Build My Own Raspbian Docker Image

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It’s great to have Docker on Raspberry Pi, and there’s a blog about it.

But one thing I found is that Raspberry Pi is based on ARM CPU, thus do not support x86/x64 instructions. **Any Docker image build for x86/x64 won’t work**. And, I didn’t find any **official** Docker image built for Raspberry Pi. resin/rpi-raspbian is widely used and also used by Docker project is a good candidate and is lightweitht, but I still want to use an official one. So, I decided to build one myself.

Download Raspbian

I have done this already, download and unzip the image. Now I got `2016-09-23-raspbian-jessie-lite.img`.

Create a tarball archive containing files from official Raspbian

`2016-09-23-raspbian-jessie-lite.img` is an IMG file which contains raw dump of disk, and I can mount it under Linux.

List the partitions of the img

```
[blah@localhost ~]$ fdisk -l ./2016-09-23-raspbian-jessie-lite.img

Disk ./2016-09-23-raspbian-jessie-lite.img: 1389 MB, 1389363200 bytes, 2713600 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk label type: dos
Disk identifier: 0x5a7089a1

                                Device Boot      Start         End      Blocks   Id  System
./2016-09-23-raspbian-jessie-lite.img1            8192      137215       64512    c  W95 FAT32 (LBA)
./2016-09-23-raspbian-jessie-lite.img2          137216     2713599     1288192   83  Linux
```

Two partitions are listed here, and the second one is the root fs of Raspbian.

Mount the img using loop device

```
[blah@localhost ~]$ sudo losetup -Pr /dev/loop0 2016-09-23-raspbian-jessie-lite.img
[blah@localhost ~]$ ls /dev/loop0*
/dev/loop0  /dev/loop0p1  /dev/loop0p2
[blah@localhost ~]$ mkdir rpi
[blah@localhost ~]$ sudo mount -o ro /dev/loop0p2 ./rpi
```

When I list file under rpi directory, I should see all files to root of Raspbian.

Archive the filesystem to tarball

Next, I will archive the whole Raspbian file system to a tarball archive to import into Docker image.

```
sudo tar -C ./rpi -czpf 2016-09-23-raspbian-jessie-lite.tar.gz --numeric-owner .
```

This will generate `2016-09-23-raspbian-jessie-lite.tar.gz` under current folder, and preserving all permissions with numeric owner id. I can view the files inside tarball using:

```
tar --numeric-owner -tvzf 2016-09-23-raspbian-jessie-lite.tar.gz
```

And, unmount the devices.

```
sudo umount ./rpi
sudo losetup -d /dev/loop0
```

Create Dockerfile

Now, I can upload the tarball file into Raspberry Pi and create my Docker image. Below is my Dockerfile, and I put `2016-09-23-raspbian-jessie-lite.tar.gz` in the same directory besides Dockerfile.

```
FROM scratch
ADD ./2016-09-23-raspbian-jessie-lite.tar.gz /
CMD ["/bin/bash"]
```

Then, I'm just one step away from finish.

```
➜  blah@raspberrypi:raspbian git:(master)✗ $ docker build -t blah .
Sending build context to Docker daemon 290.8 MB
Step 1 : FROM scratch
 --->
Step 2 : ADD ./2016-09-23-raspbian-jessie-lite.tar.gz /
 ---> Using cache
 ---> f22314f2ba29
Step 3 : CMD /bin/bash
 ---> Using cache
 ---> 86f8965d6316
Successfully built 86f8965d6316
```

Voilà, it's done! The only drawback is size of image. Seems Raspbian shipped with lots of extra packages, the image I created is 694.4 MB.

```
➜  blah@raspberrypi:raspbian git:(master)✗ $ docker run -it blah
root@a6318807be9d:/# echo "hello-world"
hello-world
root@a6318807be9d:/#
```

Docker Hub

I have pushed it to Docker Hub, if you want to use mine, you can use guoyiang/raspbian . But I guess you would prefer build your own :)

I also found an interesting Docker repository which has some armhf images to use: armhf. Well, Docker/Raspberry Pi Foundation, please provide us some official images.