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***DARWIN-OP Recovery Process (Practical Report)  
(#001)***

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***DARWIN-OP Recovery Process***  
***DARWIN-OP (Summer 2017)***

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# 1 INTRODUCTION

## 1.1 PURPOSE OF THIS DOCUMENT

This document is a guide for new lab members to know how to reboot Darwin back to its original system (factory configurations).

## 2 PREREQUISITES

### 2.1 USB DRIVE

Prepare an erased USB Drive that is at least 4GB for this operation. The USB Drive can be erased, if desired, after this operation. This USB Drive will be referred to as “recovery disk” or “USB Drive” in the texts below.

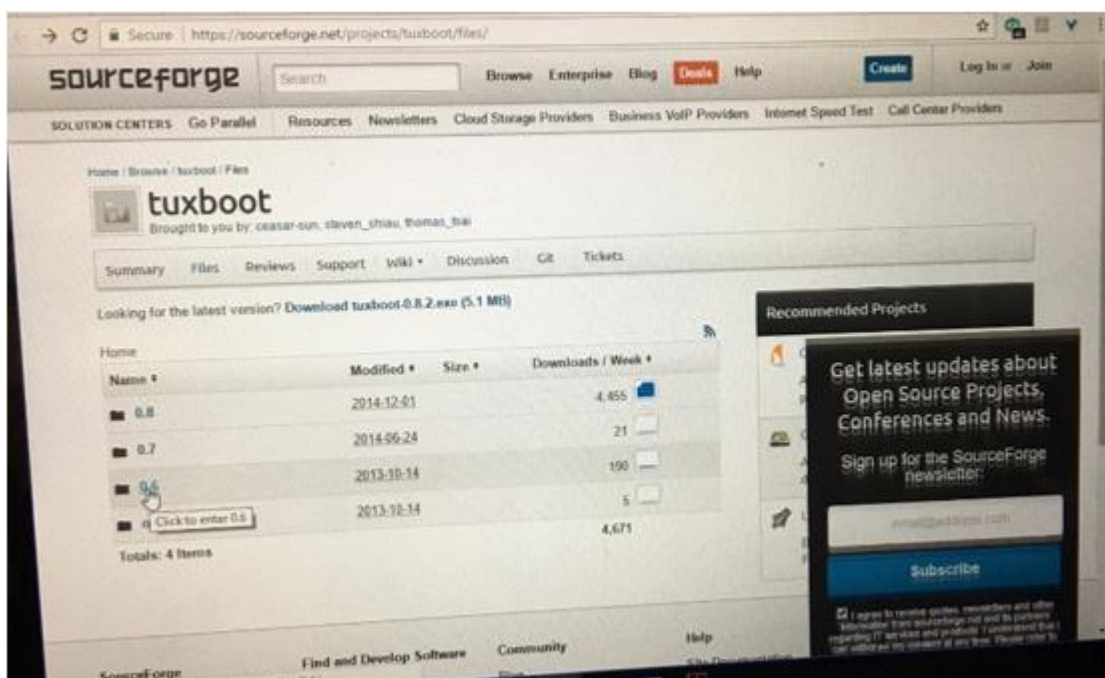
### 2.2 FILES TO DOWNLOAD

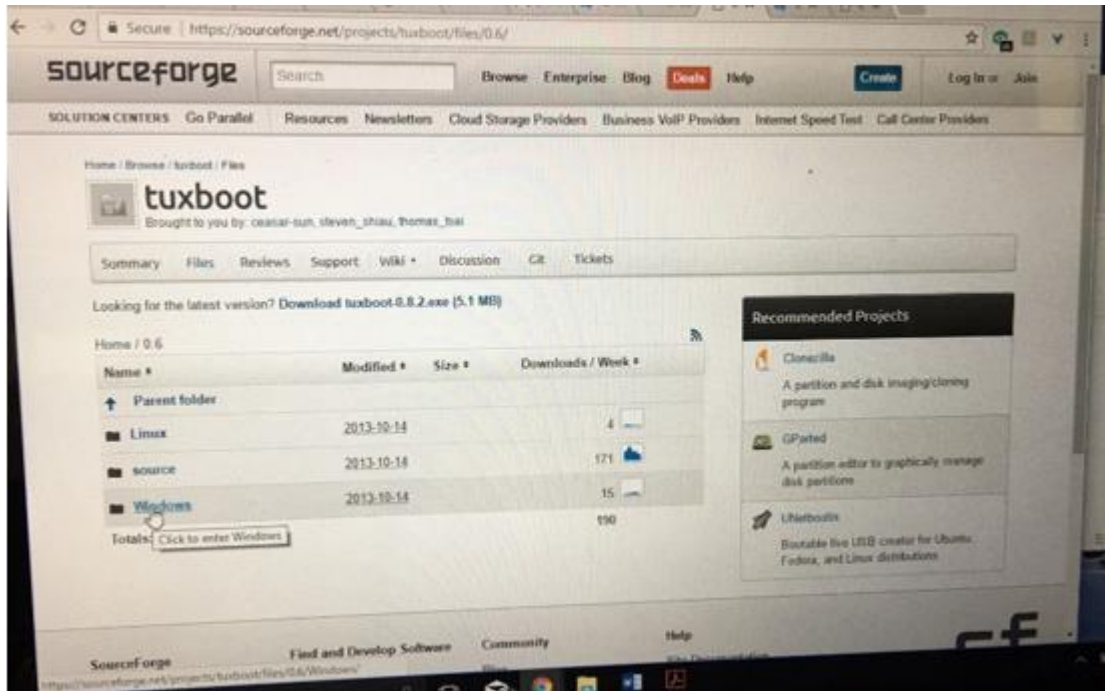
Please download the following files your laptop, where, based on the operating of your system, some parts of this section need to be adjusted based on your operating system.

This tutorial was written such that the laptop used to configure the recovery disk has the operating system Windows 10.

Download tuxboot\_0.6 (the pictures shows the process of downloading the Window’s version of tuxboot because the recovery USB drive was created on a Window’s machine)

Link: <https://sourceforge.net/projects/tuxboot/files/0.6/>

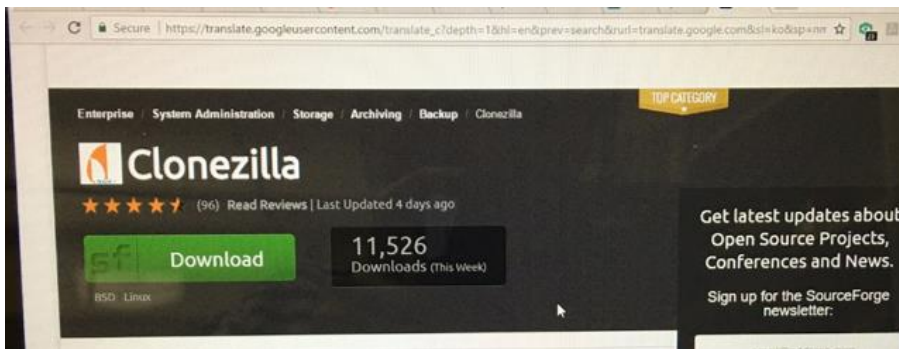


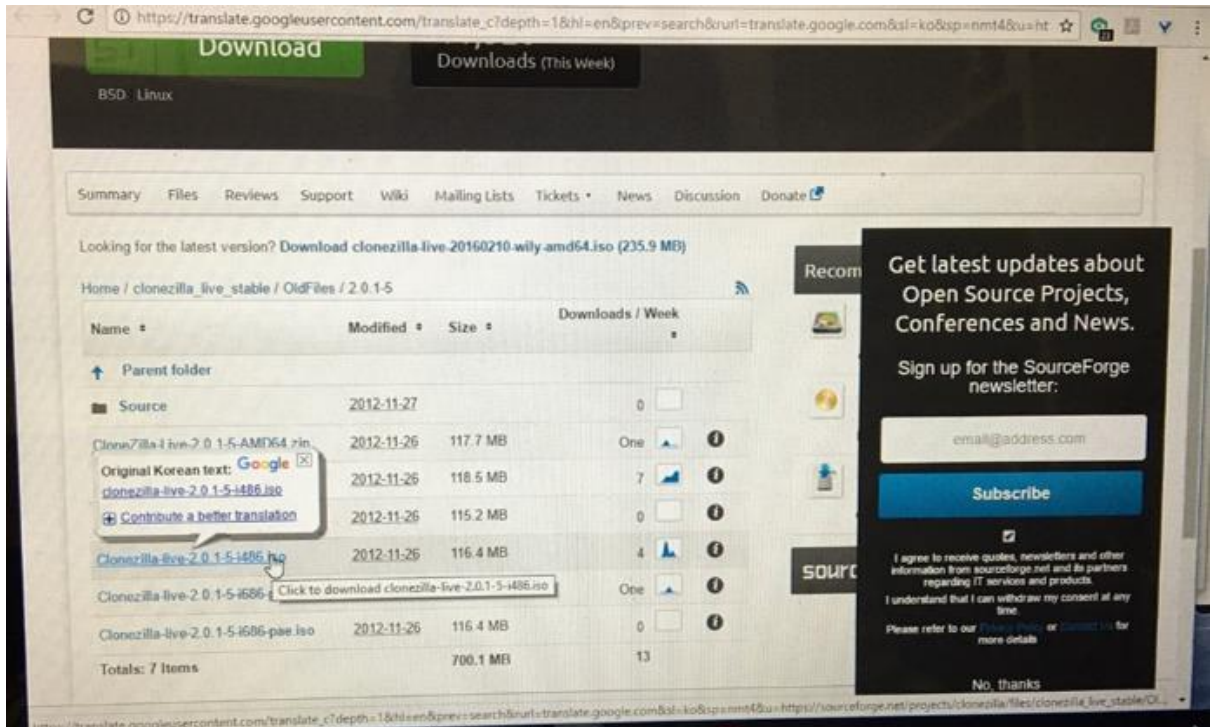


Download Clonezilla-live-2.0.1-5-i486.iso

Link:

[https://sourceforge.net/projects/clonezilla/files/clonezilla live stable/OldFiles/2.0.1-5/](https://sourceforge.net/projects/clonezilla/files/clonezilla%20live%20stable/OldFiles/2.0.1-5/)

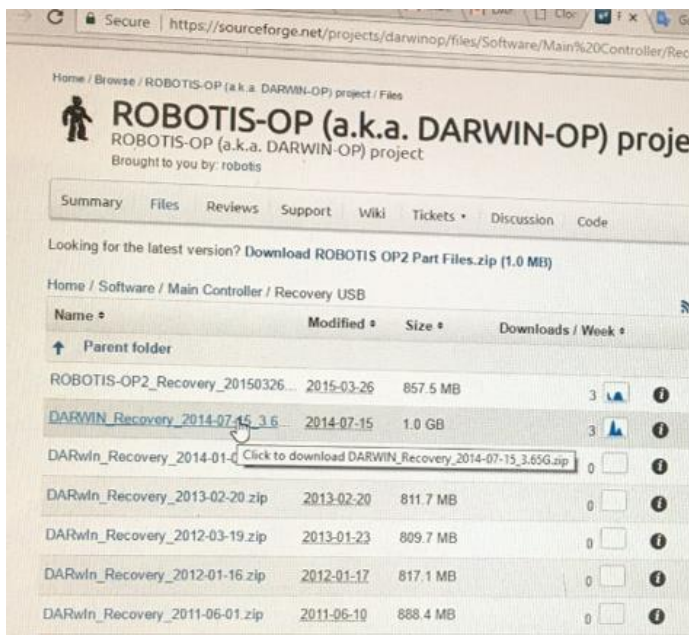




For DARWIN-OP, download “DARWIN\_Recovery\_2014-07-15\_3.65G.zip” (as of 05/27/2017)

Link:

<https://sourceforge.net/projects/darwinop/files/Software/Main%20Controller/Recovery%20USB/>

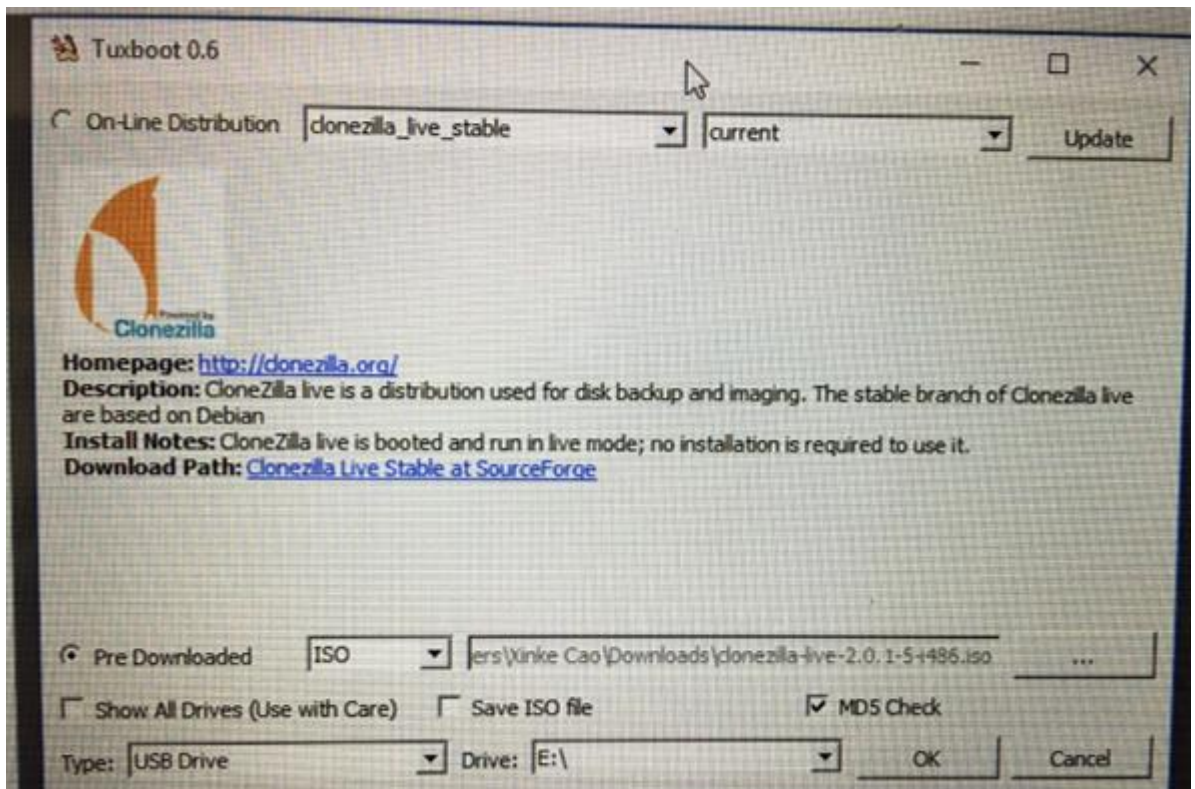


## 2.3 CREATE RECOVERY USB DRIVE

Run the “Tuxboot\_0.6.exe” if you are on windows, then the following window will pop up.

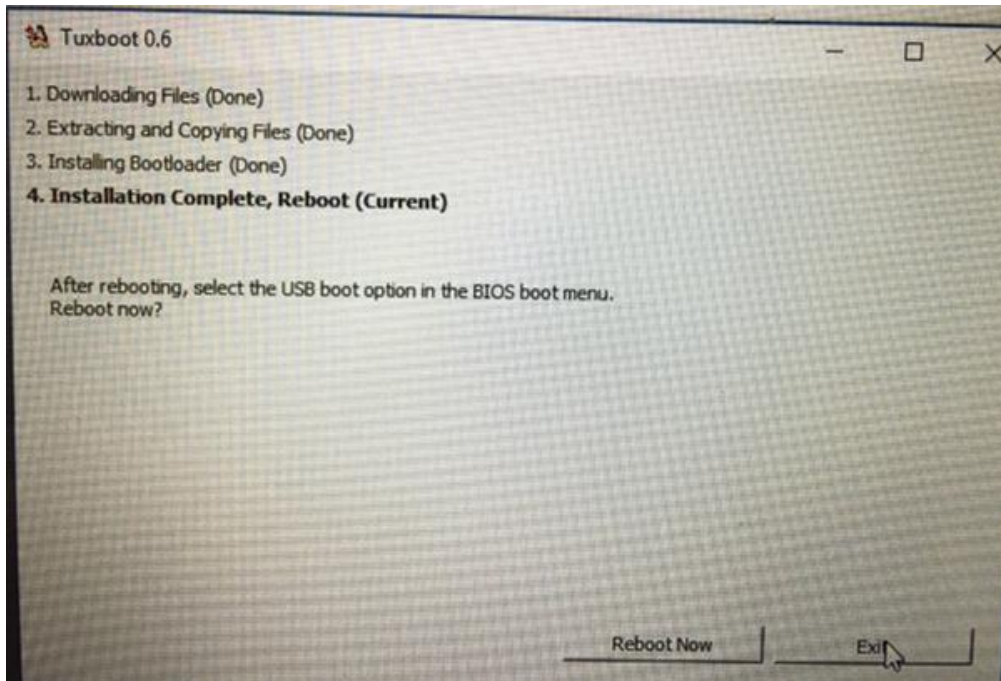
On the window below, make sure you’ve selected the “Pre Download” option & import the “clonezilla iso” that you’ve downloaded previously

In addition, the USB drive that you’re going to use as your recovery USB has to also be selected (the “Type: USB Drive Drive: E:\” part of the window)



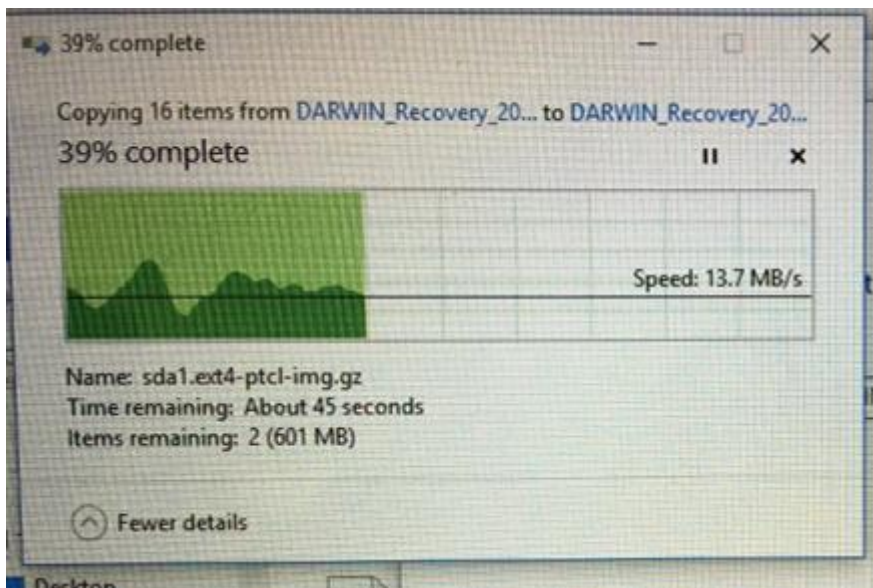
After the USB drive has been configured successfully, you will see the following window

Make sure to click on “Exit”

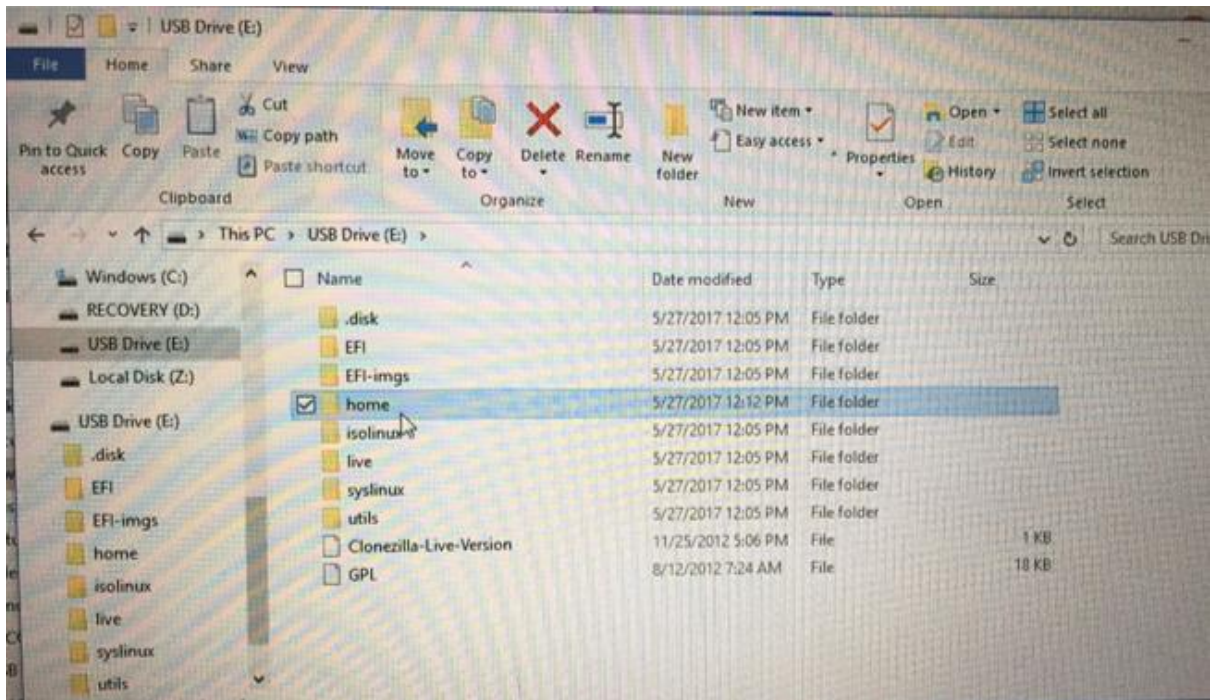


Now, we are going to make sure that the DARWIN-OP recovery system is in the USB drive.

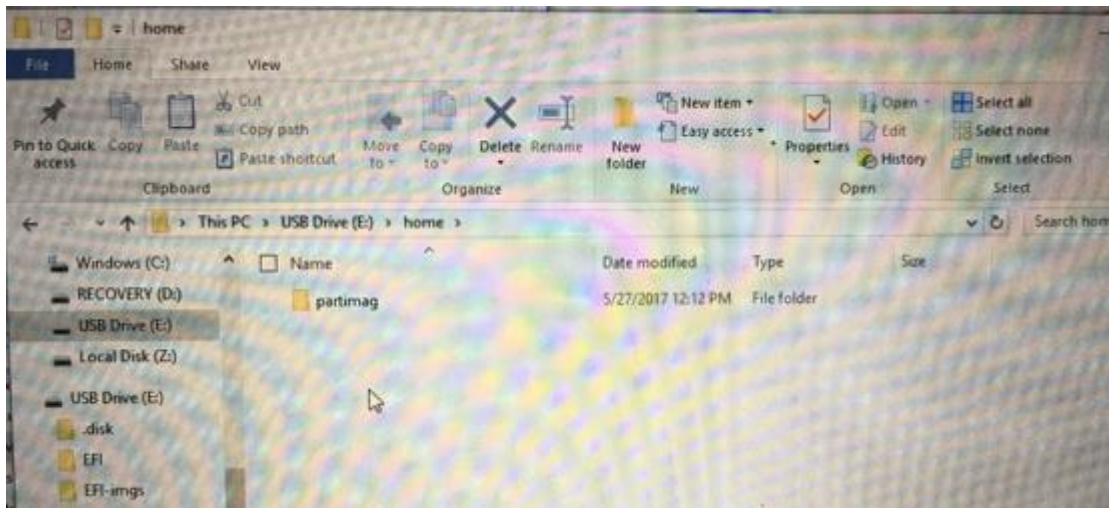
Unzip the DARWIN recovery file.



On the USB drive that you're using for the recovery disk, create an additional folder called "home," note the case sensitivity of the system.

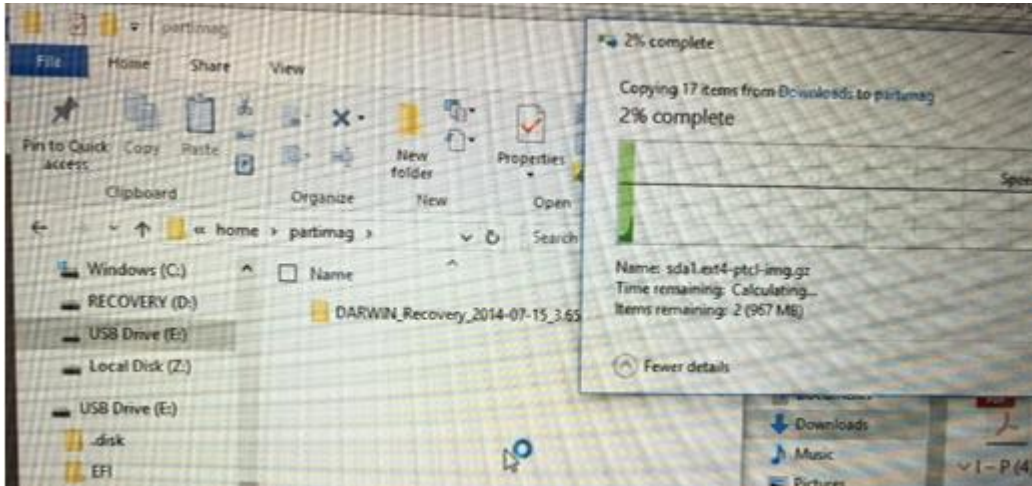


In that "home" folder you've just created, create another folder called "partimag"





Now, drag and drop the unzipped version of the DARWIN-OP recovery file into the \home\partimag folder



Eject the USB drive when done

### 3 ACTUAL BOOTING TO RECOVERY PROCESS

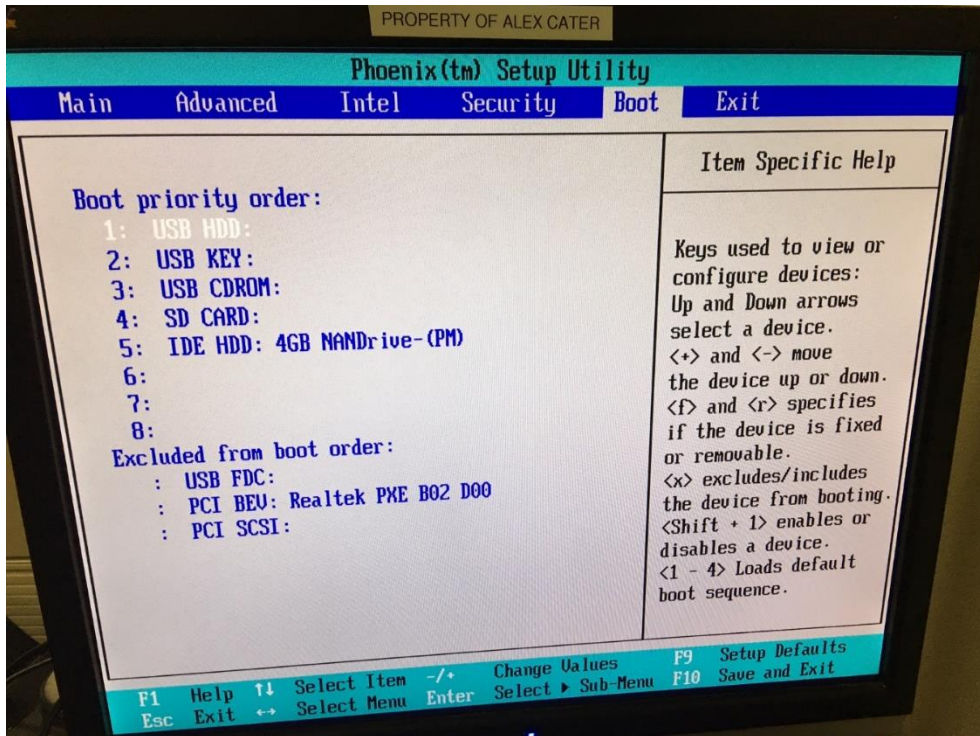
#### 3.1 CONFIGURE BIOS ON DARWIN-OP

Now, we have to make sure that the PC inside DARWIN-OP will reboot from the USB drive, so we do this by changing the boot setting in BIOS

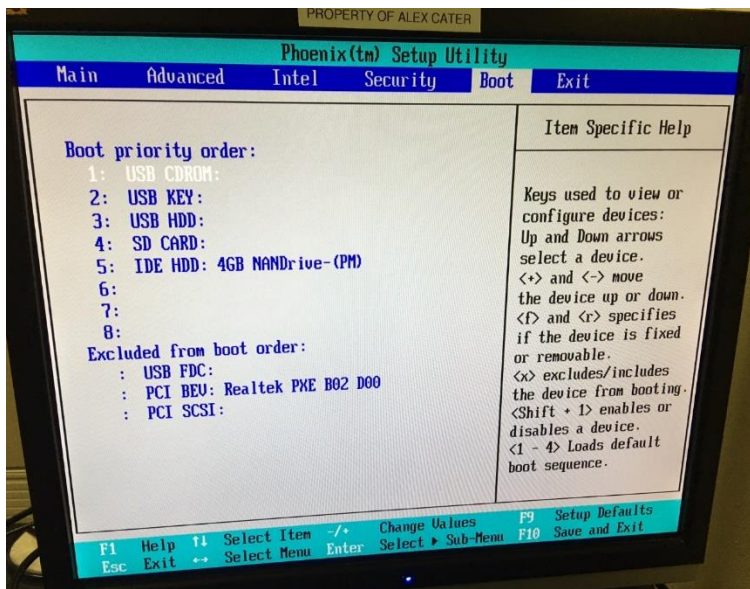
Make sure DARWIN-OP is hooked up to the keyboard and the monitor, then turn on DARWIN-OP

Right when you turn on DARWIN-OP, just press and HOLD on to the “F2” key; then, a window similar to the picture below will pop up

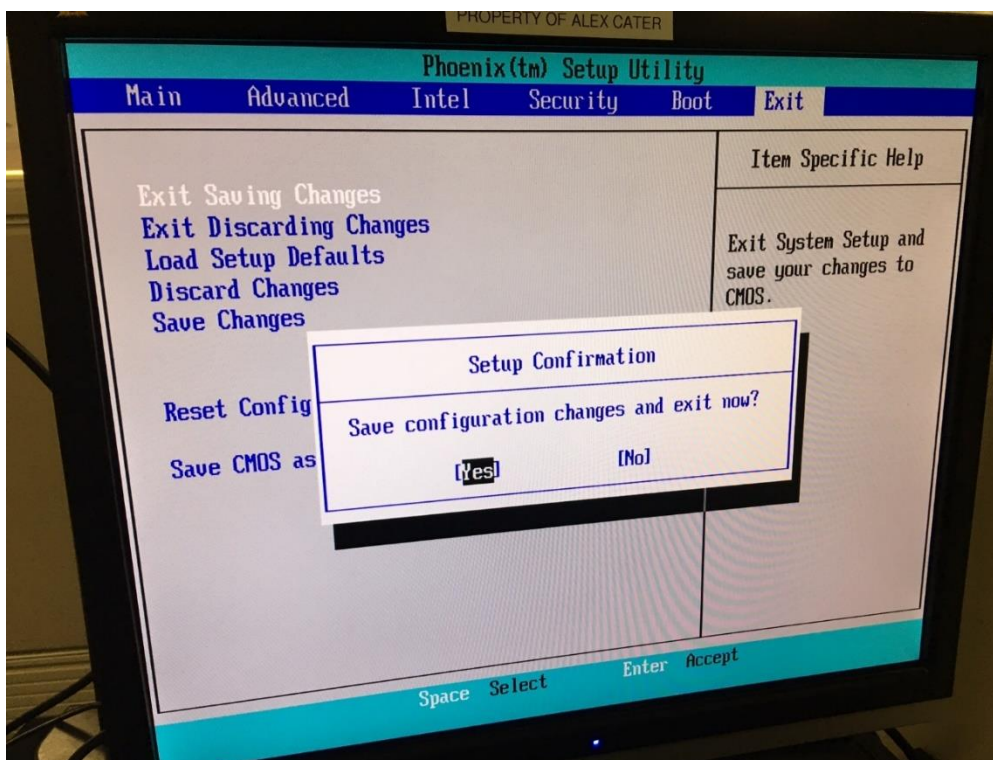
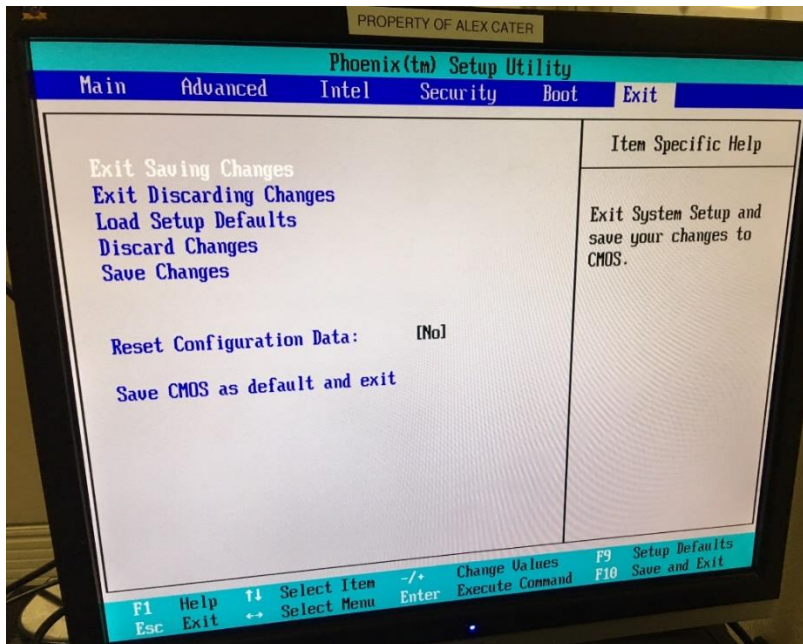
In the picture below, I’ve already pressed the left arrow key to select the “Boot” menu



Now, highlight “USB CDROM” and press the “+” key such that the option “USB CDROM” takes the first place on the “Boot priority order” to ensure that the system will boot from the USB that we gave it first.

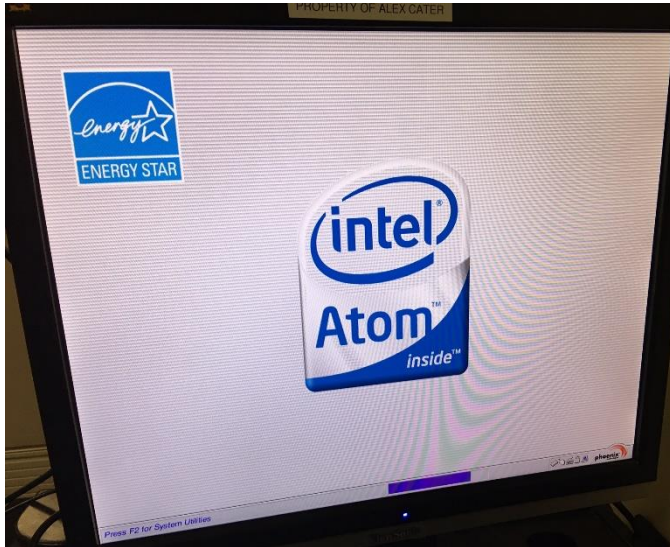


Click “Esc” to exit, and make sure you are saving the changes, go back to double check if wanted.



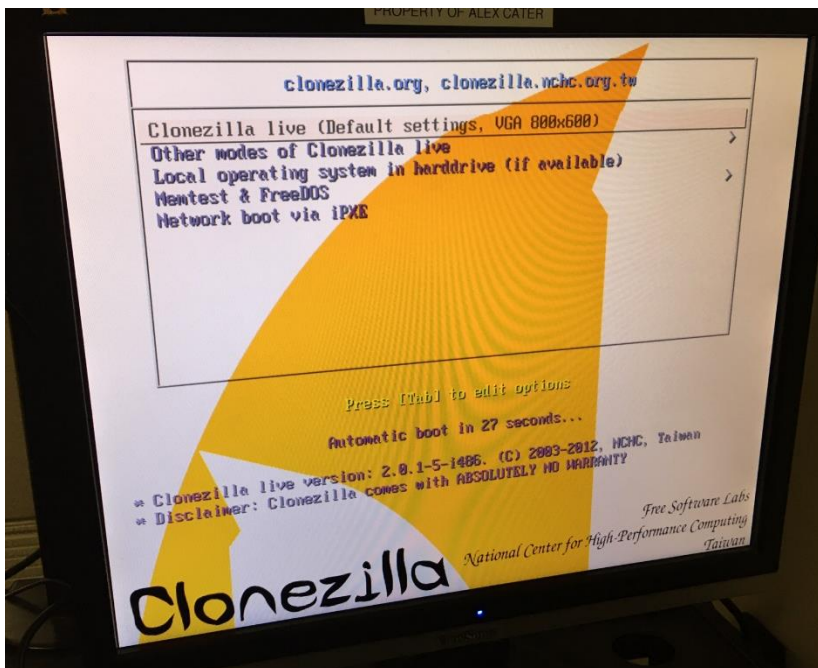
### 3.2 BOOTING FROM USB

After BIOS has been configured and you've exited, you will immediately see the following:



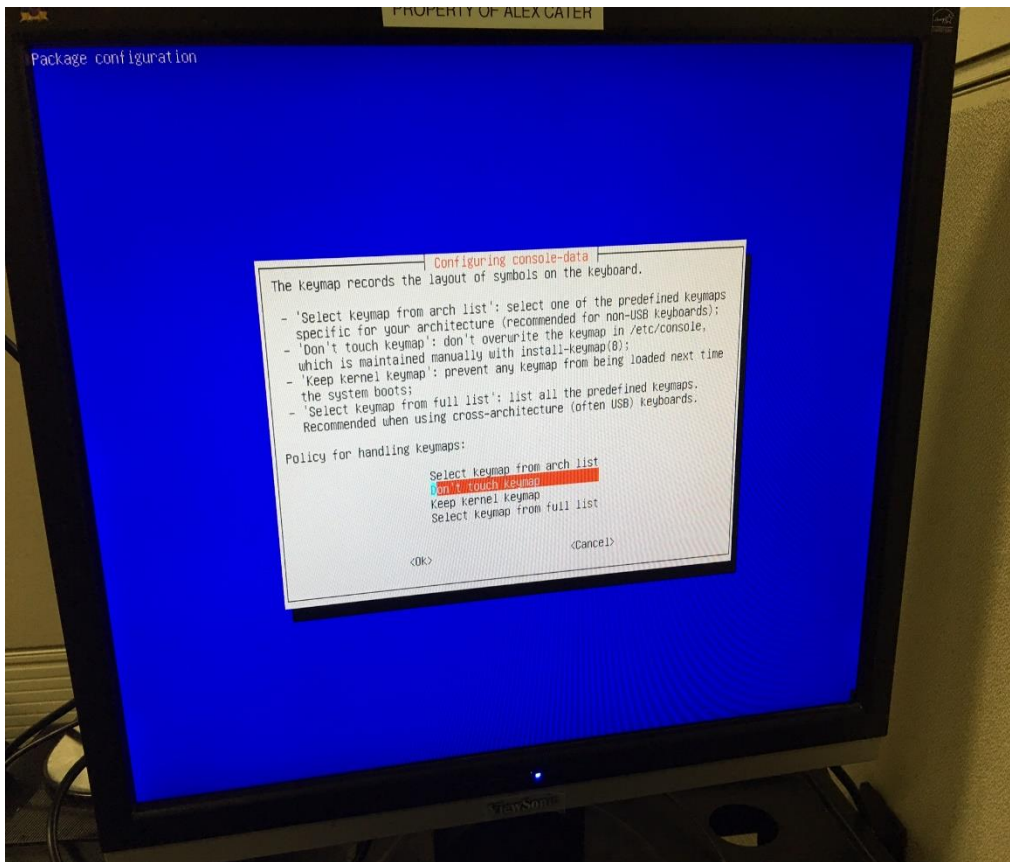
Then, the following:

Select the “Clonezilla live (Default settings, ...)” option

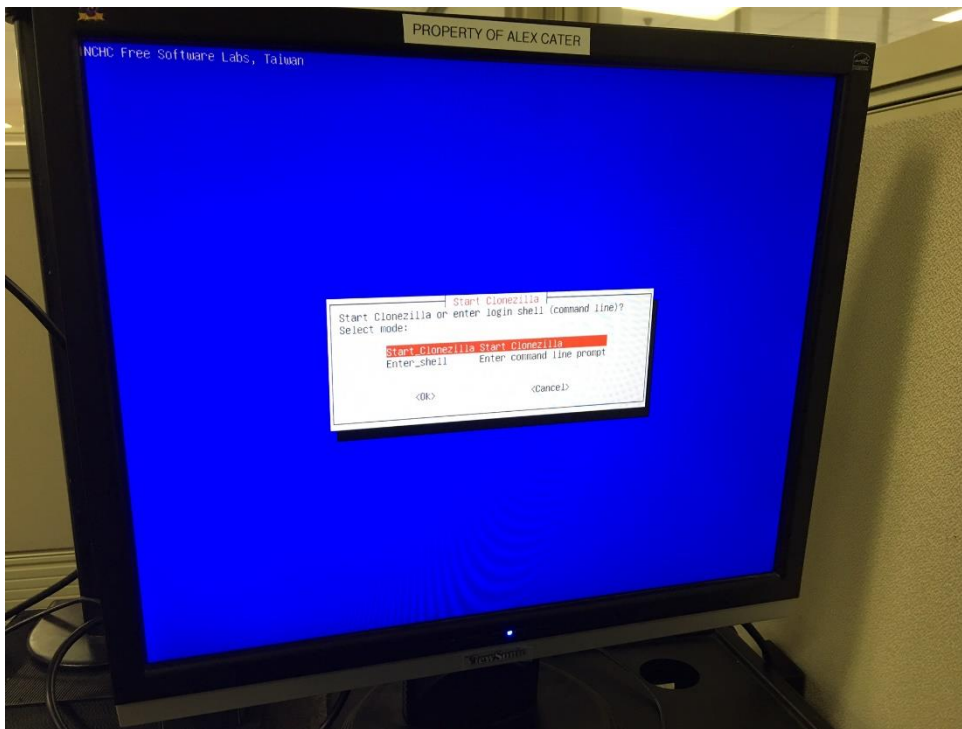




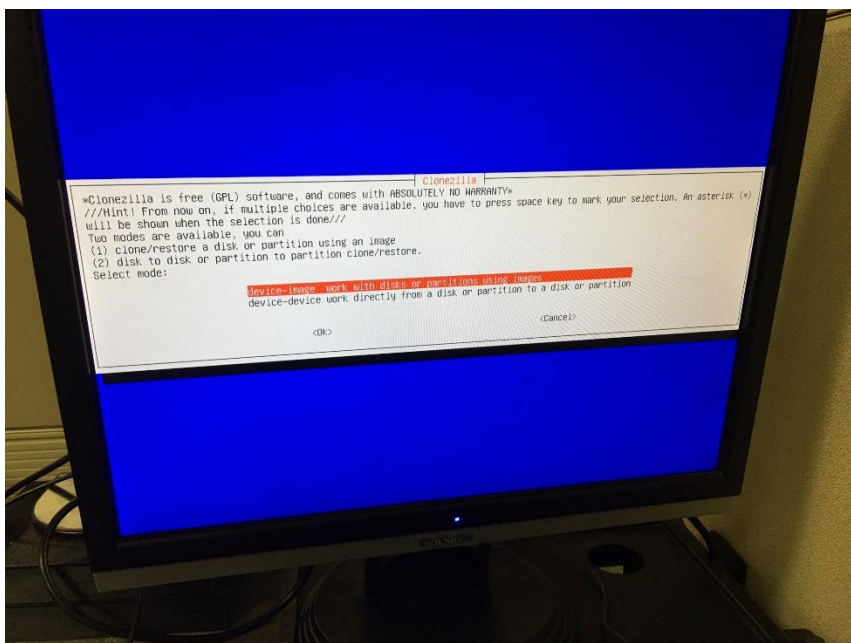
Then, when you see the following screen, select “Don’t touch keymap”



Then, when you see the following screen, select “Start\_Clonezilla Start\_Clonezilla”



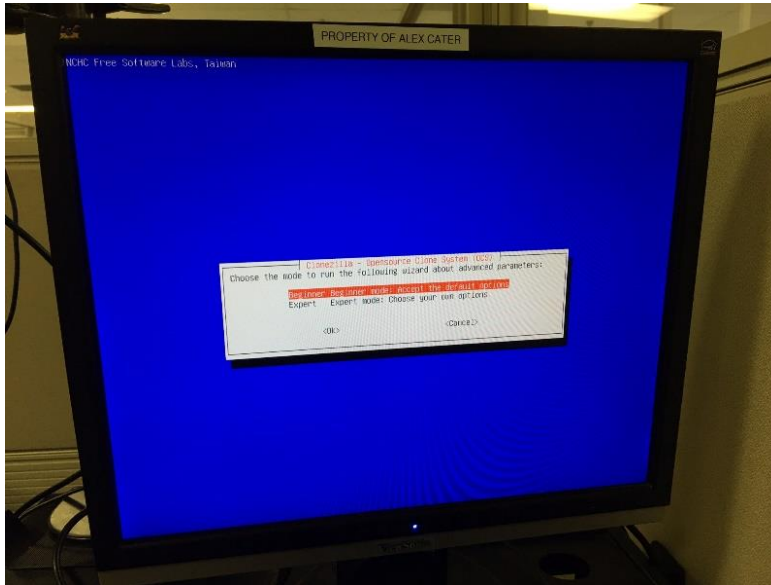
Then, when you see the following screen, select “device-image work with disks or portions using images”



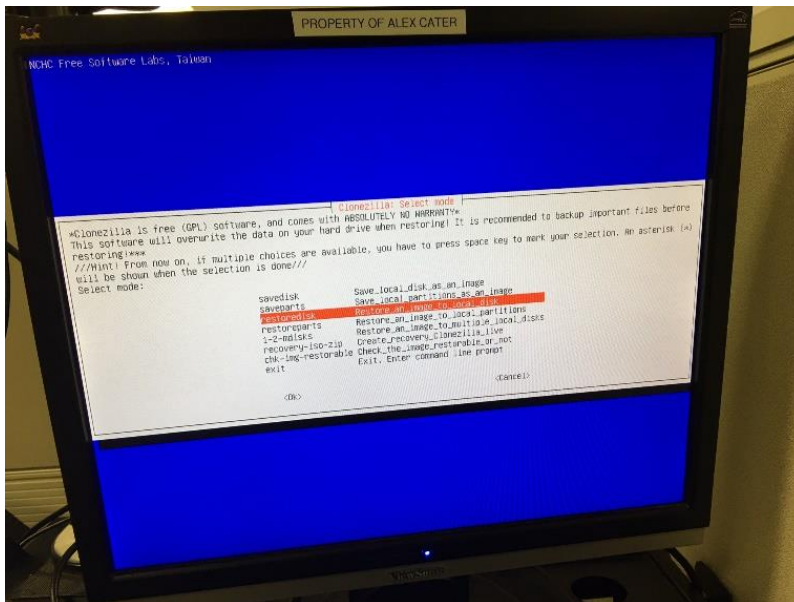




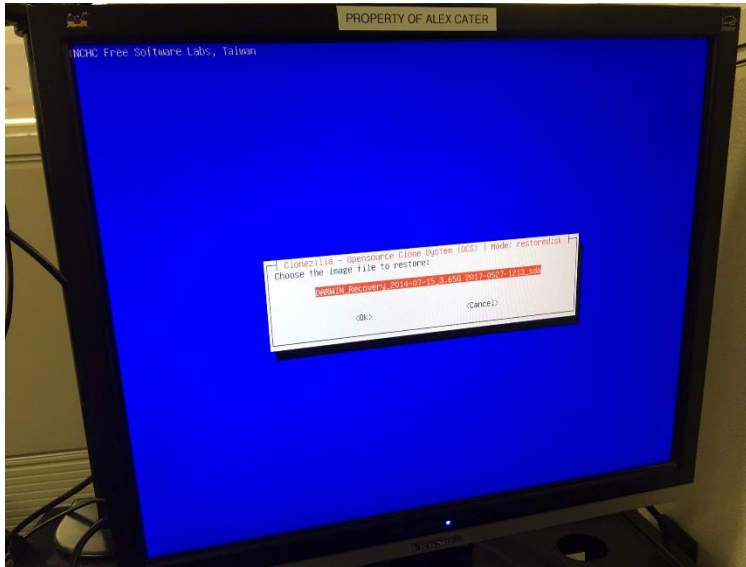
Then, when you see the following screen, select “Beginner Beginner mode: Accept the default options.”



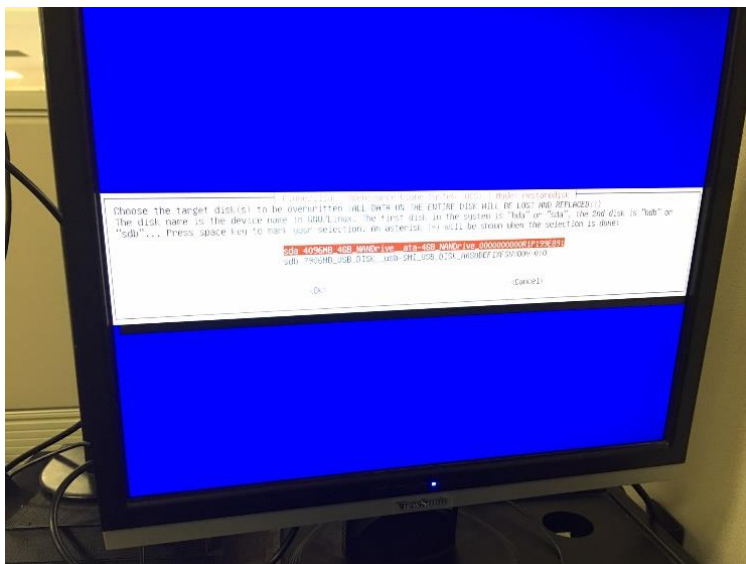
Then, when you see the following screen, select “restoredisk Restore\_an\_image\_to\_local\_disk”



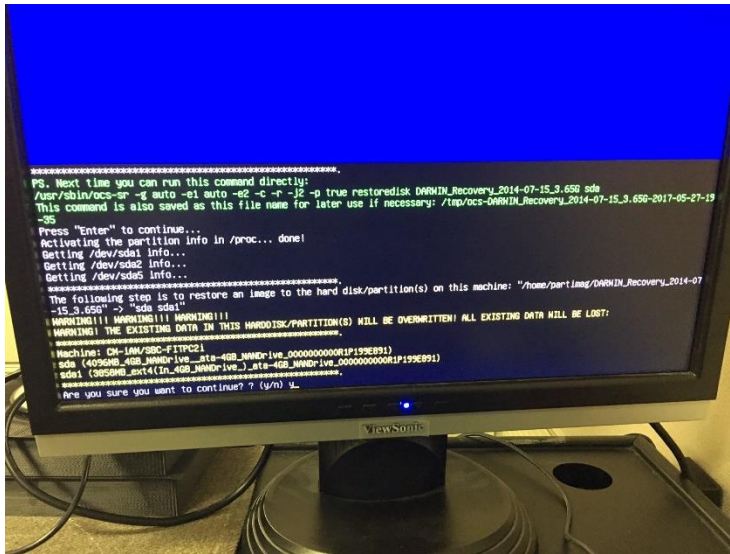
Then, when you see the following screen, select “DARWIN\_Recovery\_2014-07-15\_3.65G 2017-0527-1213\_sda”.s



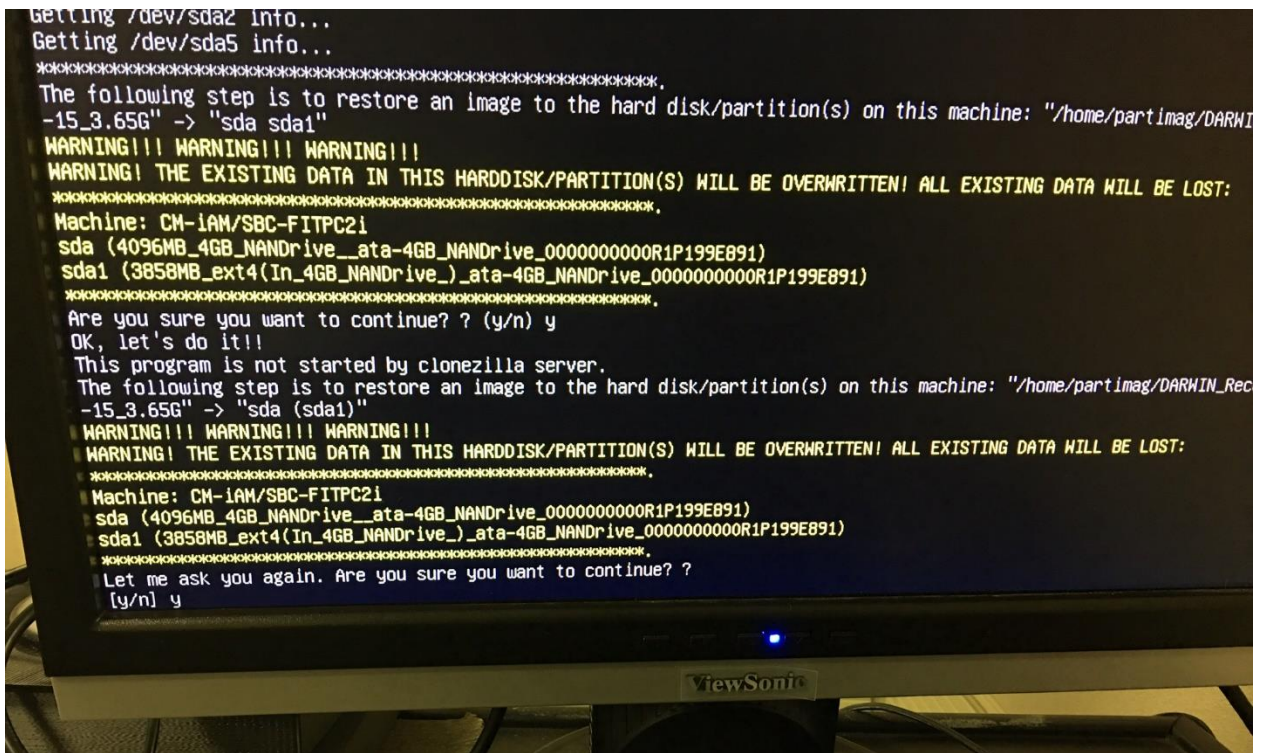
Then, when you see the following screen, select “sda 4096MB\_4GB\_NANDrive \_\_\_”



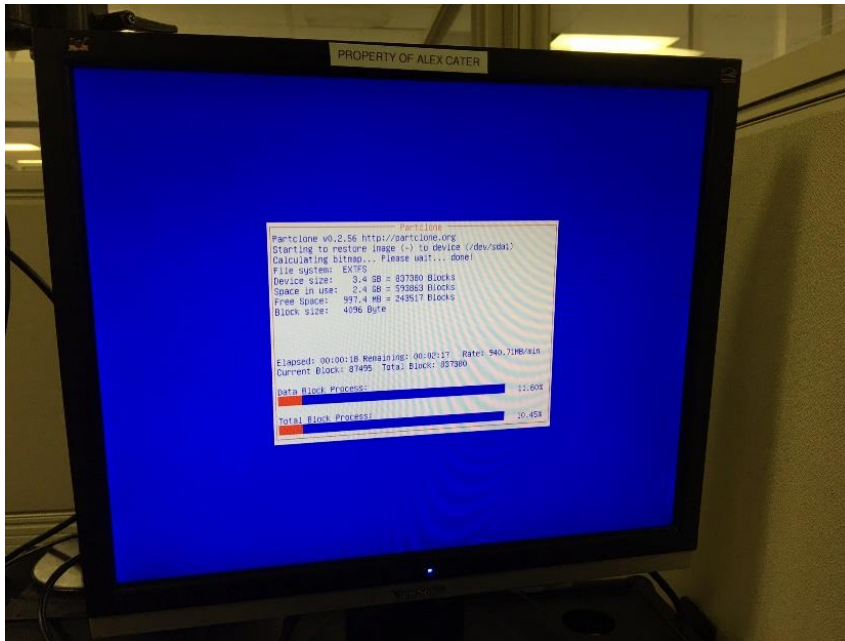
Then, when you see the following screen, type in “y” then “enter”



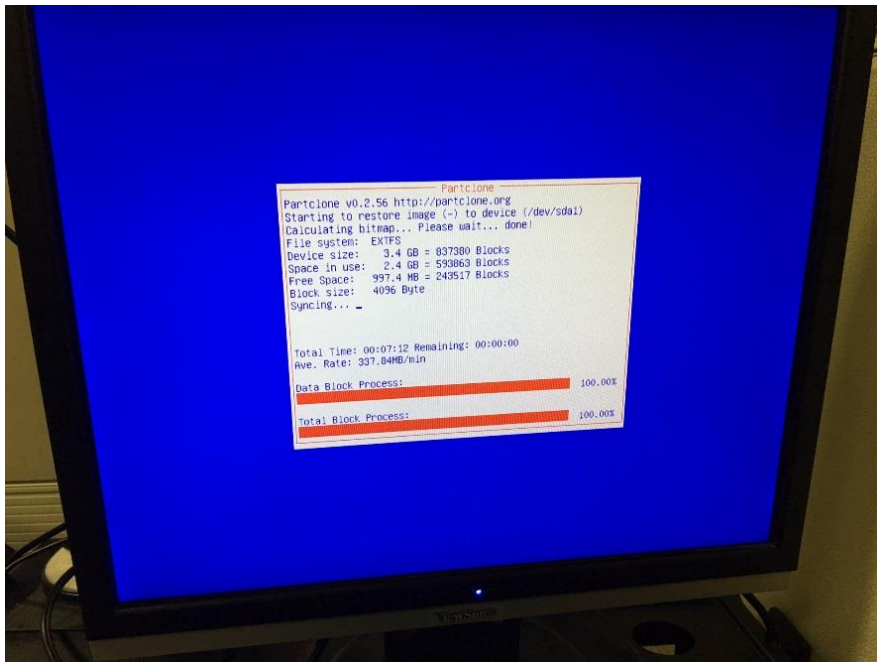
Type in “y” and then “enter” again



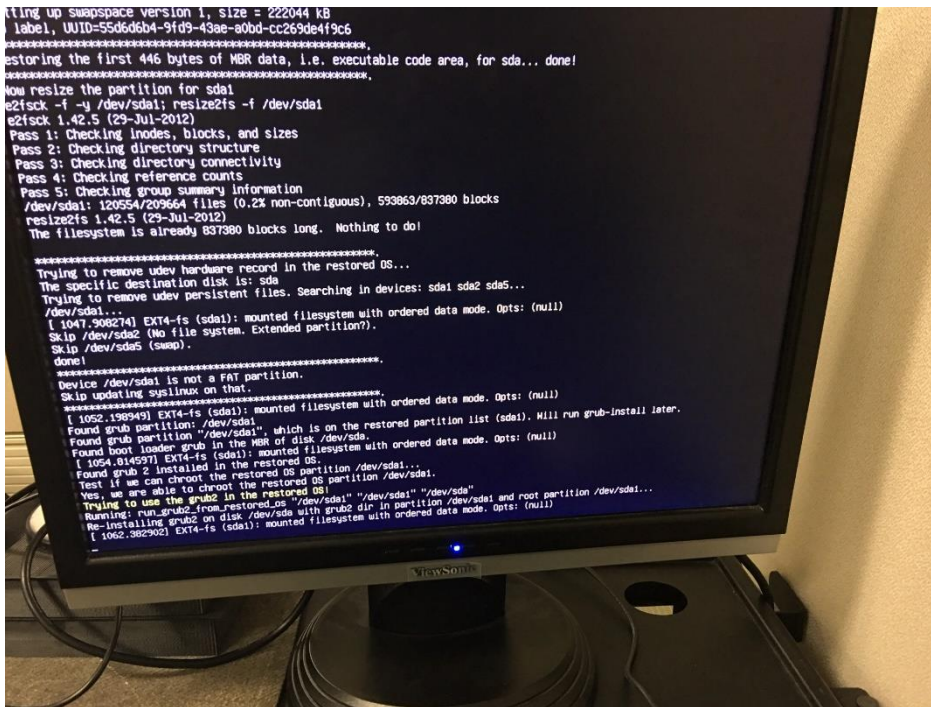
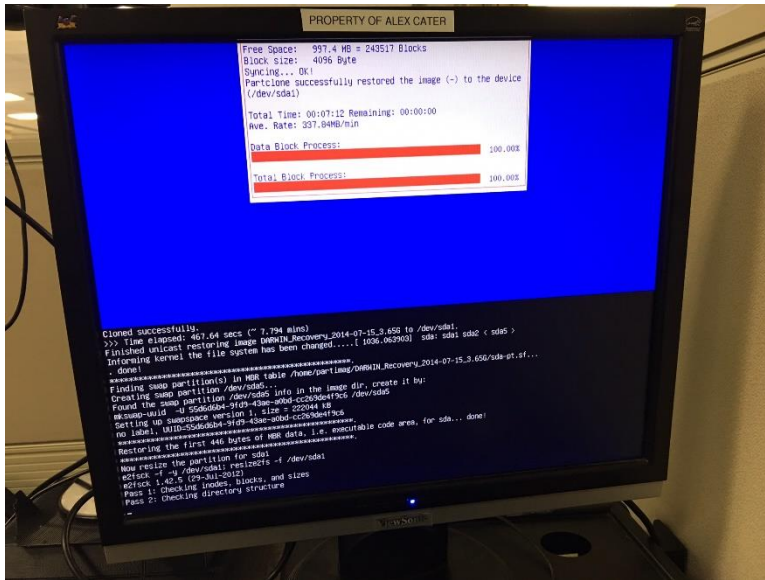
Then, the recovery process will begin:



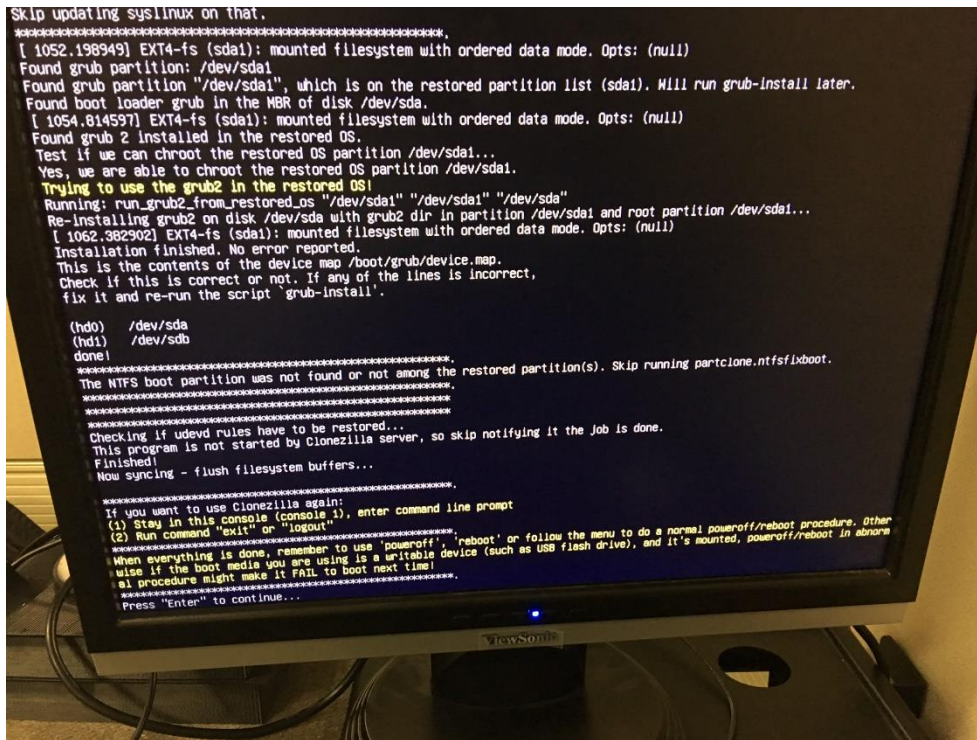
Keep on waiting when you see the following screen:



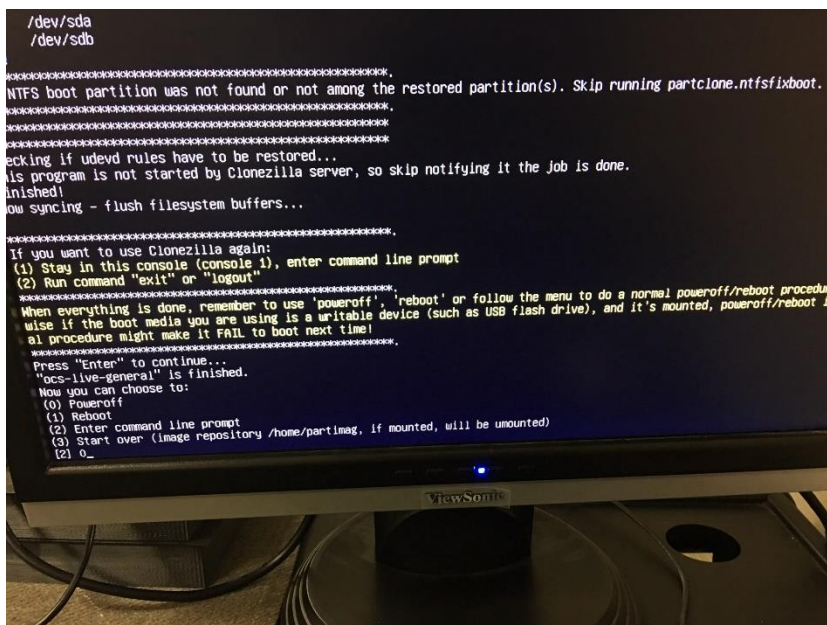
Then, you should see the following:



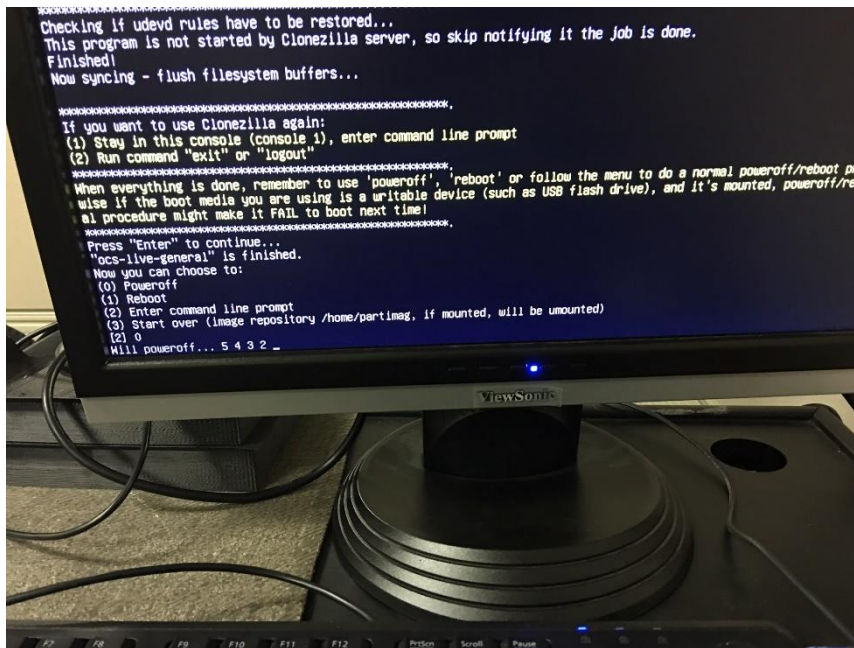
Then, press “Enter” when you see the following:



When you see the following, enter “0” then press enter (as shown on the last line of the following screen)



Then, you will see something like:

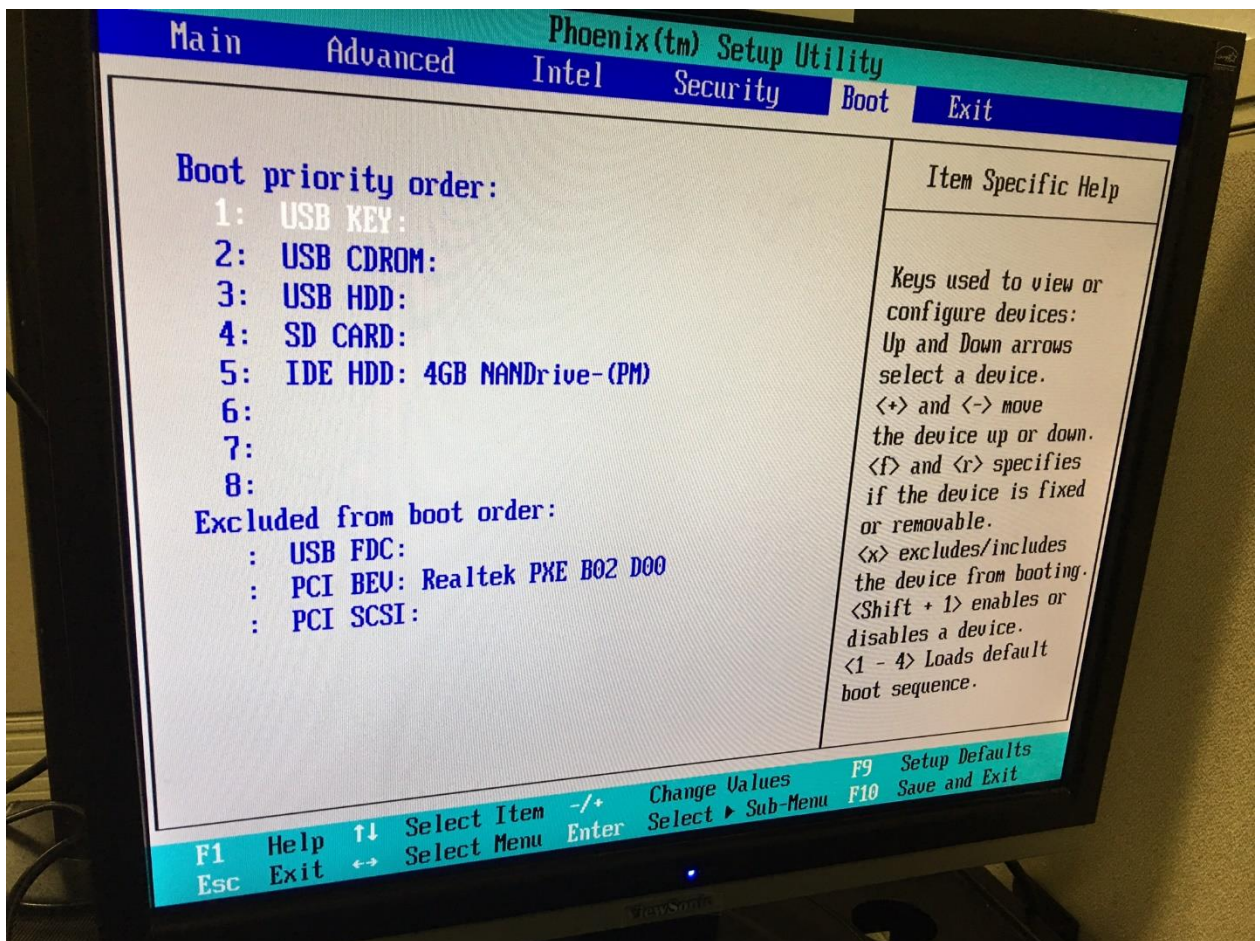


Finally, when the system has shut down, make sure to unplug your USB drive from your DARWIN-OP so that the system doesn't boot to USB anymore



### 3.4 CHANGING BIOS SETTING BACK TO DEFAULT

You can also go back to BIOS and change the settings back to the default:



## 4 REFERENCES



Reference: [http://support.robotis.com/en/product/darwin-op/operating/recovery/clonezilla\\_recovery.htm](http://support.robotis.com/en/product/darwin-op/operating/recovery/clonezilla_recovery.htm)



## DOCUMENT CONTROL

**Title:** DARWIN-OP Recovery Process (Practical Report)  
**Issue:** Reboot OS  
**Date:** 29 May 2017  
**Author:** Xinke (Rebecca) Cao  
**Supervisor:** Jean Chagas Vaz  
**Distribution:** Drones and Autonomous Systems Lab (DASL)  
**Filename:** Report 1 – Recovery Process

## DOCUMENT SIGNOFF

Nature of Signoff	Person	Signature	Date	Role
Author	Xinke (Rebecca) Cao		05/28/2017	Writer
Reviewers	Jean Chagas Vaz		05/29/2017	Supervisor

## DOCUMENT CHANGE RECORD

Date	Version	Author	Change Details
28 May 2017	Draft 1	Xinke (Rebecca) Cao	First complete draft
			Review and update
			Updating format
			Apply review comment and issue