

## Instructions for software ARpiCADE v3.1

It is a good idea to back up your software in case of emergency. I recommend imaging your whole SD card for easy restore should something go bad.

This software is intended for use with GPIO controls, without this hardware edit

```
/boot/run.sh
```

and hash-out (or delete if you want it permanent) the lines:

```
sudo modprobe mk_arcade_joystick_rpi map=1,2
```

This will stop the GPIO joystick kernel mod from loading.

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This Raspberry Pi distro is built around the following software:

- AdvanceMAME (the final version of advmame, designed for use with arcade monitors)
- MAME4all (the fastest version of mame for arm architecture but old, the version on this software is modified to work with the correct scanline output in low res)
- AdvanceMENU (so far the most stable and flexible menu I've found on the Pi, takes a while to start though, most of what seems like boot time is advmenu starting)
- MAME2003 (retroarch, good speed but doesn't seem to support full MAME features)
- FinalBurnAlpha (retroarch, fast but not as accurate/configurable as mame)
- Daphne
- Linux and other free tools (raspbian base)
- GPIO controls are currently using mk\_arcade\_joystick modified to suit the wiring of the RaspberryJAMMA board

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### The "boot" partition

There are two partitions on a typical Raspberry Pi installation. Only one of these partitions (the first) is usable by Windows. For Windows users this software compilation features an expanded first partition containing the rom directories for the emulators. This allows you to update your roms through a Windows computer. More extensive customisation can be done on the pi or on a Linux (or possibly Mac or other UNIX like OS) box which will be able to see the second partition as well as the first. There is a directory on the boot partition to assist in updating settings usually unreachable by Windows using scripts run from advmenu (/boot/config-updater).

Basic instructions to the Raspberry Pi for booting are contained in

`/boot/config.txt`

which can be seen in the boot partition of the SD card as config.txt (even in Windows). Options contained within this file include video mode and overclocking. For use with the RaspberryJAMMA hardware the `hdmi_mode` option directly changes the resulting RGB output from the JAMMA edge connector.

Video output can also be flipped (180 degrees) in this file without a performance hit using `display_rotate=2`

Although rotating (90 degrees) output here is possible it is easier to achieve consistent results across multiple emulators using emulator specific options (explained there).

Roms are stored on this partition in

`/boot/roms/*/%.zip`

where "\*" is the emulator and "%" is the game. Roms must be in the correct directories and named and zipped according to the conventions of the relevant emulator.

The exception to the rom storage system is Daphne, its roms are stored in

`/boot/roms/daphne/rom` and framefiles in `/boot/roms/daphne/framefile/(directory with same name as the rom)` due to the way the emulator works.

The instructions for what happens after boot are in

`/boot/run.sh`

which is a shell script controlling what happens after automatic login. It contains a very hacky "now loading" message that is seen during boot and game loading (for a time) and launches the GPIO controls as well as AdvanceMENU, the game select menu.

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The other partition

Basically invisible to Windows is the second partition. It contains the Linux system and emulator software and config files. To edit these files you will need either a computer running an OS that can write to this partition or to edit the files on the Raspberry Pi using a USB keyboard. Editing on the Raspberry Pi is easiest outside of an arcade cabinet on a more modern monitor however in cab edits are possible in a pinch and the F8 menu in advmenu can help.

To edit MAME options:

for advancemame (MAME-106)  
/home/pi/.advance/advmame.rc

for mame4all  
/home/pi/mame4all/mame.cfg

Advancemame has many more options than mame4all as well as more accurate emulation. Mame4all has faster emulation and is useful for games which run slow on advancemame, although it supports fewer games than advancemame.

Some options common to both versions of MAME may have slightly different names in each version. For example screen rotation:

eg. advmame:  
display\_rol no  
display\_ror yes

eg. mame4all:  
ror=yes  
rol=no

Both of these commands achieve the same thing and should match between emulators for the gaming experience to be smooth.

To edit menu options (not required to rotate or switch layout)  
/home/pi/.advance/advmenu.rc

Another file you may want to change is the boot splash which can be found at  
/etc/splash.png  
you will need to have root access (admin rights) to write to this location due to the structure of the Linux system. This can be done through the F8 menu in AdvanceMENU.

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FAQ

Do I need to safely shutdown the board in any way?

I recommend exiting a game so as you are at the game menu before shutting down your cabinet. It should not be necessary to run a shutdown script as while at the game menu there are no writes to the SD card to be interrupted to corrupt the card. If you make changes to your systems settings I recommend a shutdown or reboot to ensure those changes are written to the SD card.

How do I do X with Y piece of software on the Pi?

Try Googling specific pieces of software you are working with because with the exception of modifying the scaling code of mame4all I haven't been a programmer on any of this software. The versions of software on this software compilation are publically available and have much information online.

How do I change the software from low res to high res to use with my other cab?

There are 3 files that need to be edited as well as some keyboard at the cab setup time type stuff. You start by setting the Pi to the resolution you want in

```
/boot/config.txt
```

using the

```
hdmi_mode=
```

setting you desire. This will ensure the hardware runs at only the resolution you want and is the first thing to do. You will then need to tell AdvanceMAME and AdvanceMENU what resolution you want them to use using their respective config files:

```
/home/pi/.advance/advmame.rc
```

```
/home/pi/.advance/advmenu.rc
```

Individual games may need tweaking to your desire. In future I hope to make this process smoother.

How do I edit the game menu?

Plug a USB keyboard into the Pi (best to do while powered off due to the naked nature of the Pi). When game menu has booted press "0" on the numpad to rotate the menu, press "tab" to cycle through the preset menu styles. Further tuning can be achieved through editing

```
/home/pi/.advance/advmenu.rc
```

to change resolution or edit emulators, etc. It is a good idea to back this file up.

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How do I rotate the system for my vertical monitor?

With a keyboard plugged in press 0 on numpad in advmenu (see above)

Edit /home/pi/.advance/advmame.rc - you will need to set

```
display_rol no
```

```
display_ror yes
```

or however you want it

Change scaling settings in advmame during a game by pressing tab and using the video menu, as the software is setup for horizontal monitors by default the scaling is not right when the monitor is rotated.

Edit /home/pi/mame4all/mame.cfg

```
ror=yes
```

```
rol=no
```

to match your advmame config

If you are using the retroarch emulators the configuration menu can be reached by holding player 1 start and pressing F1 on the keyboard during a running game.

How do I edit files on the Raspberry Pi?

Plug a USB keyboard into the Pi (best to do while powered off due to the naked nature of the Pi). When game menu has booted press "esc" to leave the menu. You are now on a Linux

command line and can edit files using the editor Nano

```
nano /path/to/file.extension
```

"ctrl" + "x" will exit nano after giving you the option to save your changes. If you need root access to save changes to a file launching nano with super user rights can be done with

```
sudo nano /path/to/file.extension
```

Be careful editing files with super user privileges as you can render the system useless. It's probably a good idea to Google command line basics and familiarise yourself a bit. You may notice there is no flashing cursor, to restore it run nano and exit no need to make a file or save, the cursor will be gone after rebooting.

How do I change the boot splash?

Make the boot splash you want and copy it to the memory card in the boot partition as "splash.png". Boot Pi with USB keyboard attached, wait for menu to load, press "esc" to exit menu and copy your new boot splash to the system as a super user:

```
sudo cp /boot/splash.png /etc/splash.png
```

Then reboot to see if it worked out how you wanted.

```
sudo reboot
```

This can also now be achieved from advmenu using the F8 menu and the /boot/config-updater folder by placing the new picture you want in the folder as splash.png the pressing F8 in advmenu and using the option to update the splash.

How can I set FREEPLAY?

The games that originally had freeplay options in dipperswitches can be set using the mame menus or in advancemame through the config file line:

```
misc_freeplay yes
```

however not all games had a freeplay mode and also a lot of games do not show an attract mode when set to freeplay so you will probably want a coin button or button combo to add credits in mame.

Games which used test menus can have their test menus accessed by pressing F2 on a keyboard during the game.