RetroPie Setup

(Using Raspberry Pi 3)

6/10/2017

Pi-Curious at Software Guild in Akron

Cleaning and Formatting Disk

- To fix a “corrupted” MicroSD or format it for RetroPie I start with DiskPart

1. diskpart
2. list disk
3. select disk {*number*}
4. clean
5. create partition primary
6. select partition 1
7. active
8. format fs=fat32 quick
9. assign
10. exit

Download

Pre-made images for the Raspberry Pi

The latest pre-made image of RetroPie is v4.2 – released on the 20th March 2017.

Contributions to the project are appreciated, so if you would like to support us with a donation you can do so here.

Donate

Contents [hide]

If you are installing RetroPie for the first time please follow the OFFICIAL Installation Guide

Click button to download

Raspberry Pi 0/1

md5sum: c2e61be267d816b5ef252b5373ba104e

Raspberry Pi 2/3

md5sum: 850983353170e45d43ff94266c64b4da

RECENT NEWS

RetroPie 4.2 is released
Thanks for the support
Legal help needed
New Functions for the ControlBlock
RetroPie 4.1 is released

ARCHIVES

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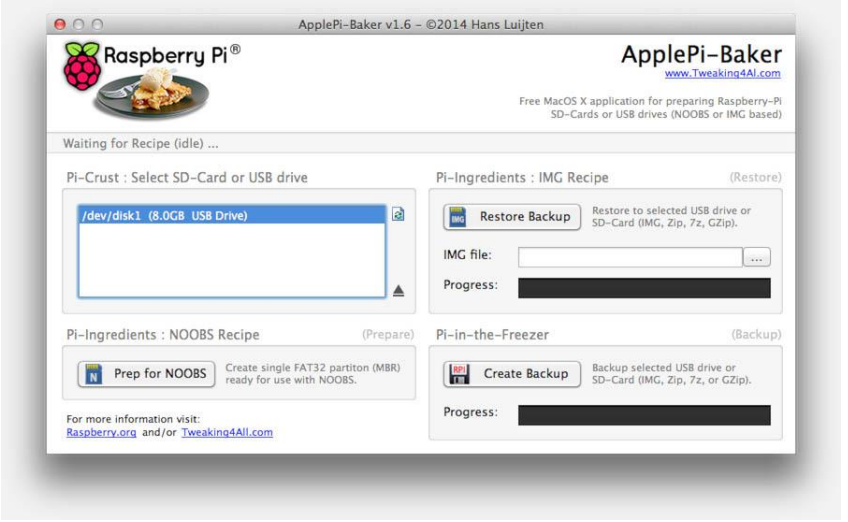
RECENT COMMITS

inputconfiguration - comment tweak

Mounting your RetroPie Image

- Unzip your download
- Open Win32DiskImager, Etcher, or ApplePi-Baker
- Find Unzipped img and mount
- Drop file called ssh just for fun
  - JUST .ssh !!!

ETCHER
BY RESIN.IO



Let’s boot up!

Set –up is easy…

Controllers

- Follow set up… nice and easy
- HotKeys are important! => =>

Hotkeys	Action
Select+Start	Exit
Select+Right Shoulder	Save
Select+Left Shoulder	Load
Select+Right	Input State Slot Increase
Select+Left	Input State Slot Decrease
Select+X	RGUI Menu
Select+B	Reset

Where are the Systems?!

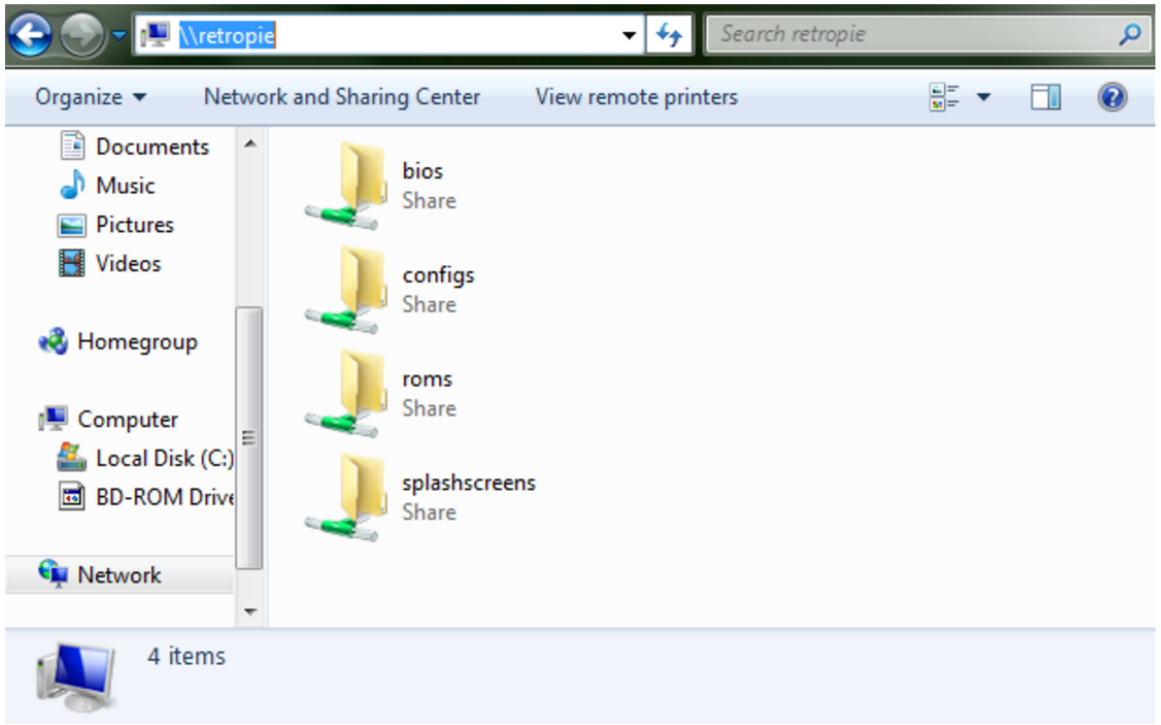
- The systems are there. We need to add Roms. There are three ways.
  1. USB Stick

USB

- (ensure that your USB is formatted to FAT32 or NTFS)
- first create a folder called `retropie` on your USB stick
- plug it into the pi and wait for it to finish blinking
- pull the USB out and plug it into a computer
- add the roms to their respective folders (in the `retropie/roms` folder)
- plug it back into the raspberry pi
- wait for it to finish blinking
- refresh emulationstation by choosing restart emulationstation from the start menu

#2 Samba-Shares (my favorite way)

- if on windows type `\\retropie` into the computer folder. You can also replace `retropie` with your Raspberry Pi's IP address



- if on MAC OS X open finder, select "Go" menu and "Connect to Server". Type `smb://retropie` and hit "Connect".

Note:

You will be asked to log in !

Use the default credentials.

Username : pi
Password : raspberry

SFTP

- For this you need an external application so disregard it for now

In case you are looking for SFTP …
https://retropie.org.uk/docs/First-Installation/#emulationstation

Add some games!

- https://www.emuparadise.me

- When we look inside the file structure of either our Samba-Share or USB it will list the available consoles in the ROMS folder
- Drop any unzipped rom inside of its appropriate console folder
- Restart Retro-pie after completion
- Consoles appear with games

Let’s make EmulationStation Pretty

- Themes will allow you to make yourself feel unique
- Install new themes from the RetroPi Setup Script in the RetroPie Menu
  - Select RetroPie Setup
  - Select Configurations/Tools
  - Look for “810 esthemes”
  - Install desired theme
    - Reference https://retropie.org.uk/docs/Themes/ to see how some look
- Go to Main menu and press start
  - Select UI Settings
  - Scroll to theme set

Scraping

- Scraping will gather metadata on your games for display purposes
- The built in scraping tool is intuitive and easy to use
  - If it’s not working try again later
    - THEGAMESDB is notorious for going down
- Select the appropriate box art and MetaData for your game
- In order to display all metadata you must have a theme installed that supports it…

Some other really cool ideas…

- Storing all of your roms on your network
  - Helps prevent corrupted MicroSD
- Storing all of your roms on USB or eternal HD from your pi
  - Possible power drawbacks
  - External storage way cheaper $$$
- Retro Achievements

You first need to create an account at http://retroachievements.org/ and then add your credentials to `/opt/retropie/configs/all/retroarch.cfg`

```
cheevos_username = "yourusername"
cheevos_password = "yourpassword"
cheevos_enable = true
```

Some other really cool ideas... (continued)

CHEATING!

Download Cheats

As a preface cheats only work through libretro/retroarch so take note of the emulators you are using.

You first need to open the RGUI. There are two ways of accessing the RGUI:

- In the **RetroPie** menu of EmulationStation select **Retroarch** or
- Use the default hotkey combo **select+x** to open the rgui from within a game

Navigate to **Online Updater >> Update Cheats**

this will download a set of preconfigured cheat files for many games into `/opt/retropie/configs/all/retroarch/cheats`

Enable Cheats

Now you can launch the game you want to finally win:

Open the RGUI with **select+x**

Choose **Quick Menu >> Cheats >> Load Cheat File**

Navigate to your game title and select it

Then navigate to the cheat you want to enable and press left or right to toggle it on/off

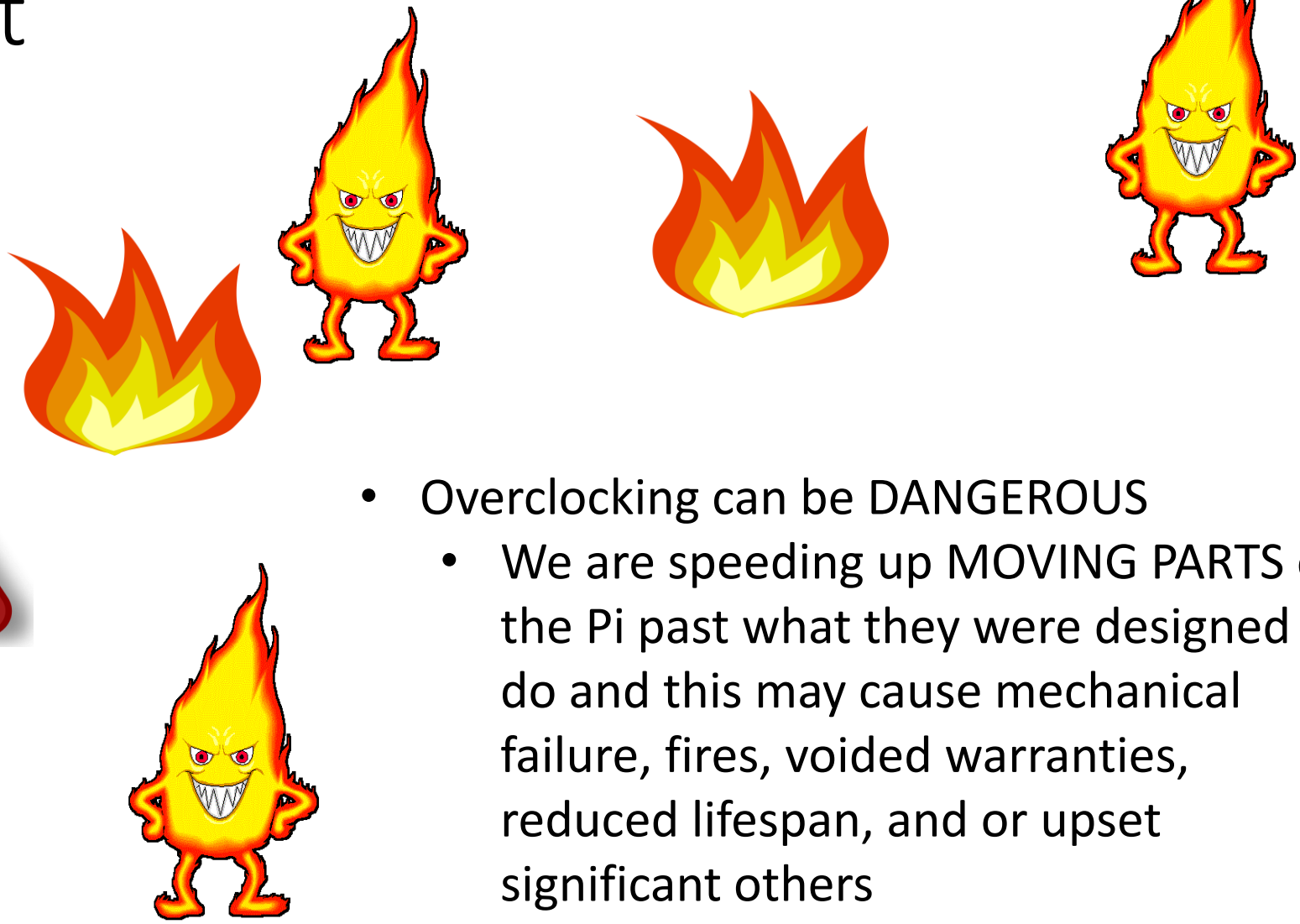
Select **Apply Cheat Changes**

Then press **B** to go out of the cheat menu and **resume** your game.

Your cheats should now be enabled

Over-Clocking

Before we start



- Overclocking can be DANGEROUS
  - We are speeding up MOVING PARTS of the Pi past what they were designed to do and this may cause mechanical failure, fires, voided warranties, reduced lifespan, and or upset significant others

But seriously,

I can’t blame Bryant for terrible things that happens to my pi

Know what you’re doing and everything will be A OKAY!

A Lot to talk about…

- What are we doing ?

  The Raspberry Pi's VideoCore IV System-on-Chip has several components, each of which can be run at different clock speeds. They are:

  - ARM - the main general-purpose CPU
  - SDRAM - the 1Gb or 512Mb or 256Mb of main memory
  - Core - the GPU processor core (confusingly named)
  - GPU - a quick way to collectively refer to the following three parts:
    - H264 - the hardware x264 decoder used when watching movies and TV shows
    - ISP - the Image Sensor Pipeline, does things like color profile correction and image scaling
    - V3D - the 3D block, does the work described by OpenGL commands

- How to void your warranty

  There are some settings which flip a hardware switch inside the Pi and void the warranty, these are:

  - `over_voltage` greater than `6`
  - `force_turbo=1`
  - `temp_limit` greater than `85`

- Power Supply
  - For a pi 3 you will need at least 5V == 2.0 A
  - There’s nothing wrong with a 5.1V or 5.25V
    - You can lose power over LONG or “thin” USB cable
  - DO NOT GOT ANY HIGHER THAN 2.5A

Temperature and Cooling

The Pi idles around 35C with usual operating temperatures as high as 75C depending on environment.

At 80C you'll start to see the red/orange/yellow square or thermometer icon in the top right corner of the screen, this is the temperature warning.

At 85C the Pi will throttle the CPU speed down to reduce temperature and performance will suffer greatly.

Cooling

Two catagories

- Fans
- Heatsinks

If overclocking use both!

Temperature and Cooling (continued)

- Fans
  - Are 100% necessary for cooling the Pi well
  - 12vDC “standard” computer fans *can work* if you aren’t bothered by starting it with your finger on every boot
  - USB fans and GPIO powered fans both work
- Heatsinks
  - Copper Vs. Aluminum
    - No right answer
    - Stickers are cheap… use Ceramic Paste or thick thermal conduction tape
  - 3 Places to cool on Pi
    - GPU (top and bottom)
    - CPU

Supported Over Clocking

- There is an overclocking menu in raspi-config that can be reached with the command **sudo raspi-config**

Manual Overclocking

- Any raspberry pi can be overclocked manually by editing config.txt
- You can really screw up a Pi this way
  - Increment parameters slowly while trying to find optimal setting for your pi
  - Remember no two Pi's are created equally

Useful Parameters

The following speed parameters can be set:

- `arm_freq` - speed of the ARM core
- `core_freq` - speed of GPU processor core, keep it the same as `gpu_freq`
- `gpu_freq` - speed of all GPU components, keep it the same as `core_freq`
- `sdram_freq` - speed of SDRAM
- `sdram_schmoo` - a set of SDRAM timings

The following voltage parameters can be set:

- `over_voltage` - voltage of ARM and GPU
- `over_voltage_sdram` - voltage of all SDRAM parts (`c` , `i` , and `p`)

The voltage starts at 1.2V and adjusts up or down in 0.025V steps. `0` is equal to 1.2V, the minimum `-16` is 0.8V, and the maximum `8` is 1.4V. Voltage starts to help when running core/GPU/SDRAM at or over 500MHz.

To set voltage greater than `6` you must set `force_turbo=1` which voids the warranty.

Best Overclocks (at least a place to start)

Raspberry Pi Zero

```
arm_freq=1000
gpu_freq=500
core_freq=500
sdram_freq=500
sdram_schmoo=0x02000020
over_voltage=2
sdram_over_voltage=2
```

Raspberry Pi 3

```
total_mem=1024
arm_freq=1300
gpu_freq=500
core_freq=500
sdram_freq=500
sdram_schmoo=0x02000020
over_voltage=2
sdram_over_voltage=2
```

Nintendo 64!!

```
#Overclock Settings
arm_freq=1300
gpu_freq=500
sdram_freq=500
over_voltage=6
v3d_freq=525
```

References

- The Docs are your friend!
- ETA PRIME
- Reddit