

# MAME

**MAME**, the Multiple Arcade Machine Emulator, is a multi-purpose emulation framework which facilitates the emulation of vintage hardware and software. Originally targeting vintage arcade machines, MAME has since absorbed the sister-project **MESS** (Multi Emulator Super System) to support a wide variety of vintage computers, video game consoles and calculators as well. MAME doesn't use an individual "core" for each system like RetroArch does, instead the ROM itself usually contains the necessary information to accurately emulate it, thus making it specific to the version of MAME it was made for. Overall it's a very complicated subject, we have a [guide specific to arcade](#) just for it.



It was first released in 1997. In Italy!

MAME games scrapes metadata for the "arcade" group(s) and loads the mame set from the currently selected theme, if available.



It is highly recommended to read the [generic arcade guide](#) first to get familiar with arcade machine emulation first. It's far more complicated than standard home video game console emulation and very easy to mess up.

## Quick reference

- **Accepted ROM formats:** .zip, .7z
- **Folder:** /userdata/roms/mame

Emulators
<a href="#">libretro/imame4all</a>
<a href="#">libretro/mame078plus</a>
<a href="#">libretro/mame0139</a>
<a href="#">libretro/mame</a>
<a href="#">mame</a>

## BIOS

Based on the [romset type](#) used, either none is required, ones are required for each game you need to play, or a single BIOS file is needed for a group of games.

## Samples

Some arcade game machines featured additional storage that allowed for uncompressed audio to be

utilized. These are referred to as “samples”. Some machines had a backup synthesized track if the samples weren't present, others had none.

For MAME2003plus (mame078plus), if your game has the appropriate samples, place them in /userdata/bios/mame2003/samples folder. Samples can be for one specific game, or be applicable to multiple versions of the game.

## ROMs

Place your MAME ROMs in /userdata/roms/mame. If you'd like to, you could put ROMs intended for different versions of MAME into subfolders in this folder. For instance, you could put MAME2003-plus ROMs into the /userdata/roms/mame/mame2003plus.

Each romset is specific to the version of MAME being used:

- 0.37b5 romset for the [libretro/imame4all](#) version
- 078plus romset for the [libretro/mame078plus](#) version
- 0.139 romset for the [libretro/mame0139](#) version
- Latest romset at the release of stable for the [libretro/mame/mame](#) versions


## Emulators

### RetroArch

[RetroArch](#) (formerly SSNES), is a ubiquitous frontend that can run multiple “cores”, which are essentially the emulators themselves. The most common cores use the [libretro](#) API, so that's why cores run in RetroArch in Batocera are referred to as “libretro/(core name)”. RetroArch aims to unify the feature set of all libretro cores and offer a universal, familiar interface independent of platform.

There are particular libretro MAME cores available which are based on their equivalent version in MAME. They generally have the same feature set.

### RetroArch configuration

RetroArch offers a **Quick Menu** accessed by pressing [HOTKEY] +  which can be used to alter various things like [RetroArch and core options](#), and [controller mapping](#). Most RetroArch related settings can be altered from Batocera's EmulationStation.

Standardized features available to all libretro cores: mame.videomode, mame.ratio, mame.smooth, mame.shaders, mame.pixel\_perfect, mame.decoration, mame.game\_translation

ES setting name batocera.conf_key	Description ⇒ ES option key_value
<b>Settings that apply to all cores of this emulator</b>	
<b>GRAPHICS BACKEND</b> mame.gfxbackend	Choose your graphics rendering ⇒ OpenGL opengl, Vulkan vulkan.

ES setting name batocera.conf_key	Description ⇒ ES option key_value
<b>AUDIO LATENCY</b> mame.audio_latency	Audio latency in milliseconds, turn it up if you hear crackles ⇒ 256 256, 192 192, 128 128, 64 64, 32 32, 16 16, 8 8.
<b>THREADED VIDEO</b> mame.video_threaded	Improves performance at the cost of latency and more video stuttering. Use only if full speed cannot be obtained otherwise. ⇒ On true, Off false.

### libretro/imame4all

iMame4All is an old version of MAME that's fairly easy to run, even on hardware as weak as the RPi Zero. Many games, especially newer ones, have known issues with this version. Supports the least number of games.

The romset for this version may be referred to as "0.37b5".

### libretro/imame4all configuration

### libretro/mame078plus

Not to be confused with the regular [MAME2003](#).

Internally using the name "mame078plus", [MAME2003plus](#) is an old version of MAME that became the "golden standard" for a while. A mixture of being easy to run while supporting the most hardware. Many ROMs, especially newer systems, have known issues with this version.

The "plus" version has had recent developments that don't break compatibility backported from newer versions of MAME. For this reason, regular MAME2003 ROMs may not work in this version.

The romset for this version may be referred to as "078plus".

### libretro/mame078plus configuration

ES setting name batocera.conf_key	Description ⇒ ES option key_value
<b>Settings that apply to all systems this core supports</b>	
<b>CONTROL MAPPING</b> global.mame2003-plus_analog	Choose from Analog or Digital controller ⇒ Analog analog, Digital digital.
<b>FRAMESKIP</b> global.mame2003-plus_frameskip	Skip frames to improve performance (smoothness) ⇒ Off 0, 1 1, 2 2, 3 3, 4 4, 5 5.
<b>INPUT INTERFACE</b> global.mame2003-plus_input_interface	Use input directly sends by keyboard to the core ⇒ Retropad retropad, Keyboard keyboard, Simultaneous simultaneous.

ES setting name batocera.conf_key	Description ⇒ ES option key_value
<b>TATE MODE</b> global.mame2003-plus_tate_mode	Rotating display to vertical mode rendering ⇒ Off disabled, On enabled.
<b>NEOGEO MODE</b> global.mame2003-plus_neogeo_bios	Manually specify your choice of Neo Geo BIOS ⇒ Console AES World asia-aes, Arcade MVS Europe euro, Arcade MVS USA us, Arcade MVS Japan japan, Arcade Universe BIOS 4.0 (Cheats) unibios40, Arcade Universe BIOS 3.3 (Cheats) unibios33.

### libretro/mame0139

Internally using the name “mame0139”, [Mame2010](#) is an old version of MAME that's a combination of fast and compatible.

The romset for this version may be referred to as “0.139”.

### libretro/mame

The latest version of MAME at the time of stable's release. Check out the [table on the arcade guide](#) for the current version.


### libretro/mame configuration

ES setting name batocera.conf_key	Description ⇒ ES option key_value
<b>Settings that apply to all systems this core supports</b>	
<b>CPU OVERCLOCK</b> global.mame_cpu_overclock	Minimize in-game slowdowns of some games ⇒ default default, 30 30, 35 35, 40 40, 45 45, 50 50, 55 55, 60 60, 65 65, 70 70, 75 75, 80 80, 85 85, 90 90, 95 95, 100 100, 105 105, 110 110, 115 115, 120 120, 125 125, 130 130, 135 135, 140 140, 145 145, 150 150.
<b>VIDEO RESOLUTION</b> global.mame_altres	Increase the video resolution ⇒ 640×480 640×480, 800×600 800×600, 960×720 960×720, 1024×768 1024×768, 1280×720 1280×720, 1600×800 1600×800, 1920×1080 1920×1080, 2560×1440 2560×1440, 3840×2160 3840×2160.

### MAME

[As above!](#)

## MAME configuration

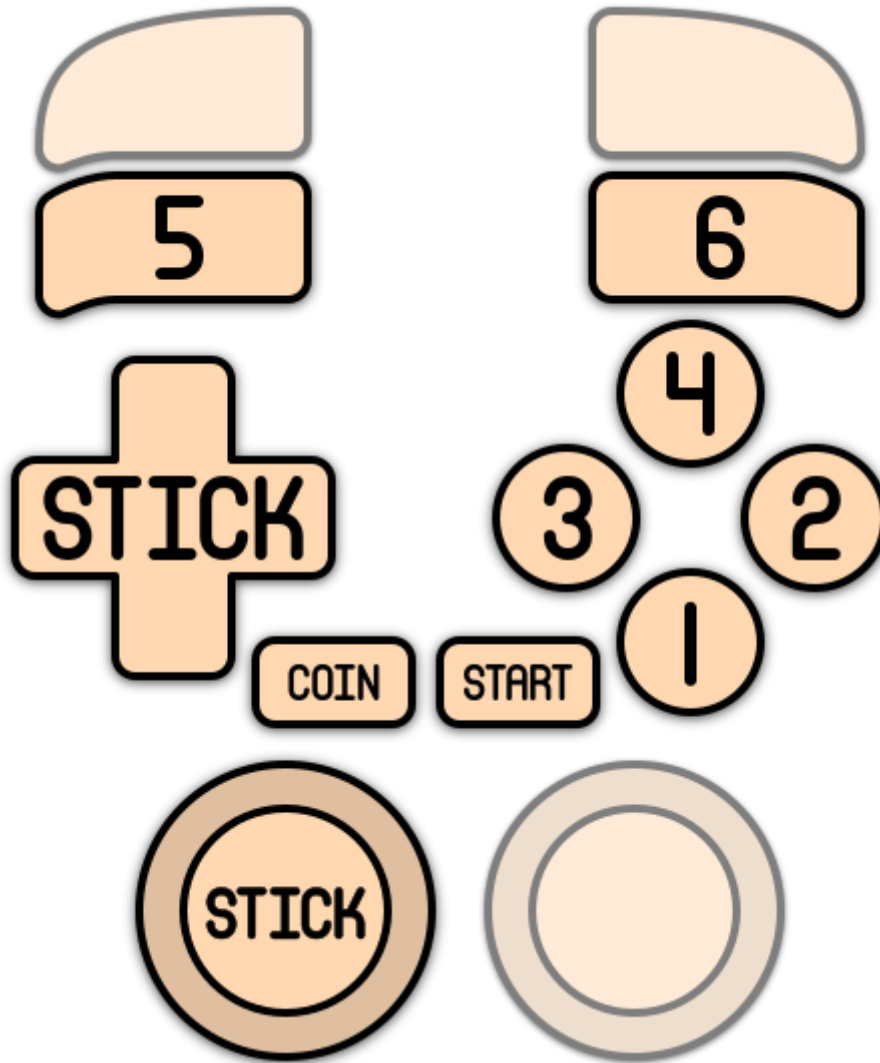
MAME offers a **Menu** in-game ([HOTKEY] +  or [Tab] on the keyboard). This can be used to manually adjust inputs or game settings. If you're having issues with a specific game, check the [MAMEdev FAQ for that game here](#). For MESS systems specifically, you might find more information on [MESS's wiki](#). All options can also be edited by opening the `mame.ini` file.

Standardized features available to all MAME systems: `mame.videomode`, `mame.decoration`, `mame.padtokeyboard`

ES setting name <code>batocera.conf_key</code>	Description ⇒ ES option <code>key_value</code>
<b>Settings that apply to all cores of this emulator</b>	
<b>GRAPHICS BACKEND</b> <code>mame.video</code>	Choose your graphics rendering ⇒ BGFX <code>bgfx</code> , Accel <code>accel</code> , OpenGL <code>opengl</code> .
<b>BGFX BACKEND</b> <code>mame.bgfxbackend</code>	Choose your graphics API ⇒ MAME Detect automatic, OpenGL <code>opengl</code> , OpenGL ES <code>gles</code> , Vulkan <code>vulkan</code> .
<b>BGFX VIDEO FILTER</b> <code>mame.bgfxshaders</code>	Apply a particular visual effect ⇒ Off None, Bilinear <code>default</code> , CRT Geom <code>crt-geom</code> , CRT Geom Deluxe <code>crt-geom-deluxe</code> , Super Eagle <code>eagle</code> , HLSL <code>hlsl</code> , HQ2X <code>hq2x</code> , HQ3X <code>hq3x</code> , HQ4X <code>hq4x</code> .
<b>CRT SWITCHRES</b> <code>mame.switchres</code>	CRT monitor SwitchRes support ⇒ Off 0, On 1.
<b>TATE MODE</b> <code>mame.rotation</code>	Rotating display to vertical mode rendering ⇒ Off None, Rotate 90 <code>autoror</code> , Rotate 270 <code>autorol</code> .
<b>ALT DPAD MODE</b> <code>mame.altdpad</code>	If the D-Pad does not work properly ⇒ Off (Default) 0, DS3 Orientation 1, X360 Orientation 2.

## Controls

Here are the default MAME's controls shown on a [Batocera Retropad](#):



## Troubleshooting

MAME is a very complicated project and issues can crop up easily.

### None of my games are booting!

First check that the version of MAME you're attempting to run it with is the same as the ROMset you got it from. Mismatched versions aren't guaranteed to run, though sometimes if there were no differences made between MAME versions the game can run in both versions (though that's generally an exception, not the rule).

### I have an issue with a specific game

If you're having issues with a specific game, check the [MAMEdev FAQ for that game here](#). For MESS systems specifically, you might find more information on [MESS's wiki](#).

## Poor game performance


Arcade games tend to be more difficult to emulate than regular console games in general by their very nature.

With that said, newer versions of MAME emulate these arcade games more accurately than older versions. This generally means that real-world performance takes a dip as more accuracy to the emulation is added (although in some cases, it can dramatically improve performance, really it's on a game-by-game basis).

If your machine is struggling with running a particular game, try using an older set with its respective version of MAME, it may perform better. Just remember to make that special per-game setting to actually utilize the correct MAME version if deciding to go down this route!

## I can't open the MAME menu!

Sometimes the key needed to be pressed to access the in-game MAME menu is different depending on which version of MAME you are using. Typically, these keys can be:

- [HOTKEY] + 
- Pushing in [L3] or [R3]
- Any of the shoulder buttons/triggers

## I open the MAME menu too often!

Aforementioned issue, you might have the MAME key set to an in-game key as well. Either set it to another key or remap the MAME menu key.

## Further troubleshooting

Most questions are answered in the [generic arcade guide](#).

For further troubleshooting, refer to the [generic support pages](#).

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Last update: **2021/12/02 02:26**

