Making a New SD Card with RFD or UBIQUITY OS Image

RFD/UBIQUITI Image

- You have one image file that can be used with both Ubiquiti (video payload) and RFD with some modification with a Pi. You have a backup
- **IT IS RECOMMENDED THAT YOU BACK UP THIS IMAGE FILE.** (Note, these files are almost 8GB each, therefore devices formatted with FAT32 will not be able to store these files. A device formatted NTFS is recommended for storage of these image files.)
- Here you will learn how to create a new image from an OS already on a SD card or how to put an image onto a new SD card for use with the video or still image payloads.

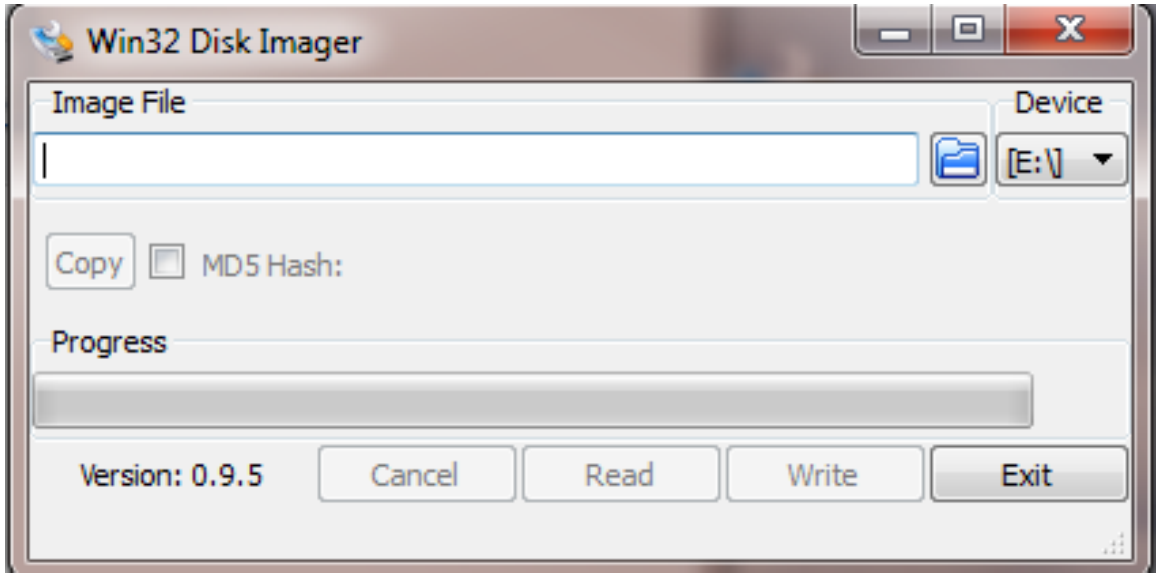
Making a New Image: Reading from SD card with OS already installed

- You will need to use Win32DiskImager to create an image file (read) or put an image file on SD card (write)
- We will begin by creating an new image file from an SD card with an OS already set up. Typically you will writing images to SD cards, but it is important that you know how to read an image from an SD in case something happened to your ground station laptop.

Making a New Image: Reading from SD card with OS already installed

Open Win32DiskImager

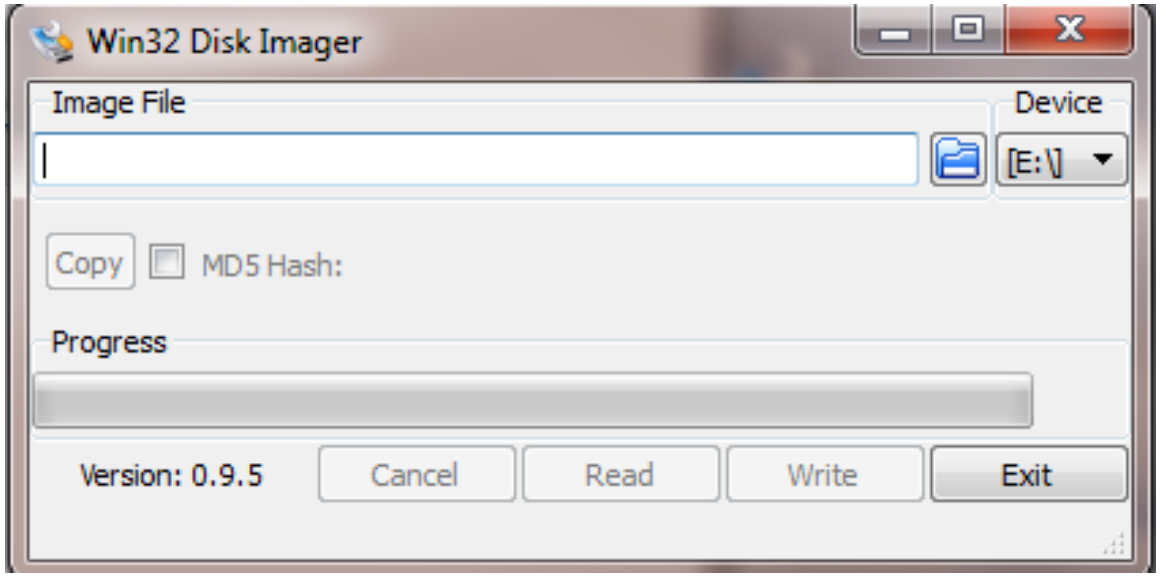
You will see the following window:



Making a New Image: Reading from SD card with OS already installed

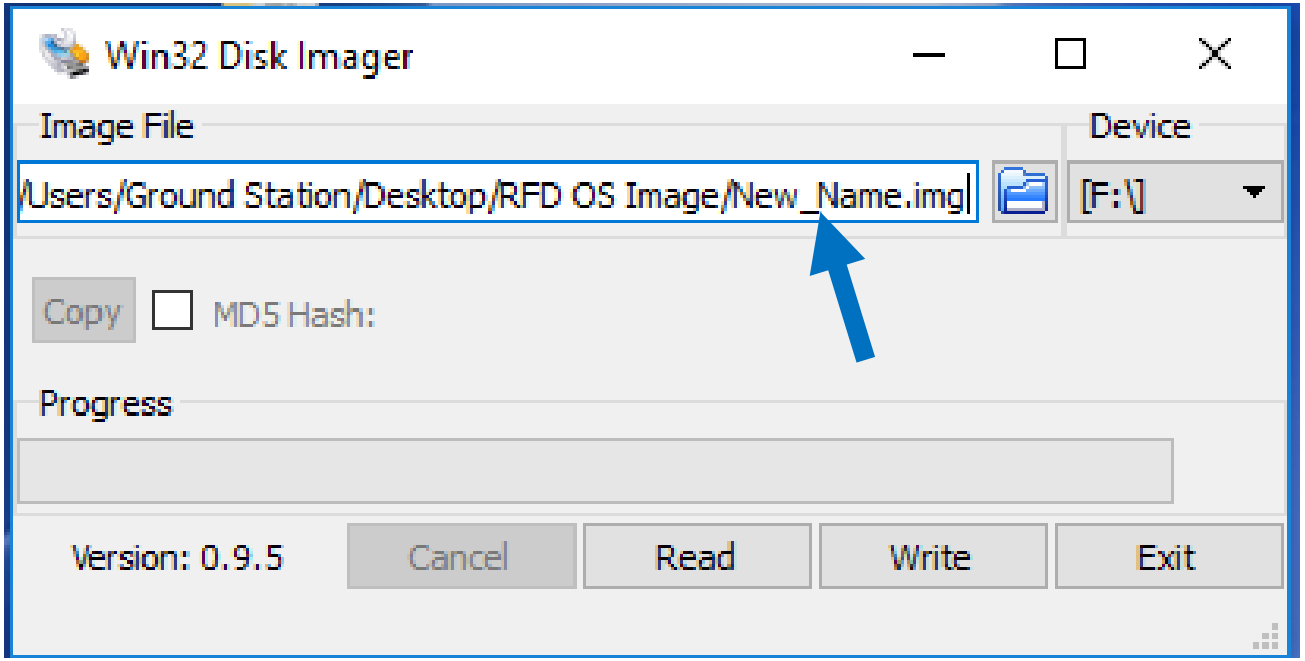
Open Win32DiskImager

You will see the following window:



Making a New Image: Reading from SD card with OS already installed

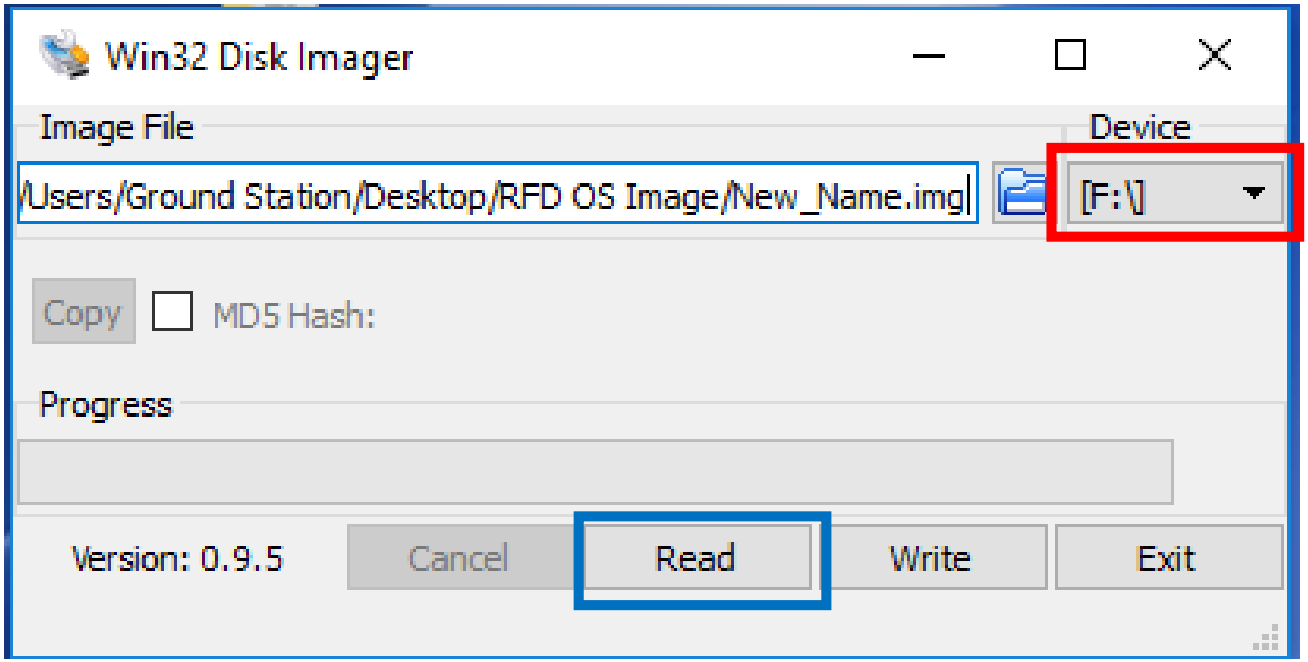
Write in the path where you would like to store the image file.



In this example, we are creating an image in a folder titled “RFD OS Image” located on the ground station laptop desktop. The name of this image will be **New_Name.img** Naming convention of which OS is being imaged (RFD or UBIQUITI) and date/version number will help you keep track of changes. NOTE: YOU MUST TYPE **.img** AFTER THE NAME AND DO NOT USE SPACES.

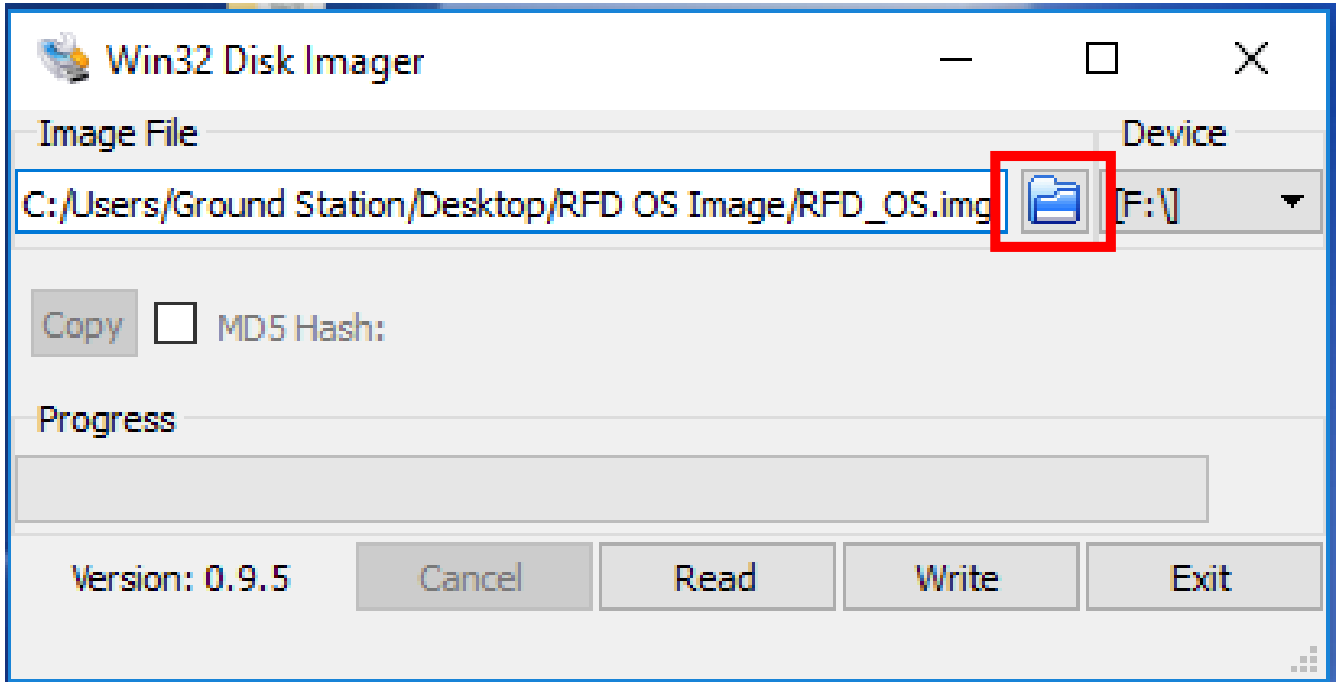
Making a New Image: Reading from SD card with OS already installed

Make sure you are reading from the correct **Device** (**F:** in this example, yours may differ). If you need to check which device your SD card is go to **Computer** to see your connected drives. Once you have the correct device selected, simply click the **Read** button. It may take about 5-10 minutes for the image to be created. This image can now be used to create a new SD card to run that particular OS



Getting a New SD card set up: Writing image to SD card so it can be used with flight payload

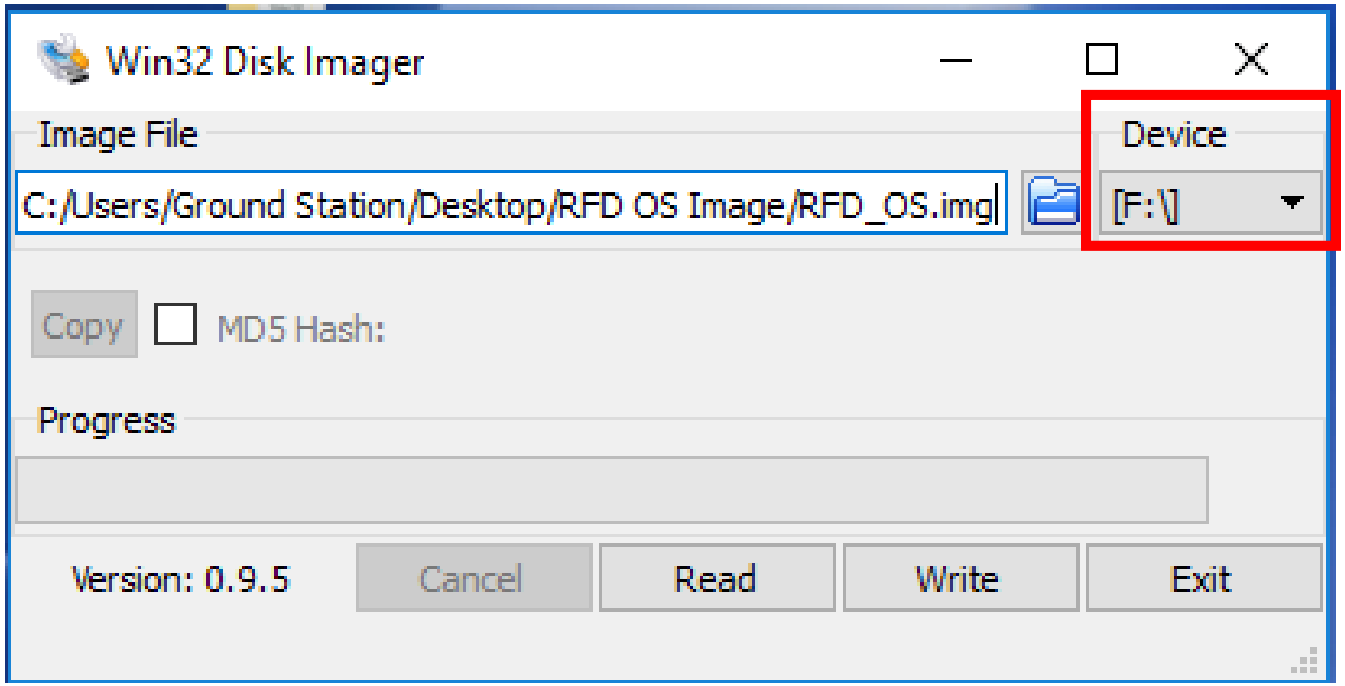
The process is very similar to write an image onto an SD card to prepare it for use with one of the flight payloads. In this example, we will write the RFD OS onto a new SD card. To begin, find the image file you wish to put on the SD card. In this example, we will put the RFD operating system on a new 64GB SD card. You can write in the path to the image file or browse for it by clicking **here**.



Getting a New SD card set up: Writing image to SD card so it can be used with flight payload

In this example, the image file is located on the desktop of the ground station laptop in the folder **RFD OS Image** and the image file is **RFD_OS.img**

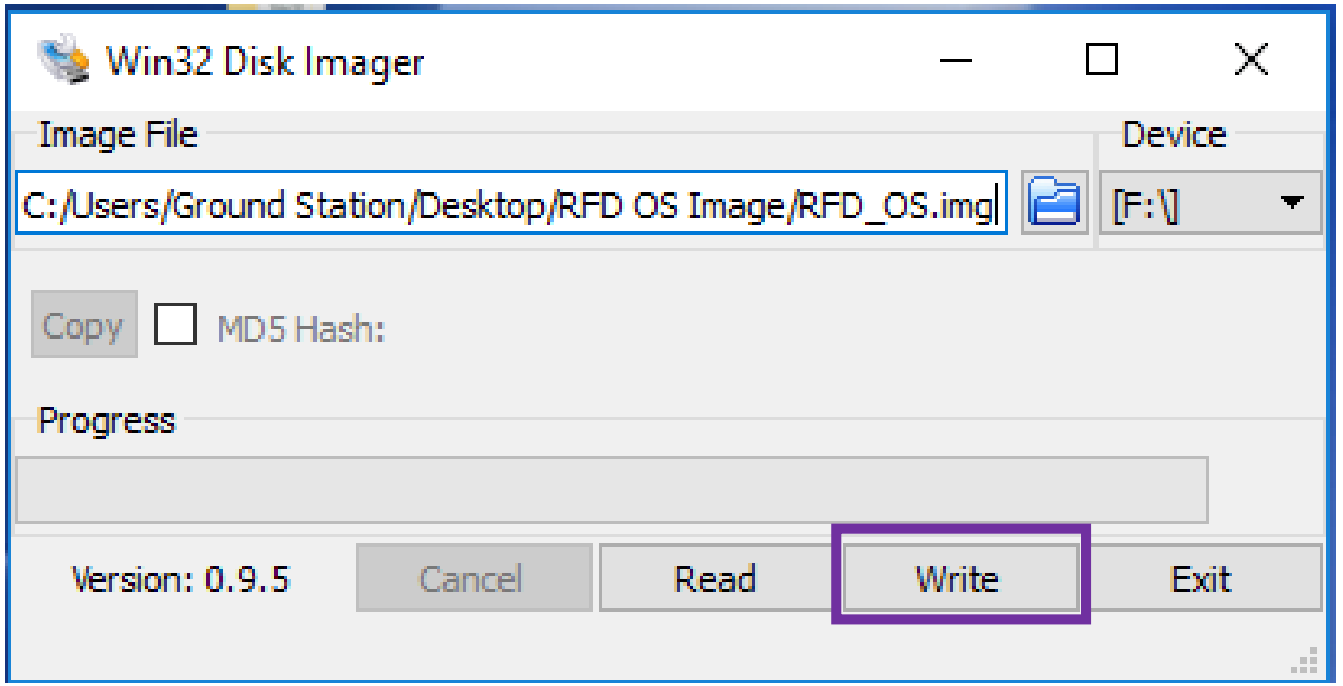
Select the **Device** you are writing the image to (the new SD Card). In this example the device is **F:** although yours may vary.



Getting a New SD card set up: Writing image to SD card so it can be used with flight payload

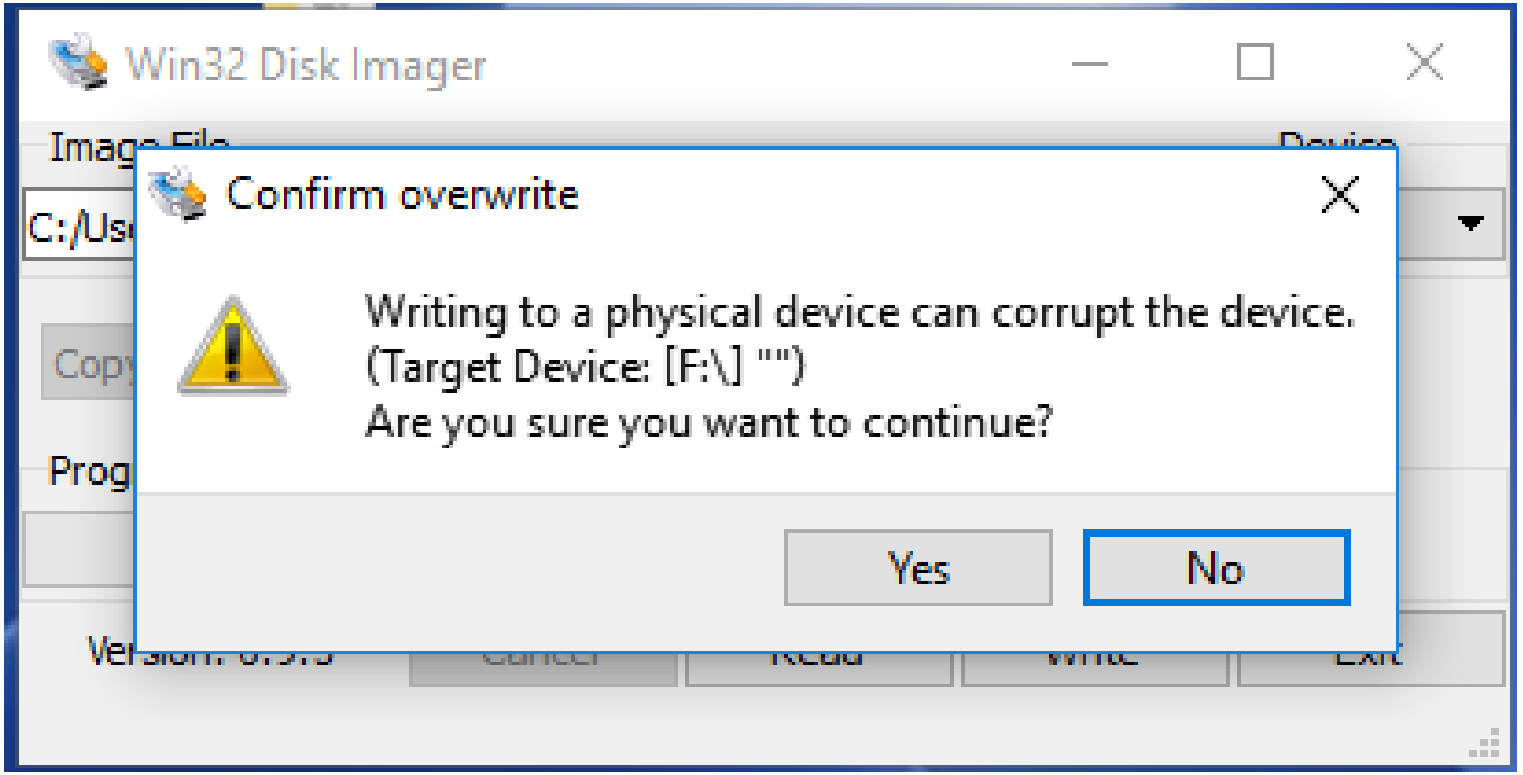
In this example, the image file is located on the desktop of the ground station laptop in the folder **RFD OS Image** and the image file is **RFD_OS.img**

Once you have your image file selected, simply click **Write**



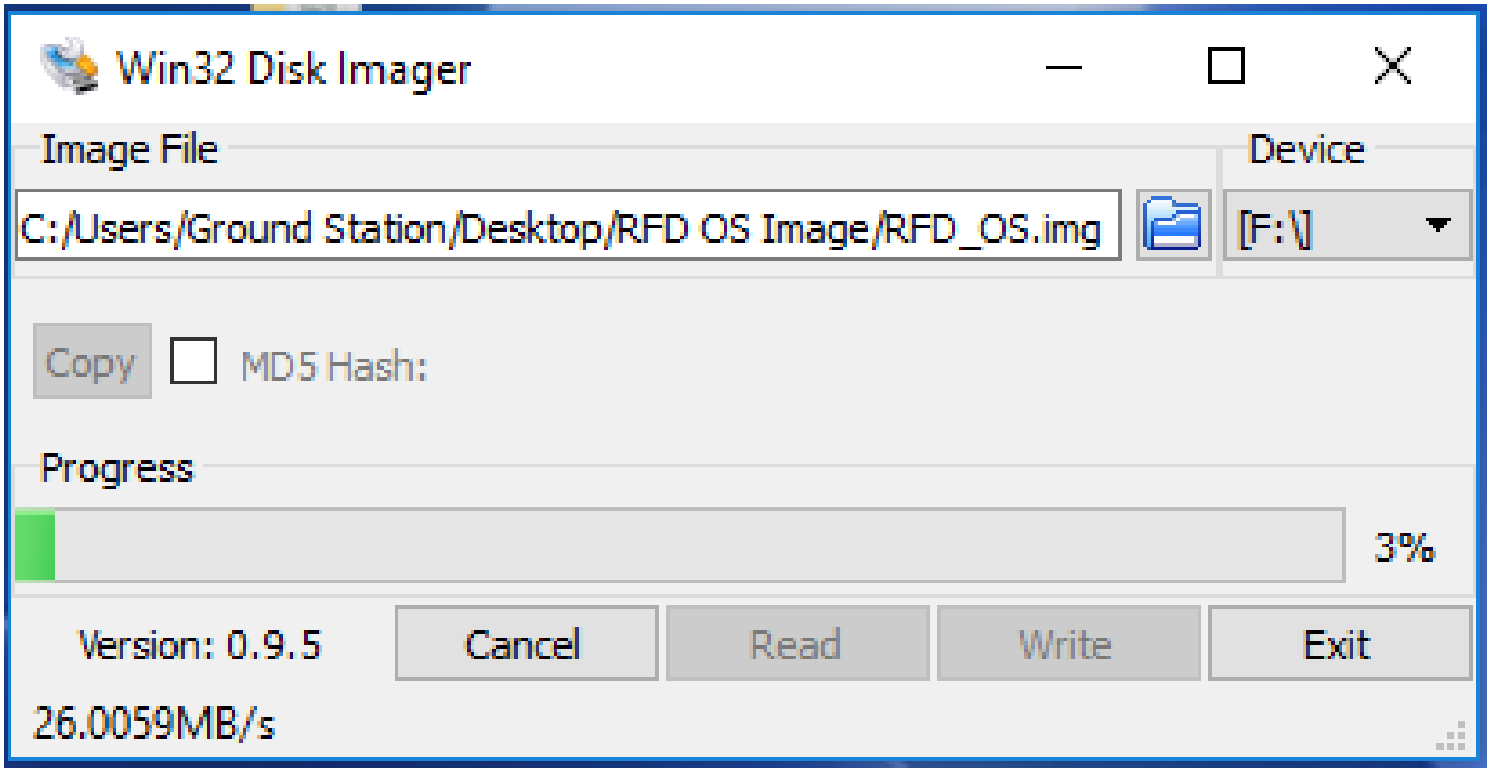
Getting a New SD card set up: Writing image to SD card so it can be used with flight payload

The following warning will be displayed. Click **YES**.



Getting a New SD card set up: Writing image to SD card so it can be used with flight payload

Your image will now be written to the card. This may take a while.



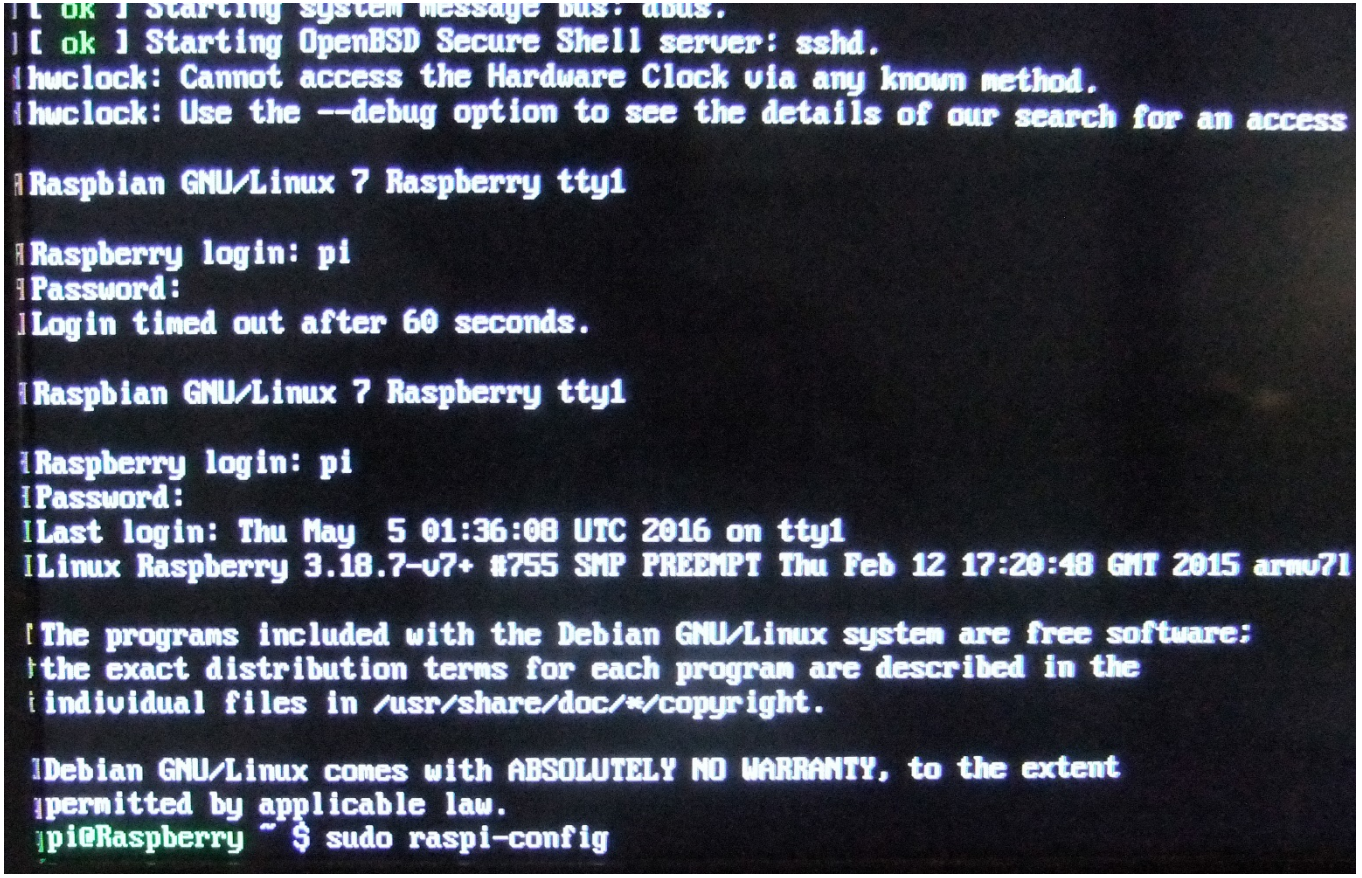
Getting a New SD card set up: Writing image to SD card so it can be used with flight payload

Once completed, you have one final step to take to prepare the card for Pi operation, you must expand the filesystem. To do so, insert the new card into a pi and connect Pi as a computer (See using pi as computer) or wirelessly access pi (see instructions).

Expanding a Newly Imaged SD Card

- If you put an image of the RFD or UBIQUITI OS on a new SD card, you must expand the card to allow the Pi full access to the “free space” on the card for storage, etc.
- To see how to make a new image, see the “Making new SD card with RFD or UBIQUITI OS” instructions
- Begin by inserting the card into a UNPOWERED pi SD card slot and powering up the pi.
- Login to the pi

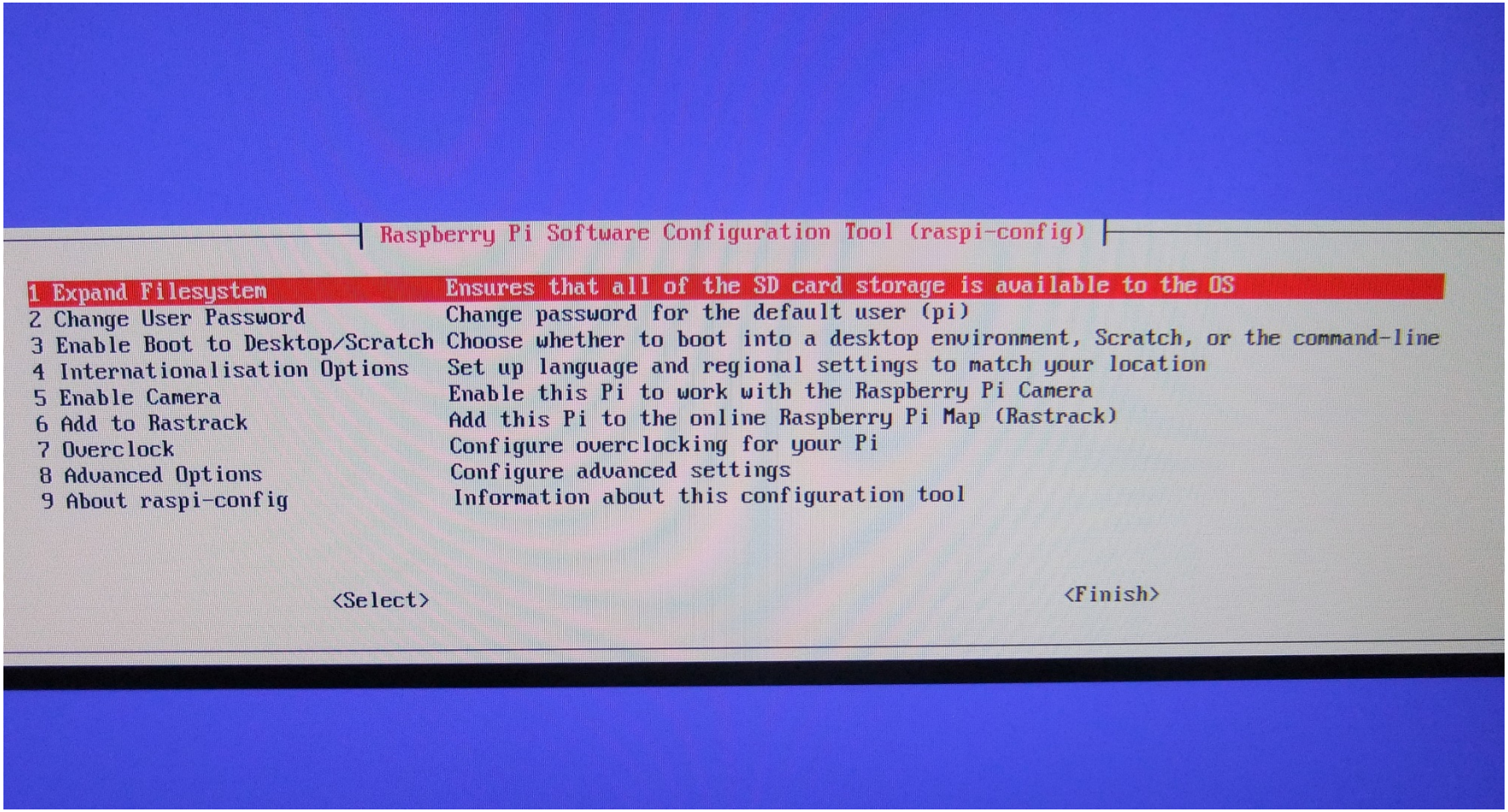
Expanding your SD Card: Login to your Pi



Once logged into the Pi type **sudo raspi-config** and hit **[ENTER]**

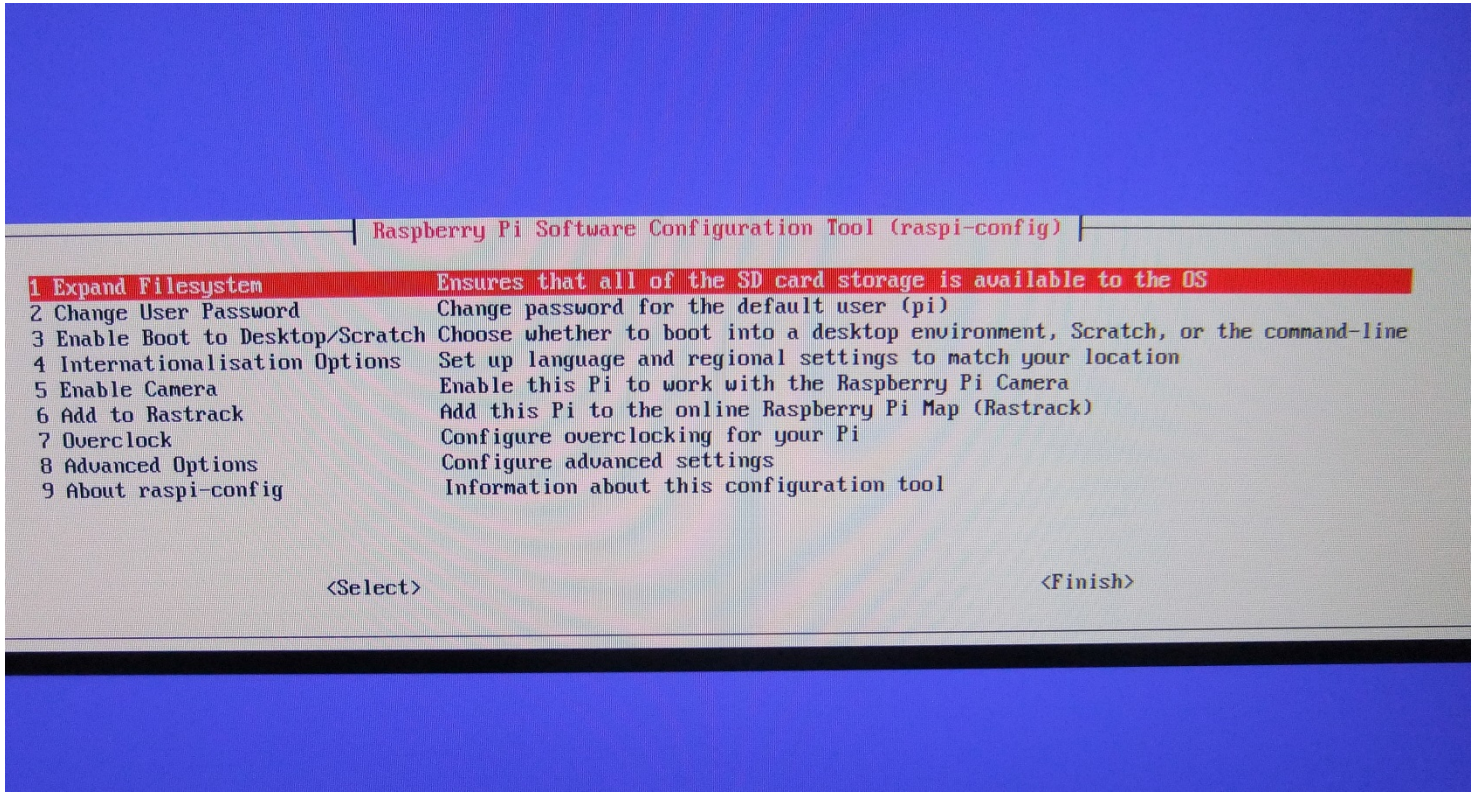
Expanding your SD Card: Login to your Pi

The following screen will be displayed. Highlight **1 Expand Filesystem** and hit **[ENTER]**



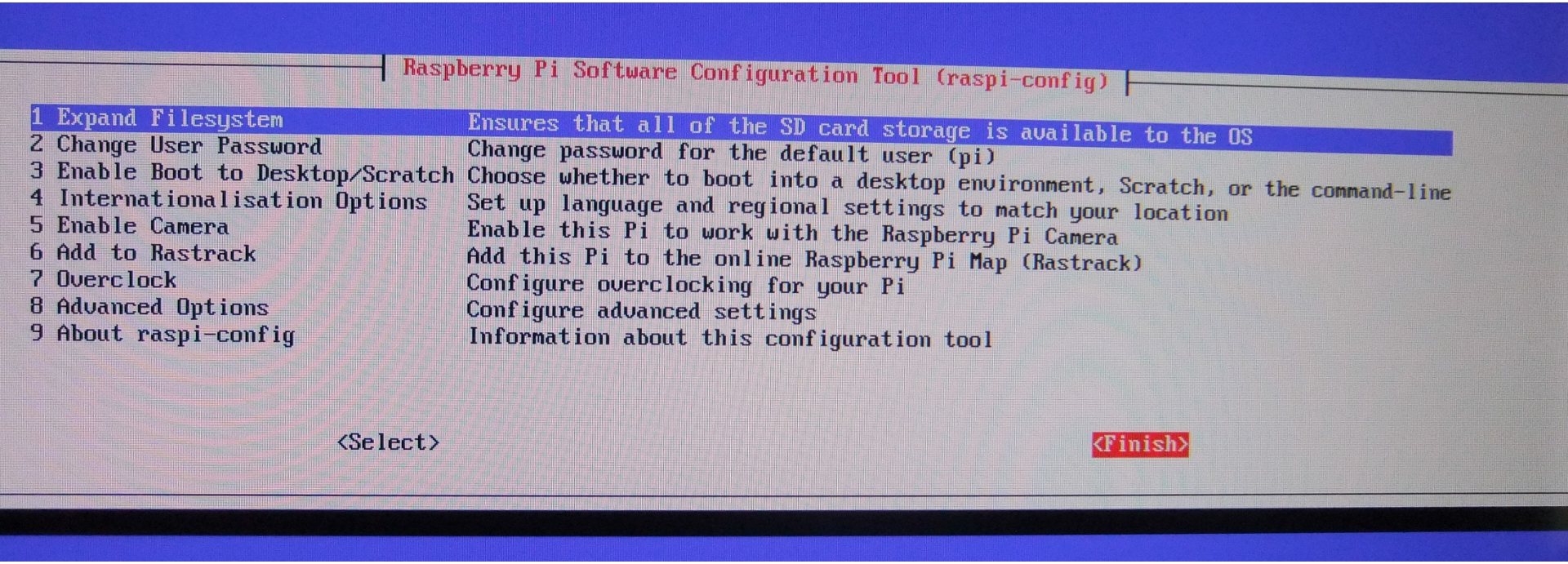
Expanding your SD Card: Login to your Pi

The screen will flash black and you will see some text scroll by in the command prompt screen. Once completed you will once again be returned to the following screen:



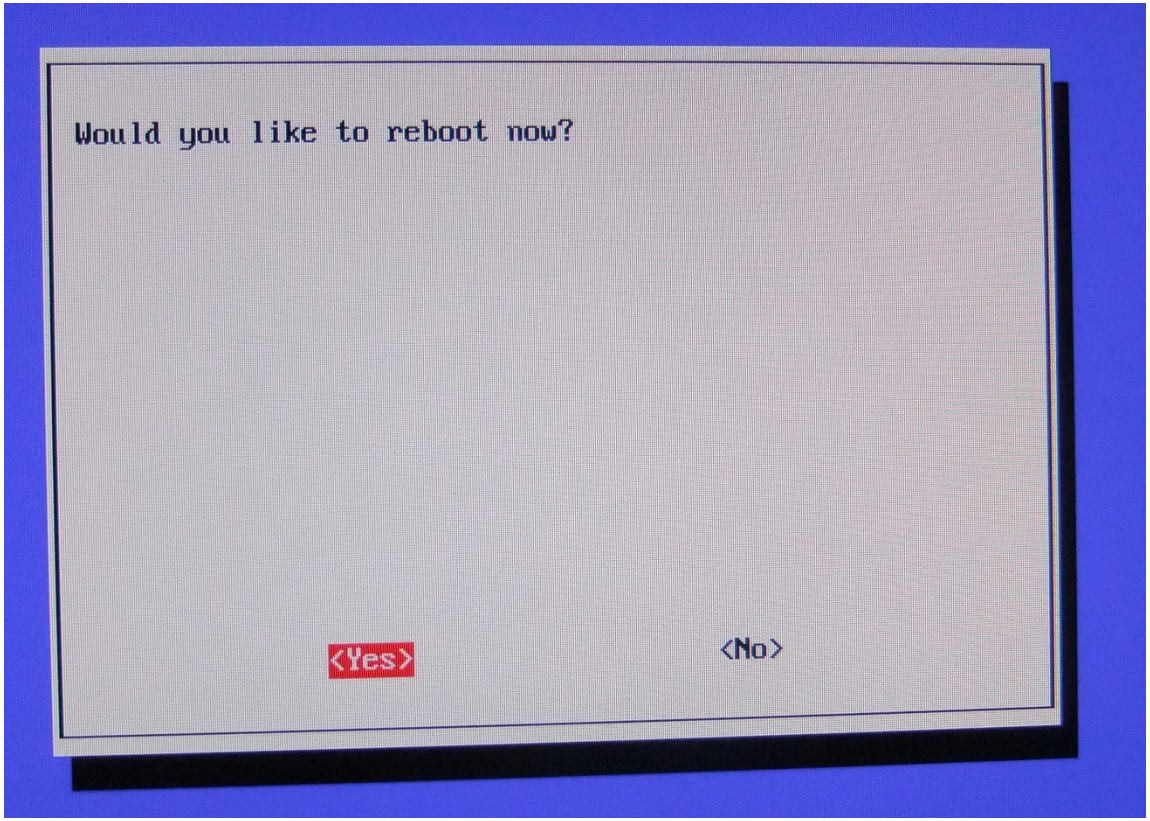
Expanding your SD Card: Login to your Pi

Use the **[Right Arrow Key]** or **[TAB]** to highlight **Finish** on the bottom and hit **[ENTER]**



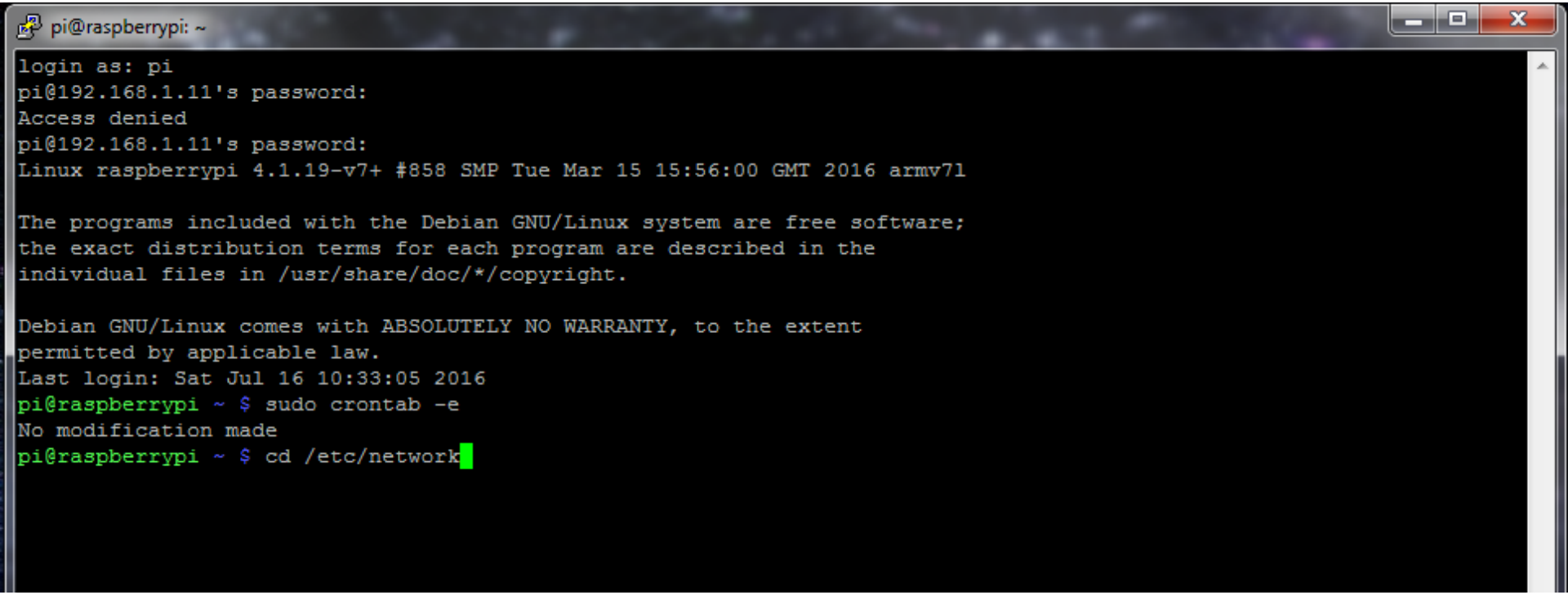
Expanding your SD Card: Login to your Pi

You will then be asked if you want to reboot, highlight **Yes** and hit **[ENTER]**



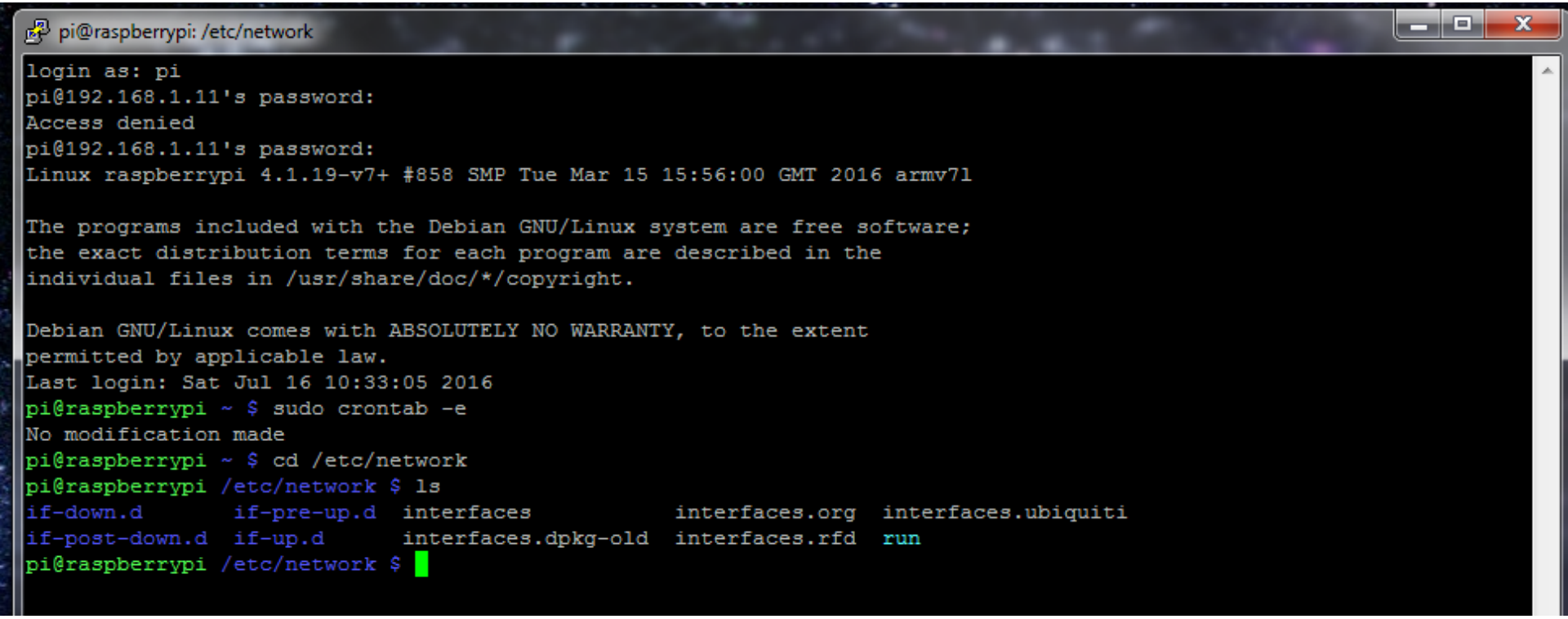
Your Pi will now reboot and bring you back to the “Login” screen. You have successfully expanded the filesystem. If you are done accessing the Pi, don’t forget to log back in and shutdown the Pi! (**sudo shutdown –h now**)

Making the SD card Ubiquiti Ready: Change Network Settings



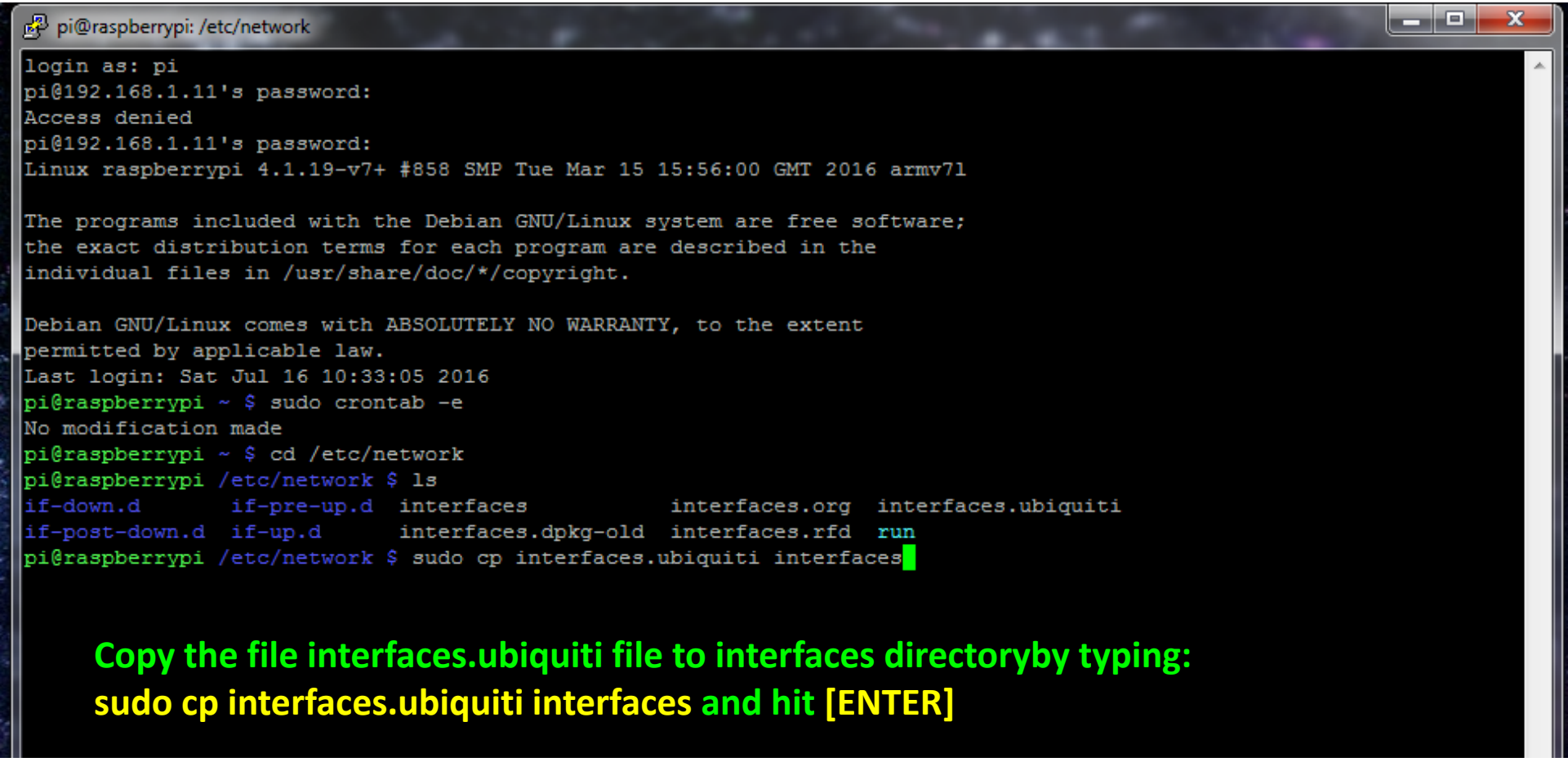
Go to networks directory: type **cd /etc/network** and hit **[ENTER]**

Making the SD card Ubiquiti Ready: Change Network Settings



Type **ls** and hit **[ENTER]** to see directory contents. We want **interfaces.ubiquiti** to be copied into the interfaces directory

Making the SD card Ubiquiti Ready: Change Network Settings



Now reboot the Pi (**sudo reboot**)

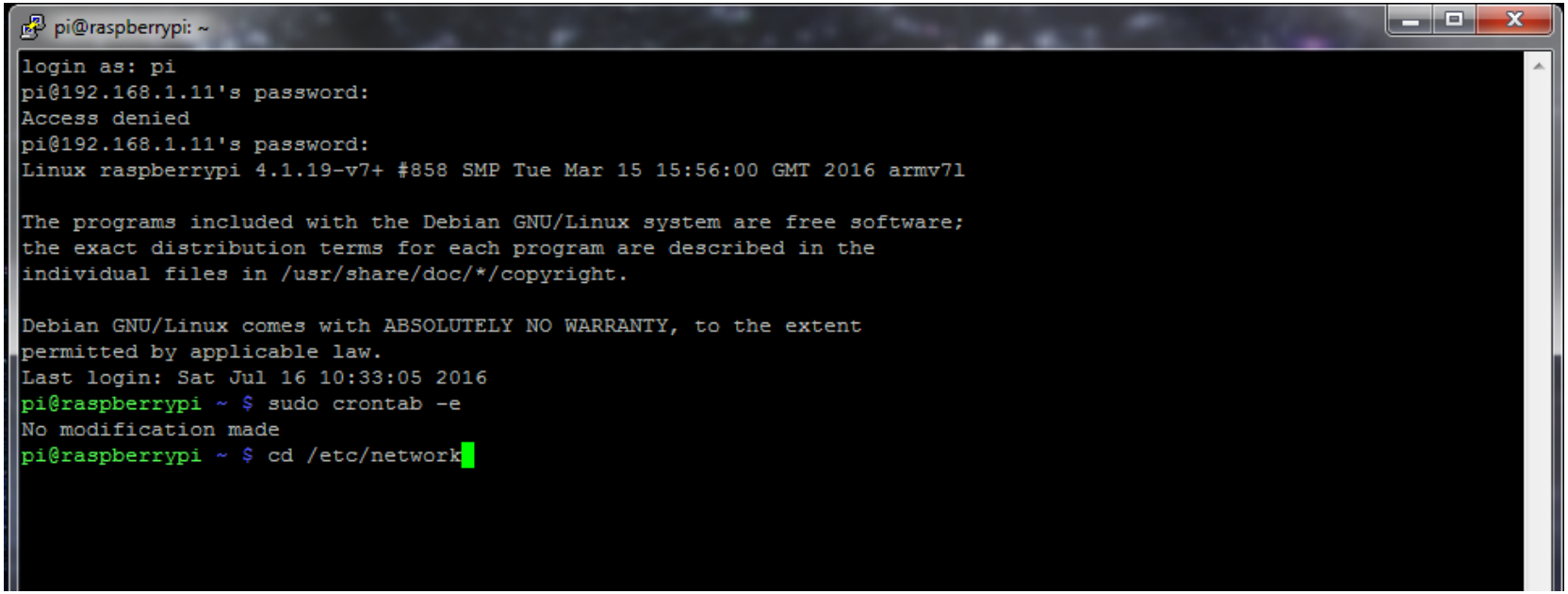
Making the SD card Ubiquiti Ready

- CARD IS READY FOR UBIQUITI!

- DON’T FORGET TO SHUTDOWN THE PI

sudo shutdown –h now

Making the SD card RFD Ready: Change Network Settings

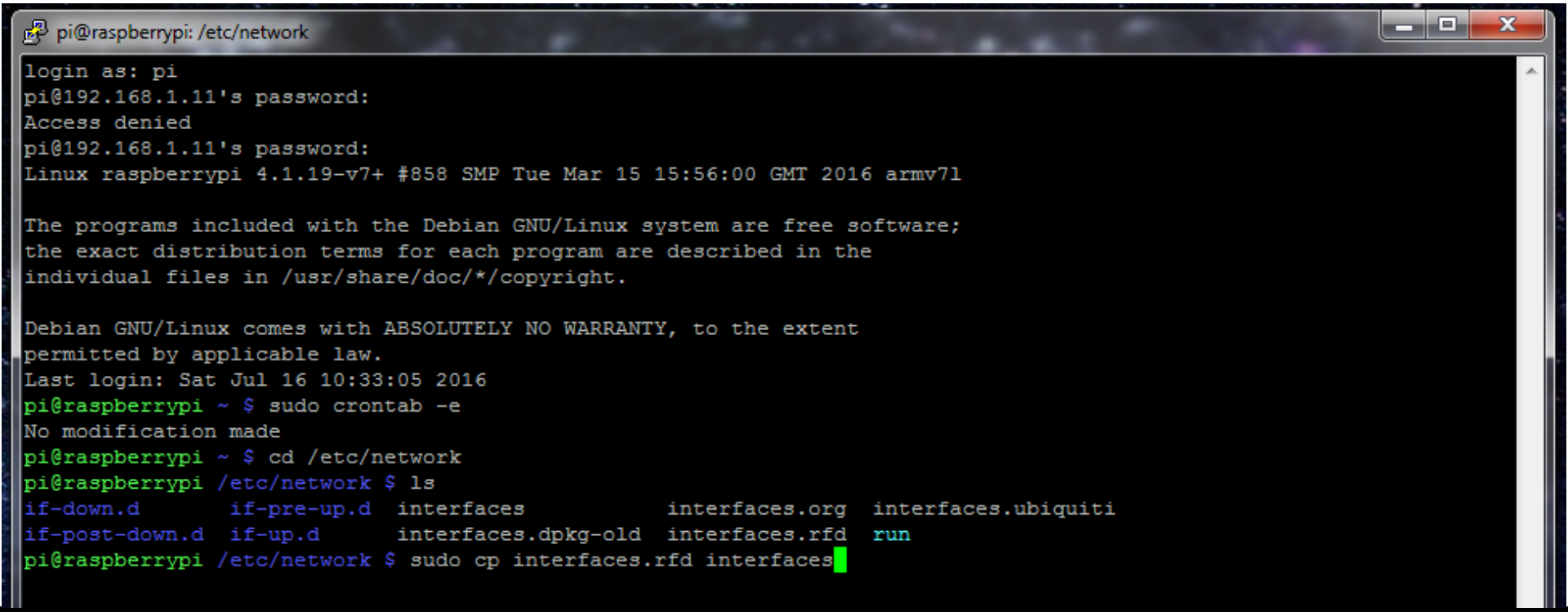


Go to networks directory: type **cd /etc/network** and hit **[ENTER]**

Making the SD card RFD Ready: Change Network Settings

Type **ls** and hit **[ENTER]** to see directory contents. We want **interfaces.rfd** to be copied into the interfaces directory

Making the SD card RFD Ready: Change Network Settings



Copy the file interfaces.rfd file to interfaces directory by typing:
sudo cp interfaces.ubiquiti interfaces and hit [ENTER]

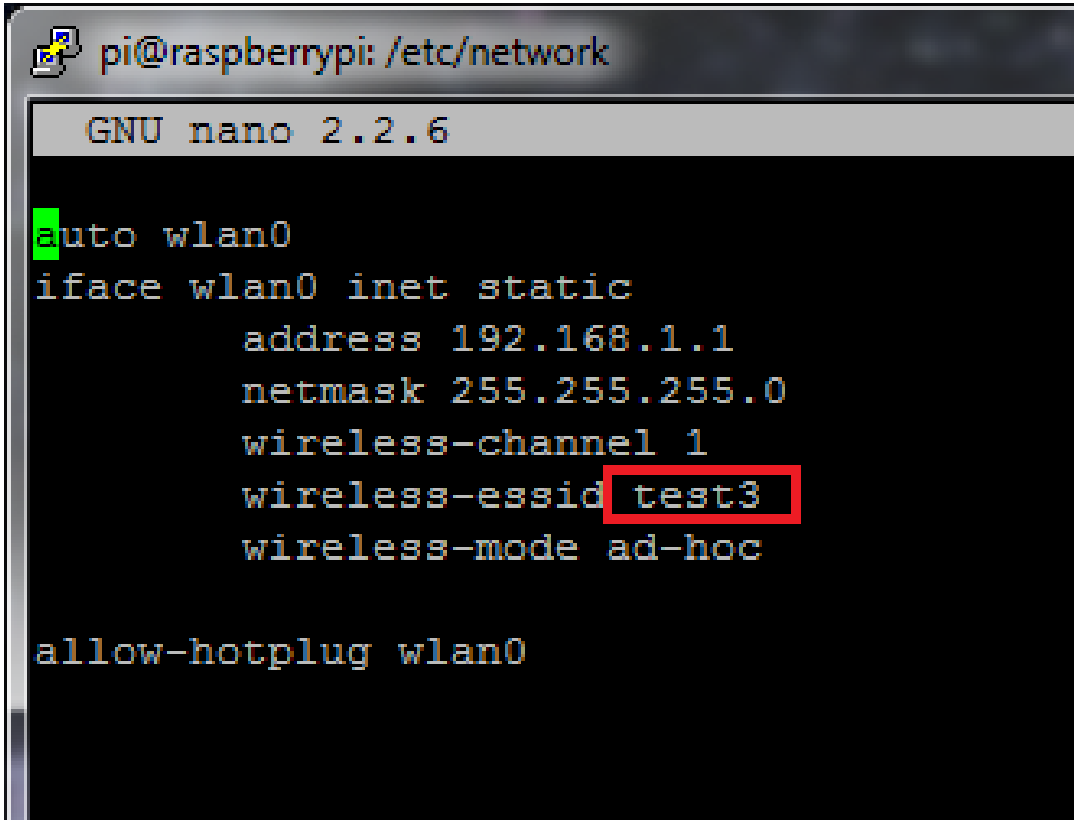
Making the SD card RFD Ready: Change Network Settings

- IF YOU ARE STARTING FROM NEW IMAGE – NEED TO CHANGE NETWORK NAME (ESSID)

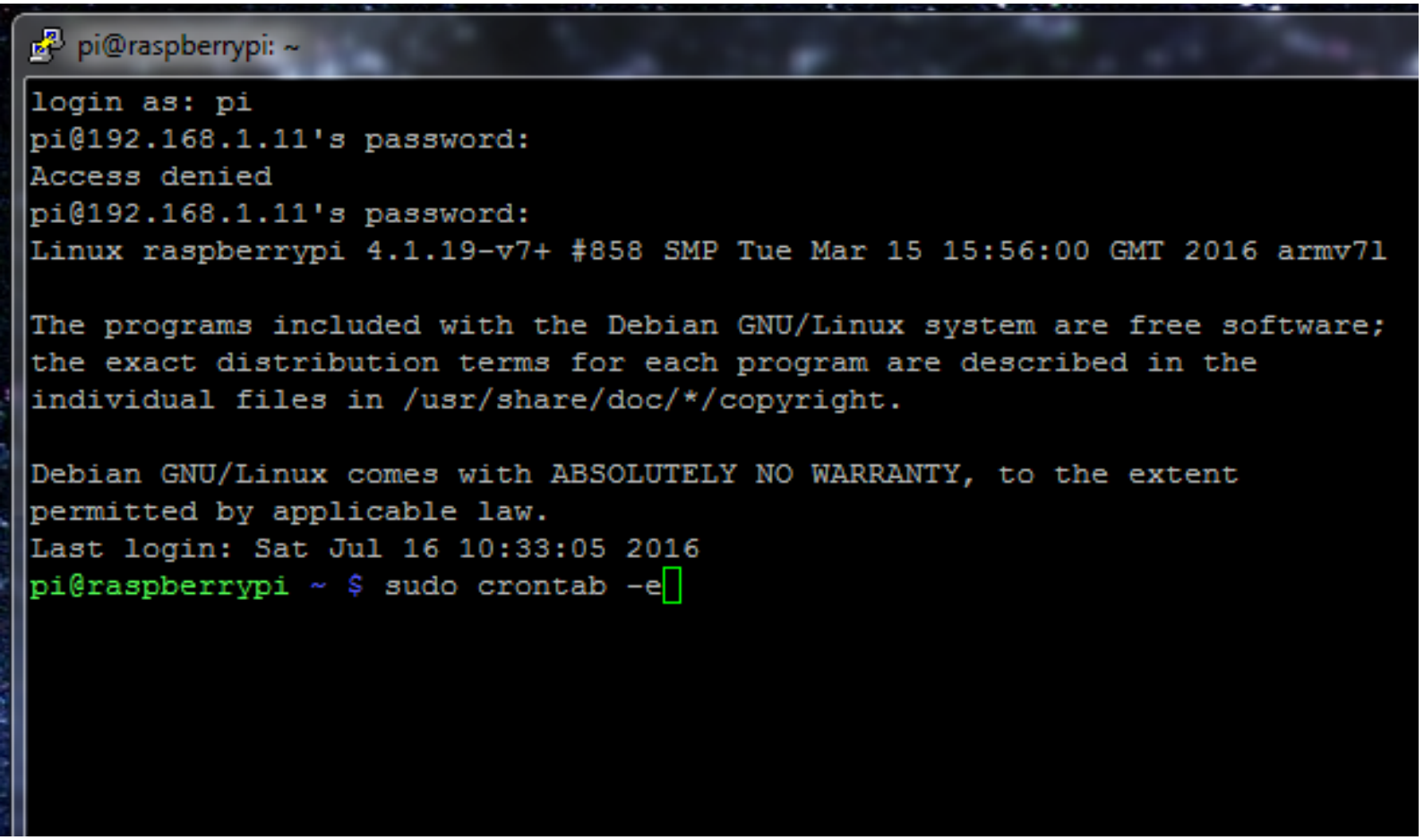
From networks folder (/etc/network) type: sudo nano interfaces

Change ESSID to your workshop registration number (so you can connect ground station computer to Pi in the field. This will allow you to shut pi down in the field properly to avoid corrupting SD cards).

Ctrl + O to save and Ctrl + X to exit

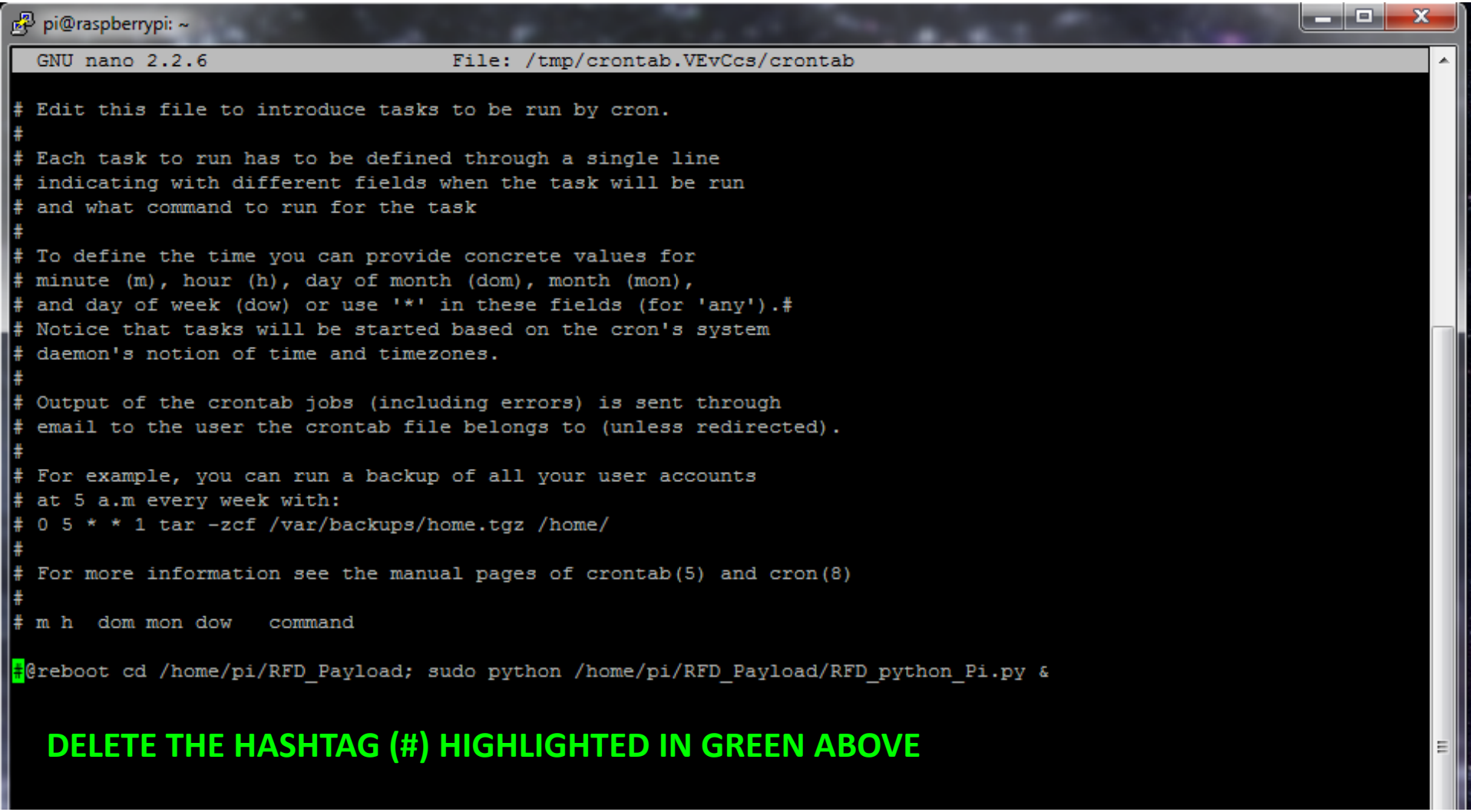


Making the SD card RFD Ready: Changing crontab to start RFD Prog

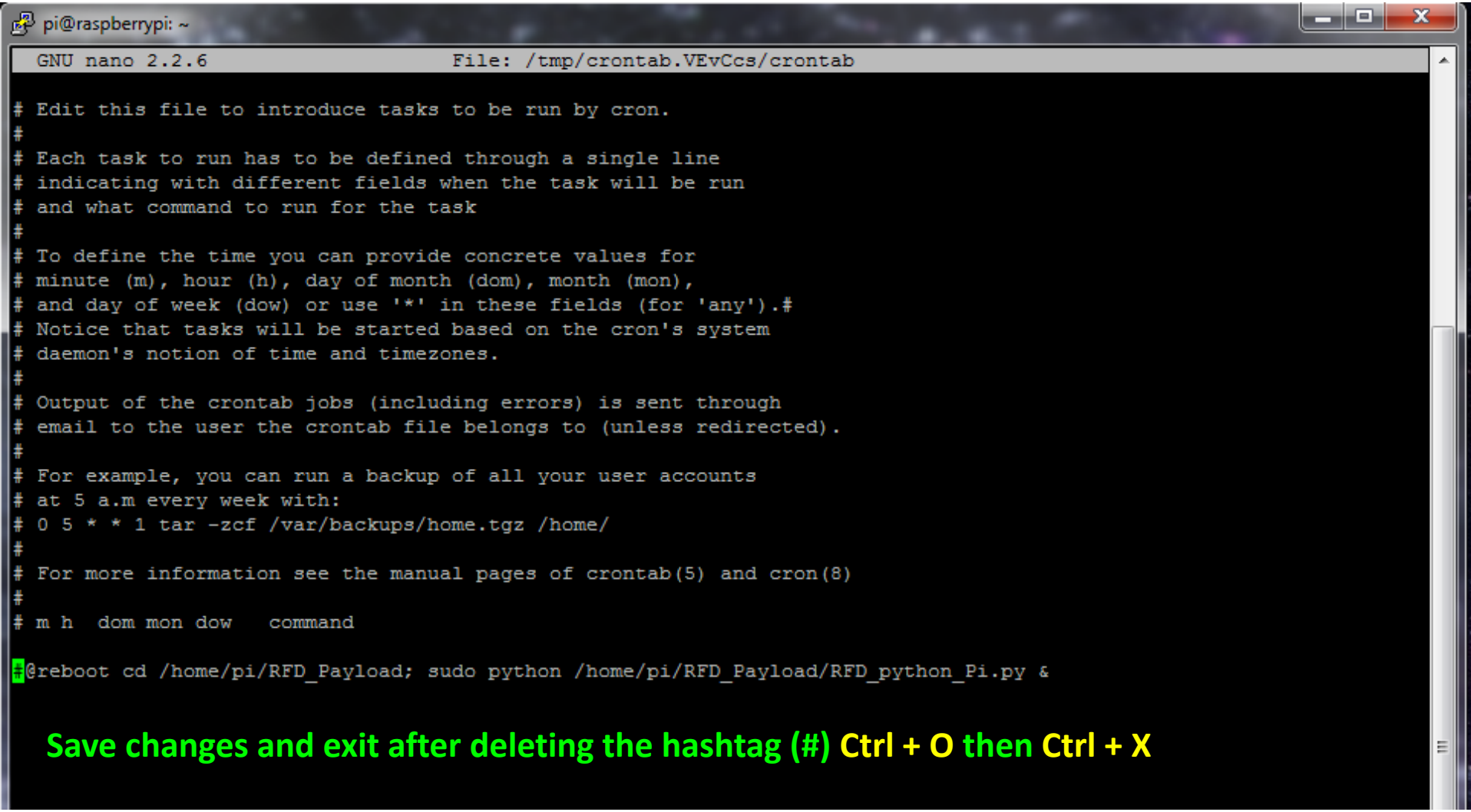


Edit the crontab from the pi “home” Directory: type **sudo crontab –e** and hit **[ENTER]**

Making the SD card RFD Ready: Changing crontab to start RFD Prog



Making the SD card RFD Ready: Changing crontab to start RFD Prog



Making the SD card RFD Ready: Changing crontab to start RFD Prog

- After deleting hashtag your pi will automatically start the RFD program when your pi is turned on.

- YOUR PI RFD SD CARD IS NOW READY!

- SHUT DOWN YOUR PI BEFORE UNPLUGGING POWER