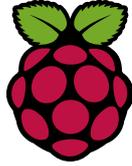


World Radio Day 2013 Special:

The Smallest Radio Station In The World



Airtime on a Raspberry Pi is the smallest radio station in the world. You can hook it up to a transmitter or use the stream as a net radio station.

The Raspberry Pi is a credit-card-sized single-board computer developed in the UK by the Raspberry Pi Foundation with the intention of promoting the teaching of basic computer science in schools. The Raspberry Pi has a Broadcom BCM2835 system on a chip (SoC), which includes an ARM1176JZF-S 700 MHz processor, VideoCore IV GPU.

Airtime is an open source radio automation, scheduling and playout software developed and maintained by Sourcefabric. Airtime lets you take total control of your radio station via the web with a scheduling calendar, smart playlists, live assist, stream rebroadcast and rock-solid automated playout. It has the ability to manage staff, use FLAC, WAV, AAC and ReplayGain, upload to SoundCloud automatically, stream multiple bandwidths to Icecast or Shoutcast and display programme information via Airtime's website widgets.

The smallest radio station in the world works on a Raspberry Pi with 512MB of RAM. Also, to achieve stutter free playout, do not use MP3 files but FLAC instead. The MP3 encoding requires a lot of CPU power - and the Raspberry Pi has just about enough...



Make sure that you have enough memory:

```
free -m
```

It should say something like 438 MB. This is the 512 MB memory, taking off a chunk for the graphics card. Free more memory by turning down the available memory for the GPU. Type:

```
sudo raspi-config
```

Select "change the memory split" and type 16. Then exit raspi-config and reboot.

Preparing your Raspberry Pi

```
sudo apt-get install pulseaudio
sudo apt-get install alsa-utils
sudo apt-get install rabbitmq-server
sudo apt-get install php-apc
sudo apt-get install lsb-release
```

Edit the file /etc/hosts

```
sudo nano /etc/hosts
```

change the line "127.0.1.1 raspberrypi" into: 127.0.1.1 raspberrypi airtime

Download and untar the Airtime 2.3.0 tarball for the installation. Then go to:

```
cd airtime/install_full/ubuntu/
```

You need to comment out one line regarding the sourcefabric-keyring in the install file, because Pi has an ARM CPU. Our apt servers only support x86 at the moment. Type:

```
nano airtime-full-install-nginx
```

find the line `apt-get -y --force-yes install sourcefabric-keyring` and comment it out, so it looks like this:

```
# apt-get -y --force-yes install sourcefabric-keyring
```

Now start the installation. Type:

```
sudo ./airtime-full-install-nginx
```

When it asks you to configure icecast, say "no". The installation might throw an error. Ignore it, go back to the prompt with "Ctrl-C". Then edit two files:

```
sudo nano /etc/airtime/airtime.conf
```

And change `base_url = localhost` to `base_url = airtime`

```
sudo nano /etc/airtime/api_client.cfg
```

And change `host = 'localhost'` to `host = 'airtime'`

Now start airtime by typing:

```
sudo service airtime-playout restart
sudo service airtime-liquidsoap restart
sudo service airtime-media-monitor restart
```

Check if it works by typing:

```
sudo airtime-check-system
```

If you want to connect to the Raspberry Pi with another machine, you need to change the /etc/hosts file on that machine to match the IP with "airtime". The line should look something like this: 192.168.1.126 airtime

Using the PI sound card for transmission

```
sudo apt-get install alsa-utils
sudo amixer cset numid=3 1
speaker-test -t sine
```

This will play a sinutodial sound on the speaker / headset. Now make sure Airtime can play on the soundcard:

```
airtime-test-soundcard -o pulseaudio
```

In the airtime stream settings page make sure you change output to pulseaudio. Also disable stream one if its enabled and you should be good to go.