Setup Raspberry Pi as musicPlayer for SmartThings and BigTalker

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Disclaimer: Use at your own risk. I make no warranty or guarantee of accuracy / functionality.

Brian S. Lowrance -- @Rayzurbock (SmartThings / Twitter)

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1. Obtain a Raspberry Pi Kit (with Wifi and SD card)
    a. http://www.amazon.com/CanaKit-Raspberry-Complete-Starter-WiFi/dp/B017AL0NF8/ref=sr_1_12?ie=UTF8&qid=1454818488&sr=8-12&keywords=raspberry+pi+2+wifi
2. Download and install **SD Formatter** *(Skip to step 11 if you already have a Raspberry pi running Raspbian)*
    a. https://www.sdcard.org/downloads/formatter_4/eula_windows/
3. Insert your SD card from your Raspberry Pi into your Windows computer/laptop SD card reader (If you do not have one: http://www.amazon.com/gp/product/B009D79VH4)
4. Run SD Formatter
   (***Note: This will erase your Pi's SD Card. We will reload it with Noobs and then Raspbian in the next few steps***)
    a. Make sure it shows your SD card drive letter properly
    b. Set Volume Label to **Pi** for easy temporary identification
    c. Click **Option**
        i. Format Type: **Quick**
        ii. Format Size Adjustment: **On**
    d. **Format**
5. Download Noobs
    a. https://www.raspberrypi.org/downloads/noobs/
6. Open downloaded Noobs zip file
7. Highlight, Copy, and then Paste all files and folders from Noobs zip to your formatted SD card
8. Right click the SD card drive in Windows and click **Eject**
9. Insert the SD card into your Raspberry Pi, connect keyboard/mouse/wifi/display and boot.
10. Select to install **Raspbian**
    a. Wait on install to complete
11. Go to the network icon (top right; looks like 2 computers), left click on it.
    a. Choose your network
    b. Enter your network password
    c. Click **OK** or press Enter
12. Start Terminal (3rd icon to the right of "Menu" which is in the top left of the screen)
13. Get the IP address of your Raspberry Pi
    a. Option 1: Type: **hostname -I** (capital eye; you will get 127.0.0.1 if you use lowercase which will be incorrect)
    b. Option 2: Type: **ifconfig** and look for your ip address next to ***inet addr:*** (It is likely in the format of 192.168.x.x, 172.16.x.x, 10.0.0.x). Record this IP Address, you may need it later.

14. If desired: You can connect to this device now by using Putty on your Windows computer (http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html) or Mac using Terminal and the command **ssh pi@*ipaddress*** (where ipaddress is the address found in step 13). *(This allows you to copy/paste several of these following commands)*
    a. SSH Username is: **pi** Password is: **raspberry**
15. Type: **sudo apt-get install autoconf automake libtool** then press Enter
16. Press **Y** to accept install then press Enter
17. Type: **sudo apt-get update** then press Enter
18. Type the following exactly:
    sudo aptitude install libupnp-dev libgstreamer1.0-dev gstreamer1.0-plugins-base gstreamer1.0-plugins-good gstreamer1.0-plugins-bad gstreamer1.0-plugins-ugly gstreamer1.0-libav then press Enter
    a. If or when prompted, press **Y** then press EnterType: **sudo aptitude install gstreamer1.0-alsa** then press Enter
19. Type: **sudo apt-get install git** then press Enter
20. Type: **sudo aptitude install gstreamer1.0-alsa** then press Enter
21. Type:
    cd gmrender-resurrect cd gmrender-resurrect then press Enter
    ./autogen.sh then press Enter
    ./configure then press Enter
    make then press Enter
    sudo make install then press Enter
22. Type: **nano ~/gmrender-resurrect/scripts/init.d/gmediarenderer** then press Enter
23. Change **upnpdevicename** to your desired choice (use _, or -, don't use a space in the name; ie: pi-diningroom)
    TIP: Use arrow keys to move to fields you need to change
24. Change **Initial_Volume_Db** to 0.0 instead of -10
25. Press, ***Ctrl-O*** then press Enter
26. Press, ***Ctrl-X***
27. Type: **sudo cp ~/gmrender-resurrect/scripts/init.d/gmediarenderer /etc/init.d** then press Enter
28. Type: **sudo update-rc.d gmediarenderer defaults** then press Enter
29. Type: **sudo amixer cset numid=1 100%** then press Enter
    a. Sets volume level
30. Type: **sudo amixer cset numid=2 1** then press Enter
    a. Enables playback
31. Type: **sudo amixer cset numid=3 x** then press Enter
    a. Where **x** = **1** for the 3.5mm audio port or **2** for HDMI audio
32. Type: **sudo alsactl store** then press Enter
    a. Saves desired audio configuration
33. Type: **sudo reboot** then press Enter

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34. Once your Pi is booted back up, Start Terminal (3rd icon to the right of "Menu" which is in the top left of the screen) (or connect to it via SSH).
35. Type: **speaker-test -c2 -t wav** **then press Enter**
    a. You should hear audio repeating now.
    b. Press **Ctrl-C** to stop the test
36. I recommend changing the password to your Pi. Type: **passwd** **then press Enter**
    a. (current) UNIX password is **raspberry**
37. Install and configure MEDIARENDERER DEVICE HANDLER and MEDIARENDERER CONNECT SMART APP (aka **Generic Media Renderer**) by @ULE
    a. https://github.com/SmartThingsUle/DLNA-PLAYER
38. Install and configure **BIG TALKER** SMART APP by @Rayzurbock
    a. https://github.com/rayzurbock/SmartThings-BigTalker

Debug:

System Volume Check:

1. Type: **apt-get install festival**
2. Press **y** when prompted and **then press Enter**
3. Type: **echo "Testing 1. 2. 3." | festival --tts** **then press Enter**
    a. Did you hear anything?
        i. Yes -- You should be good to go
        ii. No -- Check your audio inputs. Rerun steps 29-32 and 35.

Cool Stuff:

1. Cause the Raspberry Pi to speak a phrase on boot/reboot
    a. Type: **sudo apt-get install festival** **then press Enter**
        i. Press **Y** when prompted.
    b. Type: **sudo crontab -e** **then press Enter**
        i. If prompted, press **2** to select option 2 for **nano** **then press Enter**.
        ii. Use the down arrow to scroll to the last blank line.
        iii. Type: **@reboot echo "Hello. All systems are go." | festival --tts**
        iv. Hold down **CTRL** and press **o** to save
        v. Hold down **CTRL** and press **x** to exit
        vi. Test with: **echo "Hello. All systems are go." | festival --tts** **then press Enter**
    c. Test on reboot with **sudo reboot** *(give 30 sec - 2 minutes to complete reboot)*

Enjoy -- Brian S. Lowrance @Rayzurbock (SmartThings / Twitter)

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Modification Credits:

- *Darin Craven 2-13-2016*