**Dementia Friendly Music Player: How to prepare the micro-SD card image**

24 September 2023

# Introduction

This document describes how to create a Dementia Friendly Music Player system image – a .img file. I (Ross) am probably the only person that needs this document. Mostly people making a Dementia Friendly Music Player will use the fruit (the .img file) of the process described here -- you don’t need to create your own custom .img file unless you really want to.

# No warranty

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# To create built-in headphone jack version

The Dementia Friendly Music Players below use the Pi’s built-in headphone jack.

A close up of a device

Description automatically generatedA close up of a logo

Description automatically generated

## Flash DietPi onto the micro-SD card

Install DietPi i.e. follow these instructions: <https://dietpi.com/docs/install/>. I used DietPi 8.21.0 which was current as of this writing in September 2023. I used [balenaEtcher](https://etcher.io/) (free) to write the disk image to the micro-SD card. This may take a while as the system updates itself.

## Boot & configure DietPi

Put the Pi on Ethernet. Move the micro-SD card to the Pi, boot DietPi. After a build process (which will take a while), you will be prompted to make some choices.

DietPi-Config

|  |
| --- |
| Audio Options: Enable : Install ALSA to enable audio capabilities  Audio Options: Sound Card : Onboard 3.5mm output |

DietPi-Software

|  |
| --- |
| Hardware Projects : Python 3 RPi.GPIO  System: ALSA : Advanced Linux Sound Architecture  Development : Git : clone and manage …  Development : Python 3: Runtime system, pip package installer, …  Install |

## Install pmount

|  |
| --- |
| sudo apt-get install pmount |

## Install VLC (music player)

|  |
| --- |
| sudo apt-get install vlc-bin  sudo apt-get install vlc-plugin-base |

## adduser pi

|  |
| --- |
| sudo adduser pi |

## Install/clone dqmusicbox, enable

|  |
| --- |
| cd /home/pi  git clone --depth 1 <https://github.com/rosswesleyporter/dqmusicbox/>  sudo chmod 755 dqmusicbox/bin/dqmusicbox.py |

## Install Python bindings for VLC

|  |
| --- |
| cd /home/pi  sudo git clone https://github.com/oaubert/python-vlc  cp python-vlc/generated/2.2/vlc.py dqmusicbox/bin  chmod 755 dqmusicbox/bin/vlc.py |

## Add shell script to automatically start dqmusicbox

|  |
| --- |
| cd /home/pi  sudo cp dqmusicbox/bin/dqmusicbox.sh /etc/init.d  sudo chmod 755 /etc/init.d/dqmusicbox.sh  sudo update-rc.d dqmusicbox.sh defaults |

For more information, see Stephen Christopher Phillips’ [terrific page](http://blog.scphillips.com/posts/2013/07/getting-a-python-script-to-run-in-the-background-as-a-service-on-boot/).

## Configure such that USB drives mount automatically

The instructions below are from [pauliucxz](https://raspberrypi.stackexchange.com/users/66022/pauliucxz) in [StackExchange 66169](https://raspberrypi.stackexchange.com/questions/66169/auto-mount-usb-stick-on-plug-in-without-uuid), preserved below for clarity. I am quite thankful for that answer. The first USB drive will automatically mount as /media/usb1.

Specify a udev rule by creating file /etc/udev/rules.d/usbstick.rules

|  |
| --- |
| ACTION=="add", KERNEL=="sd[a-z][0-9]", TAG+="systemd", ENV{SYSTEMD\_WANTS}="usbstick-handler@%k" |

Configure a system service by creating file /lib/systemd/system/usbstick-handler@.service

|  |
| --- |
| [Unit]  Description=Mount USB sticks  BindsTo=dev-%i.device  After=dev-%i.device  [Service]  Type=oneshot  RemainAfterExit=yes  ExecStart=/usr/local/bin/cpmount /dev/%I  ExecStop=/usr/bin/pumount /dev/%I |

Create the mount script file /usr/local/bin/cpmount

|  |
| --- |
| #!/bin/bash  if mountpoint -q /media/usb1  then  if mountpoint -q /media/usb2  then  if mountpoint -q /media/usb3  then  if mountpoint -1 /media/usb4  then  echo "No mountpoints available!"  #You can add more if you need  else  /usr/bin/pmount --umask 000 --noatime -w --sync $1 usb4  fi  else  /usr/bin/pmount --umask 000 --noatime -w --sync $1 usb3  fi  else  /usr/bin/pmount --umask 000 --noatime -w --sync $1 usb2  fi  else  /usr/bin/pmount --umask 000 --noatime -w --sync $1 usb1  fi |

Make the script executable

|  |
| --- |
| sudo chmod 755 /usr/local/bin/cpmount |

## Reboot

|  |
| --- |
| sudo reboot |

## Test

Make sure the music plays…

## Shutdown

Provided that the reboot went well, shutdown:

|  |
| --- |
| sudo shutdown –h now |

Then remove the micro-SD card.

## Use Win32DiskImager to create the master image

Remove the micro-SD card from your Pi and place in the card reader of your computer. Use Win32DiskImager to create an image of Dementia Friendly Music Player that you just nicely configured.

# To create USB DAC version

The Dementia Friendly Music Player that looks like this uses a USB DAC.



Use the image that you created above for the headphone version and make this change:

dietpi-config

|  |
| --- |
| Audio Options: Sound Card : USB Audio DAC (any) |

Remove the micro-SD card from your Pi and place in the card reader of your computer. Use Win32DiskImager to create an image of Dementia Friendly Music Player that you just nicely configured.