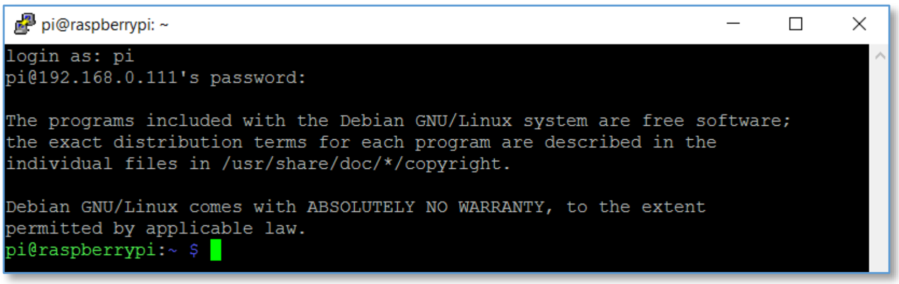
# Set-up OSPi with local hosting of web server

This set-up assumes that you have an SD card with the latest Raspian Jessie-Lite image downloaded from the Raspberry Pi Foundation (here) and you have followed the installation instructions (here). This also assumes that the Raspberry Pi has been connected to your network.

## Ensure the operating system is up to date

Open an SSH connection – you can use PuTTY on Microsoft Windows platforms - to hostname “raspberrypi” with login of “pi” and password “raspberry”:



```
login as: pi
pi@192.168.0.111's password:

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
pi@raspberrypi:~ $
```

At the command prompt, ensure the operating system is up-to-date by running two commands:

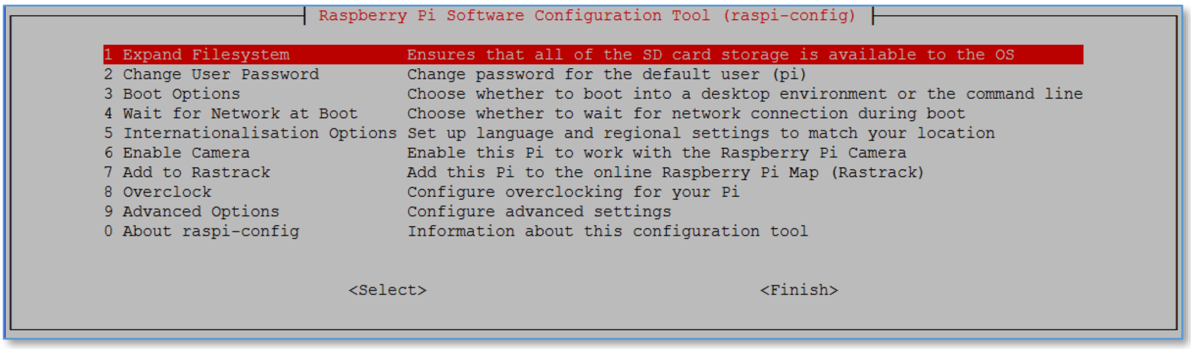
```
pi@raspberrypi:~ $ sudo apt-get update
...
pi@raspberrypi:~ $ sudo apt-get upgrade
```

## Configure the basic set-up

Once the operating system is up-to-date then run the raspberry pi configuration tool:

```
pi@raspberrypi:~ $ sudo raspi-config
```

Using the Configuration Tool, we can setup some basic configuration:



```
                Raspberry Pi Software Configuration Tool (raspi-config)

 1 Expand Filesystem            Ensures that all of the SD card storage is available to the OS
 2 Change User Password         Change password for the default user (pi)
 3 Boot Options                 Choose whether to boot into a desktop environment or the command line
 4 Wait for Network at Boot     Choose whether to wait for network connection during boot
 5 Internationalisation Options Set up language and regional settings to match your location
 6 Enable Camera                Enable this Pi to work with the Raspberry Pi Camera
 7 Add to Rastrack              Add this Pi to the online Raspberry Pi Map (Rastrack)
 8 Overclock                    Configure overclocking for your Pi
 9 Advanced Options             Configure advanced settings
 0 About raspi-config           Information about this configuration tool


                <Select>                                     <Finish>
```

Use Option 1 to expand the filesystem to make use of all available space on the SD card
Use Option 3 -> B1 to set the console as the default boot destination
Use Option 5 to set the location and time-zone
Use Option 9 -> A2 Hostname to set the Hostname for the machine (I use RP2 as hostname)

Select Finish-> Reboot -> Yes to reboot the raspberry pi and for the options to take effect.

## Install the Apache web server package

SSH back into your Raspberry Pi using the new Hostname from above and install Apache2:

```
pi@RP2:~ $ sudo apt-get install apache2
```

Enable mod_headers (secure resource sharing between websites) as this is disabled by default:

```
pi@RP2:~ $ sudo a2enmod headers
```

Edit the Apache config file to add some specific OpenSprinkler requirements:

```
pi@RP2:~ $ sudo nano /etc/apache2/apache2.conf
```

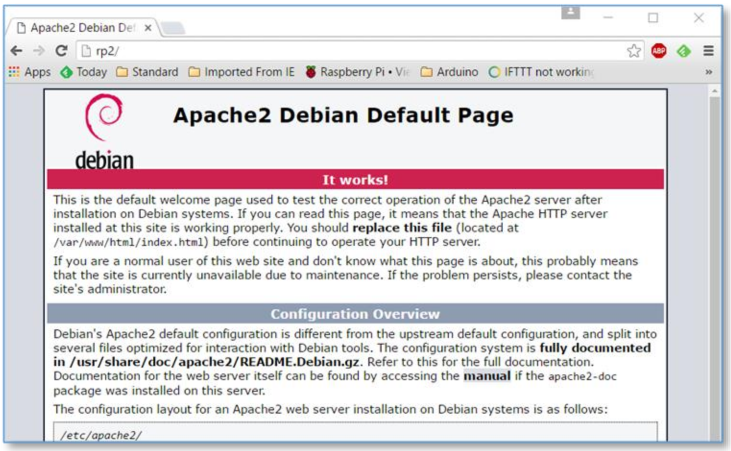
Scroll down to the end of the file and append the following lines to the end of apache2.conf:

```
# Added following 4 lines to support OpenSprinkler
Header set Access-Control-Allow-Origin "*"
AddEncoding x-gzip .cgz .jgz
AddType text/css cgz
AddType text/javascript jgz
```

Save the config file – Ctrl-X in nano - and restart the Apache server:

```
pi@RP2:~ $ sudo service apache2 restart
```

You should be able to browse to [http://RP2/](http://RP2/) and view the default Apache web page.



Apache2 Debian Default Page

It works!

This is the default welcome page used to test the correct operation of the Apache2 server after installation on Debian systems. If you can read this page, it means that the Apache HTTP server installed at this site is working properly. You should **replace this file** (located at `/var/www/html/index.html`) before continuing to operate your HTTP server.

If you are a normal user of this web site and don't know what this page is about, this probably means that the site is currently unavailable due to maintenance. If the problem persists, please contact the site's administrator.

Configuration Overview

Debian's Apache2 default configuration is different from the upstream default configuration, and split into several files optimized for interaction with Debian tools. The configuration system is **fully documented in /usr/share/doc/apache2/README.Debian.gz**. Refer to this for the full documentation. Documentation for the web server itself can be found by accessing the **manual** if the `apache2-doc` package was installed on this server.

The configuration layout for an Apache2 web server installation on Debian systems is as follows:

```
/etc/apache2/
```

Note that Apache2 stores its web pages in the /var/www/html directory under Jesse-Lite.

## Install OpenSprinkler Firmware and the UI

Download the latest versions of OpenSprinkler from the github repository:

```
pi@RP2:~ $ sudo apt-get install git
...
pi@RP2:~ $ mkdir os
pi@RP2:~ $ cd os
pi@RP2:~/os $ git clone https://github.com/OpenSprinkler/OpenSprinkler-Firmware firmware
...
```

Build the Firmware and set to automatically run at start-up:

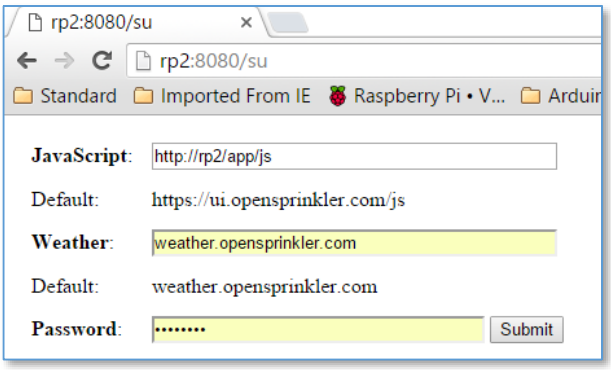
```
pi@RP2:~/os $ cd firmware
pi@RP2:~/os/firmware $ sudo ./build.sh
Building OpenSprinkler...
Do you want to start OpenSprinkler on startup? Y
Adding OpenSprinkler launch script...
[ ok ] Starting OpenSprinkler.sh (via systemctl): OpenSprinkler.service.
Done!
pi@RP2:~/os/firmware $ cd ..
```

Download UI.zip and extract into the main directory of Apache2 in its own “app” subdirectory:

```
pi@RP2:~/os $ wget http://rayshobby.net/scripts/sprinklers/UI.zip
...
pi@RP2:~/os $ sudo unzip UI.zip -d /var/www/html/app
```

## Tell OpenSprinkler to use the local server

Browse to http://RP2:8080/su and specify the new JavaScripts file location i.e. http://RP2/app/js using “opendoor” as the password.



**JavaScript**: http://rp2/app/js

Default: https://ui.opensprinkler.com/js

**Weather**: weather.opensprinkler.com

Default: weather.opensprinkler.com

**Password**: ••••••••

Next time you visit http://rp2:8080, the web pages will be served locally.