Debian 8.5 minimal server
For MZBSWIP User Guide
GIGABYTE Software

Document No.:GN - MZBSWIP-GUI-00

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SOFTWARE STATEMENT

GIGABYTE partners with a variety of open-source software vendors and dedicated to qualify its platforms in order to have compatibility at launch, or at the earliest opportunity. GIGABYTE, as a platform supplier however cannot guarantee continued support from chip manufacturers, software vendors, or other parties, when they stop supporting the software. GIGABYTE relies on the open-source community and our partners for support and we‟ll advocate support to those platforms, but GIGABYTE cannot provide additional support outside of the original component manufacturer and software vendor‟s scope.

PROPRIETARY INFORMATION -- NOT FOR PUBLICATION

Contents

Figures

Tables

0. General Information

0.1. Issue Control

This document was edited with **Microsoft Word, Version 2010**. The graphic drawings are originally sketched in **Microsoft PowerPoint Version 2010**.

0.2. Record of Changes

Table 0-1. Record of Changes

Issue	Date	Authors	Reason for Changes
0.1	2016/06/20	Brian, Lu	First version.
0.2	2016/07/01	Brian, Lu	Add installing tool、figure for install debian and test phone jack. Remove hsuart chapter.
0.3	2016/08/26	Brian, lu	Add 3G and hsuart chapter

0.3. References

NO	Document title

0.4. Acronyms

1. Install Debian

1.1. Prepare devices and software

1. USB stick
2. Image to USB tool – Win32DiskImager
3. Debian 8.5 x64

1.2. Create a bootable USB stick on Windows

Open the Win32 Disk Imager with Windows OS and as follow figure1.
Step1: select your USB device
Step2: Find “debian-8.5.0-amd64-CD-1.iso” file where you download.
Step3: Click “Write” button

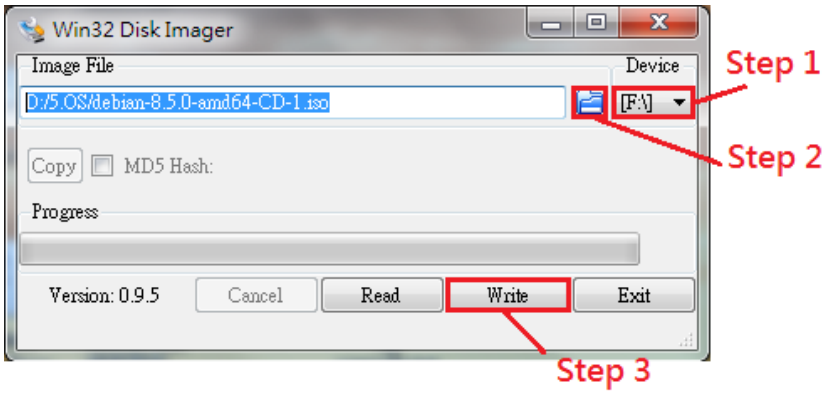


Figure1

1.3. Power on MZBSWIP and setting

1. Insert your USB stick to machine before you power on the machine.
2. Power on your machine and press “Delete” to enter BOIS setup.
3. Make sure your BIOS version is **F1**.
4. After select “Save and Exit” option, select “Restore Defaults” to use defaults setting. See figure2.
5. Select “Advanced” option and “OS selection” to set Linux System. See figure3 and figure4.

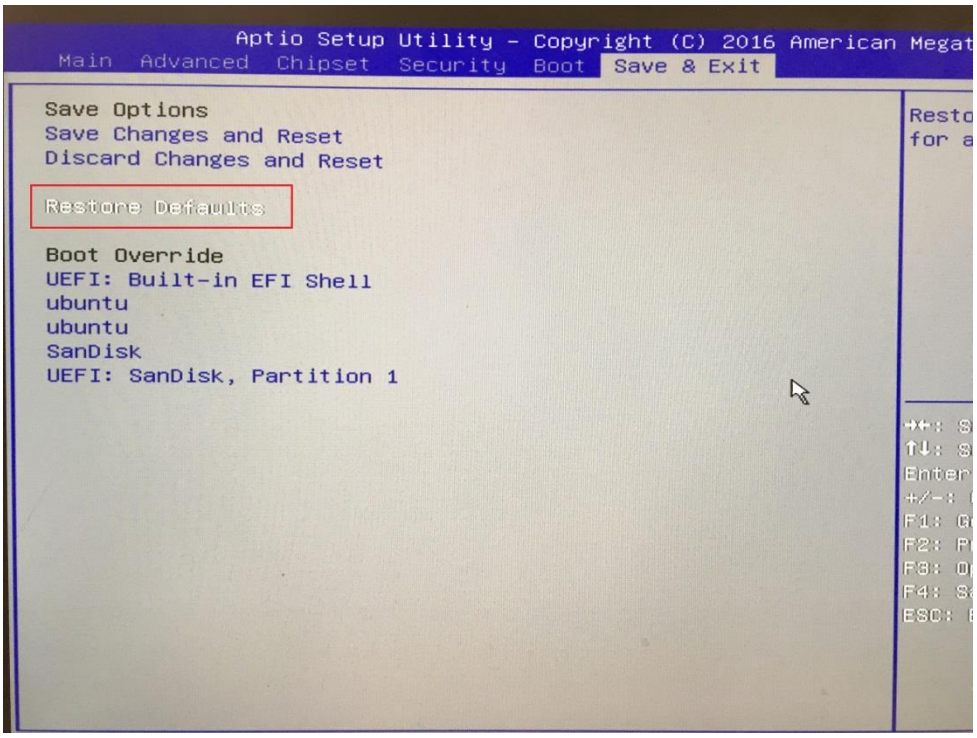


Figure2

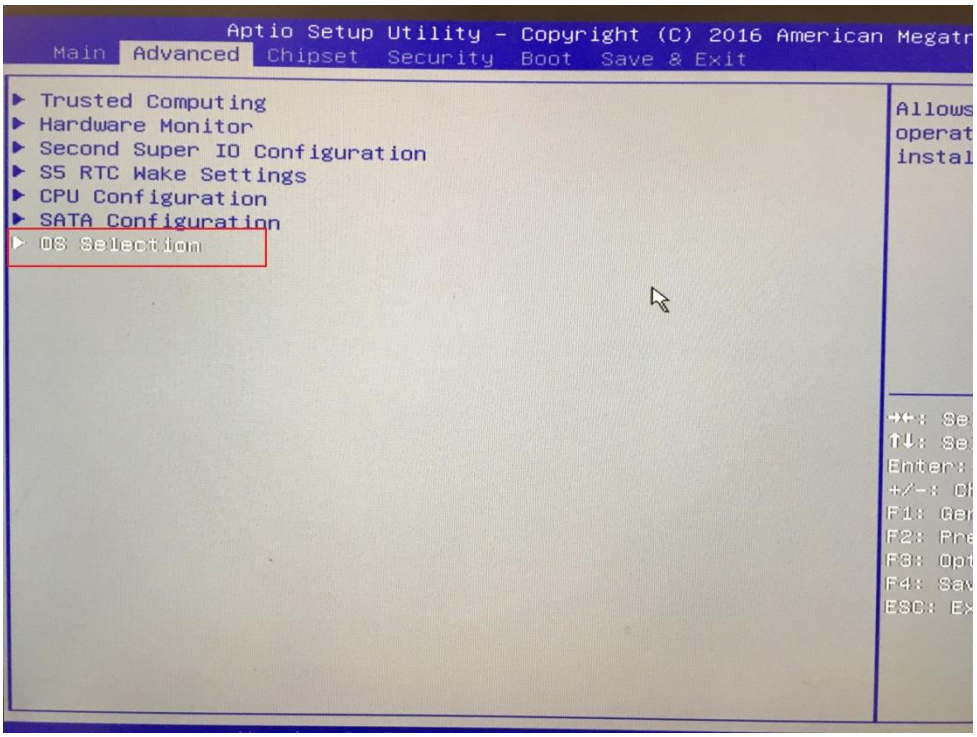


Figure3

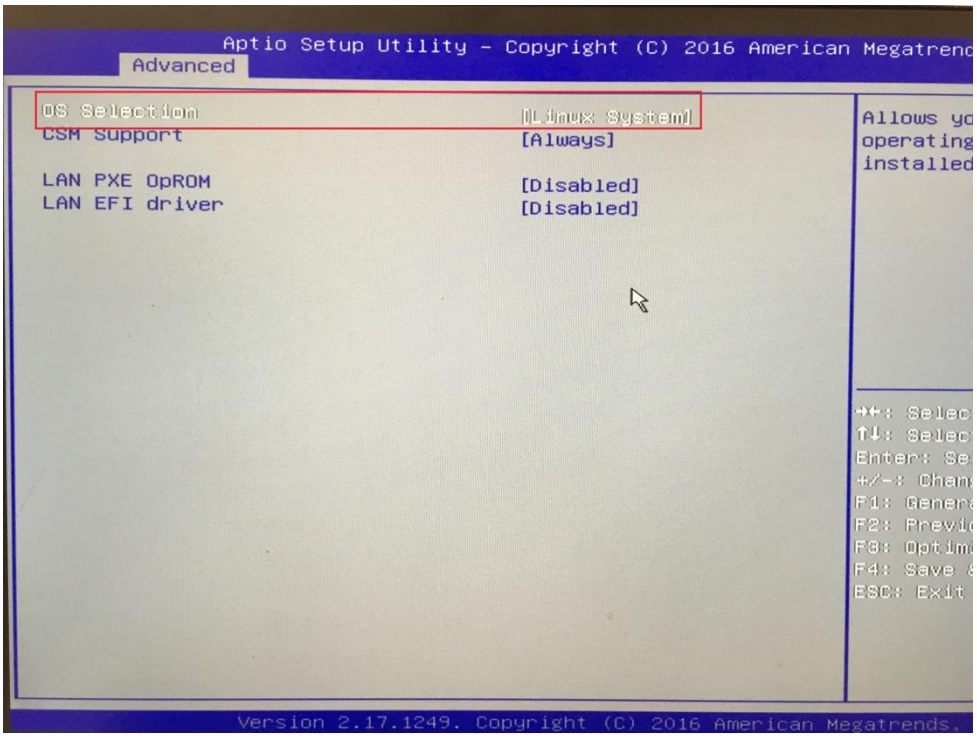


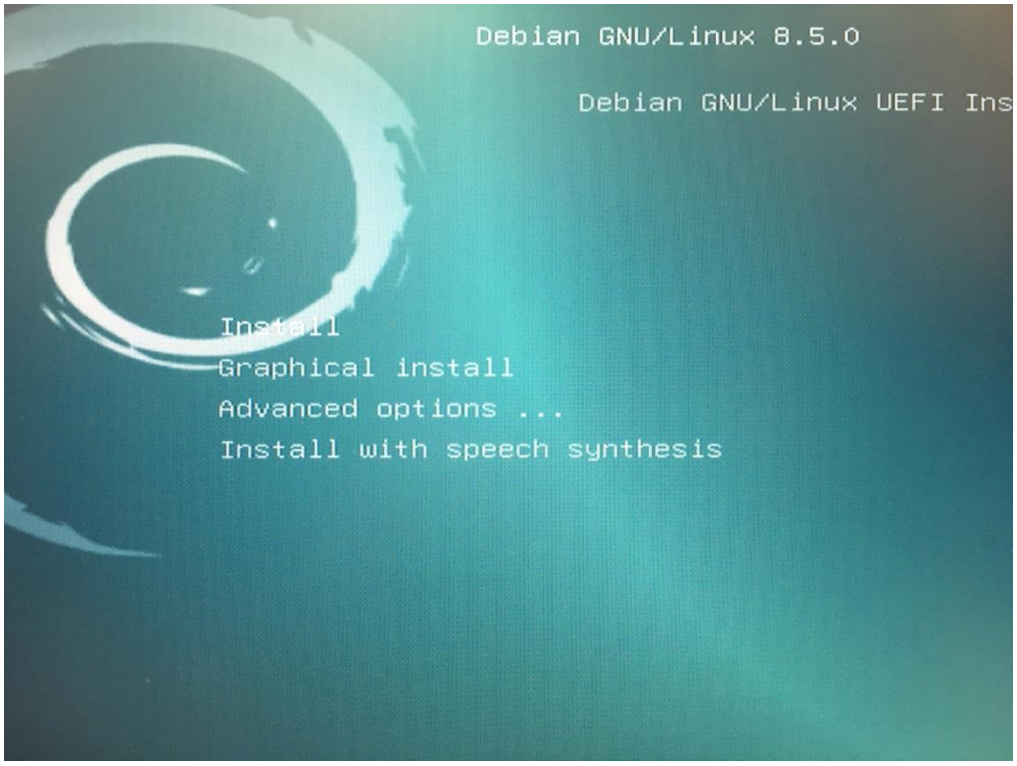
Figure4

1.4. Boot from USB device and install debian 8.5

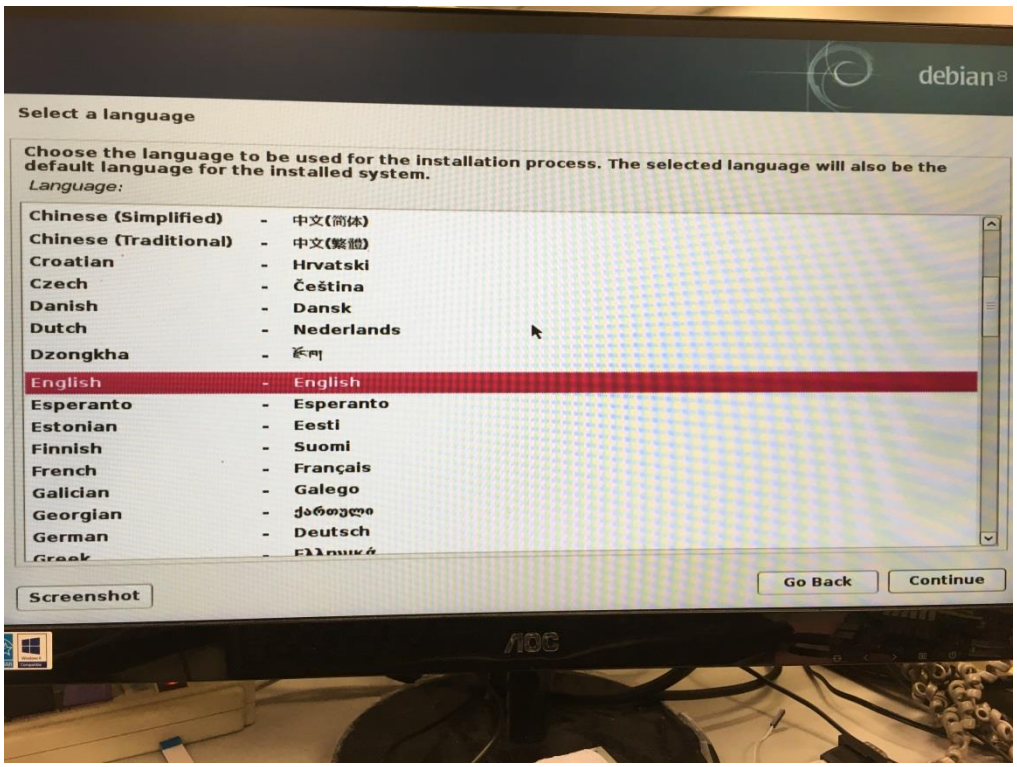
1. After save and exit BIOS setup, press **F12** to boot from USB device and select **UEFI : <your USB stick, Partition 1**> option. See figure5.
2. Connect ethernet cable to lan 1 port when you start to install debian 8.5(Recommend). If you don't do this you will need to configure network interfaces by hand
3. Follow below step to start installing debian.

Figure5

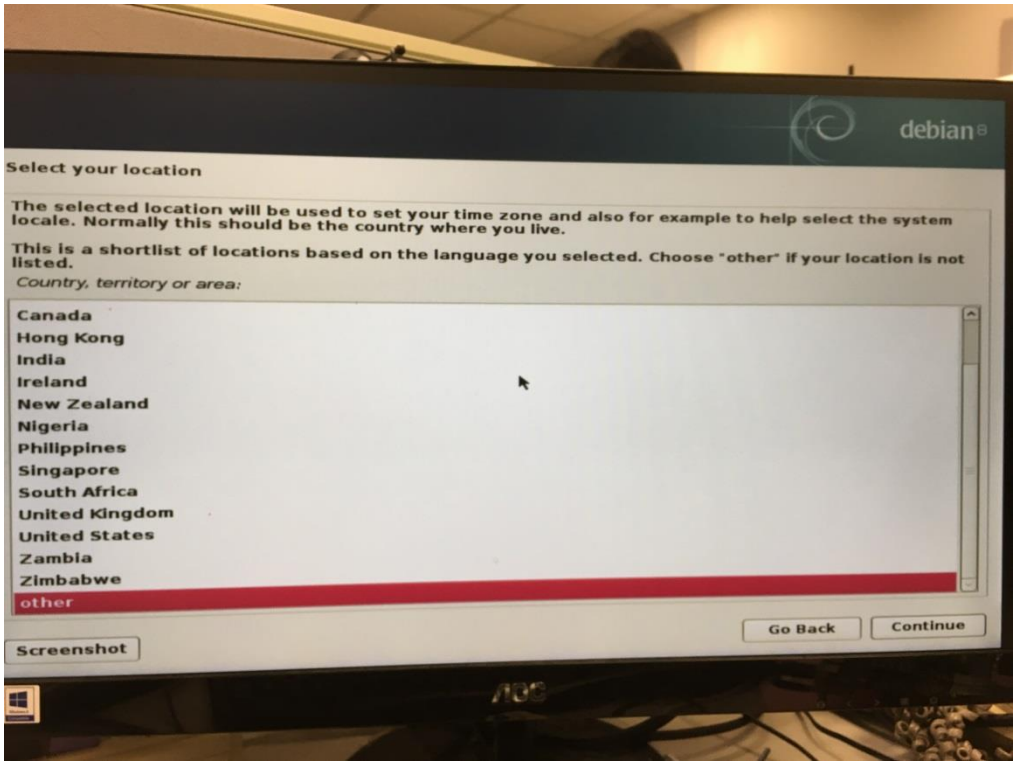
Step 1: Select graphical install



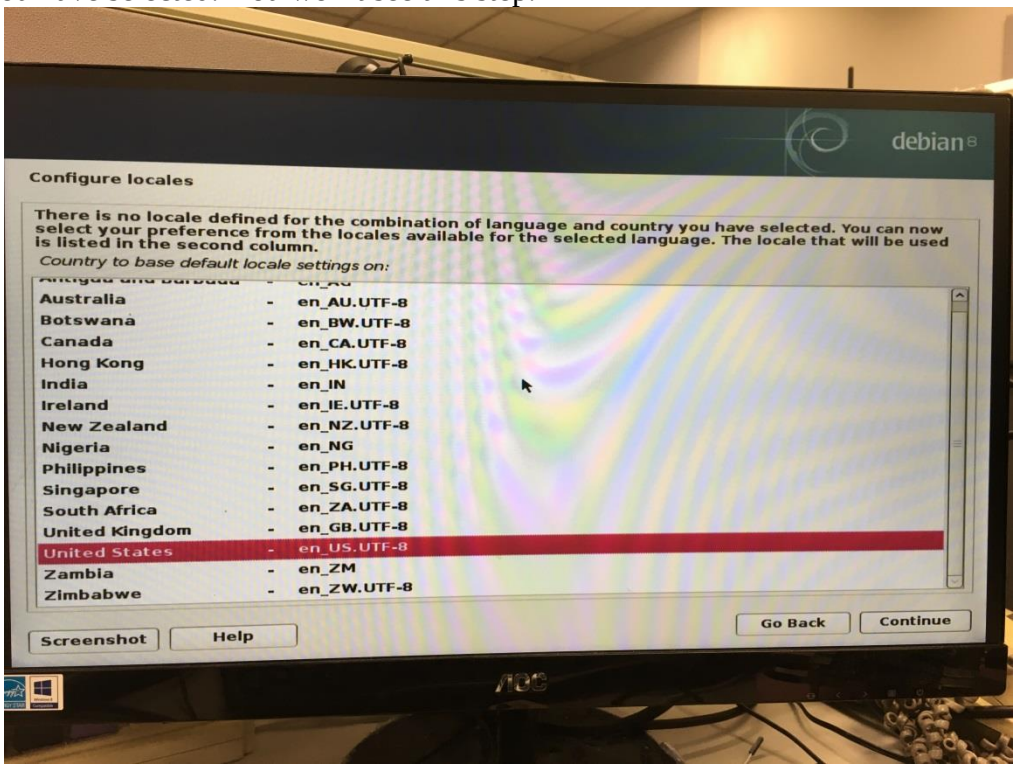
Step 2: Select language and continue



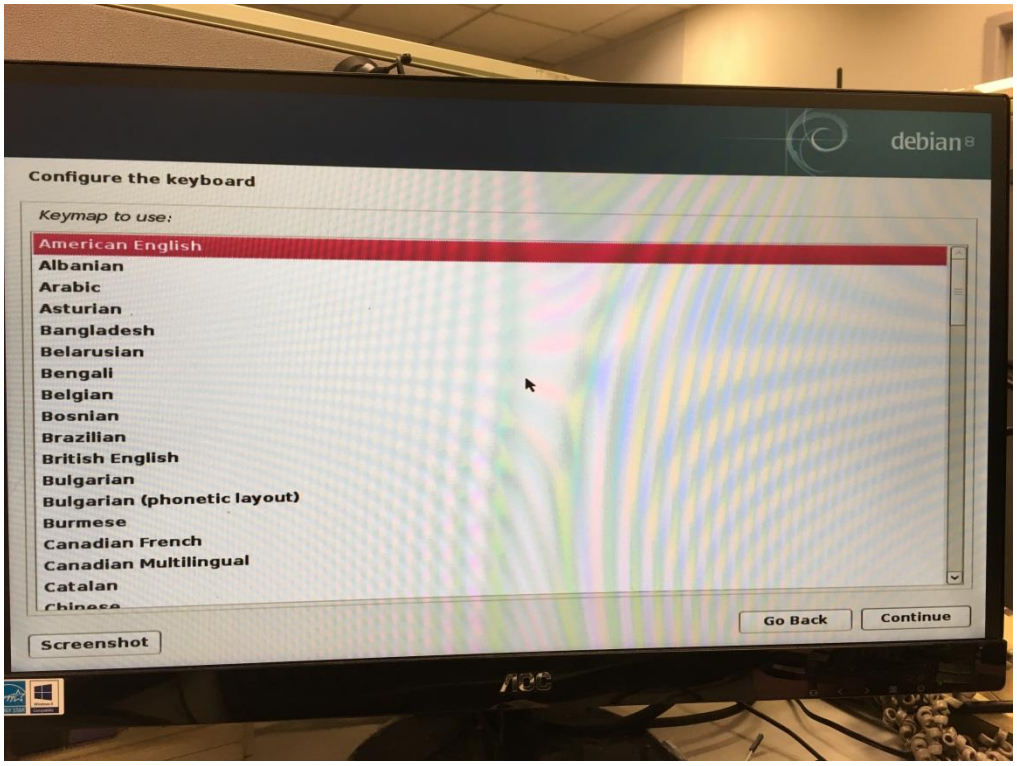
Step 3: Select location and continue



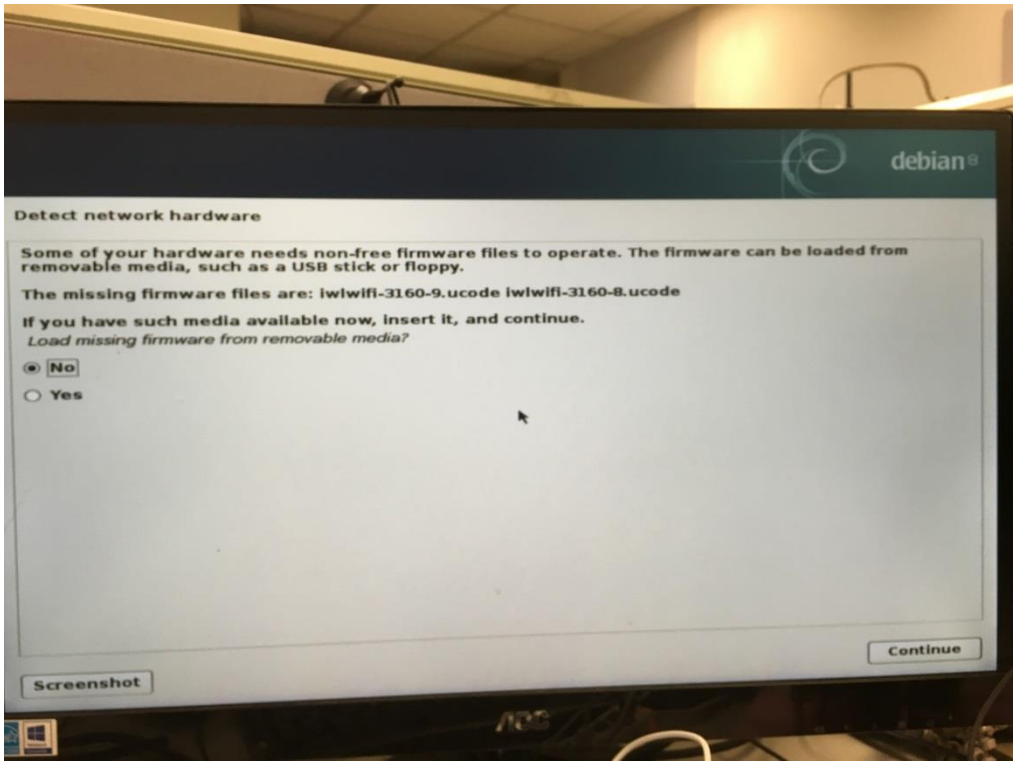
Step 4: Configure locales and continue. If there is defined for the combination of language and country you have selected. You won't see this step.



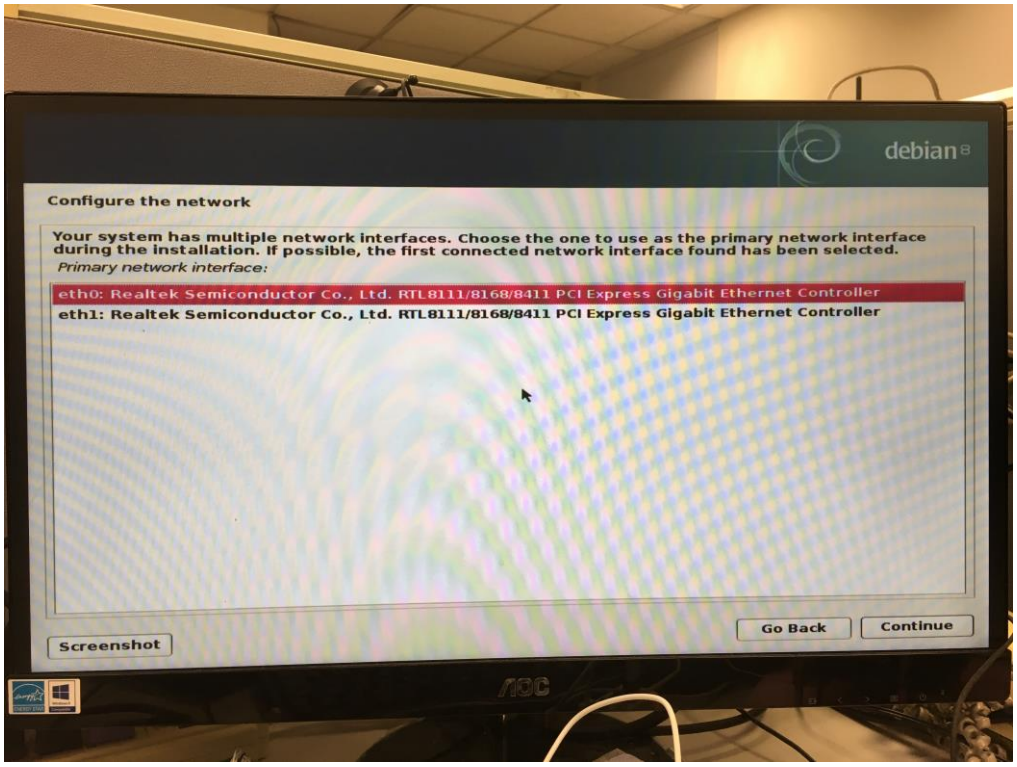
Step 5: Configure the keyboard and continue



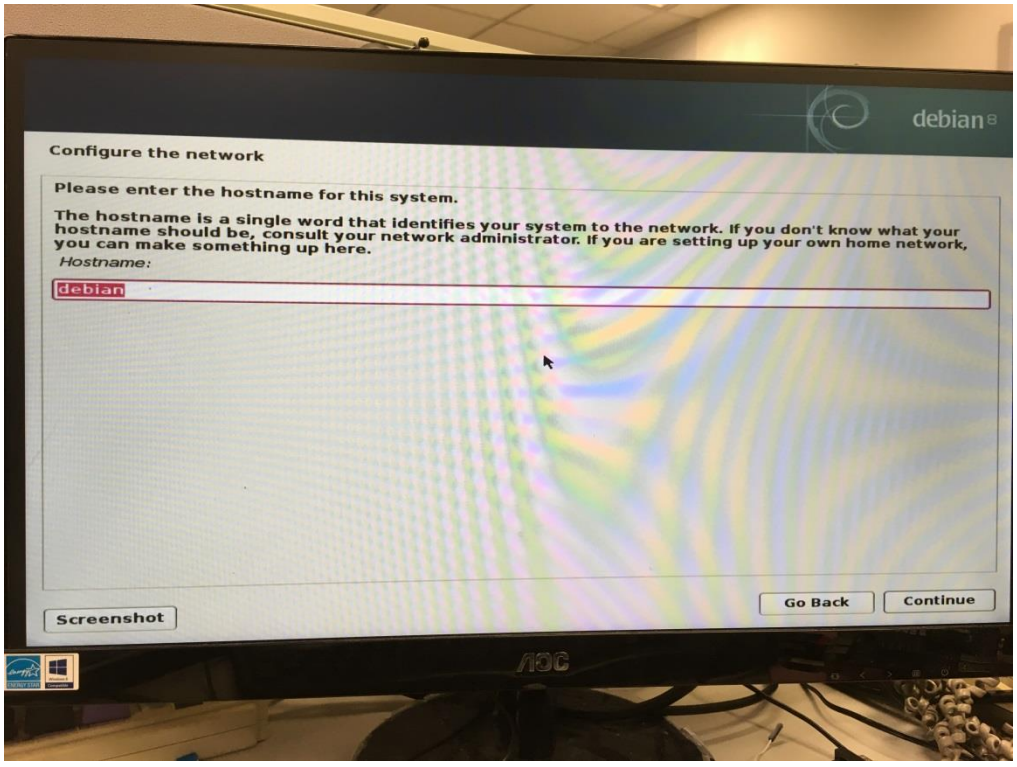
Step 6: Detect network hardware. Select “No” and continue. It will mention on next chapter.



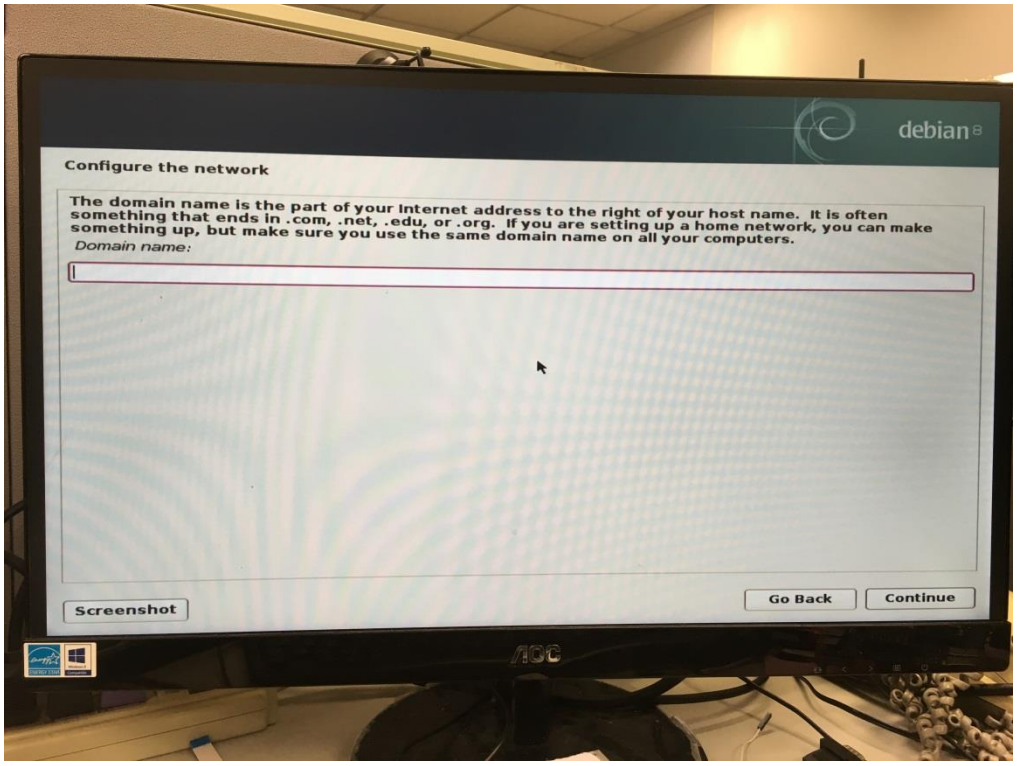
Step 7: Configure the network. Select eth0 and continue.



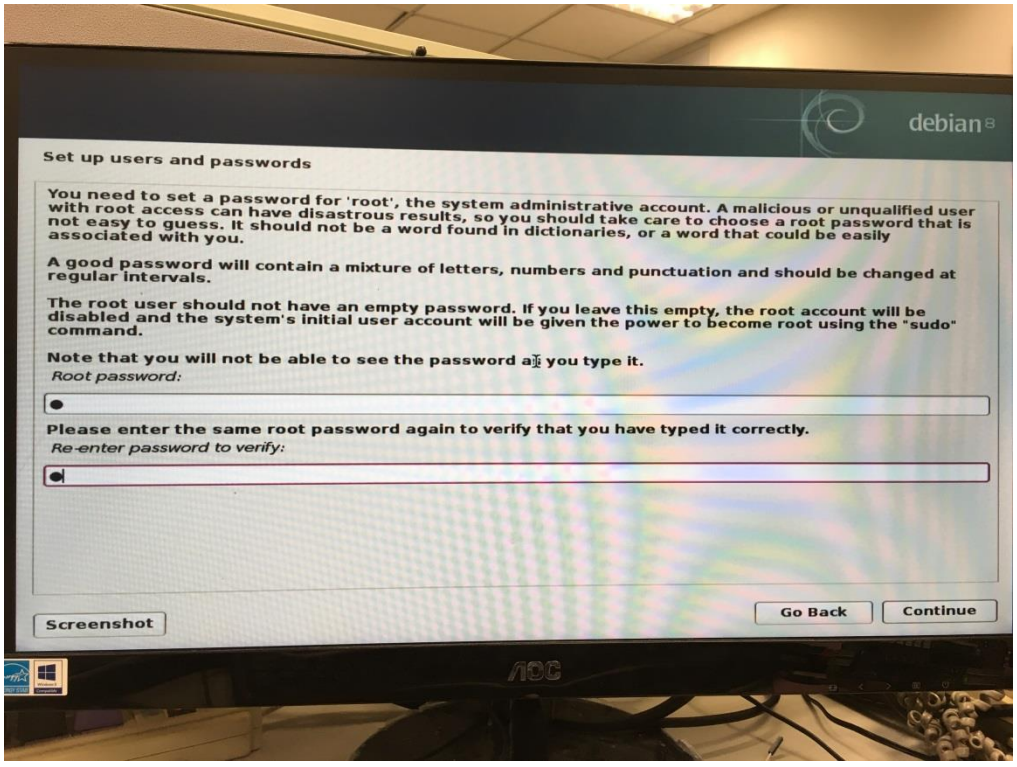
Step 8: Configure the network. Set hostname and continue



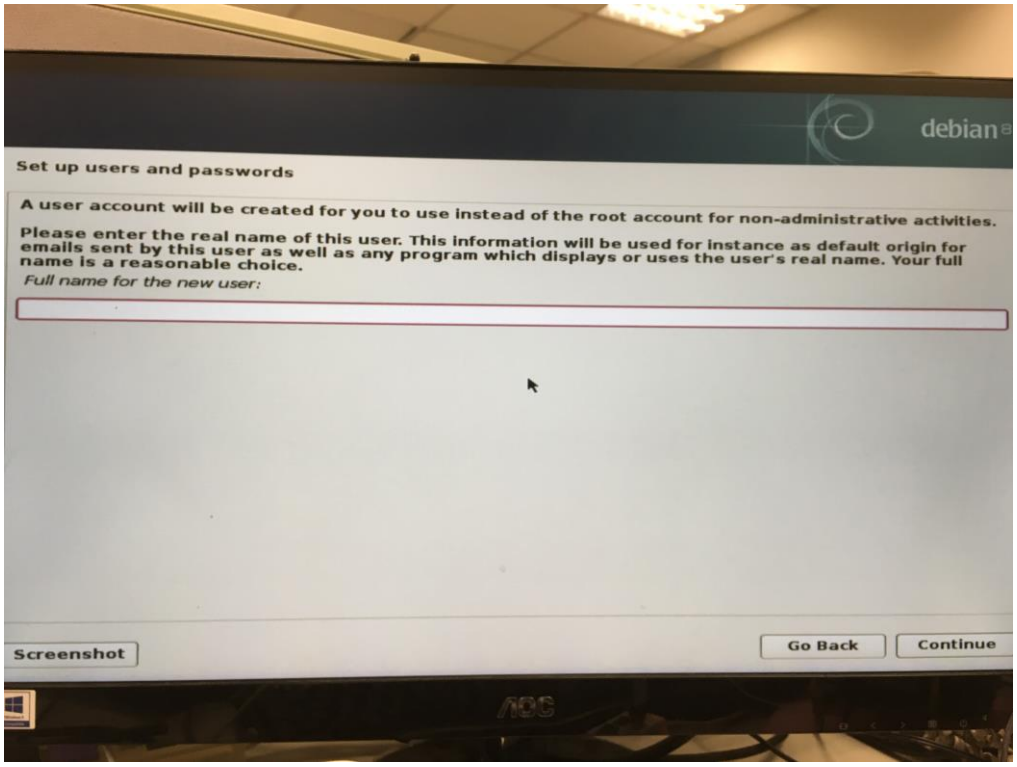
Step 9: Configure the network. Set domain name and continue



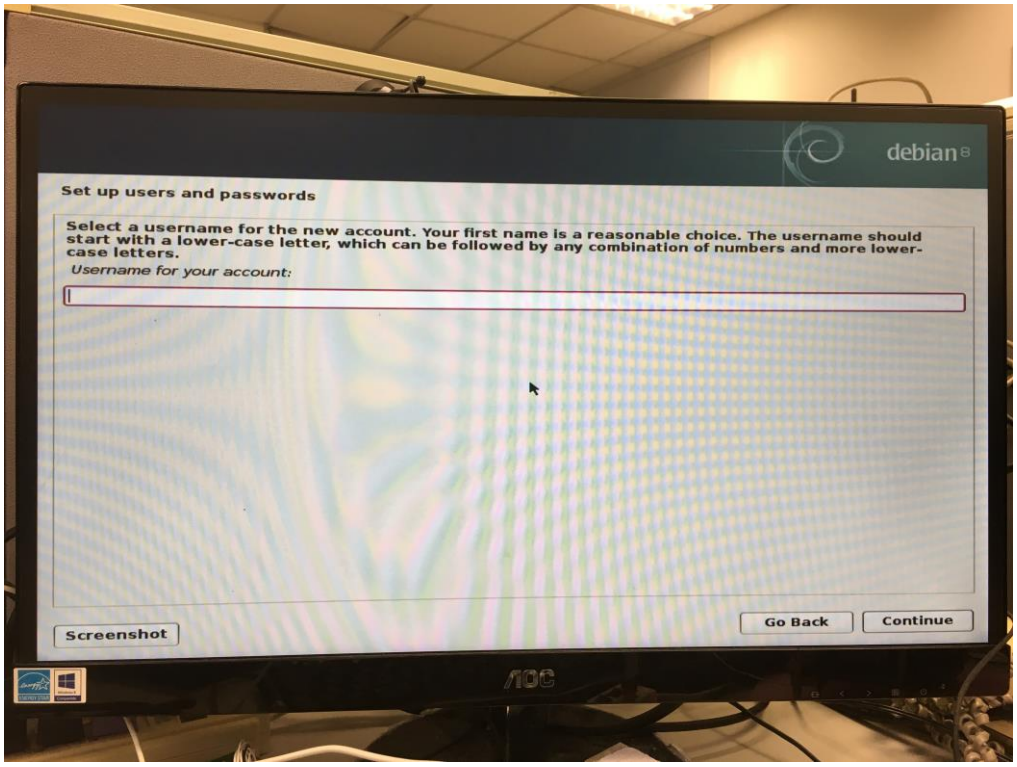
Step 10: Set up users and passwords. Continue to next step.



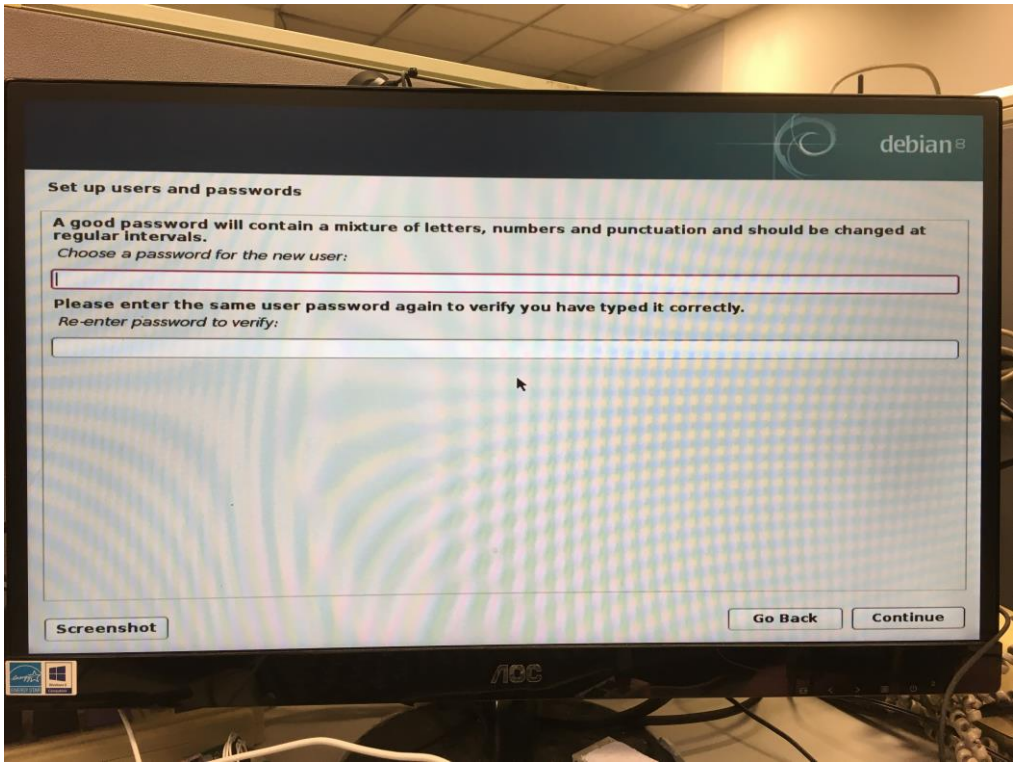
Step 11: Set up users and passwords and. Continue to next step



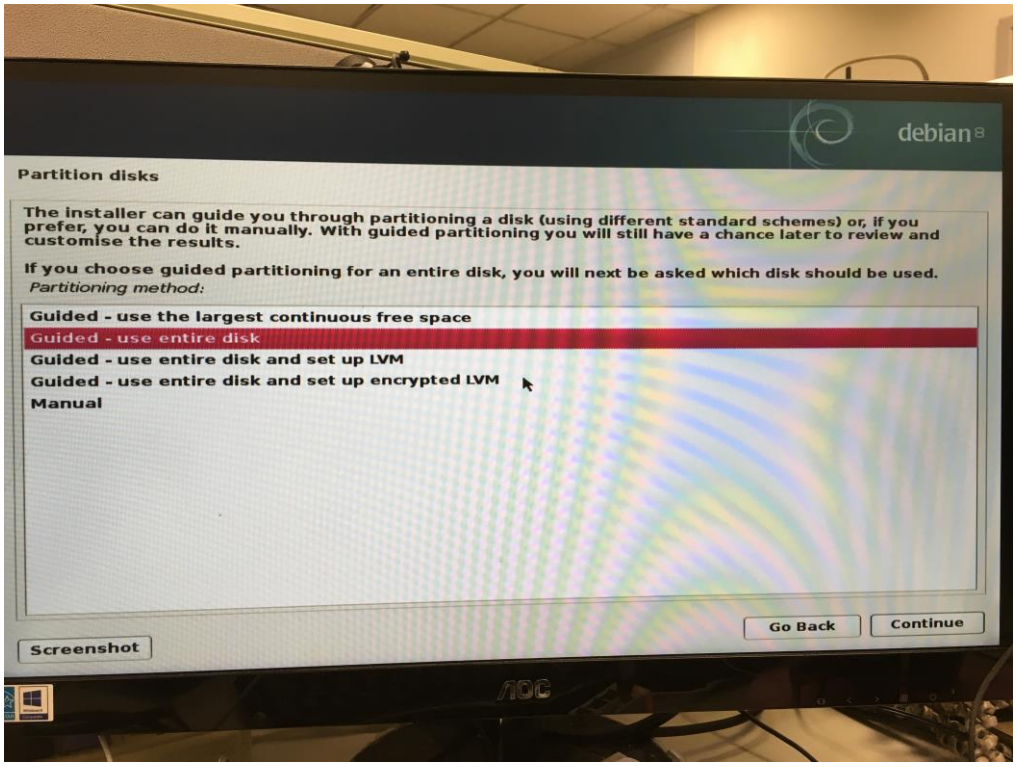
Step 12: Set up users and passwords and. Continue to next step



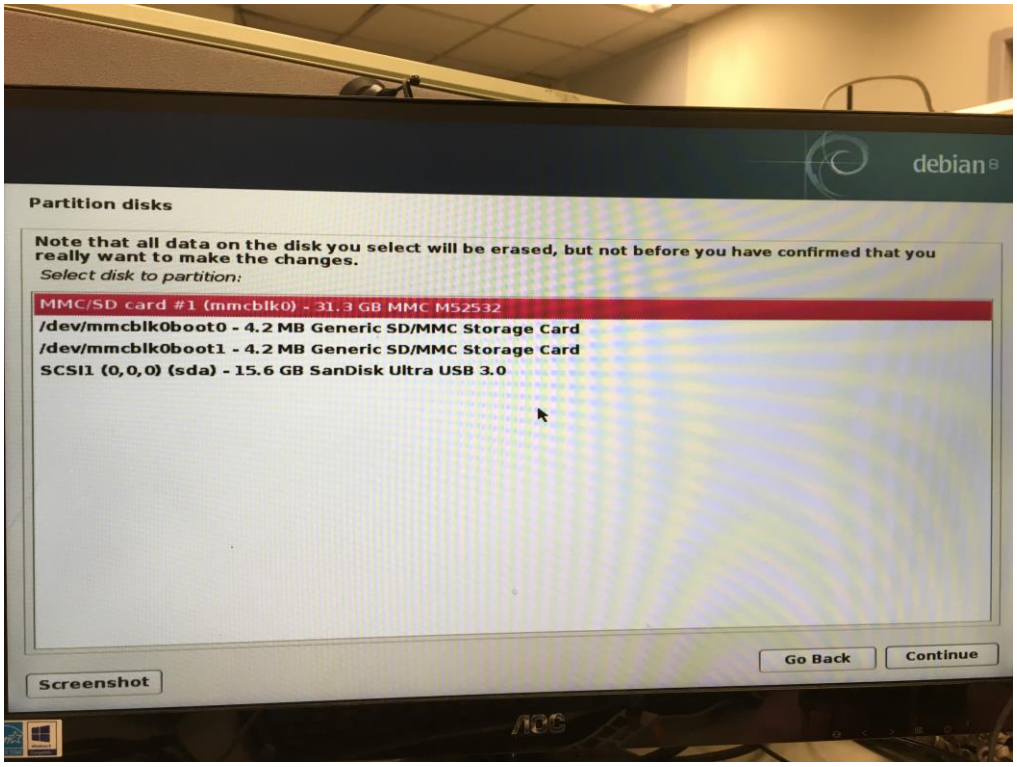
Step 13: Set up users and passwords and. Continue to next step



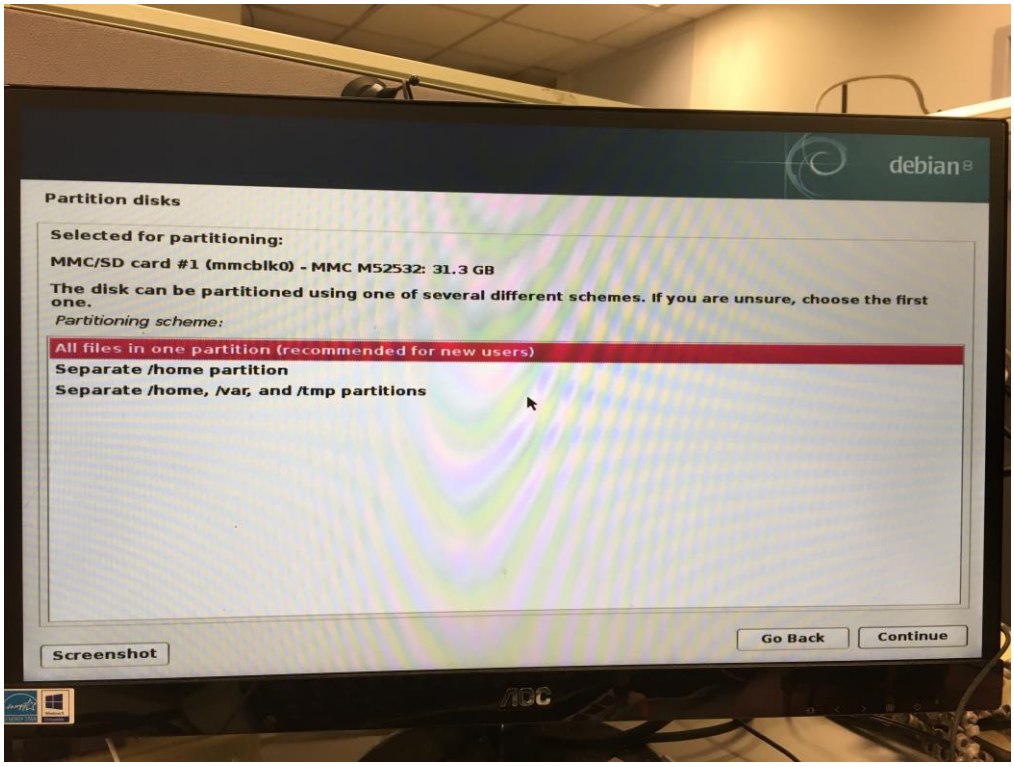
Step 14: Partition disks. Select "Guided – use entire disk" and continue.



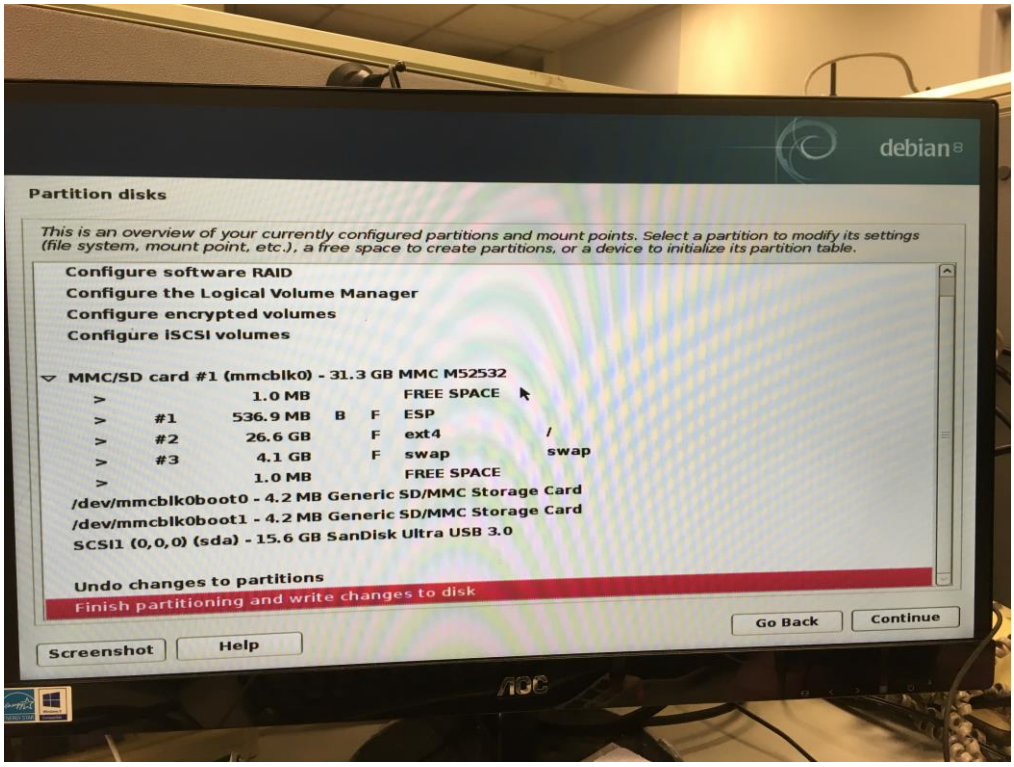
Step 15: Partition disks. Select “MMC/SD card #1 (mmcblk0)” and continue.



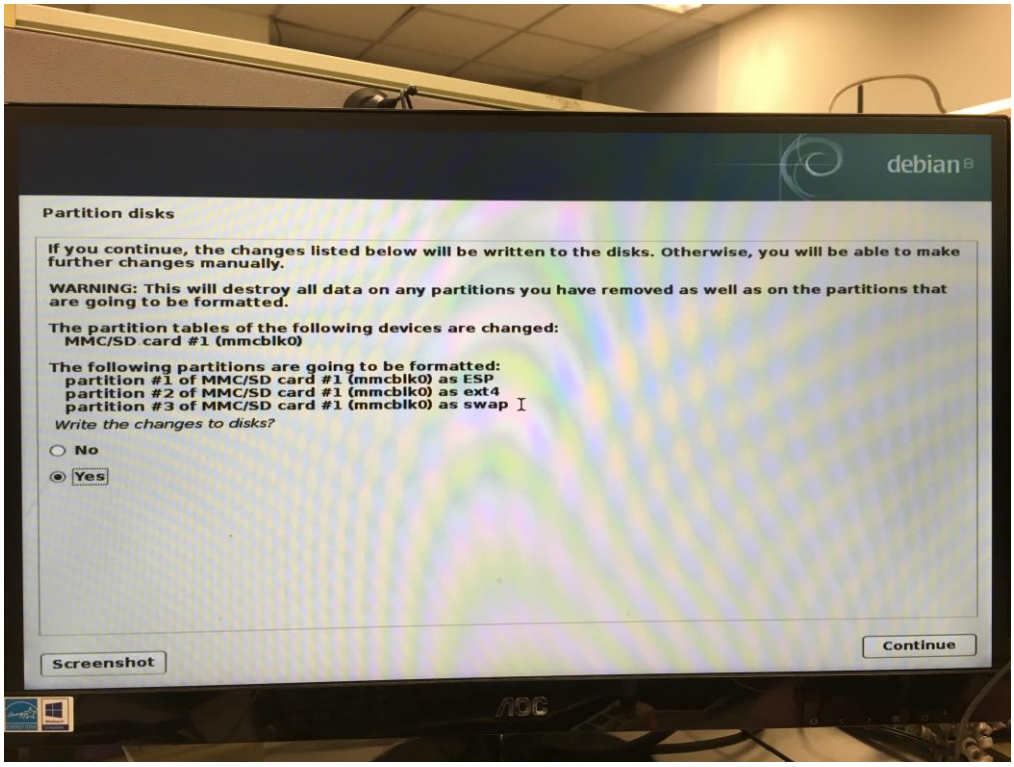
Step 16: Partition disks. Select “All file in one partition” and continue.



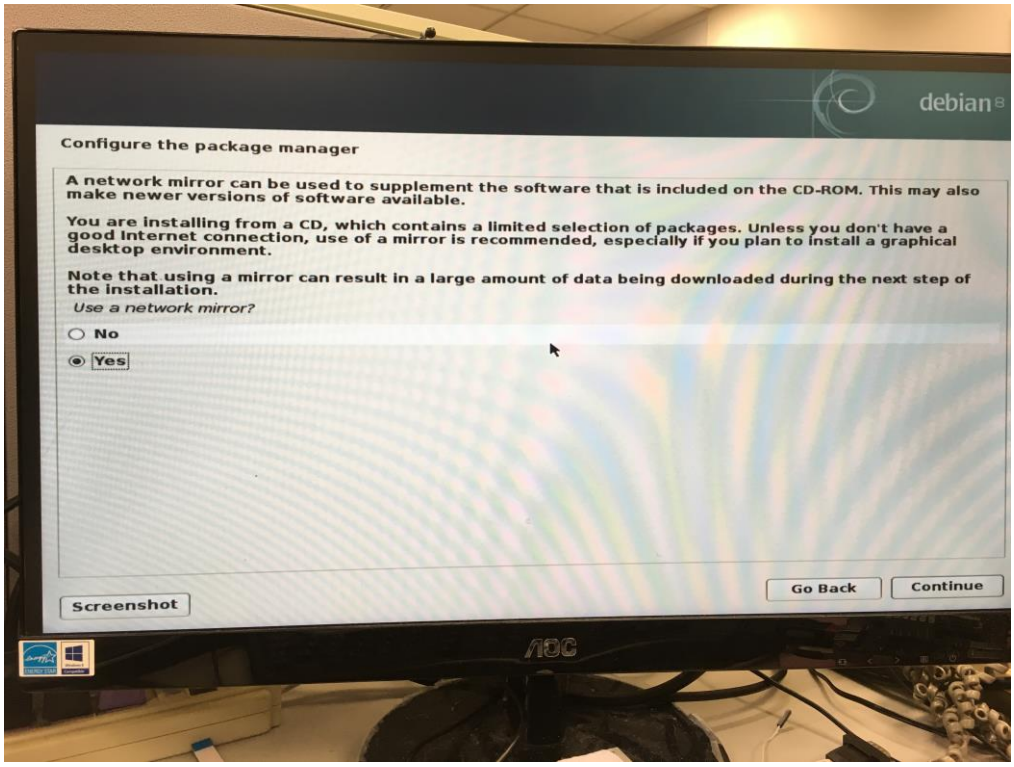
Step 17: Partition disks. Select “Finish partitioning and write changes to disk” and continue.



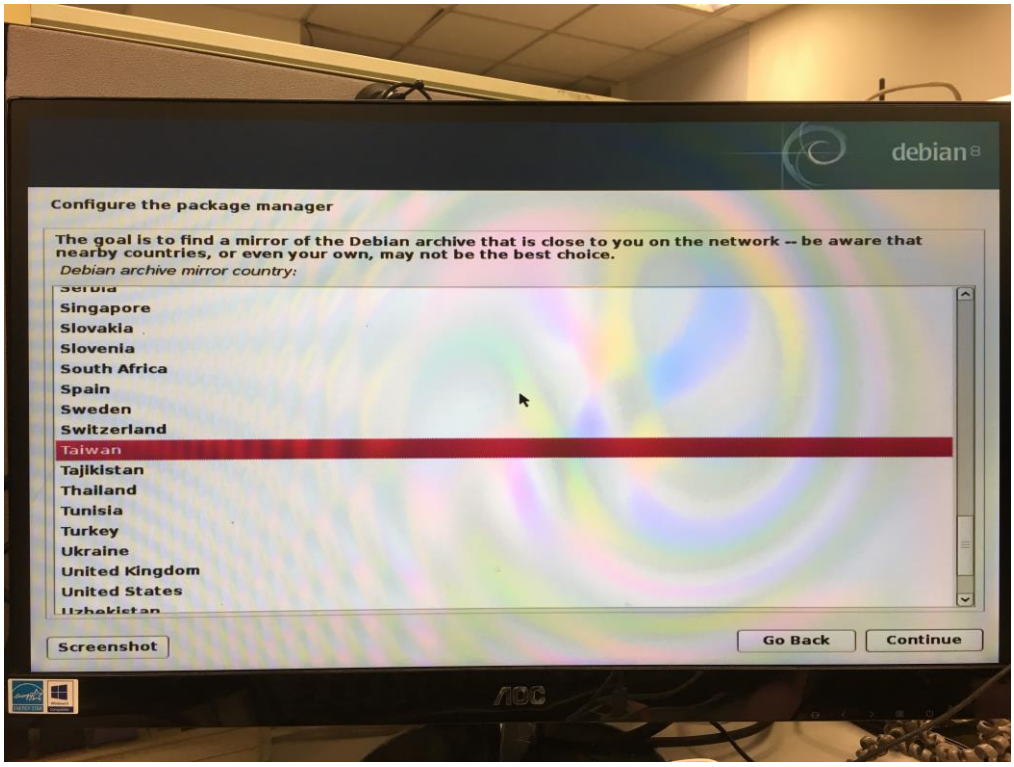
Step 18: Partition disks. Select “Yes” and continue.



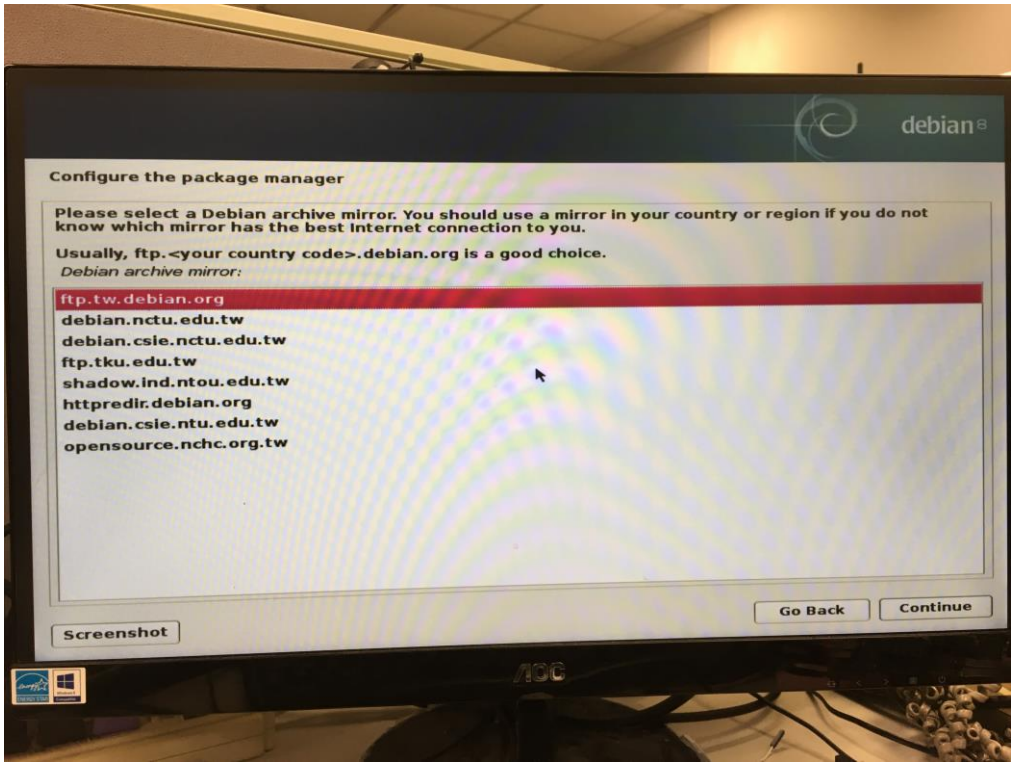
Step 19: Configure the package manager. Select “Yes” and continue.



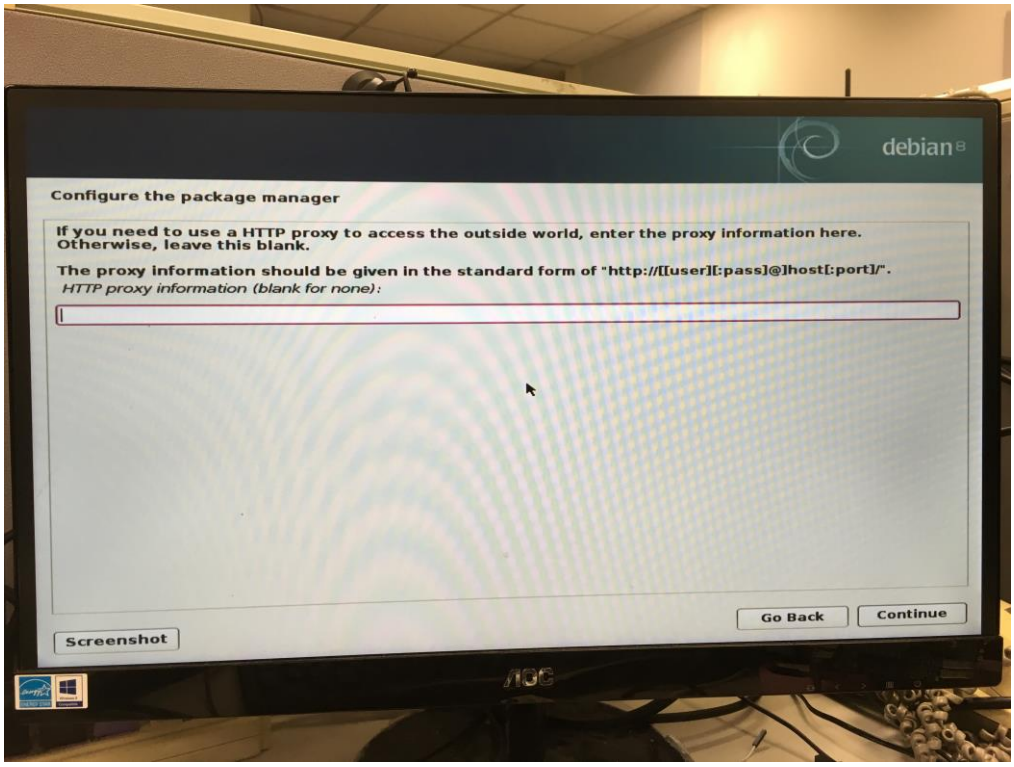
Step 20: Configure the package manager. Select country and continue.



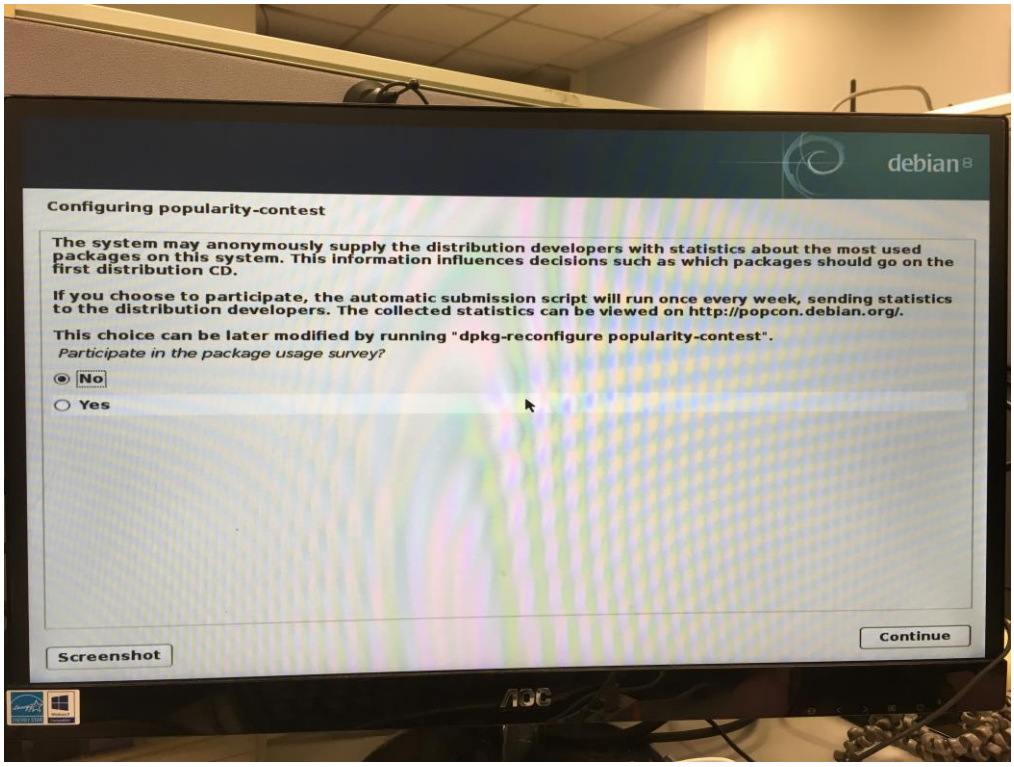
Step 21: Configure the package manager and continue.



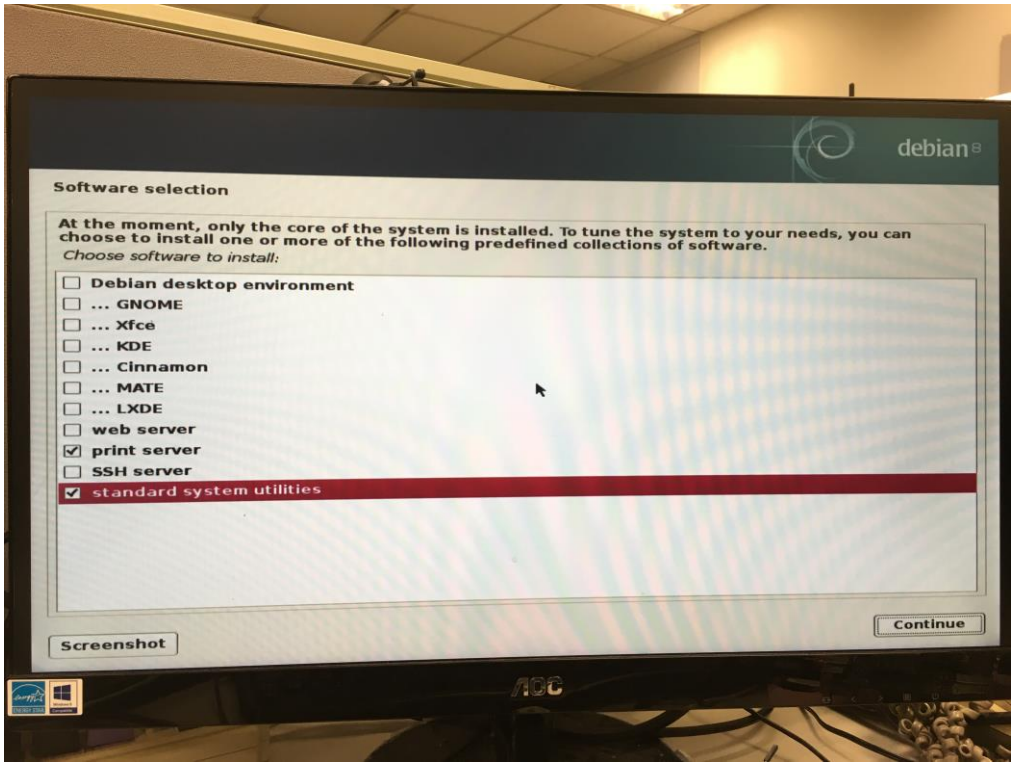
Step 22: Configure the package manager and continue.



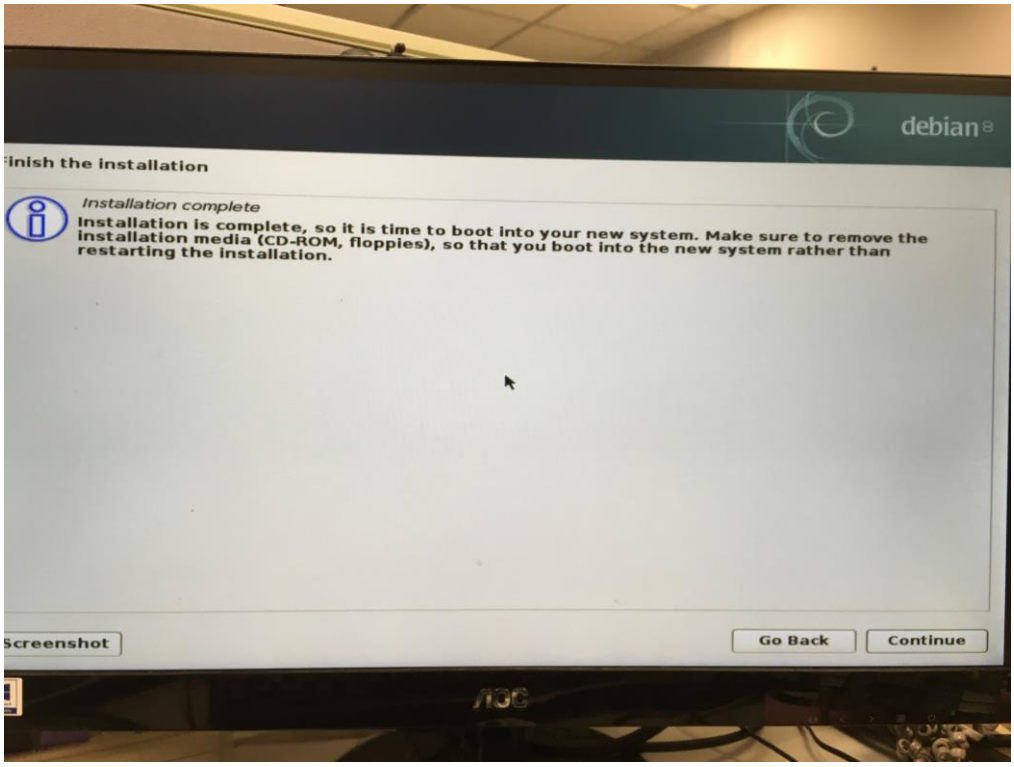
Step 23: Configuring popularity-contest and continue.



Step 24: Software selection. Don't select Debian desktop environment and any graphical user interface.



Step 25: Finish the installation.



4. After finish the installation, if you can't download packages form internet and see "Media change: please insert the disc labeled". Please do as follows.

   .

   $ vi /etc/apt/sources.list

   Comment out "deb cdrom:[Debian GNU/Linux 8.5.0 _Jessie_ - Official amd64 CD Binary-1 20160604-15:35]/ jessie main". See figure6

```
# deb cdrom:[Debian GNU/Linux 8.5.0 _Jessie_ - Official amd64 CD Binary-1 20160604-15:35]/
jessie main

#deb cdrom:[Debian GNU/Linux 8.5.0 _Jessie_ - Official amd64 CD Binary-1 20160604-15:35]/ j
essie main

deb http://ftp.tw.debian.org/debian/ jessie main
deb-src http://ftp.tw.debian.org/debian/ jessie main

deb http://security.debian.org/ jessie/updates main
deb-src http://security.debian.org/ jessie/updates main

# jessie-updates, previously known as 'volatile'
deb http://ftp.tw.debian.org/debian/ jessie-updates main
deb-src http://ftp.tw.debian.org/debian/ jessie-updates main
```

Figure6

2. Peripheral Devices

2.1. Install tool

```
$ su root
$ apt-get install make
$ apt-get install linux-headers-$(uname –r)
```

2.2. WiFi driver

1. Edit /etc/apt/sources.list and Insert “deb http://httpredir.debian.org/debian/ jessie main contrib non-free” string.

   ```
   $su root
   $ vi /etc/apt/sources.list
   ```

2. Update packages and install package

   ```
   $ apt-get update && apt-get install firmware-iwlwifi
   ```

   Download firmware from https://packages.debian.org/sid/kernel/firmware-iwlwifi
   The file name should be call “firmware-iwlwifi_20160110-1_all.deb”

   ```
   $ dpkg –i firmware-iwlwifi_20160110-1_all.deb
   ```

3. Reboot debian

4. For more information. Please see below website

   https://wiki.debian.org/iwlwifi

2.3. Ethernet driver

1. Please contact FAE or gigabyte website to get this driver.
2. Extract file and install

   ```
   $su root
   $ tar –jxvf 0005-r8168-8.042.00.tar.bz2
   $ cd r8168-8.042.00
   $ ./autorun.sh
   ```

2.4. SD card driver

1. Download the SD card driver package from gigabyte website.
2. Extract the package and install

```
$ su root
$ tar zxvf realtek-cr-scsi-1.4.4.tar.gz
$ cd realtek-cr-scsi-1.4.4
$ make
$ make install
$ modprobe rts-cr-core
$ modprobe rts-cr-host
```

2.5. GPIO driver

1. If you need to use GPIO driver, please contact our FAE to get driver
2. Extract the package and install

```
$ su root
$ tar zxvf gpiodrv.tar.gz
$ cd gpiodrv
$ make
$ insmod gpiodrv.ko
```

2.6. HSUART driver

1. If you need to use HSUART driver, please contact our FAE to get driver.
2. Extract the package and install.

```
$ su root
$ tar zxvf hsuart.tar.gz
$ cd hsuart
$ make
$ insmod gigahsuart.ko
```

3. Test

3.1. GPIO

1. Change file permission.

```
$su root
$ chmod 777 /sys/kernel/gpiodrv/gpio_*
```

2. Choose the register you want to control

```
$ echo “0xFED8C400” > /sys/kernel/gpiodrv/gpio_pin
```

You can choose register as below

0xFED8C400	0xFED8C408
0xFED8C410	0xFED8C418

0xFED8C420	0xFED8C428
0xFED8C438	0xFED8C440
0xFED85400	0xFED85410
0xFED85430	

3. Control the gpio low and you can see the LED lights on.

   $ echo “0” > /sys/kernel/gpiodrv/gpio_value

4. Control the gpio high and you can see the LED lights off.

   $ echo “1” > /sys/kernel/gpiodrv/gpio_value

3.2. Bluetooth

1. please reference below website Pairing using CLI chapter
   https://wiki.debian.org/BluetoothUser

3.3. Phone Jack

1. Install tool
   $ su root
   $ apt-get install alsa-utils
   $ apt-get install sox
   $ apt-get install libsox-fmt-all

2. Playing
   Ensure your “Simple mixer control ‘Master’” setting is on.
   $ amixer

   If show “off” in “Master” setting. Turn on it.
   $ amixer set Master 100% on

   $ su root
   $ play test.mp3

3. Recording

   Ensure your “Simple mixer control ‘Capture’” setting is on
   $ amixer

   If show “off” in “Capture” setting. Turn on it.
   $ amixer set ‘Capture’ cap

   Check your devices. After run command, it will show below example information.
   $arecord –l

Ex:
**** List of CAPTURE Hardware Devices ****
card 0: PCH [HDA Intel PCH], device 0: ALC255 Analog [ALC255 Analog]
Subdevices: 1/1
Subdevice #0: subdevice #0

Start recording
$ arecord -D plughw:0,0 MIC.wav -v -f cd &
※plughw: card number, device number

Stop recording
$ killall arecord

play your recording
$ play MIC.wav

3.4. HSUART

1. Make sure your console cable is connecting MZBSWIP SERPO1、2 or MUSB1 port to target machine. Please open the terminal and set your baud rate 115200.

2. Use root to login

   $su root

3. Test to send

   $echo "<send message>" > /sys/kernel/ghsuart/uart3

   Note: if you use SERPO2 change command as below.

   $echo "<send message>" > /sys/kernel/ghsuart/uart4

4. Test to receive and input any message on your connect machine's terminal. After input message, input command line to read message as below.

   $cat /sys/kernel/ghsuart/uart3

   Now, you can see the message on your MZBSWIP

3.5. 3G Network

1. Check 3G network interface.

   $ cat /etc/udev/rules.d/70-persistent-net.rules

You should see USB device information similar with below message.

```
  # USB device 0x:0x (cdc_ether)
SUBSYSTEM=="net", ACTION=="add", DRIVERS=="?*",
ATTR{address}=="00:1e:10:1f:00:00", ATTR{dev_id}=="0x0", ATTR{type}=="1",
KERNEL=="eth*", NAME="ethx"
```

2. Set network interface to get ip address.

```
$ ifconfig eth3 up
$ echo -e 'at^ndisdup=1,1,"internet"\r' > /dev/ttyUSB2
$ dhclient eth3
```