

CS 221 – Lab #1

Today, you will set up your first Raspberry Pi machine. Follow the instructions given in the Southampton handout. You should get through at least step #20 today.

I practiced these instructions myself a few times, and based on my experience, I suggest the following minor modifications and clarifications:

Steps 1 and 2 need to be done on a PC.

In **step 1**, download the OS zip file from our class Web site.
<http://cs.furman.edu/~chealy/cs221/2017-04-10-raspbian-jessie-lite.zip>. This is the most up-to-date version. Be sure to uncompress this file to create a *.img file.

In **step 2**, you need to first download Win32 Disk Imager from sourceforge.net.

In **step 3**, you are ready to work on the Raspberry Pi! Make sure that your machine has connected to it all of the following: the SD card you just wrote to, power cord, network cable, monitor cable, keyboard, and mouse. (We won't need the mouse today.)

After **step 3**, you should do two things right away for your new Raspberry Pi.

First, change its keyboard settings for the United States. By default, Raspberry Pi assumes we have a British keyboard. Enter this command:

```
sudo nano /etc/default/keyboard
```

And inside the file, modify the line that says

```
XKBLAYOUT="gb"
```

So that the gb is replaced with us.

Second, change the name of the machine. By default, every Raspberry Pi calls itself raspberrypi. There should be a sticker on your SD card indicating the name of your machine, e.g. pi35. I have decided to have us give unique names to our machines of the form "pi" followed by two digits. Here's how to change your machine's name: Type in this command.

```
sudo nano /etc/hostname
```

Inside this file, change the name from raspberrypi to your appropriate name, e.g. pi12 or whatever your number happens to be.

Finally, to make these changes take effect, we need to reboot the Raspberry Pi. Here is how to do it:

```
sudo reboot
```

In case you are wondering, "sudo" is a special command we use to precede another command to say that we want to run as the administrator. "Sudo" basically stands for "Super User Do". We use sudo when we are about to make a fundamental change or request to the system.

When you log back in, before going on, now would be a nice time to find out the machine's IP address. You can find out with this command:

```
sudo ifconfig
```

What is your machine's IP number? _____

You will need this number later.

In **step 14**, we now want version 3.2 of MPI. I also recommend that on your machine, you refer to MPI as mpich and not mpich2. I think the number "2" would be confusing since we are not using that version. From now on in the Southampton instructions, everywhere you see "mpich2" you should omit the 2. For step 14, the command to grab the latest MPI version is:

```
wget http://www.mpich.org/static/downloads/3.2/mpich-3.2.tar.gz
```

Step 20 will take a long time to compile MPI! Be patient. We can continue with the remaining steps later.