine how much play time your Rio actually has, use the following equation:

Rio Play Time = $M / (S \times 0.439)$ where:

M = Rio memory size in MB (32MB, 64MB, 128MB, and so on).

S = Sampling Speed in kbps (128kbps, 80kbps, and so on).

The higher quality the MP3, the larger its size, causing it to take up more room in your Rio's memory.

The following bitrates are supported:

- 256 kbps, CD Quality, 5.6:1 reduction.
- 192 kbps, CD Quality, 7.5:1 reduction.
- 160 kbps, CD Quality, 9:1 reduction.
- 128 kbps, CD Quality, 11.25:1 reduction.
- 96 kbps, Near CD, 15:1 reduction.
- 80 kbps, Near CD, 18:1 reduction.
- 64 kbps, FM Radio, 22.5:1 reduction.

What are the differences between MP3 and WMA?

If you use the WMA format instead of the MP3 format, you can have comparable quality at about one half the size. Since WMA offers "CD quality" at a smaller file size than MP3, it enables you to store more music on your PC or on your portable player. WMA files are exclusive to the PC.



How do I upgrade the Rio firmware?

Checking your Rio's firmware version

Important: First determine the version of the firmware installed on your Rio. Do not “downgrade” your Rio firmware by installing an older version.

- 1 Press the **Menu** button.
- 2 Press the ◀ or ▶ (Forward or Reverse) navigation buttons to highlight **About**.
- 3 Press **Select** (center navigation button). The firmware version the Rio is using displays.

Downloading the firmware upgrade from the Rio Web site

- 1 Go to the [Rio Web site](#)
- 2 Click the **Support** link.
- 3 Navigate to the Rio Technical Support Updates page.
- 4 Select and download the latest **Rio 800 xxxx.exe (PC)** or **Rio 800 Update xxxx (Mac)** firmware upgrade file to your computer.

Upgrading the Rio firmware (PC)

Important: Quit all other applications before running the firmware upgrade. While running the firmware upgrade, do not close the program, turn off the Rio or unplug the USB cable.

- 1 Connect the Rio to the computer with the USB cable.
- 2 Slide the Rio power switch to **On**.
- 3 Double-click the **Rio 800 xxxx.exe** firmware upgrade file.
- 4 Click the **Upgrade Now** button on the RioFlasher window.
- 5 Click **Yes**.
- 6 When the upgrade is complete, a check of the firmware version displays the new number.

Upgrading the Rio firmware (Mac)

Important: Do not close the program, turn off the Rio or unplug the USB cable during the upgrade.

- 1 Connect the Rio to the computer with the USB cable.
- 2 Slide the Rio power switch to **On**.
- 3 Double-click the iTunes icon.
- 4 Select the Rio player icon.
- 5 Click the **Options** button on the iTunes window. The Rio Settings window displays.
- 6 Click the **Upgrade Firmware** button on the Rio Settings window.
- 7 Choose the **Rio 800 Update xxxx** firmware upgrade file.
- 8 Click the **Open** button.
- 9 When the upgrade is complete, a check of the firmware version displays the new number.



Why do I get an error when I click Read a CD to start encoding?

The following factors may interfere with the CD encoding process:

- 1 Over-utilization of the CPU during the encoding process. Close all other software before encoding.
- 2 Insufficient RAM to cache the track properly. Generally, 64 MB is fine if no other memory intensive application is running. Close all other software before encoding. Win 98 uses about 15-20 MB of RAM at startup depending on what applications you have running.
- 3 CD-ROM firmware. Even if a CD-ROM drive is new, it may require a firmware update from the manufacturer to correct audio extraction errors.
- 4 Overclocking. Overclocking the system—running it faster than it is rated to run—can have adverse effects on the peripheral components. If your system is overclocked, bring it back to its normal operating speed.

How can I get the best sound quality when encoding from a CD?

If you use a significant amount of your computer system's resources with other applications, encoding songs from a CD may result in poor quality recordings. If the song(s) you encode contain abnormalities, such as pops or skips, close down other applications which are running and encode those songs again. The condition of the audio CD—scratches and so on—may effect the quality of the recording as well.



One Year Limited Warranty

Our warranty to you

SONICblue Incorporated warrants that your product will be free from defects in materials and workmanship for a period of one year from the date of original retail purchase. If you discover a defect covered by this warranty, we will repair or replace the product at our option using new or remanufactured components. SONICblue Incorporated's liability is limited solely to the repair or replacement of the defective product. This warranty is extended to the original end user purchaser only and is not assignable or transferable to any other party. Any parts or boards removed in the replacement or remanufacture process shall become the property of SONICblue Incorporated. Out of warranty service may also be available for a fee.

How to obtain service under this warranty

To obtain service under this warranty, please contact the dealer from whom you purchased this product or call the SONICblue Incorporated Customer Care Center at (541) 967-2450 for return instructions.

[Customer Care](#) hours of operation are Monday through Saturday 8am-5pm, Pacific Time.

You must deliver the product and the original sale receipt to either the dealer from who you purchased this product or to SONICblue Incorporated in order to obtain service under this warranty. If you return the product to us, you must pay for shipping to SONICblue Incorporated.

Product failures not covered by this warranty

This warranty covers defects in manufacture that arise from correct use of the device. It does not cover damage caused by abuse, misuse, improper modification or repair, moisture, extreme heat or cold, corrosive environments, shipping, or high voltage surges from external sources such as power line, telephone line, or connected equipment. This warranty does not cover wear and tear on covers, housing or wiring. This warranty also does not apply to any product with an altered or defaced serial number.

How to obtain out of warranty service

To obtain out of warranty service, please contact the SONICblue Incorporated [Customer Care](#) Center at (541) 967-2450 (see above for hours of operation).

Out of warranty service is provided for owners of Rio 800 Personal Digital Music Players who:

- Are unable to provide valid proof of purchase for their Rio Personal Digital Music Player.
- Require repair service after the expiration of the original warranty.
- Require service for product failures not covered under the SONICblue Incorporated warranty on this product.

Out of warranty service is limited to the Personal Digital Music Player only and is not available for headphones, memory cards or other accessories.

The fee for out of warranty repairs is payable by credit card at the time the service agreement is created and Return Authorization provided. This fee includes all labor, parts needing replacement, and return shipping.



You must deliver the product to SONICblue Incorporated in order to obtain out of warranty service. You must pay for shipping to SONICblue Incorporated. It is recommended that you use a shipping service providing you with tracking capability, because we will not be responsible for items lost in the mail. A Return Authorization number is required for all shipments to SONICblue Incorporated. Please contact our Customer Care Center for more information or to arrange for out of warranty service.

Limits of liability

We are only responsible for the repair of this product. We will not be liable to you or anyone else for any damages that result from the failure of this product or from the breach of any express or implied warranties. These include damage to other equipment, lost data, lost profits, or any consequential, incidental, or punitive damages. In no event will SONICblue Incorporated be liable for any amount greater than the currently suggested retail price of this product.

This written warranty represents the entire warranty agreement between SONICblue Incorporated and you. This warranty is given in lieu of all other warranties, express or implied, including without limitation implied warranties of merchantability and fitness for a particular purpose. This warranty is limited to the term specified above. No warranties, either express or implied, will apply after this period. This warranty may not be altered in any way other than in writing by an officer of SONICblue Incorporated. This warranty gives you specific legal rights and you may also have other rights, which vary, from state to state. Some states limit what warranties may be excluded as well as how long an implied warranty lasts, so the above limitation may not apply to you.



Regulatory Information

Federal Communications Commission (FCC)

The device has been tested and found to comply with limits for a Class B computing device according to the specifications in FCC rules Part 15. Operation is subject to the following two conditions:

- 1 This device may not cause harmful interference, and
- 2 This device must accept any interference received, including interference that may cause undesired operation.

If your device needs repairs, you must arrange for the manufacturer to make them if you are to keep the device's FCC registration valid. This equipment, like other electronic equipment, generates and uses radio frequency energy. If not installed and used according to the instructions in this manual, this equipment may cause interference with your radio and television reception. If you think this equipment is causing interference with your radio or television reception, try turning the equipment off and on. If the interference problems stop when the equipment is switched off, then the equipment is probably causing the interference. You may be able to correct the problem by doing one or more of the following:

- Adjust the position of the radio or TV antenna.
- Move the device away from the radio or TV.

If necessary, consult your dealer or an experienced radio or television technician. You may find this booklet helpful: "How to Identify and Resolve Radio and TV Interference Problems" (Stock No. 004-000-00345-4), prepared by the FCC and available from the U.S. Government Printing Office, Washington, DC 20402. See individual devices for FCC ID and registration numbers.

Industry Canada

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

CISPR 22

Warning: This equipment is belongs to class A of CISPR 22 recommendation. In a residential environment, it can produce electromagnetic interference. In that case, it can be requested to the user to take some appropriated measures.

EU Declaration of Conformity



We

DIAMOND Multimedia Systems Vertriebs GmbH

Moosstrasse 18b

D-82319, Starnberg

GERMANY

On behalf of

SONICblue Incorporated



2841 Mission College Blvd.
Santa Clara, CA 95054 USA

Hereby declare under our sole responsibility that the following product(s) conform to the requirements of the European Parliament Council Directive 1999/5/EC dated 9th March 1999. And to which this declaration is related the product(s) listed are in conformity with the following relevant harmonized European Standards or other normative documents, the references of which have been published in the Official Journal of the European Communities / European Union.

Product (s): **RIO 800**

Harmonized Standards:

EN 55022: 1994, A1'95, A2'97 Specification for limits and methods of measurement of radio interference characteristics of Information Technology (IT) equipment.

EN 50082-1: 1998 Electromagnetic Compatibility, Generic Immunity Standard, Part 1. Residential, Commercial and Light Industry.

EN 50332-1: 1999 Maximum sound pressure level measurement methodology and limit considerations. Part 1 General method for "one package equipment".

CE/IEC 60065: 1998 Audio, Video, and similar electronic apparatus Safety Requirements.

In accordance with the terms of Directive 1999/5/EC, 89/336/EEC, 73/23/EEC and Council Decision 98/482/EC the original signed Declaration is retained by us in the product compliance folder. Upon request photocopies may be available.

Date: 02 November 2000

Place: St. Ingbert

Name of Authorizing Person

Scott Naccarato

Regulatory Compliance Manager



Customer Care

Technical support

Hours of Operation

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[Solution Library](#)

Customer service

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1-800-468-5846 or (541) 967-2450

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(541) 967-2485

Rio Product Support

With every Rio product you receive the following support services:

- Unlimited access to the Rio web-based technical information resources, available 24 hours a day every day at www.riohome.com. Here you will find FAQ files, a knowledge-base search engine, product updates, and other useful tools.
- Unlimited e-mail support for the duration of your Rio product hardware warranty period.
- Access to the latest software updates and enhancements for Rio product via our [Web site](#).



New Product Support

In addition to the services mentioned above, all retail purchasers of Rio products receive person-to-person telephone support for the first 90 days of ownership.

To extend support after the expiration of New Product Support, we offer an affordable, fee-based, Extended Service Option. Please see the [Web site](#) for details.

Extended Service Option

To extend support after the expiration of New Product Support, we offer an affordable, fee-based, Extended Service Option. Please see the [Web site](#) for details.



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