DQMusicBox: How to prepare the micro-SD card image

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1 Introduction

This document describes how to create a DQMusicBox system image – a .img file. I (Ross) am probably the only person that needs this document. Mostly people making a DQMusicBox 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. At the time of this writing, there are two versions of the software. This version uses a USB DAC and a newer method for USB drive automounting.

2 No warranty

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3 Prepare the disk image

This is a record of how I created the disk image. You only need to read this information if you wish to do your own OS configuration.

3.1 Install DietPi on 4GB micro-SD card

Install DietPi i.e. follow these instructions: http://dietpi.com/phpbb/viewtopic.php?f=8&t=9#p9. I installed v140. I used balenaEtcher (free) to write the disk image to the micro-SD card. This may take a while as the system updates itself.

3.2 Boot & configure DietPi

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

DietPi-Config

```
Audio Options: Soundcard : usb-dac
```

Software Optimized

```
Hardware Projects : RPi.GPIO [Install]
```

Software Additional

```
System : ALSA
Development : Git Client
```

Install

```
Install
```

Software will be installed. Then your Pi will then reboot

3.3 Install VLC (music player)

```
sudo apt-get install vlc-nox
```

3.4 adduser pi

```
sudo adduser pi
```

3.5 Install/clone dqmusicbox, enable

```
cd /home/pi
git clone https://github.com/rosswesleyporter/dqmusicbox/
sudo chmod 755 dqmusicbox/bin/dqmusicbox_usb.py
```

3.6 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
```

3.7 Add shell script to automatically start the musicbox

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

For more information, see Stephen Christopher Phillips' terrific page.

3.8 Configure such that USB drives mount automatically

The instructions below are from pauliucxz in StackExchange 66169, preserved below for clarity. I am quite thankful for that answer. The first USB drive will automatically mount as /media/usb1.

Install pmount

```
sudo apt-get install pmount
```

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
```

3.9 Shutdown, unplug

```
sudo shutdown -h now
```

Then unplug the Pi

3.10 Insert USB drive

Once Pi is off, insert USB drive. Then plug the Pi back in.

3.11 Test

Make sure the music plays…

3.12 Shutdown

Provided that the reboot went well, shutdown:

```
sudo shutdown -h now
```

Then remove the micro-SD card.

3.13 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 DQMusicBox that you just nicely configured.