



The Rockbox Manual  
for  
Archos Jukebox Studio 5000, 6000, Player 10  
and 20

[rockbox.org](http://rockbox.org)  
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# Rockbox

<http://www.rockbox.org/>  
Open Source Jukebox Firmware

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Rockbox and this manual is the collaborative effort of the Rockbox team and its contributors. See the appendix for a complete list of contributors.

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# 1. Getting started

## 1.1. Welcome

This is the manual for Rockbox. Rockbox is an open source firmware replacement for a growing number of MP3 players. Rockbox aims to be considerably more functional and efficient than your device's stock firmware while remaining easy to use and customizable. Rockbox is written by users, for users. Not only is it free to use, it's also released under the GNU public license, which means that it will always remain free both to use and to change.

Rockbox has been in development since 2001, and receives new features, tweaks and fixes each day to provide you with the best possible experience on your MP3 player. A major goal of Rockbox is to be simple and easy to use, yet remain very customizable and configurable. We believe that you should never need to go through a series of menus for an action you perform frequently. We also believe that you should be able to configure almost anything about Rockbox you could want, pertaining to functionality. Another top priority of Rockbox is audio playback quality – Rockbox, for most models, includes a wider range of sound settings than that device's original firmware. A lot of work has been put into making Rockbox sound the best it can, and improvements are constantly being made. All models have access to a large number of plugins, including many games, applications, and graphical "demos". You can load different configurations quickly for different purposes (e.g. a large font for in your car, different sound settings for at home). Rockbox features a very wide range of languages, and all supported models also have the ability to talk to you – menus can be voiced and filenames spelled out or spoken.

## 1.2. Getting more help

This manual is intended to be a comprehensive introduction to the Rockbox firmware. There is, however, more help available. The Rockbox website at <http://www.rockbox.org/> contains very extensive documentation and guides written by members of the Rockbox community and this should be your first port of call when looking for further help.

If you can't find the information you're searching for on the Rockbox website there are a number of support channels you should have a look at. You can try the Rockbox forums located at <http://forums.rockbox.org/>. Another option are the mailing lists which can be found at <http://www.rockbox.org/mail/>. From that page you can subscribe to the lists and browse the archives. For searching the list archives simply use the search field that is located on the left side of the web site. Also you can ask on IRC. The

main channel for rockbox is #rockbox on <irc://irc.freenode.net>. A bunch of helpful developers and users are usually around. Just join and ask – if someone knows the answer you’ll usually get an answer pretty quickly. More information including IRC logs can be found at <http://www.rockbox.org/irc/>. We also have a web client for joining the rockbox IRC channel so there is no need for you to install additional software to your computer.

If you think you found a bug please make sure it actually is a bug and is still present in the most recent version of rockbox. You should try to confirm that by using the above mentioned support channels first. After that you can submit that issue to our tracker. Refer to section E (page 69) for details on how to use the tracker.

### 1.3. Naming conventions and marks

We have some conventions especially on naming that are intended to be consistent throughout this manual.

Manufacturer and product names are formatted in accordance with the standard rules of English grammar, e.g. “Archos playback is currently unsupported”. Manufacturer and model names are proper nouns, and thus are written beginning with a capital letter.

This manual has some parts that are marked with icons on the margin to help you finding important parts or parts you could skip. The following icons are used:

**Note:** This indicates a note. A note starts always with the text “Note”. For easier finding of notes we have put this an icon in the margin like here. Notes are used to mark informations that could help you or indicate a possible “weirdness” in rockbox that would be explained.



**Warning:** This is a warning. In contrast to notes mentioned above, a warning should be taken more seriously. While ignoring notes won’t cause any serious damage ignoring warnings *could* cause serious damage. If you’re new to rockbox you should really read the warnings before doing anything that is warned about.



This icon marks a section that are intended especially for the blind and visually impaired. As they can’t read the manual in the same way sighted people can do we’ve added some additional descriptions. If you aren’t blind or visually impaired you most likely can completely skip these blocks. To make this easier, there is an icon shown in the margin on the right.





## 2. Installation

### 2.1. Prerequisites

Before installing Rockbox you should make sure you meet the prerequisites. Also you may need some tools for installation. In most cases these will be already available on your computer but if not you need to get some additional software.

**zip Utility.** Rockbox is distributed as an archive using the “zip” format. Thus you need a tool to handle that compressed format. Usually your computer should have a tool installed that can handle the zip file format. Windows XP has builtin support for zip files and presents them to you as folders unless you have installed a third party program that handles compressed files. For other operating systems this may vary. If the zip file format isn’t recognized on your computer you can find a program to handle them at <http://www.info-zip.org/> or <http://sevenzip.sf.net/> which can be downloaded and used free of charge.

**USB connection.** To transfer Rockbox to your player you need to connect it to your computer. To proceed you need to know where to access the player. On windows this means you need to figure out the drive letter the device got associated with. On Linux you need to know the mount point of your player.

**Text Editor.** If you want to create customized configuration files you’ll need a text editor like Windows’ “Wordpad”. Of course you can simply save configurations on the player for which you don’t need an editor at all. Modifying configurations from your computer is a more advanced feature which you probably won’t need.

### 2.2. Installing Rockbox

#### 2.2.1. Using the windows installer

Using the Windows self installing executable to install Rockbox is the easiest method of installing the software on your Jukebox. Simply follow the on-screen instructions and select the appropriate drive letter and Jukebox model when prompted. You can use “Add / Remove Programs” to uninstall the software at a later date.

#### 2.2.2. Manual installation

For non-Windows users and those wishing to install manually from the archive the procedure is still fairly simple. There are three different types of firmware binaries

from Rockbox website: Current Version, Daily Build and Bleeding Edge. You need to decide which one you want to install and get the version for your player.

**Current Version.** The current version is the latest stable version developed by the Rockbox Team. It's free of known critical bugs. It is available from <http://www.rockbox.org/download/>. The current version includes everything meaning you won't need to download the fonts package separately.


**Daily Build.** The Daily Build is a development version of Rockbox. It supports all new features and patches developed since last stable version. It may also contain bugs! This version is generated automatically every day and can be found at <http://www.rockbox.org/daily.shtml>. The daily builds don't include the fonts (as they change rarely). When installing Rockbox for the first time you should install the fonts package.

**Bleeding Edge.** Bleeding edge builds are the same as the Daily build, but built from the latest development on each commit to the CVS repository. These builds are for people who want to test the code that developers just checked in.

If you don't want to get undefined behaviour from your player you should really stick to the Current Version. Development versions may have lots of changes so they may behave completely different than described in this manual, introduce new (and maybe annoying) bugs and similar. If you want to help the project development you can try development builds and help by reporting bugs, feature requests and so so. But be aware that using a development build may eat also some more time.

After downloading the Rockbox package connect your player to the computer via USB as described in the manual that came with your player. Take the file that you downloaded above, and unpack its contents to your Archos's drive.

You will need to unpack all of the files in the archive onto your hard disk. If this has been done correctly, you will have a file called `archos.mod` in the main folder of your player's drive, and also a folder called `/.rockbox`, which contains a number of system files needed by Rockbox.

**Note:** Please note that the firmware folder starts with a leading dot. You may experience problems when trying to create such folders when using Windows. Directly unzipping to your player's drive works flawlessly; it is only Windows' Explorer that is limited in handling such files. 

## 2.3. Enabling Speech Support (optional)

If you wish to use speech support you will also need a language file, available from <http://www.rockbox.org/twiki/bin/view/Main/VoiceFiles>. For the English language, the file is called `english.voice`. When it has been downloaded, unpack this file and copy it into the `lang` folder which is inside the `/.rockbox` folder on your Jukebox. Voice menus are turned on by default. See section 6.7 (page 35) for details on voice settings.

## 2.4. Running Rockbox

Remove your player from the computer's USB port. Unplug any connected power supply and turn the unit off. When you next turn the unit on, Rockbox should load. When you see the Rockbox splash screen, Rockbox is loaded and ready for use.

## 2.5. Updating Rockbox

Updating Rockbox is easy. Download a Rockbox build. (The latest release of the Rockbox software will always be available from <http://www.rockbox.org/download/>). Unzip the build to the root directory of your player like you did in the installation step before. If your unzip program asks you whether to overwrite files, choose the "Yes to all" option. The new build will be installed over your current build replacing that.

**Note:** Settings are stored on an otherwise-unused sector of your hard disk, not in any of the files contained in the Rockbox build. Therefore, generally speaking, installing a new build does *not* reset Rockbox to its default settings. Be aware, however, that from time to time, a change is made to the Rockbox source code that *does* cause settings to be reset to their defaults when a Rockbox build is updated. Thus it is recommended to save your settings using the MANAGE SETTINGS → WRITE .CFG FILE function before updating your Rockbox build so that you can easily restore the settings if necessary. For additional information on how to save, load, and reset Rockbox's settings, see section 6.4 (page 32).

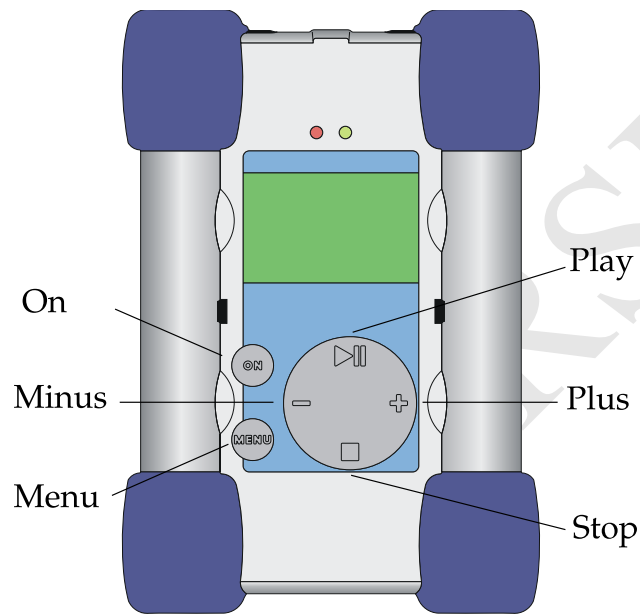


## 2.6. Uninstalling Rockbox

If you would like to go back to using the original Archos software, then connect the Archos to your computer, and delete the `archos.mod` file. If you wish to clean up your disk, you may also wish to delete the `.rockbox` folder and its contents. Turn the Archos off and on and the original Archos software will load.

## 3. The Rockbox interface

### 3.1. Your player



Throughout this manual, the buttons on the player are labelled according to the picture above.

#### 3.1.1. The player's controls

**Write a section describing the player for blind users.**



#### 3.1.2. Turning the player on and off

To turn on and shut down your player, the following keys are used:

Key	Action
Hold On for 2-3s	Start Rockbox
From the Main Menu, select <b>Shutdown</b>	Shutdown Rockbox

On shutdown, Rockbox automatically saves its settings. In the unlikely event of a software failure, a hardware power off can be performed by holding down Stop until the player power light goes off.

## 3.2. File Browser




Figure 3.1.: The file browser

Rockbox lets you browse your music in either of two ways. The FILE BROWSER lets you navigate through the files and folders on your player, entering folders and executing the default action on each file. To help differentiate files, each file format is displayed with an icon.

The TAG CACHE BROWSER, on the other hand, allows you to navigate through the music on your player using categories like album, artist, genre, etc.

You can select whether to browse using the FILE BROWSER or the TAG CACHE BROWSER by adjusting the SHOW FILES setting. If you choose the FILE BROWSER, the SHOW FILES setting also lets you select what types of files you wish to view. See section 6.2 (page 30) for more information on the SHOW FILES setting.

**Note:** The FILE BROWSER allows you to manipulate your files in ways that are not available within the TAG CACHE BROWSER. Read more about TAG CACHE in section 3.3 (page 17). The remainder of this section deals with the FILE BROWSER. 

### 3.2.1. File Browser Controls

Key	Action
Minus/Plus	Go to previous/next item in list. If you are on the first/last entry, the cursor will wrap to the last/first entry.
n/a	Move one page up/down on the list.
Stop	Go to the parent directory.
Play	Executes an action. Depending on the file type, that action may vary. (See section 3.2.2 (page 14))
On	If there is a MP3 playing, returns to the While Playing Screen (WPS) without stopping playback.
Hold Play/On+Play	Enter the File Menu
Menu	Enter the Main Menu

### 3.2.2. File Menu

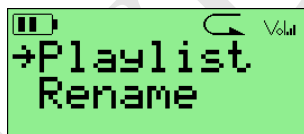



Figure 3.2.: The File Menu

The FILE MENU allows you to perform certain operations on files or folders. To access the FILE MENU, position the selector over a file or folder and press the Play/On+Play buttons.

**Note:** The FILE MENU is a context sensitive menu. If the FILE MENU is invoked on a file, it will display options available for files. If the FILE MENU is invoked on a folder or directory, it will display options for directories. 

The FILE MENU contains the following options (unless otherwise noted, each option pertains both to files and directories):

**Playlist:** Enters the PLAYLIST SUBMENU (see below).

**Rename:** This function lets the user modify a file name.

**Cut:** Copies the name of the currently selected file or directory to the clipboard and marks it to be 'cut'.

**Copy:** Copies the name of the currently selected file or directory to the clipboard and marks it to be 'copied'.

**Paste:** Only visible if a file or directory name is on the clipboard. When selected it will move or copy the clipboard to the current directory.

**Delete:** Deletes the currently selected file. This option applies only to files, and not to directories. Rockbox will ask for confirmation before deleting a file. Press Play to confirm deletion or any other key to cancel.

**Delete Directory:** Deletes the currently selected directory and all of the files and folders contained in the selected directory. Deleted directories cannot be recovered. Use this feature with caution!

**Open with:** Runs a viewer plugin on the file. Normally, when a file is selected in Rockbox, Rockbox automatically detects the file type and runs the appropriate plugin. The OPEN WITH function can be used to override the default action and select a viewer by hand. For example, this function can be used to view a text file even if the file has a non-standard extension (i.e., the file has an extension of something other than `.txt`). See section 7.3 (page 40) for more details on viewers.

**Create Directory:** Makes a new folder in the current folder on the disk.

### 3.2.3. Playlist Submenu



Figure 3.3.: The Playlist Submenu

The PLAYLIST SUBMENU allows you to put tracks into a “dynamic playlist”. If there is no music currently playing, Rockbox will create a new dynamic playlist and put the selected track(s) into the playlist. If there is music currently playing, Rockbox will put the selected track(s) into the current playlist. The place in which the newly selected tracks are added to the playlist is determined by the following options:

**Insert:** Add track(s) to playlist. If no other tracks have been inserted then the selected track will be added immediately after current playing track, otherwise they will be added to end of insertion list.

**Insert next:** Add track(s) immediately after current playing track, no matter what else has been inserted.


**Insert last:** Add track(s) to end of playlist.

**Queue:** Queue is the same as Insert except queued tracks are deleted immediately from the playlist after they've been played. Also, queued tracks are not saved to the playlist file (see section 4.8 (page 24)).

**Queue next:** Queue track(s) immediately after current playing track.


**Queue last:** Queue track(s) at end of playlist.

The PLAYLIST SUBMENU can be used to add either single tracks or entire directories to a playlist. If the PLAYLIST SUBMENU is invoked on a single track, it will put only that track into the playlist. On the other hand, if the PLAYLIST SUBMENU is invoked on a directory, Rockbox adds all of the tracks in that directory to the playlist.

**Note:** You can control whether or not Rockbox includes the contents of subdirectories when adding an entire directory to a playlists. Set the MAIN MENU → PLAYLIST OPTIONS → RECURSIVELY INSERT DIRECTORIES setting to YES if you would like Rockbox to include tracks in subdirectories as well as tracks in the currently-selected directory. 

If you want to have Rockbox create a playlist of a whole folder (to play an entire album, for example), use the FILE BROWSER to select the song. When a single song is selected from the FILE BROWSER, Rockbox will automatically create a playlist with all songs in the current folder. However, if you want to play only a single song and then stop, stop playback, navigate to the song you want to play, and use the PLAYLIST → INSERT function to select the song.

Dynamic playlists are saved so resume will restore them exactly as they were before shutdown.

**Note:** To view, save or reshuffle the current dynamic playlist, use the PLAYLIST OPTIONS setting in the WPS Context Menu. 

### 3.2.4. Virtual Keyboard



Figure 3.4.: The virtual keyboard

This is the virtual keyboard that is used when entering file names in Rockbox.

The current filename is always listed on the first line of the display. The second line of the display can contain the character selection bar, as in the screenshot above, or one of a number of other options.



Key	Action
Minus/Plus	Moves the arrow to/from the filename and changes between the character bar and BACKSPACE, DELETE, ACCEPT and ABORT.
Play/Stop	Varies (see below)
Menu	Shift. When the character selection bar is selected this changes between upper case, lower case, and accented letters.

The function of the Play and Stop buttons depends on what the arrow is pointing to, as follows.

Selected option	Play/Stop function
filename	Moves the cursor left (Stop) or right (Play) within the filename
character bar	Moves the character bar to the next (Play) or previous (Stop) character.
BACKSPACE	Playdeletes the character before the current cursor position
DELETE	Playdeletes the character at the current cursor position
ACCEPT	Playexits the virtual keyboard and saves any changes
ABORT	Playexits the virtual keyboard and discards any changes

## 3.3. Tag Cache

### 3.3.1. Introduction

Tag Cache is the Rockbox music database system. Using the information contained in the tags (ID3v1, ID3v2, Vorbis Comments, Apev2, etc.) in your audio files, Rockbox builds and maintains a database of the music files on your player and allows you to browse them by Artist, Album and Genre.

### 3.3.2. Initializing the Tag Cache

Before you use the Tag Cache for the first time, you must initialize it by using the INITIALIZE NOW function in the TAG CACHE MENU, which is described in the following

section.

### 3.3.3. The Tag Cache Menu

**Auto Update:** If `AUTO UPDATE` is set to `ON`, each time the player boots, Tag Cache will automatically do everything that the `UPDATE NOW` setting does. Note that the `AUTO UPDATE` will only check for deleted files if the Directory Cache (`GENERAL SETTINGS` → `SYSTEM` → `DISK` → `DIRECTORY CACHE`) is enabled. `UPDATE NOW` includes that check whether dircache has been enabled or not.

**Initialize Now:** Before you use the Tag Cache for the first time, you must initialize it by using the `INITIALIZE NOW` function in the `TAG CACHE MENU`. `INITIALIZE NOW` removes all database files (removing `runtime.db` data also) and rebuilds the database from scratch. This takes approximately 5 to 10 minutes, and may require a restart to allow the files to be committed to the cache.

The Tag Cache initialization happens in the background, so you can continue to listen to music while the Tag Cache is being initialized. If you shut down your player during initialization, the database building process will continue next time you turn it on.

**Update Now:** `UPDATE NOW` causes Tag Cache to detect new and deleted files. Note that unlike the `AUTO UPDATE` function, `UPDATE NOW` will update the database regardless of whether the `DIRECTORY CACHE` is enabled. Thus, an update using `UPDATE NOW` may take a long time. Unlike `INITIALIZE NOW`, the `UPDATE NOW` function does not remove runtime database information.

**Gather Runtime Data (Experimental):** When enabled, this option allows the most played, unplayed and most recently played tracks to be logged and scored.


**Export modifications:** This allows for the runtime data to be exported into `/.rockbox/tagcache_changelog.txt`, which backs up the runtime data in ASCII format. This is needed when Tag Cache structures change, because new code cannot read old Tag Cache database code. But, all modifications exported to ASCII format should be readable by all Tag Cache versions.

**Import modifications:** Allows the `/.rockbox/tagcache_changelog.txt` backup to be conveniently loaded into the Tag Cache. This is performed automatically when the Tag Cache is initialized.

### 3.3.4. Using the Tag Cache

Once the Tag Cache has been initialized, you can browse your music by Artist, Album, Genre and Song Name. To use the Tag Cache, change the `SHOW FILES` show mode by changing the `GENERAL SETTINGS` → `FILE VIEW` → `SHOW FILES` option to `ID3 DATABASE`. This disables the `FILE BROWSER` and instead allows you to view files using

the information in the Tag Cache database.

**Note:** You may need to increase the value of the MAX FILES IN DIR BROWSER setting (GENERAL SETTINGS → SYSTEM → LIMITS) in order to view long lists of tracks in the ID3 database browser. 

There is no option to turn off Tag Cache completely. If you do not want to use it just don't do the initial build of the database and do not load it to RAM.

Supported Tags	Unsupported Tags
Artist	Comment
Album	Performer
Bitrate	
Composer	
Genre	
Length	
Title	
Track Number	

### 3.4. While Playing Screen

The While Playing Screen (WPS) displays various pieces of information about the currently playing audio file.

**Note:**

- Playlist index/Playlist size: Artist - Title.
- Current-time Progress-indicator Left.

See section [8.2](#) (page 48) for details of customising your WPS (While Playing Screen). 

### 3.4.1. WPS Key Controls

Key	Action
Menu+Plus/Minus Minus	Volume up/down Go to beginning of track, or if pressed while in the first seconds of a track, go to previous track.
Hold Minus	Rewind in track
Plus	Go to next track.
Hold Plus	Fast forward in track.
Play	Toggle play/pause
On	Return to the FILE BROWSER
Hold On	Enter the WPS CONTEXT MENU
Stop	Stop playback
Menu	Go to Main menu
Menu+Stop	Key lock on/off
Menu+Play	Mute on/off
Menu+On	Enter ID3 VIEWER

### 3.4.2. The WPS Context Menu

Like the context menu for the FILE BROWSER, the WPS CONTEXT MENU allows you quick access to some often used functions:

#### Sound Settings

This is a shortcut to the SOUND SETTINGS MENU, where you can configure volume, bass, treble, and other settings affecting the sound of your music. See section 5 (page 26) for more information.

#### Playlist

The PLAYLIST submenu allows you to view, save, search and reshuffle the current playlist.

#### Bookmarks

This allows you to create a bookmark in the currently-playing track.

### ID3 Viewer



Figure 3.5.: The ID3 viewer

This screen is accessible from the WPS screen, and provides a detailed view of all the identity information about the current track. This info is known as meta data and is stored in audio file formats to keep information on artist, album etc. To access this screen, press Menu+On. Use Minus and Plus to move through the information.

### Open With...

This OPEN WITH function is the same as the OPEN WITH function in the FILE CONTEXT MENU.

### Pitch Screen

The Pitch Screen allows you to quickly change the pitch of your player. The pitch value can be adjusted between 50% and 200%.

Key	Action
	Increase / Decrease Pitch by 0.1%
	Increase / Decrease Pitch by 1%
Minus/Plus	Temporarily Increase / Decrease Pitch by 2.0%
	Reset Pitch to 100%
	Leave Pitch screen

## 4. The Main Menu

### 4.1. Introducing the Main Menu



Figure 4.1.: The main menu

The MAIN MENU is the screen from which the rest of the Rockbox functions can be accessed. It is used for a variety of functions, which are detailed below. All options in Rockbox can be controlled via the MAIN MENU. To enter the MAIN MENU, press the Menu button.

All settings are stored on the unit. However, Rockbox does not spin up the disk solely for the purpose of saving settings. Instead, Rockbox will save settings when it spins up the disk the next time, for example when refilling the MP3 buffer or navigating through the file browser. Changes to settings may therefore not be saved unless the player is shut down safely (see section 3.1.2 (page 12)).

### 4.2. Navigating the Main Menu

Key	Action
Minus	Selects previous option in the menu. Inside an setting, decreases the value or chooses previous option
Plus	Selects next option in the menu. Inside an setting increases the value or chooses next option
Play	Selects item
Stop	Exit menu, setting or moves to parent menu.

### 4.3. Recent Bookmarks

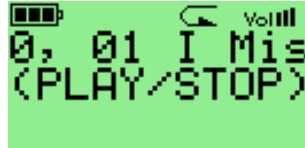


Figure 4.2.: The list bookmarks screen

If the `SAVE A LIST OF RECENTLY CREATED BOOKMARKS` option is enabled then you can view a list of several recent bookmarks here and select one to jump straight to that track. See section 6.5 (page 34) for more details on configuring bookmarking in Rockbox.

**Note:** This option is off by default.



### 4.4. Sound Settings

The `SOUND SETTINGS` menu offers a selection of sound properties you may change to customize your listening experience. The details of this menu are covered in detail in section 5 (page 26).

### 4.5. General Settings

The `GENERAL SETTINGS` menu allows you to customize the way Rockbox looks and the way it plays music. The details of this menu are covered in detail in section 6 (page 28).

### 4.6. Manage Settings

The `MANAGE SETTINGS` option allows the saving and re-loading of user configuration settings, browsing the hard drive for alternate firmwares, and finally resetting your player back to initial configuration. This menu also allows the user to load different versions of the Rockbox firmware. The details of this menu are covered in detail in section 8.3 (page 51).

### 4.7. Browse Themes

This option will display all the currently installed themes on the player, press Plus to load the chosen theme and apply it.

A theme is basically a configuration file, stored in a specific directory, that typically changes the WPS, font used and on some platforms additional information such as background image and text colours.

There are a number of themes that ship with Rockbox. If none of these suit your needs, many more can be downloaded from [. Some of the downloads from this site will actually be standalone WPS files, others will be full-blown themes.](#)

**Note:** Themes do not have to be purely visual. It is quite possible to create a theme that switches between audio configurations for use in the car, with headphones and when connected to an external amplifier. See section [8.2.2 \(page 49\)](#) for more details.



## 4.8. Playlist Options

This menu allows you to work with playlists. Playlists can be created in three ways. Playing a file in a directory causes all the files in the directory to be placed in a playlist. Playlists can be created manually by either using the FILE MENU (see section [3.2.2 \(page 14\)](#)) or using the PLAYLIST OPTIONS menu. Both automatically and manually created playlists can be edited using this menu.

**Create Playlist:** Rockbox will create a playlist with all tracks in the current directory and all subdirectories. The playlist will be created one folder level “up” from where you currently are.

**View Current Playlist:** Displays the contents of the playlist currently stored in memory.

**Save Current Playlist:** Saves the current dynamic playlist, excluding queued tracks, to the specified file. If no path is provided then playlist is saved to current directory (see section [3.2.3 \(page 15\)](#)).

**Recursively Insert Directories:** If set to ON, then when a directory is inserted or queued into a dynamic playlist, all subdirectories will also be inserted. If set to ASK, Rockbox will prompt the user about whether to include subdirectories. Options: OFF, ASK, ON

**Warn When Erasing Dynamic Playlist:** If set to YES, Rockbox will provide a warning if the user attempts to take an action that will cause Rockbox to erase the current dynamic playlist. Options: YES, NO

## 4.9. Browse Plugins

With this option you can load and run various plugins that have been written for Rockbox. There are a wide variety of these supplied with Rockbox, including several games, some impressive demos and a number of utilities. A detailed description of the different plugins is to be found in section [7 \(page 37\)](#).



## 4.10. Info

This option shows RAM buffer size, battery voltage level and estimated time remaining, disk total space and disk free space. Use the MINUS and PLUS keys to step through several pages of information.

**Rockbox Info:** Displays some basic system information. This is, from top to bottom, the amount of memory Rockbox has available for storing music (the buffer), battery status, hard disk size and the amount of free space on the disk.

**Version:** Software version and credits display.

**Debug (Keep Out!):** This submenu is intended to be used *only* by Rockbox developers. It shows hardware, disk, battery status and other technical information.

**Warning:** It is not recommended that users access this menu unless instructed to do so in the course of fixing a problem with Rockbox. If you think you have messed up your settings by use of this menu please try to reset *all* settings before asking for help.



## 4.11. Shutdown

This menu option saves the Rockbox configuration and turns off the hard drive before shutting down the machine. For maximum safety this procedure is recommended when turning off the player. (There is a very small risk of hard disk corruption otherwise.) See section [3.1.2](#) (page [12](#)) for more details.

## 5. Sound Settings



Figure 5.1.: The sound settings screen

The Sound Settings menu offers a selection of sound properties you may change to customize your listening experience.

### 5.1. Volume

This setting adjusts the volume of your music. Like most professional audio gear and many consumer audio products, Rockbox uses a decibel scale where 0 dB is a reference that indicates the maximum volume that the player can produce without possible distortion (clipping). All values lower than this reference will be negative and yield a progressively softer volume. Values higher than 0 dB are available and can be used to raise the volume more than would otherwise be possible. These volume levels will ordinarily lead to distorted sound, but might work nicely for music that has an otherwise low volume level. The volume can be adjusted from a minimum of -78 dB to a maximum of +18 dB.

### 5.2. Bass

This emphasises or suppresses the lower (bass) sounds in the track. 0 means that bass sounds are unaltered (flat response).

### 5.3. Treble

This emphasises or suppresses the higher (treble) sounds in the track. 0 means that treble sounds are unaltered (flat response).

## 5.4. Balance

This setting controls the balance between the left and right channels. The default, 0, means that the left and right outputs are equal in volume. Negative numbers increase the volume of the left channel relative to the right, positive numbers increase the volume of the right channel relative to the left.

## 5.5. Channels

A stereo audio signal consists of two channels, left and right. The CHANNELS setting controls if these channels are to be combined in any way, and if so, in what manner they will be combined. Available options are:

Setting	Description
Stereo	Leave the audio signal unmodified.
Mono	Combine both channels and send the resulting signal to both stereo channels, resulting in a monophonic output.
Custom	Allows you to manually specify a stereo width with the STEREO WIDTH setting described later in this chapter.
Mono Left	Plays the left channel in both stereo channels.
Mono Right	Plays the right channel in both stereo channels.
Karaoke	Removes all sound that is the same in both channels. Since most music is recorded with vocals being equally present in both channels to make the singer sound centrally placed, this often (but not always) has the effect of removing the voice track from a song. This setting also very often has other undesirable effects on the sound.

## 5.6. Stereo Width

Stereo width allows you to manually specify the effect that is applied when the CHANNELS setting is set to CUSTOM. All values below 100% will progressively mix the contents of one channel into the other. This has the effect of gradually centering the stereo image, until you have monophonic sound at 0%. Values above 100% will progressively remove components in one channel that is also present in the other. This has the effect of widening the stereo field. A value of 100% will leave the stereo field unaltered.

## 6. General Settings

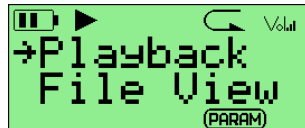


Figure 6.1.: The general settings screen


### 6.1. Playback Options

The PLAYBACK OPTIONS submenu allows you to configure settings related to audio playback.


**Shuffle:** Alters how Rockbox will select which next song to play.  
Options: ON/OFF.

**Repeat:** Configures settings related to repeating of directories or playlists.  
Options: OFF / ALL / ONE / SHUFFLE / A-B :

**Off:** The current directory or playlist will not repeat when it is finished.

**Note:** If you have the AUTO CHANGE DIRECTORY option set to YES, Rockbox will move on to the next directory on your hard drive. If the AUTO CHANGE DIRECTORY option is set to NO, playback will stop when the current directory or playlist is finished. 

**All:** The current directory or playlist will repeat when it is finished.

**Note:** This option does *not* shuffle all files on your player. Rockbox is playlist oriented. When you play a song, a directory, or an album, Rockbox creates a playlist and plays it. Thus, to shuffle all songs on the player, you need to create a playlist of all songs on the player, and play that playlist with shuffle mode set to ALL. 

**One:** Repeat one track over and over.

**Shuffle:** When the current directory or playlist has finished playing, it will be shuffled and then repeated.

**A-B:** Repeats between two user defined point within a track, typically used by musicians when attempting to learn a piece of music. This option is more complicated to use than the others as the player must first be placed into A-B

repeat mode and then the start and end points defined.

**Hold Play and press Left — Sets Start Point (A)**


**Hold Play and press Right — Sets End Point (B)**

**Play Selected First:** This setting controls what happens when you select a file for playback while shuffle mode is on. If the PLAY SELECTED FIRST setting is YES, the file you selected will be played first. If this setting is NO, a random file in the directory will be played first.

**Resume:** Rockbox can be configured to start playing automatically when you turn on the player. If the resume function is set to start automatically playing, Rockbox will start at the point where you last turned off the player. The options for the RESUME function are:

**Yes:** Rockbox will unconditionally try to resume.


**No:** Rockbox will not resume. *If resume is set to NO, Rockbox will start in the FILE BROWSER.*

**Note:** Earlier versions of Rockbox had an “Ask” setting, which would ask whether to resume when the jukebox was turned on. This setting has been eliminated because it was redundant. If resume is set to “Yes” pressing **FixMe** on the player will resume from the point where the player was stopped before shutdown. 

**Fast-Forward/Rewind:** How fast you want search (fast forward or rewind) to accelerate when you hold down the button. OFF means no acceleration. 2X/1S means double the search speed once every second the button is held. 2X/5S means double the search speed once every 5 seconds the button is held.

**Anti-Skip Buffer:** This setting allows you to control how much music is stored in the player’s memory whilst playing a song, acting as a buffer against shock or playback problems. The player transfers the selected amount of the forthcoming song into its memory at high speed whilst you are playing the song. It keeps a “rolling” buffer, which keeps feeding more of the forthcoming song into memory as it goes along. If the player is knocked, shaken or jogged heavily while Rockbox is trying to read the hard drive, Rockbox might not be able to read the drive. Rockbox will retry over and over again until it succeeds, but may eventually reach the end of the memory buffer. When that happens, Rockbox must stop playing and wait for more data from the disk, which causes your music to skip. The anti-skip setting tells Rockbox how much extra buffer memory to spare to handle this situation. This setting therefore allows you to reduce the chances of there being a gap or pause during playback of songs.

The anti-skip buffer can be set to a value between 0 and 7 seconds.

**Note:** Having a large anti-skip buffer tends to use more power, and may reduce your battery life. It is recommended to always use the lowest possible setting that allows correct and continuous playback. 

**Fade On Stop/Pause:** Enables and disables a fade effect when you pause or stop playing a song. If the Fade on Stop/Pause option is set to YES, your music will fade out when you stop or pause playback, and fade in when you resume playback.

**Party Mode:** Enables unstoppable music playback. When new songs are selected, they are added to the end of the current dynamic playlist instead of being played immediately. The **PLAY** and **STOP** buttons are disabled.

**Auto Change Directory:** Control what Rockbox does when it reaches the end of a directory. If Auto Change Directory is set to YES, Rockbox will continue to the next directory. If AUTO CHANGE DIRECTORY is set to NO, playback will stop at the end of the current directory.

**Note:** You must have the REPEAT option set to NO for AUTO CHANGE DIRECTORY to function properly.



## 6.2. File View

The File View menu deals with options relating to how the File Browser displays files.

**Sort Case Sensitive:** If this option is set to YES, all files that start with upper case letters will be listed first, followed by all files that begin with lower case letters. If this option is set to NO, then case will be ignored when sorting files.

**Sort Directories:** This option controls how Rockbox sorts folders. The default is to sort them alphabetically. BY DATE sorts them with the oldest folder first. BY NEWEST DATE sorts them with the newest folder first.

**Sort Files:** This option controls how Rockbox sorts files. All of the options for SORT DIRECTORIES are available in this option. In addition, there is a BY TYPE option which sorts files alphabetically by their type (such as .mp3) then alphabetically within each type.

**Show Files:** This option controls which files are displayed in the File Browser.

**All:** The FILE BROWSER displays all files and directories. Extensions are shown. No files or directories are hidden.

**Supported:** The FILE BROWSER displays all directories and files supported by Rockbox (see section A.1 (page 60)). Files and directories starting with . or with the “hidden” flag set are hidden.

**Music:** The FILE BROWSER displays only folders, playlists and the supported *audio* file formats. Extensions are stripped. Files and directories starting with . or with the “hidden” flag set are hidden.

**Playlists:** The FILE BROWSER displays only directories and playlists, for simplified navigation.

**ID3 Database:** This shows the files based on the TAG CACHE information, thus disabling the FILE BROWSER. You can browse the database by various tags and search them. Only information present in music file tags are shown. For a detailed description of TAG CACHE refer to section 3.3 (page 17).

**Follow Playlist:** This option determines what directory the FILE BROWSER displays first. If FOLLOW PLAYLIST is set to YES, when you enter the FILE BROWSER from the WPS, you will find yourself in the same directory as the currently playing file. If FOLLOW PLAYLIST is set to NO, when you enter the FILE BROWSER from the WPS, you will find yourself in the directory you were in when you last left the FILE BROWSER.

**Show Icons:** Rockbox has the ability to display an icon to the left of the file in the FILE BROWSER. For details of these icons, please see section A.1 (page 60).

**Show Path:** If this setting is set to FULL PATH the full path to the current directory will be displayed on the first line in the FILE BROWSER. If set to CURRENT DIRECTORY ONLY only the name of the current directory will be displayed.

**Tag Cache:** This option allows you to configure the Tag Cache. See section 3.3 (page 17) for more information about using the Tag Cache.

### 6.3. Display Options

**Browse WPS files:** Opens the FILE BROWSER in the `/.rockbox/wps` directory and displays all `.wps` files. Selecting one will activate it, stop will exit back to the menu. For further information about the WPS see section 3.4 (page 19). For information about editing a `.wps` file see section 8.2 (page 48).

**LCD Settings:** This submenu contains settings that relate to the display of the player.

**Backlight:** The amount of time the backlight shines after a key press. If set to OFF, the backlight will not light when a button is pressed. If set to ON, the backlight will never shut off. If set to a time (1 to 90 seconds), the backlight will stay lit for that amount of time after a button press.

**Backlight on When Plugged:** This setting is equivalent to the Backlight setting except it applies when the player is plugged into the charger.

**Caption Backlight:** This option turns on the backlight a number of seconds before the start of a new track, and keeps it on for the same number of seconds after the beginning so that the display can be read to see song information. The amount of time is determined by the value of the backlight timeout setting, but is no less than 5 seconds.

**First Keypress Enables Backlight Only:** With this option enabled the first keypress while the backlight is turned off will only turn the backlight on without

having any other effect. When disabled the first keypress will *also* perform its appropriate action.

**Contrast:** Changes the contrast of your LCD display.

**Warning:** Setting the contrast too dark or too light can make it hard to find this menu option again!



**Scrolling** This feature controls how text will scroll in Rockbox. You can configure the following parameters:

**Scroll Speed:** Controls how many times per second the scrolling text moves a step.

**Scroll Start Delay:** Controls how many milliseconds Rockbox should wait before a new text begins scrolling.

**Bidirectional Scroll Limit:** Rockbox has two different scroll methods: always scrolling the text to the left and when the line has ended beginning again at the start, or moving to the left until you can read the end of the line and scroll right until you see the beginning again. Rockbox chooses which method it should use depending of how much it has to scroll left. This setting lets you tell Rockbox where that limit is, expressed in percentage of line length.

**Jump Scroll:** This setting makes text scroll a page at a time instead of a character at a time. If set to ONE TIME, 2, 3 or 4 it will scroll a line in paged mode that many times and then scroll it a character at a time. If set to ALWAYS lines will always scroll in paged mode.

**Jump Scroll Delay:** Controls how long the delay is before a page is scrolled.

**Paged Scrolling:** When enabled scrolling will page up/down instead of changing lines. This can be useful on slow displays.

**Default Codepage:** A codepage describes the way extended characters that aren't available within the ASCII character set are encoded. ID3v1 tags don't have a codepage encoding contained so Rockbox needs to know what encoding has been used when generating these tags. This should be "ISO-8859-1" but to support languages outside Western Europe most applications use the setting of your operating system instead. If your operating system uses a different codepage and you're getting garbled extended characters you should adjust this settings. In most cases sticking to "ISO-8859-1" would be sufficient.

## 6.4. System Options

### 6.4.1. Battery

Options relating to the batteries in the player.



**Battery Capacity:** This setting can be used to tell Rockbox what capacity (in mAh) of battery is being used inside it. The default is 1500mAh, which is the capacity value for the standard batteries shipped with the player. Rockbox uses this value to estimate remaining battery life for the status bar and WPS. Changing this setting has no effect whatsoever on actual battery life. This setting affects only the accuracy of the battery life display on screen.

#### 6.4.2. Disk

Options relating to the hard disk.

**Disk Spindown:** Rockbox has a timer that makes it spin down the hard disk after it is idle for a certain amount of time. This setting controls the amount of time between the last user activity and the time that the disk spins down. This idle time is only affected by user activity, like navigating through file browser. When the hard disk spins up to fill the audio buffer, it automatically spins down afterwards.

#### 6.4.3. Power Control

**Idle Poweroff:** Rockbox can be configured to turn off power after the unit has been idle for a defined number of minutes. The player is idle when playback is stopped or paused. It is not idle while the USB or charger is connected, or while recording.

**Sleep Timer:** This option lets you power off your player after playing for a given time.

#### 6.4.4. Limits

This submenu relates to limits in the Rockbox operating system.

**Max files in dir browser:** This setting controls the limit on the number of files that you can put in any particular directory in the file browser. You can configure the size to be between 50 and 10,000 files in steps of 50 files. The default is 400. Higher values will shorten the music buffer, so you should increase this setting *only* if you have directories with a large number of files.

**Max playlist size:** This setting controls the maximum size of a playlist. The playlist size can be between 1,000 and 20,000 files, in steps of 1,000 (default is 10,000). Higher values will shorten the music buffer, so you should increase this setting *only* if you have very large playlists.

#### 6.4.5. Car Adapter Mode

This option turns ON and OFF the car ignition auto stop function.

**Car Adapter Mode:** When using the player in a car, CAR ADAPTER MODE automatically stops playback on the player when power (i.e. from cigarette lighter power adapter) to the external DC in jack is turned off. If the CAR ADAPTER MODE is set to ON, Rockbox will pause playback when the external power off condition is detected. Rockbox will then shutdown the player after the length of time set in the IDLE POWEROFF setting (see above). If power to the DC in jack is turned back on before the *Idle Poweroff* function has shut the player off, playback will be resumed 5 seconds after the power is applied. This delay is to allow for the time while the car engine is being started.

Once the player is shut off either manually, or automatically with the IDLE POWEROFF function, it must be powered up manually to resume playback.

#### 6.4.6. Line In

This option activates the line in port on player, which is off by default. This is useful for such applications as:

- Game boy → player → human
- laptop → player → human
- LAN party computer → player → human

### 6.5. Bookmarking


Bookmarks allow you to save your current position within a track so that you can return to it at a later time. Bookmarks are saved on a per folder basis. In other words, all of the files in the same folder have their bookmarks stored together in the folder where the files are located. You can store multiple bookmarks for the same track.

**Bookmark on Stop.** This option controls whether Rockbox writes a bookmark to the disk when playback is stopped. Setting this to NO turns automatic bookmarking completely off. In contrast YES turns automatic bookmarking on while ASK asks on stopping the track if a bookmark should be created. With the above options YES and ASK if there is an existing `.bmark` file the current position information will be added to the front of the existing list, up to the maximum number of allowed bookmarks per file (currently 10). If no `.bmark` file exists, one will be created with the new bookmark information. Finally, if the MAINTAIN A LIST OF RECENTLY USED BOOKMARKS option is enabled, the bookmarking information will be added to recent bookmarks list.

**Yes – Recent Only.** Turns on automatic bookmarking – One bookmark only

**Ask – Recent Only.** Asks if a bookmark should be created when stopping track  
– One bookmark only

With the two RECENT ONLY options, nothing is written to the `.bookmark` file. If the MAINTAIN A LIST OF RECENTLY USED BOOKMARKS option is enabled, the bookmarking information will however be added to recent bookmarks list.

**Note:** The RESUME function remembers your position in the most recently accessed track regardless of how the BOOKMARK ON STOP option is set. 

**Load Last Bookmark.** When the LOAD LAST BOOKMARK option is set to YES, Rockbox automatically returns to the position of the last bookmark within a file when that file is played.

When the LOAD LAST BOOKMARK option is set to ASK, Rockbox will give the user the option of starting from the beginning of the track or from the bookmark.

When the LOAD LAST BOOKMARK option is set to NO, playback always starts from the beginning of the track, and the user must play the bookmark or use the LOAD BOOKMARK function in the Main Menu, while the file is playing, to resume at the bookmarked location.

**Maintain a list of Recently Used Bookmarks.** This list of Most Recent Bookmarks (MRB's) may be accessed through the RECENT BOOKMARKS option of the BOOKMARKS submenu of the Main Menu. When set to YES each new bookmark will be added to the MRB list. Setting this to NO disables the addition of bookmarks to the MRB list. UNIQUE ONLY will remove an old bookmark for the current track from the MRB list and replace it with the new one if a bookmark in the MRB list already existed. Otherwise this will behave like the YES setting. **The above information was obtained by reading the source code, but my C is rather rusty...**

## 6.6. Language

This setting controls the language of the Rockbox user interface. Selecting a language will activate it. The language files must be in the `/.rockbox/lang/` directory. See section 8.1.2 (page 48) for further details about languages.

## 6.7. Voice

**Voice Menus.** This option turns on the Voice User Interface, which will read out menu items and settings as they are selected by the cursor. In order for this to work, a voice file must be present in the `/.rockbox/lang/` directory on the player. Voice files are large (1.5MB) and are not shipped with Rockbox by default. The voice file is the name of the language for which it is made, followed by the extension `.voice`. So for English, the file name would be `english.voice`. This option is on by default. It will do nothing unless the appropriate voice file is installed in the correct place on the player. The Voice Menus have several limitations:

- Setting the Sound Option CHANNELS to KARAOKE may disable voice menus.
- Plugins do not support voice features.

**Voice Directories.** This option turns on the speaking of directory names. The player is not powerful enough to produce these voices in real time, so a number of options are available.

**.talk mp3 clip.** Use special pre-recorded MP3 files (`.dirname.talk`) in each directory. These must be generated in advance, and are typically produced synthetically using a text to speech engine on a PC. If no such file exists, the output is as for the NUMBERS option below.

**Spell.** Speak the directory name by spelling it out letter by letter. Support is provided only for the most common letters and punctuation.

**Numbers.** Each directory is assigned a number based upon its position in the file list. They are then announced as “Directory 1”, “Directory 2” etc.

**Off.** No attempt will be made to speak directory names.

**Voice Filenames.** This option turns on the speaking of filenames. The options provided are SPELL, NUMBERS, and OFF which function the same as for VOICE DIRECTORIES and .TALK MP3 CLIP, which functions as above except that the files are named with the same name as the music file (e.g. `Punkadiddle.mp3` would require a file called `Punkadiddle.mp3.talk`).

See <http://www.rockbox.org/twiki/bin/view/Main/VoiceHowto> for more details on configuring speech support in Rockbox.

## 7. Plugins

Plugins are little programs that Rockbox can load and run. Only one plugin can be loaded at a time. Plugins have exclusive control over the user interface. This means you cannot switch back and forth between a plugin and Rockbox, a plugin is loaded, run and then exited, which returns control to Rockbox. Most plugins will not interfere with music playback but some of them will stop playback while running. Plugins have the file extension `.rock`. Most of them can be started from BROWSE PLUGINS in the MAIN MENU.

Viewer plugins get started automatically by opening an associated file (i.e. text files, chip8 games), or from the OPEN WITH option on the FILE MENU.

### 7.1. Games

#### 7.1.1. Jackpot

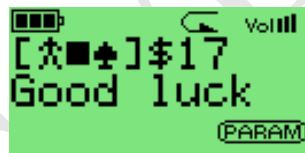


Figure 7.1.: Jackpot

This is a jackpot slot machine game. At the beginning of the game you have 20\$. Payouts are given when three matching symbols come up.

Key	Action
Play	Play
Stop	Exit the game

### 7.1.2. Nim

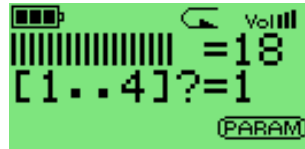


Figure 7.2.: Nim

Rules of Nim: There are 21 matches. Two players (you and the Jukebox) alternately pick a certain number of matches and the one who takes the last match loses. You can take up to twice as many matches as the Jukebox selected, and vice versa.

Key	Action
Minus	Decrease the number of matches
Plus	Increase the number of matches
Play	Remove the number of matches you have selected
Stop	Exit the game

## 7.2. Demos

### 7.2.1. Credits

The credits plugin scrolls the entire list of the names of all the Rockbox contributors after displaying the Rockbox logo and version. This plugin is called when selecting ROCKBOX INFO from the INFO section of the Rockbox main menu.

### 7.2.2. Cube



Figure 7.3.: Cube

This is a rotating cube screen saver in 3D.

Key	Action
On	Display at maximum frame rate
Play	Pause
Menu	Cycle draw mode
Plus/Minus	Increase / decrease x axis
On+ Plus/Minus	Increase / decrease y axis
Menu+ Plus/Minus	Increase / decrease z axis
Stop	Quit

### 7.2.3. Logo

Demo showing the Rockbox logo bouncing around the screen.

Key	Action
Plus / Minus	Increase / decrease speed on the x-axis
On+Plus/ On+Minus	Increase / decrease speed on the y-axis
Stop	Quit

### 7.2.4. Mosaic



Figure 7.4.: Mosaic

This simple graphics demo draws a mosaic picture on the screen of the player. Press Stop to quit.

### 7.2.5. Snow



Figure 7.5.: Have you ever seen snow falling?

This demo replicates snow falling on your screen. If you love winter, you will love this demo. Or maybe not. Press Stop to quit.

## 7.3. Viewers

Viewers are plugins which are associated with specific file extensions. They cannot be run directly but are started by “playing” the associated file. Viewers are stored in the `/.rockbox/viewers/` directory.

### 7.3.1. Search

This plugin can be used on playlists. It searches through the playlist that it is opened on looking for any occurrences of the string entered by the user. The results of this search are saved to a new playlist, `search_results.m3u`, within the same directory as the original playlist.

### 7.3.2. Sort

This plugin takes a file and sorts it in forward alphabetical order. Case is ignored. This is useful for ordering playlists generated by the “Create Playlist” menu option (see section 3.2.3 (page 15)).

### 7.3.3. Text Viewer

This is a Viewer for text files with word wrap. Just open a `.txt` file to display it. The text viewer features controls to handle various styles of text formatting, has top-of-file and bottom-of-file buttons. You can view files without a `.txt` extension by using *Open with* from the *File Menu* (see section 3.2.2 (page 14)).

#### Mode settings

**Word mode** toggles between Wrap and Chop.

**Wrap** breaks lines at white space or hyphen.



**Chop** breaks lines at the maximum column limit.

**Line mode** cycles through Normal, Join and Expand.

**Normal** breaks lines at newline characters.

**Join** ignores unpaired newline characters (i.e., joins lines). Useful for adopting the orphans that occur with e-mail style (i.e., pre-wrapped) text files.

**Expand** doubles unpaired newlines (i.e., adds a blank line). Useful for making the paragraphs clearer in some book style text files.

**View mode** toggles between Narrow and Wide.

**Narrow** sets maximum column to the screen width.

**Wide** sets maximum column to 114. Useful for navigating large files. (Currently, Wide and Join cannot be selected together.)

Settings are not remembered after the viewer has been exited.


Key	Action
Minus	Page-up (one screen up)
Plus	Page-down (one screen down)
Menu+Minus	Top of file (Narrow mode) One screen left (Wide mode)
Menu+Plus	Bottom of file (Narrow mode) One screen right (Wide mode)
On+Minus	Toggles Word mode
On+Menu+Plus	Cycles line mode
On+Plus	Toggles view mode
Stop	Exit text viewer

### Compatibility

- Correctly reads plain text files in Unix, Win/DOS, or Macintosh format. Latin-alphabet Unicode files are *almost* readable.
- Currently prefers fixed-width fonts. With proportional fonts, pretends all characters are the width of a lower-case 'o'.
- Currently messages are in English
- Does not currently support right-to-left languages.

### 7.3.4. VBRfix

This function scans a VBR (Variable Bitrate) MP3 file and updates/creates the Xing VBR header. The Xing header contains information about the VBR stream used to calculate average bit rate, time information and to more accurately fwd/rew in the stream. This function is especially useful when the playback of a file skips, fwd/rew does not work correctly or the time display is incorrect.

**Note:** VBRfix can only run when music is turned off (since it uses the same memory as the player) and can take a while to complete if run on big files. 

## 7.4. Applications

### 7.4.1. Alpine CD changer emulator

This plugin emulates an Alpine CD changer. It allows to plug the Archos to a compatible head unit and control the playback from there, too. Currently implemented is track change, shuffle, seek, but no disk change. The plugin is a TSR, meaning it silently operates in the background once started. It will keep doing so until a new plugin is started. Alpine also did M-Bus as OEM for other brands (Honda, Acura, Volvo, BMW, etc.) Nowadays Alpine uses a different protocol, called Ai-Net, not supported by this plugin. (As well as all other protocols, please do not ask for such!)

#### The cable

Hookup to Archos works by connecting the headphone output including the remote pin (you need a 4-ring 3.5 mm plug for that) to the changer jack of the radio. M-Bus radios have a DIN-style circular jack with 8 pins (7 in a ~ 270 degree circle, one in the center). A standard 5-pin DIN plug is OK for this, since we don't use the other (power) pins.

As OEM, they shuffled the pins around a bit, better check first if it's not genuine Alpine. The bus pin is pulled high to 12 volts with a ~ 2kOhm resistor, pulses driven low. Because it's open collector, this is not harmful to the Archos.


ASCII art of the 4-pin headphone plug:

```

/ \
\_ / left    -> Alpine pin 5
|_ | right  -> Alpine pin 4
|_ | remote -> Alpine pin 1
|_ | ground -> Alpine pin 2 + 3

```

The remote pin can be programmed bidirectional, that's the reason this works. Very luckily the M-Bus uses a single wire communication and the two radios I tried are happy with the 3.3 Volt level the Arcos can deliver. So the connection is a simple cable! For all protocols requiring more lines, an external controller would be necessary.

**Note:** Archos FM's don't have the remote pin internally connected, but one unit that was opened was internally prepared for it, a matter of closing a bridge. 

## 7.4.2. Battery Benchmark

The Battery Benchmark Plugin enables you to test your battery's performance, while making normal use of your player. Once loaded it will run in the background (TSR plugin), reading various info about your battery while you use it. Once you finish your session you can find the benchmark output data in a file on your player `/battery_bench.txt`. Please submit your results to the Rockbox wiki. <http://www.rockbox.org/twiki/bin/view/Main/BatteryRuntime>

### How it works

After you load the plug-in the operation of your player continues as normal. You can do whatever you could do before loading the plugin except loading another plugin. If you happen to load a plugin while benchmarking, a splash screen will inform you about the termination of the benchmark. While you operate it will log various battery related information every time the disk is activated by external causes, (buffer refill, open folder, USB mode) or an hour passes without updating the log file. The plugin will continue to log info until:

- Another plugin is loaded.
- The player is shut down.
- The battery is empty.

Between disk activity (or an hour), it will log info in memory (every measurement is captured when the voltage changes). If there are too many measurements older entries will be deleted and the log file will inform the user about the interval where entries were lost. Benchmarks can be resumed if you accidentally load a plugin, or turn off your player, as long as the log file `/battery_bench.txt` is not deleted.

### Information explained

On the top of the file you will see various info on how to use the plugin.

**Time** It is the total time of operation of the player. It is not the time that you started the plug-in. If you have your player on for 5 minutes and then startt the plugin, it will start measuring from 5 minutes.

**Seconds** As time, it shows time passed in seconds. Nothing special, it is there because it is free and maybe someone might want to make graphs with seconds.

**Level** The percent level of the battery estimated by Rockbox. This is an estimation and not an accurate result. Using the real percentage (current battery voltage / top battery voltage) \* 100) we can calculate the difference between the estimation. Goal of this column is to make the estimation algorithm of Rockbox more accurate.

**Time Left** It shows the estimated (by Rockbox) remaining time until shutdown. Again, as Level, this column can be used to see differences between real time left and estimated time left. This could help make time left more accurate.

**Voltage** The current, battery voltage, the moment the measurement was captured. Measurements are captured when this number changes while benchmarking. This column can be used to give quite interesting graphs in a spreadsheet program. (Excel, Calc, e.t.c)

**M/DA** (Measurements per Disk Activity) The number of measurements stored temporarily in memory, before written on the log file. This can give you an idea on how many voltage changes are between disk activity (or one hour).

**C** Stands for Charger. An "A" in that column shows if there was the power adapter attached to the unit, at the time of the measurement.

**S** The "S" column shows the state of the device (Charging, or not). The "C" indicated that the unit was charging when the measurement was captured.

**U** USB powered. Only for targets that support this. A "U" will indicate if the unit was using the USB port for powering.

### Making graphs

While you can tell how long your battery lasted, with a single look at the last line of the battery log (`/battery_bench.txt`), the most useful purpose of Battery Benchmark is to make graphs using a spreadsheet program like Excel or Calc. The battery log (`/battery_bench.txt`) is in CSV format (comma separated) so you can quite easily import it to a spreadsheet program.

### 7.4.3. Chess Clock



Figure 7.6.: Chess Clock

The chess clock plugin is designed to simulate a chess clock, but it can be used in any kind of game with up to ten players.

## Setup

Key	Action
Plus/Minus	Increase / decrease displayed Value
Play	Move to next screen
Stop	Move to previous screen

- First enter the number of players (1–10)
- Then set the total game time in mm:ss
- Then the maximum round time is entered. For example, this could be used to play Scrabble for a maximum of 15 minutes each, with each round taking no longer than one minute.
- Done. Player 1 starts in paused mode.

## While playing

The number of the current player is displayed on the top line. The time below is the time remaining for that round (and possibly also the total time left if different).

Keys are as follows:

Key	Action
On	Exit plugin
Stop	Restart round for the current player
Play	Pause the time (press again to continue)
Plus	Switch to next player
Minus	Switch to previous player
Menu	Open menu (Play to select.)

From the menu it is possible to delete a player, modify the round time for the current player or set the total time for the game. When the round time is up for a player the message “ROUND UP!” is shown (press NEXT to continue). When the total time is up for a player the message “TIME UP!” is shown. Then player will then be removed from the timer.

### 7.4.4. Dice

Dice is a simple dice rolling simulator. You can select number and type of dice to roll, it shows individual numbers as well as the total of the rolled dice.

Key	Action
Minus/Plus	Pick between type and number of dice
Play/Stop	Select number of sides or number of dice
On	Roll dice
Menu	Quit

### 7.4.5. Euro Converter

*[Warning: Image ignored]*

*Euro converter*

This plugin converts euros back into pre-euro currency. The country for which is does this is selectable by pressing the MENU key. The MINUS and PLUS keys move the cursor between the digits and the PLAY and STOP keys increase and decrease the current digit. The amount in the old currency is displayed on the second line.

### 7.4.6. Favorites

**WARNING! Image not found**

Figure 7.7.: Favorites

When listening to any song you can open it with this plugin and it will add the current song to a special playlist of all songs you selected in `/favorites.m3u`.

### 7.4.7. Metronome

This plugin can be used as a metronome to keep time during music practice. Adjust the tempo though the interface or by tapping it out on the appropriate button.

Key	Action
Stop	Exit plugin
Play	Start / Stop
On	Tap tempo
Left/Right	Adjust tempo
On+Left/Right	Adjust volume

### 7.4.8. Stats



Figure 7.8.: The stats-plugin

The stats-plugin simply counts the number of files and folders on your player. Press **Stop** to exit the plugin.

### 7.4.9. Stopwatch

**WARNING! Image not found**

Figure 7.9.: Stopwatch

A simple stopwatch program with support for saving times.

**Keys are as follows:**

Key	Action
Menu	Quit Plugin
Play	Start / stop
Stop	Reset timer
On	Take lap time
Left/Right	Scroll through lap times

## 8. Advanced Topics


### 8.1. Customising the userinterface

#### 8.1.1. Getting Extras (Fonts, Languages)

Rockbox supports custom fonts (for the Recorder and Ondio only) and a number of different languages. Rockbox comes with several fonts and languages already included. If new fonts have been created, then they will be found in the font package at <http://www.rockbox.org/daily.shtml>. The latest `.lng` files are always included in the daily Rockbox builds.

#### 8.1.2. Loading Languages

Rockbox can load language files at runtime. Simply copy the `.lng` file (*do not use the `.lang` file*) to the player and “play” it in the Rockbox directory browser or select GENERAL SETTINGS → LANGUAGES from the Main Menu.


**Note:** If you want a language to be loaded automatically every time you start up, it must be located in the `/.rockbox` folder and the filename must be a maximum of 24 characters long. 

If your language is not yet supported and you want to write your own language file find the instructions on the Rockbox website: <http://www.rockbox.org/wiki/bin/view/Main/HowtoUpdateLangfile>

### 8.2. Configuring the WPS

#### 8.2.1. WPS – General Info

**Description:** The WPS or While Playing Screen is the name used to describe the information displayed on the player’s screen whilst an audio track is being played. The default WPS is a relatively simple screen displaying Track name, Artist, Album etc. in the default font as a purely text based layout. There are a number of WPS files included in Rockbox, and you can load one of these at anytime by selecting it in GENERAL SETTINGS → DISPLAY → BROWSE `.WPS` FILES.

**Note:** “Playing” a `.wps` from the file browser has the same effect. 

**File Location:** Custom WPS files may be located anywhere on the drive. The only restriction is that they must end in `.wps`. When you “play” a `.wps` file, it will be used for future WPS screens, and if the “played” `.wps` file is located in the



/ .rockbox folder, it will be remembered and used after reboot. The .wps file-name must be no more than 24 characters long for it to be remembered.

### 8.2.2. WPS – Build Your Own

Quite simply, enter the WPS code in your favourite text editor, Notepad on Windows works fine. When you save it, instead of saving it as a .txt file, save it as a .wps file. Example: Instead of Rockbox.txt, save the file as Rockbox.wps. To make sure non english characters display correctly in your WPS you must save the .wps file with UTF-8 character encoding. This can be done in most editors, for example Notepad in Windows 2000 or XP (but not in 9x/ME) can do this. See appendix section B (page 61) for all the tags that are available.

- All characters not preceded by % are displayed as typed.
- Lines beginning with # are comments and will be ignored.
- Maximum file size used is 400 bytes. If you have a bigger WPS file, only the first part of it will be loaded and used.

#### Conditional Tags

**If/else:** Syntax: %?xx<true|false>

If the tag specified by “xx” has a value, the text between the “<” and the “|” is displayed (the true part), else the text between the “|” and the “>” is displayed (the false part). The else part is optional, so the “|” does not have to be specified if no else part is desired. The conditionals nest, so the text in the if and else part can contain all % commands, including conditionals.

**Enumerations:** Syntax: %?xx<alt1|alt2|alt3|...|else>

For tags with multiple values, like Play status, the conditional can hold a list of alternatives, one for each value the tag can have. Example enumeration:

---

EXAMPLE

---

```
mp<Stop|Play|Pause|Ffwd|Rew>
```

---

The last else part is optional, and will be displayed if the tag has no value. The WPS parser will always display the last part if the tag has no value, or if the list of alternatives is too short.

#### Next Song info

You can display information about the next song – the song that is about to play after the one currently playing (unless you change the plan).

If you use the upper-case versions of the three tags: F, I and D, they will instead refer to the next song instead of the current one. Example: %I`g` is the genre name used in the next song and %F`f` is the mp3 frequency.

**Note:** The next song information *will not* be available at all times, but will most likely be available at the end of a song. We suggest you use the conditional display tag a lot when displaying information about the next song!



### Alternating sublines

It is possible to group items on each line into 2 or more groups or “sublines”. Each subline will be displayed in succession on the line for a specified time, alternating continuously through each defined subline.

Items on a line are broken into sublines with the semicolon ‘;’ character. The display time for each subline defaults to 2 seconds unless modified by using the ‘%t’ tag to specify an alternate time (in seconds and optional tenths of a second) for the subline to be displayed.

Subline related special characters and tags:

; Split items on a line into separate sublines

%t Set the subline display time. The ‘%t’ is followed by either integer seconds (%t5), or seconds and tenths of a second (%t3.5).

Each alternating subline can still be optionally scrolled while it is being displayed, and scrollable formats can be displayed on the same line with non-scrollable formats (such as track elapsed time) as long as they are separated into different sublines. Example subline definition:

---

EXAMPLE

---

```
%s%t4%ia;%s%it;%t3%pc %pr : Display id3 artist for 4 seconds,
Display id3 title for 2 seconds,
Display current and remaining track time
for 3 seconds,
repeat...
```

---

Conditionals can be used with sublines to display a different set and/or number of sublines on the line depending on the evaluation of the conditional. Example subline with conditionals:

---

EXAMPLE

---

```
%?it<%t8%s%it|s%fn>;%?ia<%t3%s%ia|t0>
```

---

The format above will do two different things depending if ID3 tags are present. If the ID3 artist and title are present:

- Display id3 title for 8 seconds,
- Display id3 artist for 3 seconds,

- repeat...

If the ID3 artist and title are not present:

- Display the filename continuously.

Note that by using a subtitle display time of 0 in one branch of a conditional, a subtitle can be skipped (not displayed) when that condition is met.

## Using Images

You can have as many as 52 images in your WPS. There are various ways of displaying images:

1. Load and always show the image, using the `%x` tag
2. Preload the image with `%xl` and show it with `%xd`. This way you can have your images displayed conditionally.

Example on bitmap preloading and use:

---

EXAMPLE

---

```
%x|a|static_icon.bmp|50|50|
%xl|b|rep_off.bmp|16|64|
%xl|c|rep_all.bmp|16|64|
%xl|d|rep_one.bmp|16|64|
%xl|e|rep_shuffle.bmp|16|64|
%?mm<%xdb|%xdc|%xdd|%xde>
```

---

Four images at the same `x` and `y` position are preloaded in the example. Which image to display is determined by the `%mm` tag (the repeat mode).

## Example File

---

EXAMPLE

---

```
%s%?in<%in - >%?it<%it|%fn> %?ia<[%ia%?id<, %id]>>
%pb%pc/%pt
```

---

That is, “tracknum – title [artist, album]”, where most fields are only displayed if available. Could also be rendered as “filename” or “tracknum – title [artist]”.

## 8.3. Managing Rockbox settings

### 8.3.1. Introduction to `.cfg` files.

Rockbox allows users to store and load multiple settings through the use of configuration files. A configuration file is simply a text file with the extension `.cfg`.

A configuration file may reside anywhere on the hard disk. Multiple configuration files are permitted. So, for example, you could have a `car.cfg` file for the settings that you use while playing your jukebox in your car, and a `headphones.cfg` file to store the settings that you use while listening to your player through headphones.

See section 8.3.2 (page 52) below for an explanation of the format for configuration files. See section 8.3.3 (page 53) for an explanation of how to create, edit and load configuration files.

### 8.3.2. Specifications for .cfg files.

The Rockbox configuration file is a plain text file, so once you use the WRITE .CFG FILE option to create the file, you can edit the file on your computer using any text editor program. See Appendix section C (page 66) for available settings. Configuration files use the following formatting rules:

1. Each setting must be on a separate line.
2. Each line has the format "setting: value".
3. Values must be within the ranges specified in this manual for each setting.
4. Lines starting with # are ignored. This lets you write comments into your configuration files.

Example of a configuration file:

---

EXAMPLE

---

```
Example configuration file
volume: 70
bass: 11
treble: 12
balance: 0
time format: 12hour
volume display: numeric
show files: supported
wps: /.rockbox/car.wps
lang: /.rockbox/afrikaans.lng
```

---

**Note:** As you can see from the example, configuration files do not need to contain all of the Rockbox options. You can create configuration files that change only certain settings. So, for example, suppose you typically use the player at one volume in the car, and another when using headphones. Further, suppose you like to use an inverse LCD when you are in the car, and a regular LCD setting when you are using headphones. You could create configuration files that control only the volume and LCD settings. Create a few different files with different settings, give each file a different name (such as `car.cfg`, `headphones.cfg`, etc.), and you can then use the BROWSE .CFG FILES option to quickly change settings.



### 8.3.3. The MANAGE SETTINGS menu

The MANAGE SETTINGS menu can be found in the MAIN MENU. The MANAGE SETTINGS menu allows you to save and load `.cfg` files. The MANAGE SETTINGS menu also allows you to load or save different firmware versions.

**Browse .cfg Files.** Opens the file browser in the `/.rockbox` directory and displays all `.cfg` (configuration) files. Selecting a `.cfg` file will cause Rockbox to load the settings contained in that file. Pressing Minus will exit back to the MANAGE SETTINGS menu. See the WRITE .CFG FILES option on the MANAGE SETTINGS menu for details of how to save and edit a configuration file.

**Browse Firmwares.** This displays a list of firmware files in the `/.rockbox` system directory. Firmware files have an extension of `.mod`. Playing a firmware file loads it into memory. Thus, it is possible to run the original Archos firmware or a different version of Rockbox from here (assuming that you have the right files installed on your disk. There is no need for any other file or directory to be installed to use this option; the firmware is resident in that one file.

**Reset Settings.** This wipes the saved settings in the player and resets all settings to their default values.

**Write .cfg file.** This option writes a `.cfg` file to your player's hard disk. The configuration file has the `.cfg` extension and is used to store all of the user settings that are described throughout this manual.

Hint: Use the WRITE .CFG FILE feature (MAIN MENU → GENERAL SETTINGS) to save the current settings, then use a text editor to customize the settings file. See Appendix section C (page 66) for the full reference of available options.

## 8.4. Firmware Loading

When your player powers on, it loads the Archos firmware in ROM, which automatically checks your Jukebox hard disk's root folder for a file named `archos.mod`. Note that Archos firmware can only read the first ten characters of each filename in this process, so don't rename your old firmware files with names like `archos.mod.old` and so on, because it's possible that the player will load a file other than the one you intended.

### 8.4.1. Using ROLO (Rockbox loader)

Rockbox is able to load and start another firmware file without rebooting. You just "play" a file with the extension `.mod`. This can be used to test new firmware versions without deleting your current version.

## 8.5. Rockbox in flash

**These instructions are outdated!! This section is a copy of the wikipage Flashing Rockbox revision r.1.19.**

**Warning:** Flashing Rockbox is optional. It is not required for using Rockbox on your Archos Jukebox Studio 5000, 6000, Player 10 and 20. Please read the whole section thoroughly before flashing.



### 8.5.1. Introduction

Flashing in the sense used here and elsewhere in regard to Rockbox means reprogramming the flash memory of the Archos unit.

When you bought your Archos, it came with the Archos firmware flashed. Now, you can add Rockbox to the built-in software.

### 8.5.2. Terminology

**Firmware:** The flash ROM content as a whole.

**Image:** Means one operating software started from there

By reprogramming the firmware, we can boot much faster. Archos has an unnecessary slow boot loader, versus the boot time for Rockbox is much faster than the disk spinup, in fact it has to wait for the disk. Your boot time will be as quick as a disk spinup (e.g. 4 seconds from powerup until resuming playback).

### 8.5.3. Method

The replaced firmware will host a bootloader and 2 images. This is possible by compression. The first is the *permanent* backup, not to be changed any more. The second is the default one to be started, the first is only used when you hold the Minus -key during start. Like supplied here, the first image is the original Archos firmware, the second is empty, left for you to program and update. It can contain anything you like. If you prefer, you can program the Archos firmware to there, too.

**Note:** For now, the binary contained in the brand new player flash package does contain rockbox built from current cvs in the second image slot. This is to lower the risk of flashing (at least one of the images will hopefully work) in case you don't program a second image yourself in the first step. Of course the second image can be replaced like with the other models.



There are two programming tools supplied:

- The first one is called `firmware_flash.rock` and is used to program the whole flash with a new content. You can also use it to revert back to the original firmware you've hopefully backup-ed. In the ideal case, you'll need this tool only once. You can view this as "formatting" the flash with the desired image structure.

- The second one is called `rockbox_flash.rock` and is used to reprogram only the second image. It won't touch any other byte, should be safe to fool around with. If the programmed firmware is inoperational, you can still use the Minus start with the Archos firmware and Rockbox booted from disk to try better.

The non-user tools are in the `flash` subdirectory of the `cvs` source files. There's an authoring tool which composed the firmware file with the bootloader and the 2 images. The bootloader project, a firmware extraction tool, the plugin sources, and the tools for the UART boot feature: a monitor program for the box and a PC tool to drive it. Feel free to review the sources for all of it, but be careful when fooling around with powerful toys!

#### 8.5.4. Risks

Well, is it dangerous? Yes, certainly, like programming a mainboard *BIOS*, *CD/DVD* drive firmware, mobile phone, etc. If the power fails, your chip breaks while programming or most of all the programming software malfunctions, you'll have a dead box. We take no responsibility of any kind, you do that at your own risk. However, we tried as carefully as possible to bulletproof this code. The new firmware file is completely read before it starts programming, there are a lot of sanity checks. If any fails, it will not program. Before releasing this, we have checked the flow with exactly these files supplied here, starting from the original firmware in flash. It worked reliably, there's no reason why such low level code should behave different on your box.

**Warning:** The risk is slightly higher for player flashing, because:



- This is brand new
- It could not be tested with all hardware versions.

Refer to this e-mail: <http://www.rockbox.org/mail/archive/rockbox-archive-2004-12/0245.shtml>

There's one ultimate safety net to bring back boxes with even completely garbled flash content: the *UART* boot mod, which in turn requires the serial mod. It can bring the dead back to life, with that it's possible to reflash independently from the outside, even if the flash is completely erased. It has been used that during development, else Rockbox in flash wouldn't have been possible. Extensive development effort went into the exploitation of the *UART* boot mod. Mechanically adept users with good soldering skills can easily perform these mods. Others may feel uncomfortable using the first tool (`firmware_flash.rock`) for reflashing the firmware.

To comfort you a bit again: If you are starting with a known-good image, you are unlikely to experience problems. The flash tools have been stable for quite a while. Several users have used them extensively, even flashing while playing! Although it worked, it's not the recommended method.

About the safety of operation: Since we have dual boot, you're not giving up the Archos firmware. It's still there when you hold Minus during startup. So even if Rockbox

from flash is not 100% stable for everyone, you can still use the box, reflash the second image with an updated Rockbox copy, etc.

The flash chip being used by Archos is specified for 100,000 cycles, so you don't need to worry about that wearing out.

### 8.5.5. Requirements

You need two things:

- The first is a Archos Jukebox Studio 5000, 6000, Player 10 and 20. Be sure you're using the correct package, they are different!
- Second, you need an in-circuit programmable flash. The older chips are not flashable. You can find out via Rockbox (INFO → DEBUG → HARDWARE INFO). If the flash info gives you question marks (Flash M=?? D=??), you're out of luck. The only chance then is to solder in the right chip (SST39VF020), at best with the firmware already in. If the chip is blank, you'll need the UART boot mod as well.

### 8.5.6. Flashing procedure

Short explanation: copy the `firmware_*.bin` files for your model from the distribution to the root directory of your player, then run the `firmware_flash.rock` plugin. Long version, step by step procedure:

1. Completely install the Rockbox version you want to have in flash, from a full `.zip` distribution, including all the plugins, etc.
2. Back up the current firmware, using the first option of the debug menu (INFO → DEBUG → DUMP ROM CONTENTS). This creates 2 files in the root directory, which you may not immediately see in the Rockbox browser. The 256kB-sized `internal_rom_2000000-203FFFF.bin` one is your present firmware. Back both up to your PC. You will need them if you want to restore the flash contents.
3. Download the correct package for you model. Copy one or two files of it to your box: `firmware_*.bin` (name depends on your model) into the root directory (the initial firmware for your model, with the bootloader and the Archos image). There now is also a `.norom` variant, copy both, the plugin will decide which one is required for your box.
4. Enter the debug menu and select the hardware info screen. Check your flash IDs (bottom line), and please make a note about your ROM version. The latter is just for our curiosity, not needed for the flow. If the flash info shows question marks, you can stop here, sorry.
5. Use the the menu (GENERAL SETTINGS → FILE VIEW → SHOW FILES) to configure seeing all files within the browser.



6. Connect the charger and make sure your batteries are also in good shape. That's just for security reasons, it's not that flashing needs more power.
7. Run the `firmware_flash.rock` plugin. It again tells you about your flash and the file it's gonna program. After Minus it checks the file. Your hardware mask value will be kept, it won't overwrite it. Hitting On gives you a big warning. If we still didn't manage to scare you off, you can hit Plus to actually program and verify. The programming takes just a few seconds. If the sanity check fails, you have the wrong kind of boot ROM and are out of luck by now, sorry.
8. In the unlikely event that the programming should give you any error, don't switch off the box! Otherwise you'll have seen it working for the last time. While Rockbox is still in DRAM and operational, we could upgrade the plugin via USB and try again. If you switch it off, it's gone.

**Note:** You may delete the `.bin` files now.



### 8.5.7. Bringing in a Rockbox build

Short version: very easy, just play an `.ucl` file like `rockbox.ucl` from a release or build:

- Make sure you are running the same version that you are trying to flash: play the `ajbrec.ajz` file.
- Enter the `.rockbox` directory in the file browser (you might need to set the FILE VIEW option to ALL FILES).
- Play the `rockbox.ucl` file (or `rombox.ucl` if you want to flash ROMBox)

Long version:

The second image is the working copy, the `rockbox_flash.rock` plugin from this package reprograms it. The plugin needs to be consistent with the Rockbox plugin API version, otherwise it will detect mismatch and won't run.

It requires an exotic input, a UCL-compressed image, because that's the internal format. UCL is a nice open-source compression library. The decompression is very fast and less than a page of C-code. The efficiency is even better than Zip with maximum compression, reduces file size to about 58% of the original size. For details on UCL, see <http://www.oberhumer.com/opensource/ucl/>.

Rockbox developers using Linux will have to download it from there and compile it. For Win32 and Cygwin the executables are next to the packages. The sample program from that download is called `uclpack`. We'll use that to compress `rockbox.bin` which is the result of the compilation. This is a part of the build process meanwhile. If you compile Rockbox yourself, you should copy `uclpack` to a directory which is in the path, we recommend placing it in the same dir as SH compiler.

Here are the steps:

1. Normally, you'll simply download a `.zip` distribution. Copy all the content to the USB drive, replacing the old.
2. Force a disk boot by holding Minus during power-up, or at least rolo into the new Rockbox version by *Playing* the `ajbrec.ajz/fnamearchos.mod` file. This may not always be necessary, but it's better to first run the version you're about to flash. It is required if you are currently running RomBox.
3. Just *play* the `.ucl` file in the `.rockbox` directory, this will kick off the `rockbox_flash.rock` plugin. It's a bit similar to the other one, but it's made different to make the user aware. It will check the file, available size, etc. With On it's being programmed. No need for warning this time. If it goes wrong, you'll still have the permanent image.
4. When done, you can restart the box and hopefully your new Rockbox image.

You may find two `.ucl` files in the `.rockbox` folder. The classical, compressed one is `rockbox.ucl`. If your model has enough flash space left, there may be an additional `rombox.ucl`, which is uncompressed and can run directly from flash ROM, saving some RAM. The second way is the newer and now preferred one. Use this if available.

If you like or have to, you can also flash the Archos image as the second one. E.g. in case Rockbox from flash doesn't work for you. This way you keep the dual bootloader and you can easily try different later. The `.ucl` of the Archos firmware is included in the package.

### 8.5.8. Restoring the original firmware

If you'd like to revert to the original firmware, you can do like you did when you flashed Rockbox for the first time. You simply use the backup files you saved when flashing Rockbox for the first time and rename `internal_rom_2000000-203FFFF.bin` to `firmware_*.bin` (name varies per model, use the filename that `firmware_flash.rock` asks for) and put it in the root.

### 8.5.9. Known issues and limitations

Rockbox has a charging screen, but it is not 100% perfect. You'll get it when the unit is off and you plug in the charger. The Rockbox charging algorithm is first measuring the battery voltage for about 40 seconds, after that it only starts charging when the capacity is below 85%.

If the plugin API is changed, new builds may render the plugins incompatible. When updating, make sure you grab those too, and ROLO or Minus boot into the new version before flashing it.

There are two variants of how the boxes starts, therefore the normal and the `_norom` firmware files. The vast majority of the player's all have the same boot ROM content, differentiation comes later by flash content. Rockbox identifies this boot ROM with















a CRC value of 0x222F in the hardware info screen. Without a boot ROM there is no UART boot safety net. To compensate for that as much as possible the MiniMon monitor is included, it starts with Plus+On. Using that the box can be reprogrammed via serial if the first 2000 bytes of the flash are OK.

#### 8.5.10. Download the new flash content file to your box

**These links are not valid. Refer to the wikpage BootBox for further instructions** Jens Arnold hosts flash content for download. Use the following url: [http://www.jens-arnold.net/Rockbox/flash\\_player.zip](http://www.jens-arnold.net/Rockbox/flash_player.zip)

## A. File formats

### A.1. Supported file formats

Icon	File Type	Extension	Action when selected
	Directory	<i>none</i>	The browser enters that directory
	Audio file	mp3	Rockbox takes you to the WPS and starts playing the file
	Wave Audio File	.wav	Play a WAV file
	Playlist	.m3u	Rockbox loads the playlist and starts playing the first file
	Rockbox firmware	.mod	ROLO will load the new firmware
	While Playing Screen	.wps	The new WPS display configuration will be loaded
	Language File	.lng	Loads a language file
	Text File	.txt	This will display the text file using Rockbox text browser plugin
	Configuration File	.cfg	The settings file will be loaded
	Font	.fnt	This font will replace the current one
	Plugin	.rock	Starts a Rockbox plugin
	Flash Image	.ucl	This Rockbox image will be flashed into the ROM
	Chip8 game	.ch8	Play a Chip8 game
	Image	.jpg	View a JPEG image

## B. WPS Tags

### B.1. Status Bar

---

Tag	Description
%we	Status Bar Enabled
%wd	Status Bar Disabled

---

These tags override the player setting for the display of the status bar. They must be noted on their own line.

### B.2. ID3 Info

---

Tag	Description
%ia	ID3 Artist
%ic	ID3 Composer
%id	ID3 Album Name
%ig	ID3 Genre Name
%in	ID3 Track Number
%it	ID3 Track Title
%iv	ID3 Version (1.0, 1.1, 2.2, 2.3, 2.4 or empty if no id3 tag)
%iy	ID3 Year

---

Remember that this information is not always available, so use the conditionals to show alternate information in preference to assuming.

### B.3. Power Related Information

Tag	Description
%b1	Show numeric battery level in percent. Can also be used in a conditional: %?b1<0 1 2 3 4>
%bv	Show the battery level in volts
%bt	Show estimated battery time left
%bp	“p” if the charger is connected (only on targets that can charge batteries)
%bc	“c” if the unit is currently charging the battery (only on targets that have software charge control or monitoring)
%bs	Sleep timer. Shows the remaining time if the sleeptimer is set

### B.4. File Info

Tag	Description
%fb	File Bitrate (in kbps)
%fc	File Codec (e.g. “MP3” or “FLAC”). This tag can also be used in a conditional tag, %?fc<mp1 mp2 mp3 wav vorbis flac mpc a52 wavpack- alac aac shn aiff unknown>. The codec order is as follows: MP1, MP2, MP3, WAV, Ogg Vorbis (OGG),FLAC, MPC, AC3, WavPack (WV), ALAC, AAC, Shorten (SHN), AIFF
%ff	File Frequency (in Hz)
%fm	File Name
%fn	File Name (without extension)
%fp	File Path
%fs	File Size (In Kilobytes)
%fv	“(avg)” if variable bit rate or “” if constant bit rate
%d1	First directory from end of file path.
%d2	Second directory from end of file path.
%d3	Third directory from end of file path.

Example for the the %dN commands: If the path is “/Rock/Kent/Isola/11 - 747.mp3”, %d1 is “Isola”, %d2 is “Kent” ... You get the picture.

## B.5. Playlist/Song Info

Tag	Description
%pb	Progress Bar This will display a 1 character “cup” that empties as the time progresses.
%pf	Full-line progress bar & time display
%pc	Current Time In Song
%pe	Total Number of Playlist Entries
%pm	Peak Meter (Recorder only) The entire line is used as volume peak meter.
%pn	Playlist Name (Without path or extension)
%pp	Playlist Position
%pr	Remaining Time In Song
%ps	Shuffle. Shows ‘s’ if shuffle mode is enabled.
%pt	Total Track Time
%pv	Current volume. Can also be used in a conditional: %?pv<0 1 2 3 4 5 6 7 8 9 10>

## B.6. Runtime Database

Tag	Description
%rp	Song playcount
%rr	Song rating (0-10). This tag can also be used in a conditional tag, %?rr<0 1 2 3 4 5 6 7 8 9 10>

## B.7. Virtual LED

Tag	Description
%lh	“h” if there is hard disk activity

## B.8. Repeat Mode

Tag	Description
%mm	Repeat mode, 0-4, in the order: Off, All, One, Shuffle , A-B

Example: `mm<Off|All|One|Shuffle|A-B>`

## B.9. Playback Mode Tags

Tag	Description
<code>%mp</code>	Play status, 0-4, in the order: Stop, Play, Pause, Fast forward, Rewind

Example: `%mp<Stop|Play|Pause|Ffwd|Rew>`

## B.10. Images

Tag	Description
<code>%P filename.bmp </code>	Load a Progress bar image for the WPS. Use <code>%pb</code> tag to show the progress bar
<code>%x n filename x y </code>	Load and display an image n: image ID (a-z and A-Z) filename: filename relative to <code>/.rockbox/</code> and including <code>.bmp</code> x: x coordinate y: y coordinate.
<code>%xl n filename x y </code>	Preload an image for later display n: image ID (a-z and A-Z) filename: filename relative to <code>/.rockbox/</code> and including <code>.bmp</code> x: x coordinate y: y coordinate.
<code>%xdn</code>	Display a preloaded image n: image ID (a-z and A-Z)

Example: image `/.rockbox/bg.bmp` with ID "a" at 37, 109 would be:

`%x|a|bg.bmp|37|109|`

### Note:

- The images must be in a rockbox compatible format (1 bit per pixel BMP)
- The image tag must be on its own line
- The ID is case sensitive, giving 52 different ID's





- The size of the LCD screen for each player varies. See table below for appropriate sizes of each device. The x and y coordinates must respect each of the players' limits.

## B.11. Alignment

Tag	Description
%al	Text is left aligned
%ac	Text is center aligned
%ar	Text is right aligned

All alignment tags may be present in one line, but they need to be in the order left – center – right. If the aligned texts overlap, they are merged.

## B.12. Conditional Tags

Tag	Description
??xx<true false>	If / Else: Evaluate for true or false case
??xx<alt1 alt2 alt3 ... else>	Enumerations: Evaluate for first / second / third / ... / last condition

## B.13. Other Tags

Tag	Description
%%	Display a '%'
%<	Display a '<'
%	Display a ' '
%>	Display a '>'
%;	Display a ';'.
%s	Indicate that the line should scroll. Can occur anywhere in a line (given that the text is displayed; see conditionals above). You can specify up to 10 scrolling lines. Scrolling lines can not contain dynamic content such as timers, peak meters or progress bars.

## C. Config file options

### C.1. Settings

Setting	Allowed Values	Unit
volume	-78 to +18	dB
bass	-15 to +15	dB
treble	-15 to +15	dB
balance	-100 to +100	%
channels	stereo, mono, custom mono left, mono right, karaoke	N/A
shuffle	on, off	N/A
repeat	off, all, one, shuffle, ab	N/A
play selected	on, off	N/A
resume	on, off	N/A
scan min step	1, 2, 3, 4, 5, 6, 8, 10, 15, 20, 25, 30, 45, 60	seconds
scan accel	0 to 15	seconds
antiskip	0 to 7	seconds
volume fade	on, off	N/A
id3 tag priority	v2-v1, v1-v2	N/A
sort case	on, off	N/A
show files	all, supported, music, playlists	N/A
follow playlist	on, off	N/A
playlist viewer icons	on, off	N/A
playlist viewer indices	on, off	N/A
playlist viewer track display	track name, full path	N/A
recursive directory insert	on, off	N/A
scroll speed	1 to 25	Hz
scroll delay	0 to 250	1/10s
scroll step	1 to 112	pixels
bidir limit	0 to 200	% of screen width
contrast	0 to 63	N/A
backlight timeout	off, on, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 45, 60, 90	seconds

---

backlight timeout plugged	off, on, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 45, 60, 90	seconds
disk spindown	3 to 254	seconds
battery capacity	1500 - 3200	mAh
idle poweroff	off, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 30, 45, 60	minutes
lang	/path/filename.lng	N/A
wps	/path/filename.wps	N/A
autocreate bookmarks	off,on	N/A
autoload bookmarks	off,on	N/A
use most-recent-bookmarks	off,on	N/A
talk dir	off, number, spell, enter, hover	N/A
talk file	off, number, spell	N/A
talk menu	off, on	N/A
tagcache_autoupdate	on, off	N/A
warn when erasing dynamic playlist	on, off	N/A
jump scroll	0 to 5	N/A
jump scroll delay	0 to 250	0.01s

---

## D. LCD Screen Sizes

Player	Main LCD Size	Remote LCD Size
Archos Players	11x2 characters	(none)
Archos Recorders	112x64	(none)
Archos Ondio	112x64	(none)
Iaudio X5	160x128	128x96
Ipod 4G Gray	160x128	(none)
Ipod 4G Color	220x176	(none)
Ipod 5G Video	320x240	(none)
Ipod Mini	138x110	(none)
Ipod Nano	176x132	(none)
Iriver H1x0	160x128	128x64
Iriver H3x0	220x176	128x64

## E. User feedback

### E.1. Bug reports

If you experience inappropriate performance from any supported feature, please file a bug report on our web page. Do not report missing features as bugs, instead file them as feature requests (see below).

For open bug reports refer to <http://www.rockbox.org/tracker/index.php?type=2>

#### E.1.1. Rules for submitting new bug reports

1. Check that the bug hasn't already been reported
2. Always include the following information in your bug report:
  - Which exact model Jukebox you have (as printed on the unit)
  - Which exact ROM firmware version you have
  - Which exact Rockbox version you are using (Menu->Info -> Version)
  - A step-by-step description of what you did and what happened
  - Whether the problem is repeatable or a one-time occurrence
  - All relevant data regarding the problem, such as playlists, MP3 files etc. (IMPORTANT!)

### E.2. Feature requests

For open feature requests refer to <http://www.rockbox.org/tracker/index.php?type=1>

#### E.2.1. Rules for submitting a new feature request

1. Check that the feature hasn't already been requested. Duplicates are really boring!
2. Check that the feature hasn't already been implemented. Download the latest daily build and/or search the mail list archive.
3. Check that the feature is possible to implement (see section [E.2.2](#) (page 70)).

## E.2.2. Features we will not implement

This is a list of Feature Requests we get repeatedly that we simply cannot do. View it as the opposite of a TODO!

- Record to WAV (uncompressed) or MP3pro format!  
The recording hardware (the MAS) does not allow us to do this
- Crossfade between tracks!  
Crossfading would require two mp3 decoders, and we only have one. This is not possible.
- Support MP3pro, WMA or other sound format playback!  
The mp3-decoding hardware can only play MP3. We cannot make it play other sound formats.
- Converting OGG → MP3  
The mp3-decoding hardware cannot decode OGG. It can be reprogrammed, but there is too little memory for OGG and we have no documentation on how to program the MAS' DSP. Doing the conversion with the CPU is impossible, since a 12MHz SH1 is far too slow for this daunting task.
- Archos Multimedia support!  
The Archos Multimedia is a completely different beast. It is an entirely different architecture, different CPU and upgrading the software is done a completely different way. We do not wish to venture into this. Others may do so. We won't.
- Multi-band (or graphic) equaliser  
We cannot access information for that kind of visualisation from the MP3 decoding hardware.
- CBR recording!  
The MP3 encoding hardware does not allow this.
- Change tempo of a song without changing pitch!  
The MP3 decoding hardware does not allow this.
- Graphic frequency (spectrum analyser!)  
We can't access the audio waveform from the MP3 decoder so we can't analyse it. Even if we had access to it, the CPU would probably be too slow to perform the analysis anyway.
- Cool sound effects!  
Adding new sound effects requires reprogramming the MAS chip, and we can't do that. The MAS chip is programmable, but we have no access to the chip documentation.

- Interfacing with other USB devices (like cameras) or 2 player games over USB  
The USB system demands that there is a master that talks to a slave. The player can only serve as a slave, as most other USB devices such as cameras can. Thus, without a master no communication between the slaves can take place. If that is not enough, we have no ways of actually controlling the communication performed over USB since the USB circuit in the player is strictly made for disk-access and does not allow us to play with it the way we'd need for any good communication to work.
- Support other filesystems than FAT32 (like NTFS or ext2 or whatever)!  
No. Rockbox needs to support FAT32 since it can only start off a FAT32 partition (since that is the only way the ROM can load it), and adding support for more file systems will just take away valuable ram for unnecessary features. You can partition your player fine, just make sure the first one is FAT32 and then make the other ones whatever file system you want. Just don't expect Rockbox to understand them.
- Add scandisk-like features!  
It would be a very slow operation that would drain the batteries and take a lot of useful ram for something that is much better and faster done when connected to a host computer.

## **F. Changelog**

### **F.1. What's new since v2.5?**

Changes in version 2.5

DRAFT VERSION



## G. Credits

People that have contributed to the project, one way or another. Friends!

▶ BJÖRN STENBERG ▶ LINUS NIELSEN FELTZ-  
ING ▶ ANDY CHOI ▶ ANDREW JAMIESON  
▶ PAUL SUADE ▶ JOACHIM SCHIFFER  
▶ DANIEL STENBERG ▶ ALAN KORR ▶ GARY  
CZVITKOVICZ ▶ STUART MARTIN ▶ FE-  
LIX ARENDS ▶ ULF RALBERG ▶ DAVID  
HÄRDEMAN ▶ THOMAS SAEYS ▶ GRANT  
WIER ▶ JULIEN LABRUYÉRE ▶ NICOLAS  
SAUZEDE ▶ ROBERT HAK ▶ DAVE CHAP-  
MAN ▶ STEFAN MEYER ▶ ERIC LINENBERG  
▶ TOM CVITAN ▶ MAGNUS ÖMAN ▶ JEROME  
KUPTZ ▶ JULIEN BOISSINOT ▶ NUUTTI KO-  
TIVUORI ▶ HEIKKI HANNIKAINEN ▶ HARD-  
EEP SIDHU ▶ MARKUS BRAUN ▶ JUSTIN  
HEINER ▶ MAGNUS HOLMGREN ▶ BILL  
NAPIER ▶ GEORGE STYLES ▶ MATS LIDELL  
▶ LEE MARLOW ▶ NATE NYSTROM ▶ NICK  
ROBINSON ▶ CHAD LOCKWOOD ▶ JOHN  
PYBUS ▶ UWE FREESE ▶ RANDY WOOD  
▶ GREGORY HAERR ▶ PHILIPP PERTER-  
MANN ▶ GILLES ROUX ▶ MARK HILLEBRAND  
▶ DAMIEN TENEY ▶ ANDREAS ZWIRTES  
▶ KJELL ERICSON ▶ JIM HAGANI ▶ LU-  
DOVIC LANGE ▶ MIKE HOLDEN ▶ SIMON  
ELÉN ▶ MATTHEW P. O'REILLY ▶ CHRISTIAN  
SCHÖNBERGER ▶ HENRIK BACKE ▶ CRAIG  
SATHER ▶ JOSÉ MARIA GARCIA-VALDECASAS  
BERNAL ▶ STEVIE OH ▶ JÖRG HOHENSOHN  
▶ DAVE JONES ▶ THOMAS PAUL DIFFEN-  
BACH ▶ ROLAND KLETZING ▶ ITAI SHAKED  
▶ KEITH HUBBARD ▶ BENJAMIN METZLER  
▶ FREDERIC DANG NGOC ▶ PIERRE DE-  
LORE ▶ HUW SMITH ▶ GARRETT DERNER  
▶ BARRY MCINTOSH ▶ LESLIE DONALD-  
SON ▶ LEE PILGRIM ▶ ZACK ROBERTS  
▶ FRANCOIS BOUCHER ▶ MATTHIAS WIEN-  
TAPPER ▶ BRENT COUTTS ▶ JENS ARNOLD  
▶ GERALD VANBAREN ▶ CHRISTI SCARBOR-  
OUGH ▶ STEVE CUNDARI ▶ MAT HOLTON  
▶ JAN GAJDOS ▶ ANTOINE CELLERIER  
▶ BRIAN KING ▶ JIRI JURECEK ▶ JACOB ERL-  
BECK ▶ JEAN-PHILIPPE BERNARDY ▶ DAVE  
HOOPER ▶ JONAS HÄGGQVIST ▶ THOM  
JOHANSEN ▶ RINAT ZAKIROV ▶ MANUEL  
DEJONGHE ▶ MARCOEN HIRSCHBERG  
▶ MICHIEL VAN DER KOLK ▶ TONY MO-  
TAKIS ▶ ANDY YOUNG ▶ ALEXANDRE BOUR-  
GET ▶ RICHARD S. LA CHARITÉ III ▶ CHRIS-  
TIAN GMEINER ▶ TOMAS SALFISCHBERGER  
▶ MIIKA PEKKARINEN ▶ TAPIO KARPPINEN  
▶ RICHARD OTTÓ O'BRIEN ▶ LUCA BU-  
RELLI ▶ ALESSIO LENZI ▶ DAVID BRYANT  
▶ MARTIN ARVER ▶ ALEXANDER SPYRIDAKIS  
▶ PEDRO BALTAZAR VASCONCELOS ▶ RAY  
LAMBERT ▶ DAVE WIARD ▶ PIETER BOS  
▶ KONSTANTIN ISAKOV ▶ BRYAN VANDYKE  
▶ HRISTO KOVACHEV ▶ SANDER SWEERS  
▶ ANTONIUS HELLMAN ▶ RYAN JACK-  
SON ▶ PER HOLMÄNG ▶ FREDERIC DEV-  
ERNAY ▶ JOSÉ M. FANDIÑO ▶ GADI CO-  
HEN ▶ NAFTALI GOLDSTEIN ▶ DAVID DENT  
▶ FRANK DISCHNER ▶ LIBERMAN SHACHAR  
▶ STEPHAN WEZEL ▶ ALYSSA MILBURN  
▶ KEVIN FERRARE ▶ ANTON OLEYNIKOV  
▶ MARK ARIGO ▶ MAGNUS WESTER-  
LUND ▶ JAKE OWEN ▶ MUSTAPHA SENHAJI  
▶ ADAM BOOT ▶ JONATHAN GORDON ▶ TAT  
TANG ▶ TOSHIHIKO ITOH ▶ DAVID J. SONG  
▶ JEONG TAEK IN ▶ ANDERS KAGERIN ▶ PE-  
TER D'HOYE ▶ BEN BASHA ▶ BRANDON LOW

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