

GameBox for iOS

Your retro game library, on an iPhone or an iPad

User Manual

Version 0.12 (build 12) · Experimental

Everything GameBox for iOS does

This is an experimental version. GameBox for iOS is an early port of DroidGameBox, made to see how far the Mac GameBox emulators go on an iPhone and an iPad. It is not on the App Store, it is not signed, it has been tried on only a few devices, and it has rough edges and bugs. Do not rely on it: keep your own copies of your games and of anything you save.

macgamebox.com

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1 Welcome and what "experimental" means

GameBox for iOS is a library and a player for retro games on an iPhone or an iPad. It finds the games you copy into it, shows them with box art and descriptions, and plays 60 systems with emulators built into the app itself: nothing else to install. It is the iOS version of DroidGameBox (Android), made to look and work the same way, and it runs on the emulators of GameBox for the Mac.

Experimental means this: it is an early version, not a finished product. It is not on the App Store. It is not signed, so you install it with a sideloading tool and, with a free Apple ID, again every seven days. It has been tried on one iPhone and on the iOS Simulator, not on every device. Systems and games that work for us may not work for you, and some things are unfinished or plain wrong. We tell you so that you can decide whether to try it, and so that you keep your own copies of games and saves.

It contains **no games and no BIOS files** and links to none. Systems that need a BIOS use files you supply. You are responsible for having the right to the software you put in your library.



A Mega Drive game, with the touch controls of the system at the sides of the picture.

2 What you need

- **An iPhone or iPad with iOS 17.0 or later.** It has been run on an iPhone 15 Pro Max (iOS 27.0.1) and in the Simulator.
- **Room for your library.** Games are files in the app's own storage, or in a folder elsewhere that you point it at. Pictures and game information take a few hundred megabytes more for a big library.
- **A Mac** (or the Files app) to copy games across, and **a sideloading tool** to install the app.
- **The internet**, for pictures and game information. Playing needs none.

3 Installing the app

The download is a ZIP with the app and these guides. The app, `GameBox-0.12.ipa`, is **not signed**: iOS only opens apps that are signed, by Apple for the App Store or by you for your own devices. A sideloading tool signs it with your own Apple ID and installs it. AltStore and Sideloadly are two such tools; follow the tool's own instructions, which are better kept up to date than ours. We have not tried every tool.

1. Give the IPA to the tool and install it on your device, by cable or over Wi-Fi.
2. Turn on **Developer Mode** (Settings › Privacy & Security › Developer Mode) and restart when iOS asks. A sideloaded app will not open without it.
3. If iOS asks, trust the developer: Settings › General › VPN & Device Management, your Apple ID, Trust.
4. Open GameBox.

How long it lasts. An app signed with a free Apple ID stops opening after seven days, and a free Apple ID may have only a few such apps at once. A paid Apple Developer Program membership signs for a year. When the time is up, sign and install the app again. Some tools give the app another identifier so that it does not clash with your other apps; iOS then sees another app, with folders of its own, so copy your games into it again.

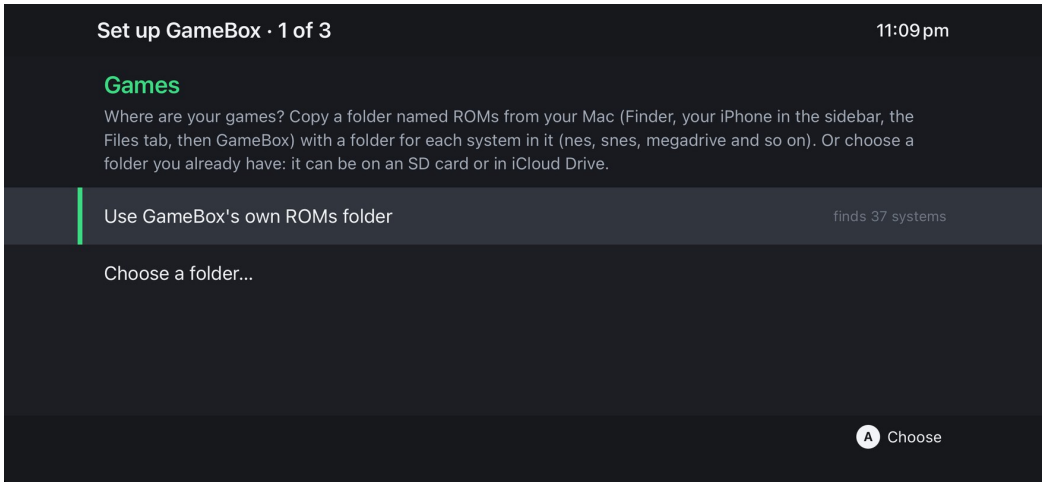
Updating. Install a newer IPA the same way. Games, saves and settings stay with the app as long as it keeps the same identifier.

4 The first start

The first time it opens, GameBox asks three things in a wizard (it shows again if you delete the app):

1. **Games.** Where are your games? *Use GameBox's own ROMs folder* says how many systems it finds there. *Choose a folder* lets you point it at another: it can be on iCloud Drive, a USB drive or an SD card.
2. **BIOS files.** *Use GameBox's own bios folder* (it says how many files), *Choose a folder* (a RetroArch system folder works as it is), or *Later*.
3. **Pictures.** A note: box art, screenshots, information and manuals come from libretro and ScreenScraper when there is a connection, a few hundred megabytes for a big library, kept in the app's own storage.

Then **Start**. GameBox scans your folder and shows what it finds. You can run the wizard's choices again later in Settings.



The first step of the wizard.

5 Putting in games and BIOS files

GameBox's own storage holds two folders: **ROMs**, and **bios**. (It also keeps a `GameBox` folder with saves and checkpoints, laid out as GameBox for the Mac lays it out.)

Copying from a Mac

1. Connect the iPhone or iPad with a cable (or, if you have set it up, over Wi-Fi) and open Finder.
2. Choose the device in the sidebar and click the **Files** tab.
3. Drag the **ROMs** and **bios** folders onto GameBox in the list. Merging into folders that are already there is how you add games later.

Copying on the device

The Files app shows GameBox under On My iPhone (or On My iPad). You can copy folders there from iCloud Drive, a USB drive or an SD card with an adapter. Or leave the games where they are and choose the folder in Settings › ROM folder › Choose Folder. A folder on a drive that is not plugged in is reported as not found rather than forgotten.

How the games are laid out

Inside ROMs, **one folder for each system**, with the names ES-DE uses (the tables in chapter 10 give every name GameBox accepts). A game is a file in its system's folder; for most systems it can be a ZIP or 7z of the file, and the disc systems take the disc image formats listed in chapter 10. A system with no games does not appear. GameBox finds games again whenever it starts, and on request: Settings › ROM folder › Look for Games Again.

BIOS files

Some systems need the console's own BIOS, which GameBox does not include. Put the files in the **bios** folder, loose or in a RetroArch layout, by RetroArch's names (Appendix A lists them). Settings › BIOS files shows, for every file GameBox knows, whether it found it. A file with another checksum is still used: a variant may work.

6 The library

The system screen

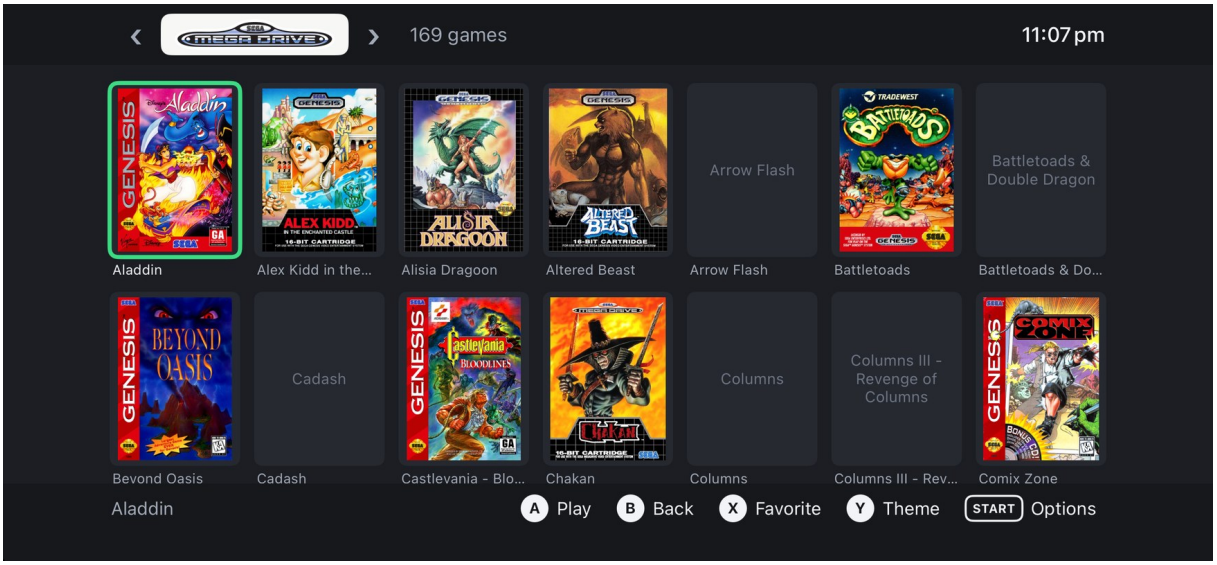
A tile for each system that has games, a Favorites tile, a Playlists tile, and an All Games tile. It has **ten looks**, changed with Y: Line, Grid, Carousel left, Carousel right, Full screen, Cover Flow, and four retro looks (8-bit, Green phosphor, Amber and Monochrome) that turn the pictures into big pixels or the one colour of a phosphor screen. The choice is kept.



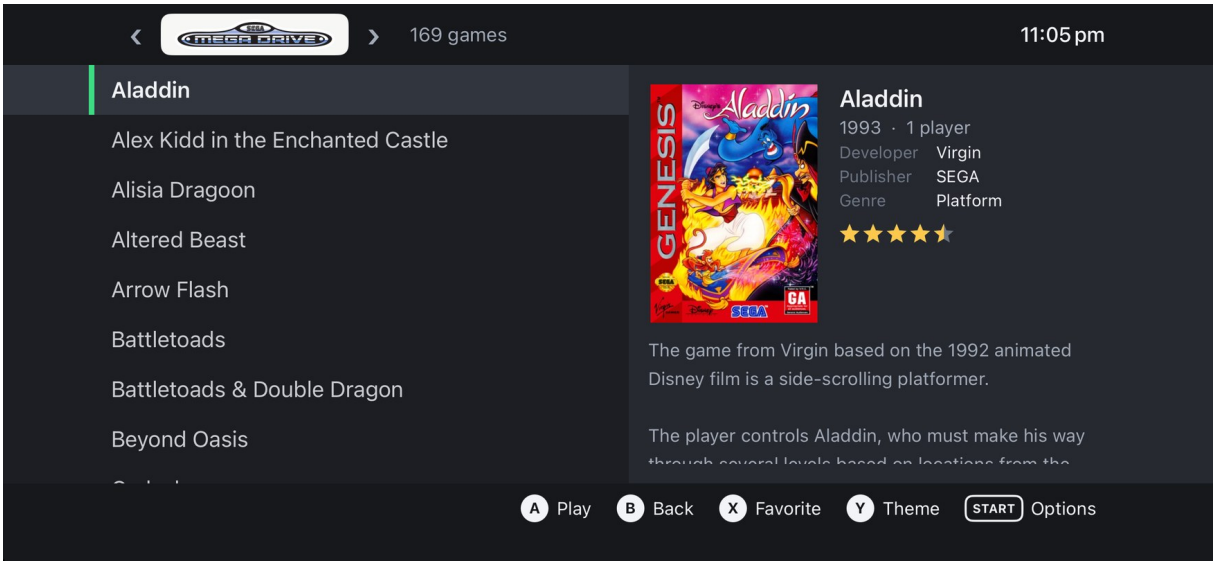
Cover Flow on a phone held sideways: the chosen system faces you, the others stand away to both sides.

A shelf's games

A shelf of games has **nine looks** (Y again): List, Grid, Carousel left, Carousel right, Cover Flow, and the four retro looks. The list shows the chosen game's box and details beside it. The grid shows box art, 3D boxes or screenshots, as you choose in Settings › Grid pictures.



The grid, showing box art.



The list, with the chosen game's picture, year, players, developer, publisher, genre, rating and description.

Choosing and playing

- **Tap** a game to choose it; tap the chosen game to play. A long press, or **Start**, offers the rest.
- **A** plays, **B** goes back, **X** adds or removes a favourite, **Y** changes the look, **Start** offers options. These are the buttons on the bar at the bottom of the screen, and a controller's.
- The arrows beside the system's logo go to the system before or after (a controller's L1 and R1).
- **Options** offer: Add to a Playlist, Add to Favorites, Remove from This Playlist, and Manual, which reads the game's manual where ScreenScraper has one.

Favorites, playlists and Last Played

Favorites gathers the games you have starred. **Playlists** are lists of your own: Options › Add to a Playlist can start one. **Last Played** puts you back in a game: Settings › Last played chooses whether it is the one game, on its own tile, or the last few, in a folder.

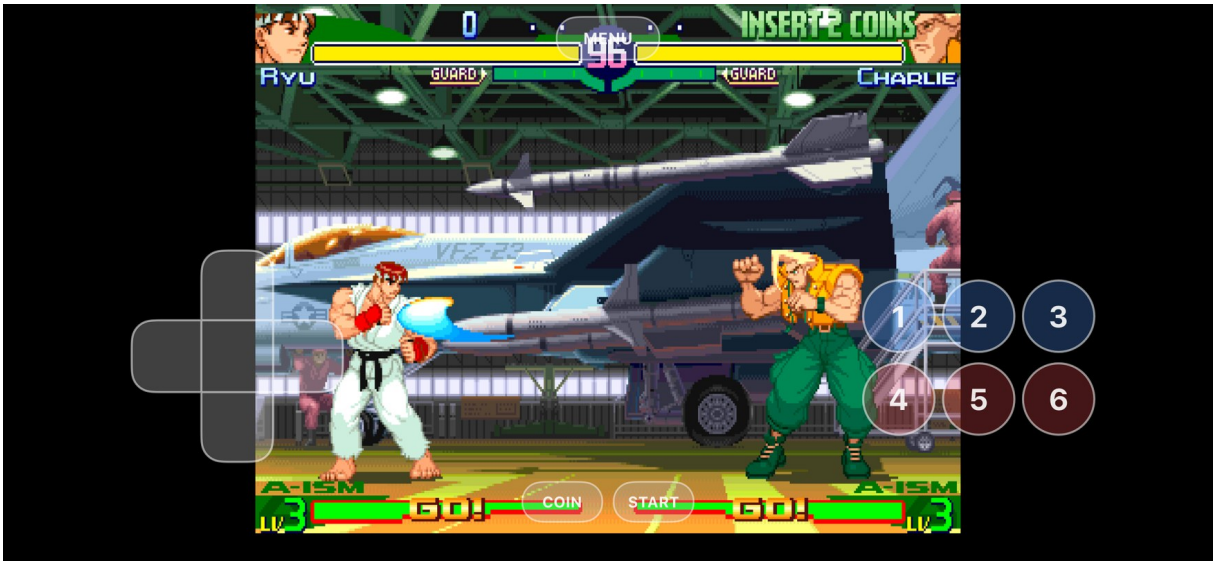
7 Playing

The touch controls

The controls are drawn over the game and shaped for the system: a D-pad and the right buttons for each console (six buttons for the Mega Drive, four for the Neo Geo, two rows of three for the arcade boards, shoulder buttons for the Super Nintendo and the Game Boy Advance, a keypad for the systems that had one, a keyboard for the home computers). They are laid out so that none overlaps another (an audit in the app's tests checks it on every size of iPhone and iPad and both ways up). Held upright, the picture is at the top and the controls under it; held sideways, the controls are at the sides. The picture is never under the notch or the Dynamic Island, and keeps its shape.



Metal Slug 3 on the Neo Geo: four buttons, and Coin and Start.



Street Fighter Alpha 3 on a Capcom CPS-2 board: six buttons and Coin and Start.



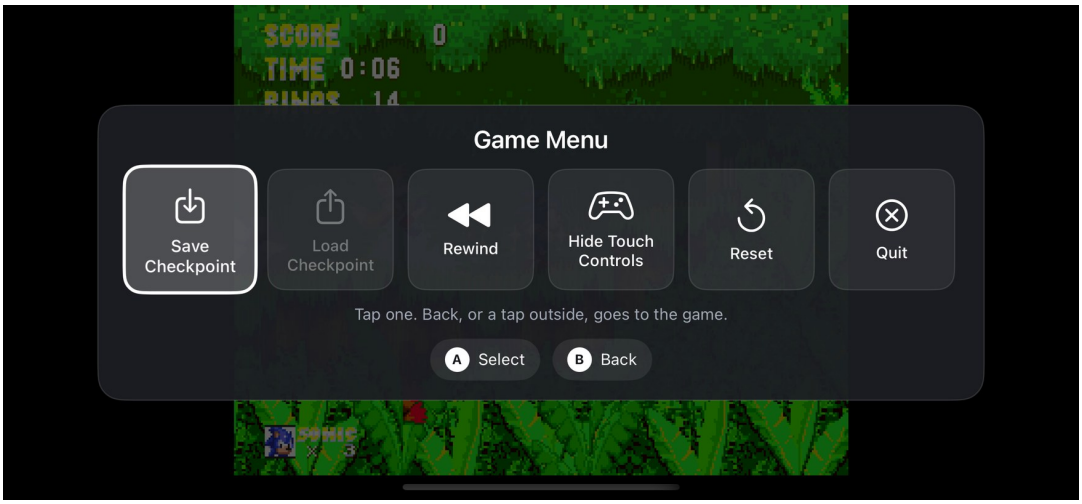
Daytona USA on a Sega Model 2 board, in 3D.

Controllers and keyboards

Game controllers work through the iOS GameController framework. When a controller is in use you can hide the touch controls from the game menu. Settings › Menu buttons swaps A and B in the menus for those used to a Nintendo pad (the games are not changed). A hardware keyboard works with the menus and the home computers. We have not tried every controller.

The game menu

The **Menu** button at the top of the screen opens the game menu (so does a controller's combination, if you turn one on in Settings › Game menu, with Game menu hold setting how long it is held). It pauses the game and offers:



The game menu.

- **Save Checkpoint**: keeps this moment with a picture of it. **Load Checkpoint**: shows your checkpoints for this game, and returns to the one you choose. Checkpoints are kept on the device, for each game.

- **Rewind**: goes back to an earlier moment. GameBox keeps one every fifteen seconds of play, for the last fifteen minutes; they are kept in memory and are gone when you quit.
- **Hide Touch Controls** / **Show Touch Controls**.
- **Reset** restarts the game as if the machine were switched off and on. **Quit** goes back to the library.
- For systems that need them, the menu also offers the keypad or the keyboard.

Saves

A game's own saves (battery saves, memory cards) are written for you in the Saves folder, in GameBox's own storage (Files › GameBox › GameBox › Saves), as GameBox for the Mac lays it out, so that the same folder can serve both.

Looks of the picture

- **Period look** (Settings): each system as on its own screen, a television's or a handheld's LCD. Off: the picture as the console made it.
- **Pixel-perfect**: every line of the picture is a whole number of screen lines (1x, 2x, 3x). Off: the picture fills the width.
- **Game Boy**: in colour without the Super Game Boy borders; in colour with Super Game Boy games in their own borders; or with the borders for Game Boy Color games too.
- **Virtual Boy**: three ways to show its picture.
- **Enhanced 3D**: Model 2 and System 22 arcade games drawn at their own resolution, or two or four times sharper (slower).

8 Settings

Open Settings with **Settings** on the bar at the bottom of the system screen (a controller's Select). Each row is a choice or a fact:

Row	What it does
ROM folder	Where the games are: GameBox's own storage (Files › GameBox › ROMs) or a folder you choose. Also: Look for Games Again.
BIOS folder	Where the BIOS files are: GameBox's own (Files › GameBox › bios) or a folder you choose.
BIOS files	Every BIOS file GameBox knows, and whether it found it.
Saves folder	Where saves and checkpoints are kept (in GameBox's own storage).
Grid pictures	3D boxes, Box art or Screenshots, for the grid and Cover Flow.
Last played	The last game on its own tile, or the last few in a Last Played folder.
Period look	On or off: each system as on its own screen.
Pixel-perfect	On or off: whole-number scaling.
Game Boy	Colours and borders for Game Boy and Game Boy Color games.
Virtual Boy	Which of three ways the Virtual Boy's picture is shown in.
Enhanced 3D	Off, 2x or 4x for Model 2 and System 22 games.
Menu buttons	A confirms and B goes back, or swapped, as on a Nintendo pad.
Game menu	The controller combination that opens the game menu, or off. The Menu button on the screen always does.
Game menu hold	How long the combination is held: at once, or one to four seconds.

Row	What it does
ScreenScraper	Your ScreenScraper login, if you have one: game information still comes without it, more slowly.
RetroAchievements	Your RetroAchievements login. Without it GameBox never contacts them.
Game info	How many games still wait for their information.
Credits	Who made what GameBox is built from, with licences.

9 Pictures, information and achievements

Pictures come from libretro's thumbnail server, asked for by the game's name. **Information** (description, year, players, developer, publisher, genre, rating, 3D box, manual) and the **photos and histories of the systems** come from ScreenScraper, by checksum and name. It is fetched in the background, a few games at a time (ScreenScraper limits how fast), so a big library takes a while to fill: the top of the screen says how many are to go. A ScreenScraper account of your own, entered in Settings, raises the limit. Your login is kept in the device's Keychain.

RetroAchievements: sign in to retroachievements.org in Settings and the achievements for supported games appear in the game as cards. With no account entered, GameBox never contacts them.

Nothing else leaves your device: there is no analytics, no advertising and no account of ours. The privacy page on macgamebox.com lists what is contacted.

10 The systems

These are the 60 systems GameBox for iOS plays, in the order of the system screen. Put a system's games in a folder of **ROMs** with one of the names given. The files column lists the file types it takes (a ZIP of a game is taken for most).

System	Folder name(s) in ROMs	Files it takes
Acorn Archimedes	archimedes	adf, zip
BBC Microcomputer System	bbcmicro	dsd, img, ssd, zip
Amstrad CPC	amstradcpc, cpc	cdt, dsk, m3u, sna, zip
Amstrad GX4000	gx4000	bin, cdt, cpr, dsk, kcr, m3u, sna, tap, tar, voc, zip
Apple II	apple2	do, dsk, nib, po
Atari 2600	atari2600	a26, bin, zip
Atari 400/800	atari800	a52, atr, atx, bin, car, cas, cdm, rom, xex, xfd, zip
Atari 5200	atari5200	a52, bin, zip
Atari 7800	atari7800	a78, bin, zip
Atari Lynx	atarilynx, lynx	lnx, lyx, o, zip
Atari Jaguar	atarijaguar, jaguar	bin, j64, jag, rom, zip
WonderSwan	wonderswan	pc2, ws, wsc, zip
WonderSwan Color	wonderswancolor	pc2, ws, wsc, zip
Capcom CPS-1	cps1	zip
Capcom CPS-2	cps2	zip
Capcom CPS-3	cps3	zip
Laserdisc Arcade	daphne	daphne
ColecoVision	coleco, colecovision	bin, col, cv, rom, zip

System	Folder name(s) in ROMs	Files it takes
Commodore PET	pet	d64, d80, p00, prg, t64, tap, zip
Commodore VIC-20	vic20	bin, cmd, crt, d2m, d4m, d64, d6z, d71, d7z, d80, d81, d82, d8z, g41, g4z, g64, g6z, gz, lnx, m3u, nbz, nib, p00, prg, t64, tap, vfl, vsf, x64, x6z, zip
Commodore 64	c64, commodore64	crt, d64, d71, d81, g64, m3u, p00, prg, t64, tap, x64, zip
Commodore Plus/4	plus4	bin, cmd, crt, d2m, d4m, d64, d6z, d71, d7z, d80, d81, d82, d8z, g41, g4z, g64, g6z, gz, lnx, m3u, nbz, nib, p00, prg, t64, tap, vfl, vsf, x64, x6z, zip
Commodore Amiga	amiga, amiga500, amiga600, amigademos	adf, adz, ccd, chd, cue, dms, fdi, hdf, hdz, ipf, iso, lha, m3u, mds, nrg, rp9, uae, zip
Commodore CDTV	cdtv, amigacdtv	adf, adz, ccd, chd, cue, dms, fdi, hdf, hdz, ipf, iso, lha, m3u, mds, nrg, rp9, uae, zip
Commodore Amiga 1200	amiga1200	adf, adz, dms, fdi, hdf, hdz, ipf, lha, m3u, zip
Commodore Amiga CD32	amigacd32, cd32	ccd, chd, cue, iso, m3u, zip
Dragon 32	dragon32	bin, cas, ccc, rom, zip
Vectrex	vectrex	bin, gam, vec, zip
Infocom Z-Machine	zcode	dat, z1, z2, z3, z4, z5, z6, z7, z8, zblorb, zlb
PICO-8	pico8	p8, p8.png, zip
Magnavox Odyssey 2	odyssey2	bin, zip
Intellivision	intellivision	bin, int, rom, zip
NEC PC Engine	pcengine	ccd, chd, cue, img, iso, m3u, pce, sgx, toc, zip
NEC PC Engine CD	pcenginecd	ccd, chd, cue, img, iso, m3u, pce, sgx, toc, zip
SuperGrafx	supergrafx	pce, sgx, zip
Namco System 22	namco22	zip
Game & Watch	gameandwatch	mgw, zip
Nintendo Entertainment System	famicom, fds, nes	fds, nes, unf, unif, zip
Game Boy	gb	gb, zip
Super Nintendo	sfc, snes, superfamicom	fig, sfc, smc, swc, zip
Virtual Boy	virtualboy	vb, vboy, zip
Game Boy Color	gbc	gb, gbc, zip
Game Boy Advance	gba	gba, zip
Philips CD-i	cdi	chd, cue, iso
Neo Geo	neogeo	zip
Neo Geo Pocket Color	ngp, ngpc	ngc, ngp, ngpc, npc, zip
Sega SG-1000	sg-1000	68k, bin, bms, chd, cue, gen, gg, iso, m3u, md, mdx, ri, rom, sg, sgd, smd, sms, zip
Sega Master System	mastersystem, sms	sms, zip
Sega Mega Drive	genesis, megadrive	bin, gen, md, smd, zip
Sega Game Gear	gamegear	68k, bin, bms, chd, col, cue, gen, gg, iso, m3u, md, mdx, rom, sg, sgd, smd, sms, zip
Sega Mega-CD	megacd, segacd	chd, cue, iso, m3u, zip
Sega Model 2	model2	zip
Sega 32X	sega32x	32x, zip
Sega Saturn	saturn	ccd, chd, cue, iso, m3u, zip

System	Folder name(s) in ROMs	Files it takes
Sega ST-V	stv	zip
Sharp X68000	x68000	2hd, 88d, d88, dim, dup, hdf, hdm, img, m3u, xdf, zip
ZX Spectrum	spectrum, zxspectrum	dsk, rzx, scl, sna, szx, tap, trd, tzx, z80, zip
TRS-80 Color Computer	coco	bin, cas, ccc, dsk, jvc, rom, zip
MSX1	msx1	cas, col, di1, di2, dmk, dsk, fd1, fd2, m3u, mx1, mx2, ogv, ri, rom, sc, sg, wav, xsa, zip
MSX2	msx2	cas, col, di1, di2, dmk, dsk, fd1, fd2, m3u, mx1, mx2, ogv, ri, rom, sc, sg, wav, xsa, zip

11 Troubleshooting

- **The app does not open, or closes at once after a week.** The free Apple ID: sign and install the app again. With Developer Mode off, a sideloaded app does not open at all.
- **A system does not appear.** Its folder is named differently (see chapter 10), or is not directly inside ROMs, or has no game files of the types it takes. Then Settings › ROM folder › Look for Games Again.
- **A game does not start or the picture is black.** Check Settings › BIOS files: the system may need a file. For disc games, the whole set (CUE and its tracks, or the CHD) has to be there.
- **Pictures and information are slow to come.** They need the internet and arrive a few at a time. A ScreenScraper login (Settings) makes it quicker.
- **The first start is slow.** GameBox identifies each game by its contents the first time; later starts are quick.
- **Slow or crackling.** Close other apps, turn off Enhanced 3D, and note which game and device.
- **You moved your games.** Choose the folder again in Settings › ROM folder.
- **Anything else.** Write to bhprojects.help@gmail.com: what you did, what you saw, your device and its iOS version.

12 What is not here

Systems whose emulators must generate machine code while they run (a "JIT") are **not** in the iOS version, because iOS does not let ordinary apps do that: among them the PlayStation, the Nintendo 64, the PlayStation Portable, the Dreamcast, the GameCube, the Wii and the PlayStation 2, and the launchers for other emulator apps that DroidGameBox has. If a way is found, they may come later. Also unfinished in this version: it has not been tested on every iPhone and iPad, with every controller, or with every game of every system.

Appendix A BIOS files

The files GameBox looks for in the **bios** folder, by RetroArch's names, with what each is. A system not listed needs none.

System	File	What it is
Mattel Intellivision	exec.bin	Executive ROM
	grom.bin	Graphics ROM
NEC PC Engine CD-ROM²	syscard3.pce	Super CD-ROM² System 3.0
Sega Mega-CD	bios_CD_U.bin	Sega CD BIOS (USA)
	bios_CD_E.bin	Mega-CD BIOS (Europe)
	bios_CD_J.bin	Mega-CD BIOS (Japan)
Commodore VIC-20	vic20_basic.bin	BASIC (901486-01)
	vic20_kernal_pal.bin	KERNAL, PAL (901486-07)
	vic20_kernal_ntsc.bin	KERNAL, NTSC (901486-06)
	vic20_chargen.bin	Character ROM (901460-03)
ColecoVision	colecovision.rom	ColecoVision BIOS
Commodore 64	c64_basic.bin	BASIC (901226-01)
	c64_kernal.bin	KERNAL (901227-03)
	c64_chargen.bin	Character ROM (901225-01)
Commodore Plus/4	plus4_basic.bin	BASIC 3.5 (318006-01)
	plus4_kernal.bin	KERNAL, PAL (318004-05)
	plus4_kernal_ntsc.bin	KERNAL, NTSC (318005-05), optional
	plus4_3plus1_low.bin	3-plus-1 (317053-01), optional
	plus4_3plus1_high.bin	3-plus-1 (317054-01), optional
Atari 5200	5200.rom	Atari 5200 BIOS
TRS-80 Color Computer	bas12.rom	Color BASIC 1.2, in coco2.zip
	extbas11.rom	Extended Color BASIC 1.1, in coco2.zip
	disk11.rom	Disk Extended Color BASIC 1.1, for disks, in coco_fdc_v11.zip
Commodore PET	pet_basic1.bin	BASIC 1 (901447-09, -02, -03, -04), PET 2001
	pet_edit1.bin	Screen editor 1 (901447-05)
	pet_kernal1.bin	Kernal 1 (901447-06, -07)
	pet_chargen1.bin	Characters, PET 2001 (901447-08)
	pet_basic2.bin	BASIC 2 (901465-01, -02), 3000 series
	pet_edit2.bin	Screen editor 2 (901447-24)
	pet_kernal2.bin	Kernal 2 (901465-03)
	pet_chargen2.bin	Characters (901447-10)
	pet_basic4.bin	BASIC 4 (901465-23, -20, -21), 4000 and 8000 series
	pet_edit4_40.bin	Screen editor 4, 40 columns (901498-01)
	pet_edit4_80.bin	Screen editor 4, 80 columns (901474-04)
	pet_kernal4.bin	Kernal 4 (901465-22)
Dragon 32	d32.rom	Dragon 32 BASIC (or MAME's dragon32.zip)

System	File	What it is
Philips CD-i	cdi200.rom	System ROM (Magnavox CD-i 200), in cdimono1.zip
	cdi220b.rom	System ROM (Philips CD-i 220), in cdimono1.zip, optional
Sony PlayStation	scph5501.bin	BIOS 3.0, America (SCPH-5501)
	scph5500.bin	BIOS 3.0, Japan (SCPH-5500), for Japanese discs
	scph5502.bin	BIOS 3.0, Europe (SCPH-5502), for European discs
Atari 400/800	ATARIOSB.ROM	Atari 800 OS rev. B (10 KB), for cartridges
	ATARIOSA.ROM	Atari 800 OS rev. A (10 KB), optional
	ATARIXL.ROM	XL/XE OS rev. 2 (16 KB), for disks
	ATARIBAS.ROM	Atari BASIC rev. C (8 KB), optional
Commodore Amiga 500	amiga-os-130.rom	Kickstart 1.3 (34.5), the usual one
	amiga-os-120.rom	Kickstart 1.2 (33.180), optional
	amiga-os-204.rom	Kickstart 2.04 (37.175), optional
	amiga-os-310-a600.rom	Kickstart 3.1 (40.063) from the A600, for WHDLoad games
	WHDLoad/C/WHDLoad	WHDLoad 19 or later (the C/WHDLoad program in a WHDLoad folder), for .lha games
Commodore Amiga 1200	amiga-os-310-a1200.rom	Kickstart 3.1 (40.068), the 1200's
	amiga-os-300-a1200.rom	Kickstart 3.0 (39.106), optional
	WHDLoad/C/WHDLoad	WHDLoad 19 or later (the C/WHDLoad program in a WHDLoad folder), for .lha games
Commodore Amiga CD32	amiga-os-310-cd32.rom	Kickstart 3.1 (40.060), the CD32's
	amiga-ext-310-cd32.rom	Extended ROM (cd.device, the startup animation)
Commodore CDTV	amiga-os-130.rom	Kickstart 1.3 (34.5), the CDTV's main ROM
	amiga-ext-130-cdtv.rom	Extended ROM (cdtv.device, the file system and the startup screen)
Sharp X68000	keropi/iplrom.dat	IPL ROM 1.0 (px68k's keropi folder)
	keropi/cgrom.dat	Character ROM
SNK Neo Geo	neo-epo.bin	AES BIOS (Asia / Europe), in neogeo.zip
	neo-po.bin	AES BIOS (Japan), in neogeo.zip, optional
	000-lo.lo	Sprite zoom table, in neogeo.zip
Sega ST-V	epr-20091.ic8	ST-V BIOS (Japan, the one GameBox starts with), in stvbios.zip
	epr-17952a.ic8	ST-V BIOS (USA), in stvbios.zip, optional
Sega Model 2	epr-14869c.25	The I/O board's firmware (Daytona USA, Desert Tank), in model1io.zip
	epr-17181.6	Virtua Cop's I/O board firmware, in model1io2.zip
Namco System 22	c71.bin	The DSPs' internal ROM, in namcoc71.zip
	c74.bin	The sound processor's internal ROM (System 22, not Super System 22), in namcoc74.zip

System	File	What it is
Atari Jaguar	jagboot.rom	Boot ROM, optional: the console's logo before each game
Nintendo Famicom Disk System	disksys.rom	Disk System BIOS (the RAM adapter's ROM)
BBC Micro	os12.rom	MOS 1.20, in bbcb.zip
	basic2.rom	BBC BASIC 2, in bbcb.zip
	dnfs120.rom	Acorn DNFS 1.20, the disc filing system, in bbc_acorn8271.zip
	saa5050	SAA5050 teletext characters (Mode 7), in saa5050.zip
Acorn Archimedes	0296,041-02.rom	RISC OS 3.11, the first of four chips, in aa310.zip
	0296,042-02.rom	RISC OS 3.11, the second chip, in aa310.zip
	0296,043-02.rom	RISC OS 3.11, the third chip, in aa310.zip
	0296,044-02.rom	RISC OS 3.11, the fourth chip, in aa310.zip
Atari Lynx	lynxboot.img	Boot ROM (or MAME's lynx.zip)
Magnavox Odyssey 2	o2rom.bin	Odyssey 2 / Videopac BIOS (or MAME's odyssey2.zip)
	charset_i8244.bin	The 8244's characters, in i8244.zip
Sega Saturn	mpr-17933.bin	BIOS 1.01, America and Europe, for their discs
	sega_101.bin	BIOS 1.01, Japan, for Japanese discs
Sega 32X	32X_G_BIOS.BIN	The 68000's vectors (or MAME's 32x.zip)
	32X_M_BIOS.BIN	The master SH-2's BIOS (or MAME's 32x.zip)
	32X_S_BIOS.BIN	The slave SH-2's BIOS (or MAME's 32x.zip)

Appendix B Credits and licences

Every emulator in GameBox is somebody else's project, used under its own licence. Settings › Credits shows the same list, and a tap on an entry shows its licence text. For the source of any of them as built into this app, changes included, write to bhprojects.help@gmail.com; it will be sent, for at least three years from the date of the version, to anyone who asks.

Part	What it does here	Made by	Licence
Mac GameBox's emulators	The Atari 2600, 5200, 7800 and Jaguar, the NES, Super Nintendo, Game Boy, Game Boy Color, Game Boy Advance, Virtual Boy and Game & Watch, the Mega Drive, 32X, Mega-CD and Master System, the Saturn, ST-V, SuperGrafx, Neo Geo and Neo Geo Pocket, Capcom's CPS-1, CPS-2 and CPS-3, Sega's Model 2 and Namco's System 22, the WonderSwan, the Atari Lynx, the ColecoVision, Intellivision, Odyssey 2 and Vectrex, the Commodore computers, ZX Spectrum, Amstrad CPC, BBC Micro, MSX, Archimedes, Amiga, Apple II, Atari 800 and Sharp X68000, the CD-i, and PICO-8: the same code as the Mac's, so that what one saves the other loads	Mac GameBox, after MAME, ymfm, Handy, gw-libretro with Lua and bzip2, zepto8 with z8lua and eris, libchdr and others, each named in its licence	BSD 3-Clause, zlib, MIT, WTFPL and others

Part	What it does here	Made by	Licence
Swift	The language Mac GameBox's emulators are written in: its runtime, built into them	Apple Inc. and the Swift project authors	Apache 2.0 with the Runtime Library Exception
Handy	The Atari Lynx without its boot ROM	K. Wilkins, and libretro	zlib licence
rcheevos 12.5	RetroAchievements: finds a game's achievements and checks them as you play	RetroAchievements.org	MIT
libretro	The thumbnail server and the names of BIOS files	The RetroArch team	MIT
LZMA SDK	7z archives of games	Igor Pavlov	Public domain
No-Intro and Redump, through libretro-database	The games' names, found by each game's checksum or file name (the Neo Geo's and Capcom's come from FinalBurn Neo, the arcade's from MAME)	No-Intro, Redump and libretro	Their terms
libretro thumbnails	Box art, title screens and screenshots	The libretro thumbnails contributors	Their terms
ScreenScraper	Descriptions, ratings, dates, developers, publishers, genres, players, 3D boxes, game manuals, and the systems' photos and backgrounds	ScreenScraper and its contributors	Their terms
RetroAchievements	The achievements and their badges	RetroAchievements.org and its developers	Their terms
DroidGameBox	The look of the screens, the touch layouts, the system logos and histories, which this app copies	Hugh Allan	—

System names and logos are trademarks of their respective owners, mentioned only to identify what GameBox can play.