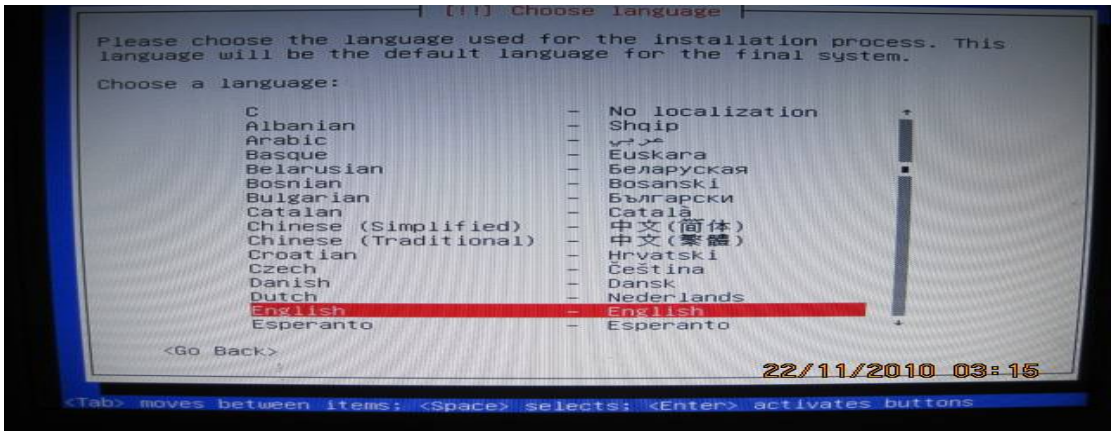
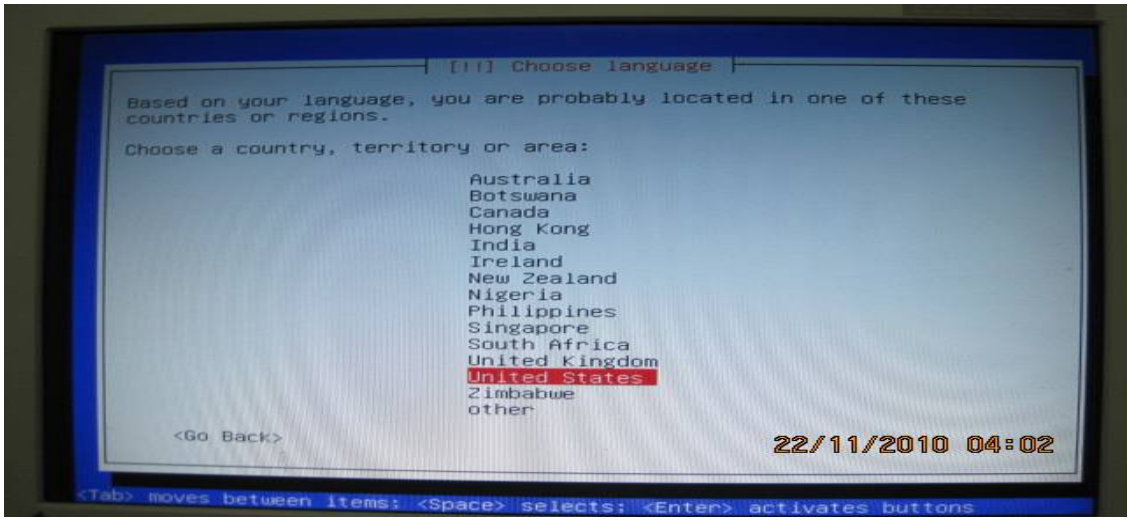
Steps required to install Debian Lenny 5.0.5 GNU/Linux:

1. The first window that will appear after booting from the CD or DVD is the installer boot menu window, as shown in the figure below. If we would like to follow the graphical install or choose other choice (advance options or help), we have to press the Tap button to edit a menu entry. Otherwise, we can choose the normal installation through pressing on the **Enter** button to boot.

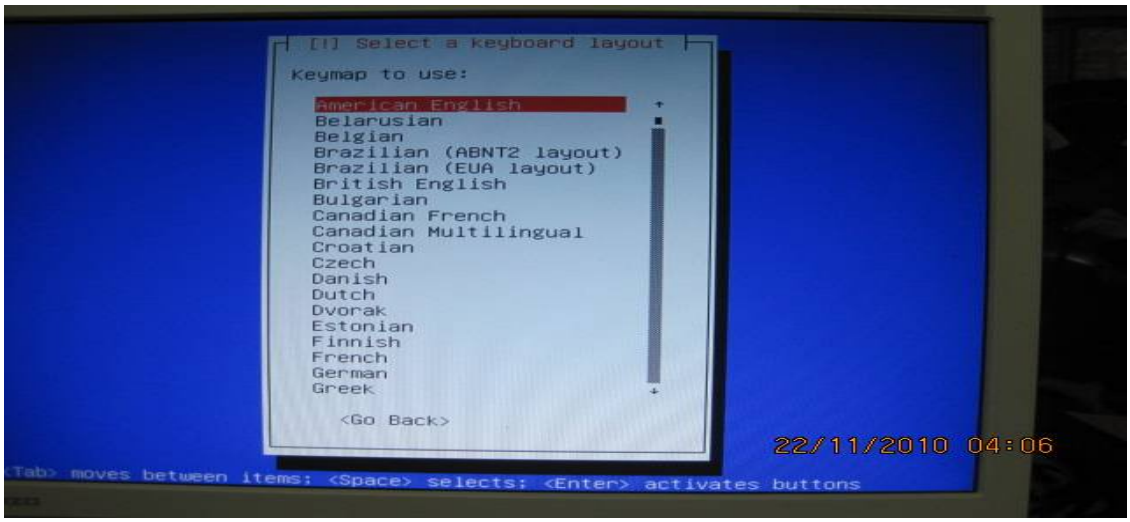
2. The second step is to choose the language that will be used during the installation process. You can choose the English language by press the **Enter** button, as shown in the figure below.



3. After we chose the language, we have to choose the country, for example we can choose the **United States** and press the **Enter** button, as shown in the figure below.

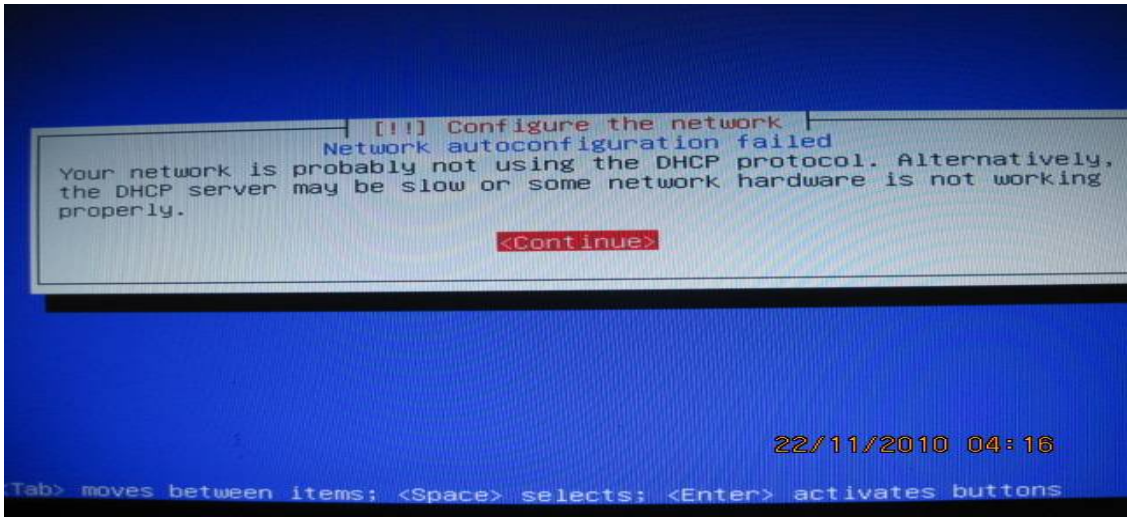


4. The next window that will appear after we chose the country is the window from which we can select the keyboard layout, for example we can choose the **American English** keyboard layout and then press the **Enter** button, as shown in the figure below.

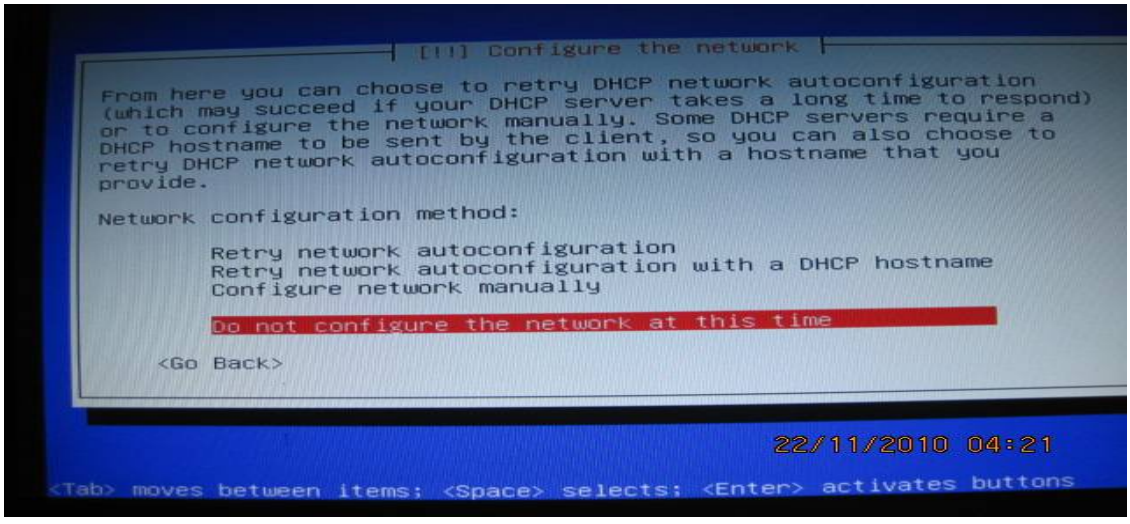


5. After the process of scanning the CD-ROM and some other processes are completed automatically, we can see the window that is related to the network autoconfiguration

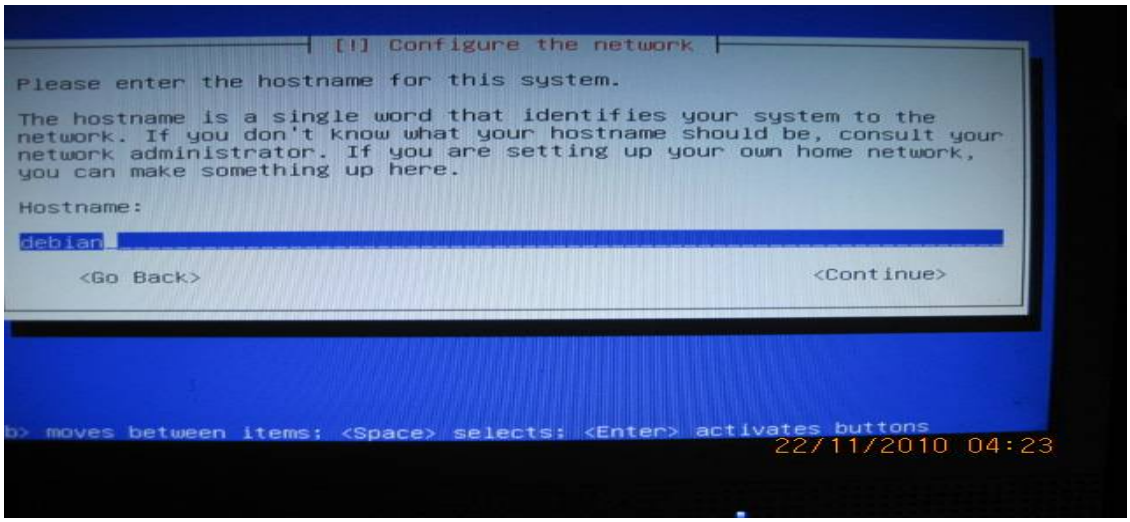
will appear and this process might be failed. If so, we have to choose the **Continue** choice and press the **Enter** button, as shown in the figure below.



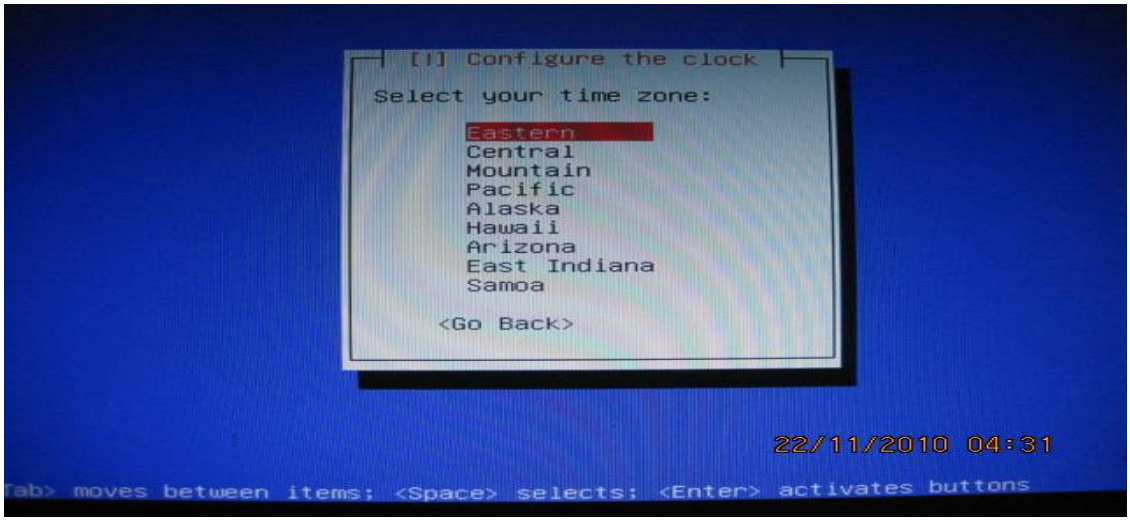
6. After the process of network autoconfiguration failed, it is preferable to terminate this activity at the current time by choosing the item **Do not configure the network at this time,** and press the **Enter** button to continue with the installation, as shown in the figure below.



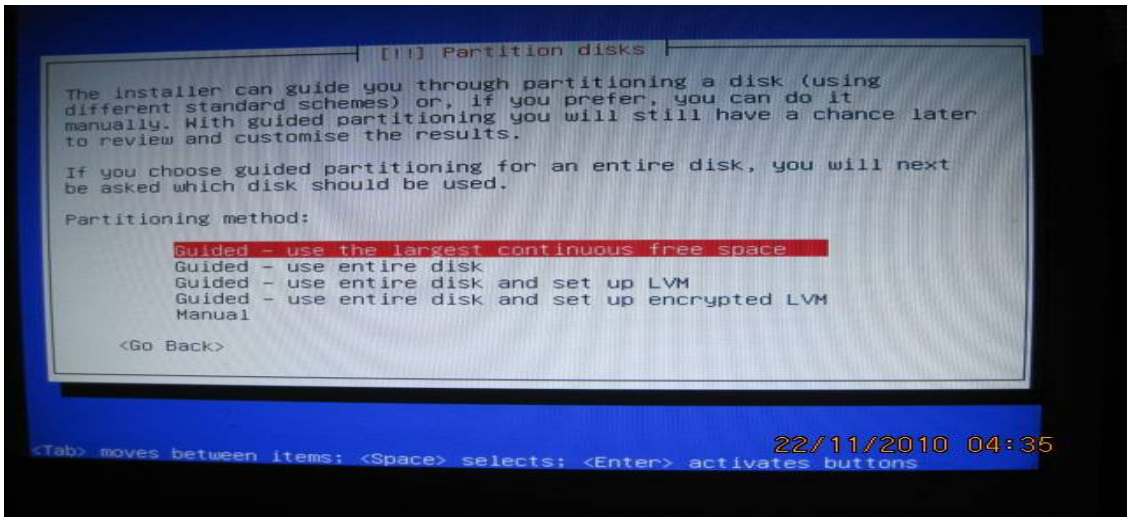
7. The next step is to write the hostname for this system. It is preferable to keep the default name, which is **debian,** and press the **Enter** button to continue, as shown in the figure below.



8. After we wrote the hostname and pressed the enter button, we will see a new window to identify the time zone (clock), so we can choose for example the default choice (**Eastern**), and press the **Enter** button, as shown in the figure below.

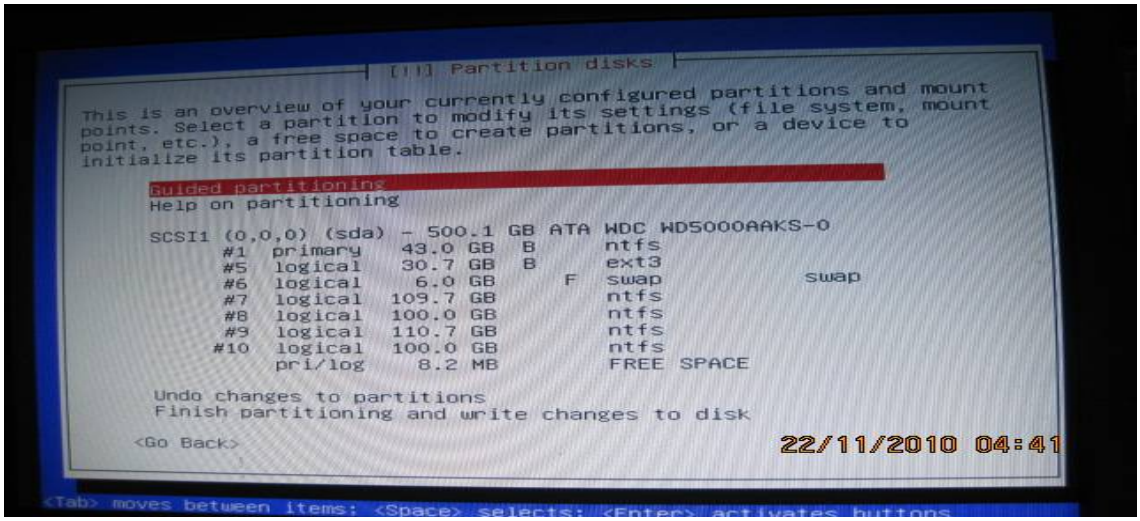


9. We will see later the window that is related to loading the additional components will appear automatically to be finished with the appearance of a new window that is related to the disk partitioning, as shown in the figure below.



10. At this moment, we have to be **careful and cautious** during this stage of installation, because any error at this stage might lead to make the data exist on the hard disk to be damaged. It is advised to choose the last item (**Manual**) to control our disk partitioning, and then press the **Enter** button to continue the partitioning manually.

11. We will see the window that includes an overview of our currently configured partition(s). We have to select the intended partition that we plan to modify its setting to be accommodated with the installation. After we select the partition, we have to press the **Enter** button to edit this partition, as mention in the figure below.



12. At this time we have to choose the following setting:

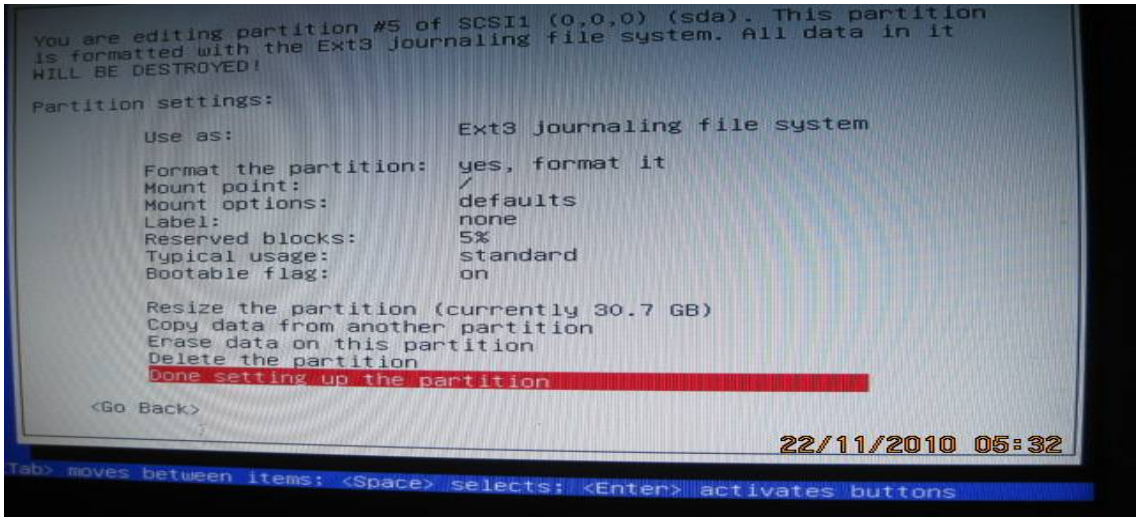
Set the option **Use as** to the value **Ext3 journaling file system.**

Set the option **Format the partition** to the value **Yes, format it.**

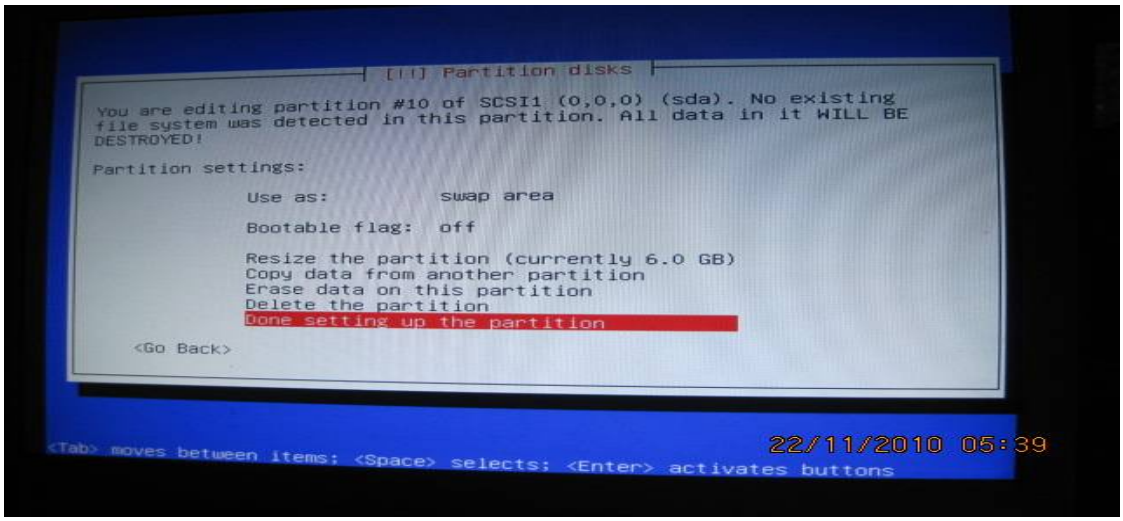
Set the option **Mount point** to the value **/ - the root file system.**

Set the option **Bootable flag** to the value **on.**

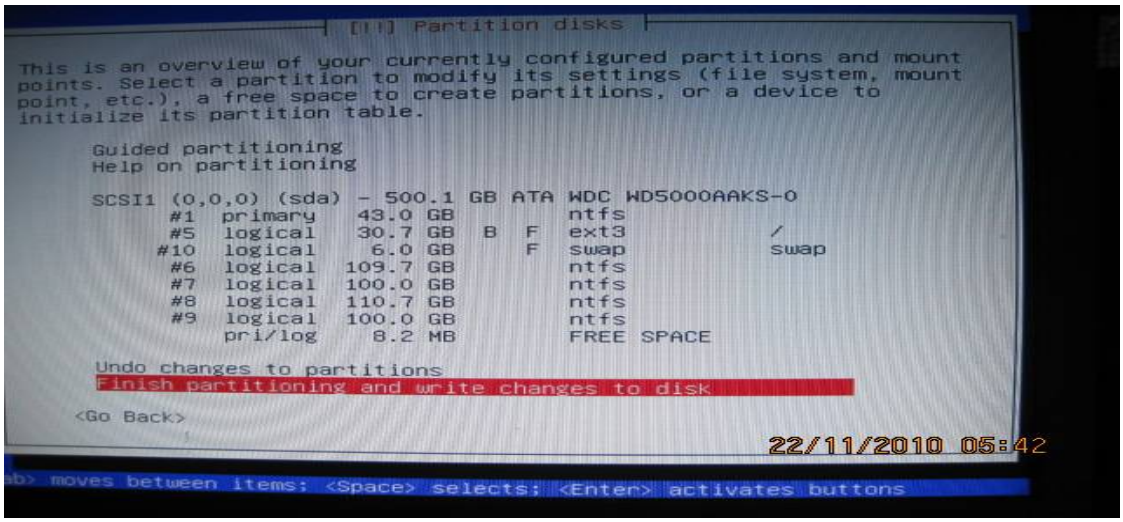
Finally, choose the item **Done the setting up the partition** and then press the Enter button, as shown in the figure below.



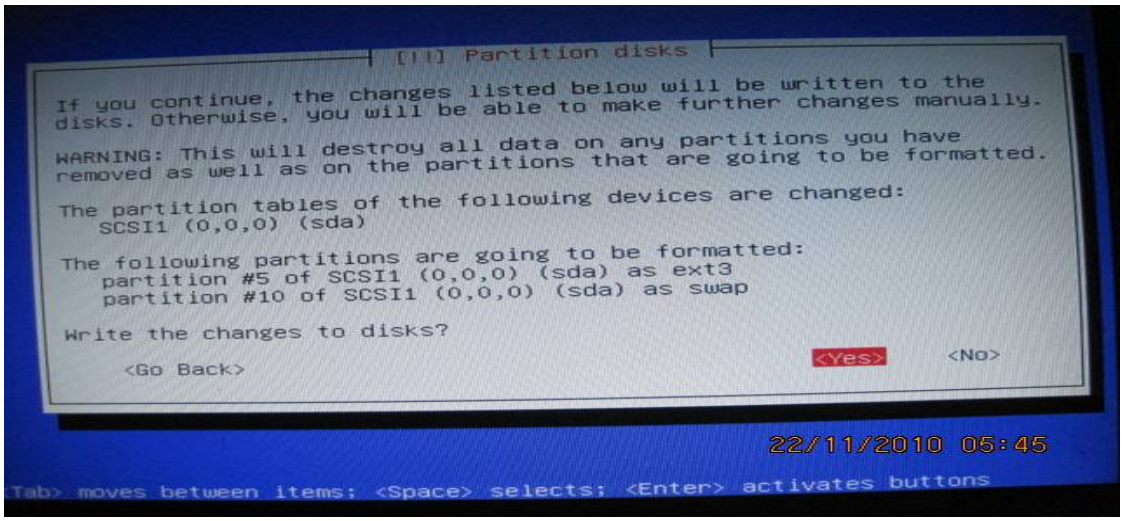
13. Its recommended to select a partition to be used as a swap space to enable the system to make better use of the available physical memory. This can be achieved by identifying the particular partition and set the option **Use as** to the value **swap area**, and then choose the item **Done setting up the partition,** as shown in the figure below.



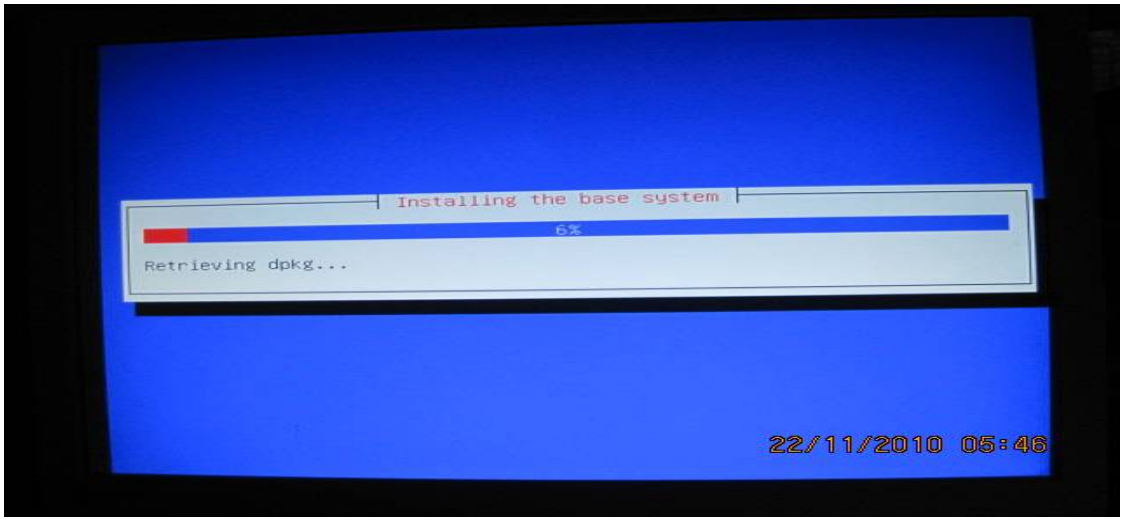
14. after we completed the editing of the partition(s), we have to move to the last item, which is **Finish partitioning and write changes to disk,** and the press **Enter** button, as shown in the figure below.



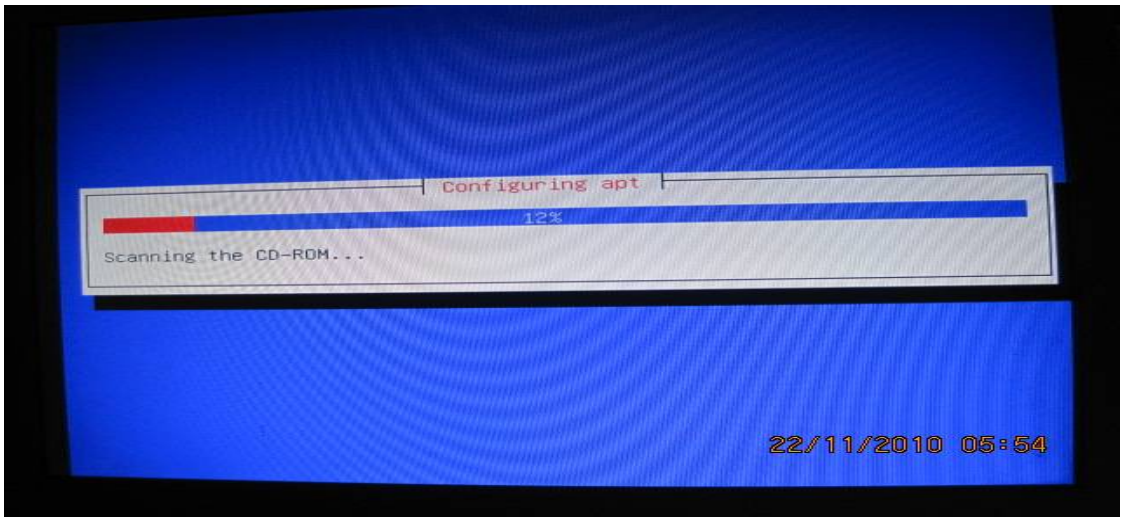
15. We will be asked later to confirm our choice(s), and press the **Yes** option to continue, or press the **No** to cancel our changes to disk, as shown in the figure below.



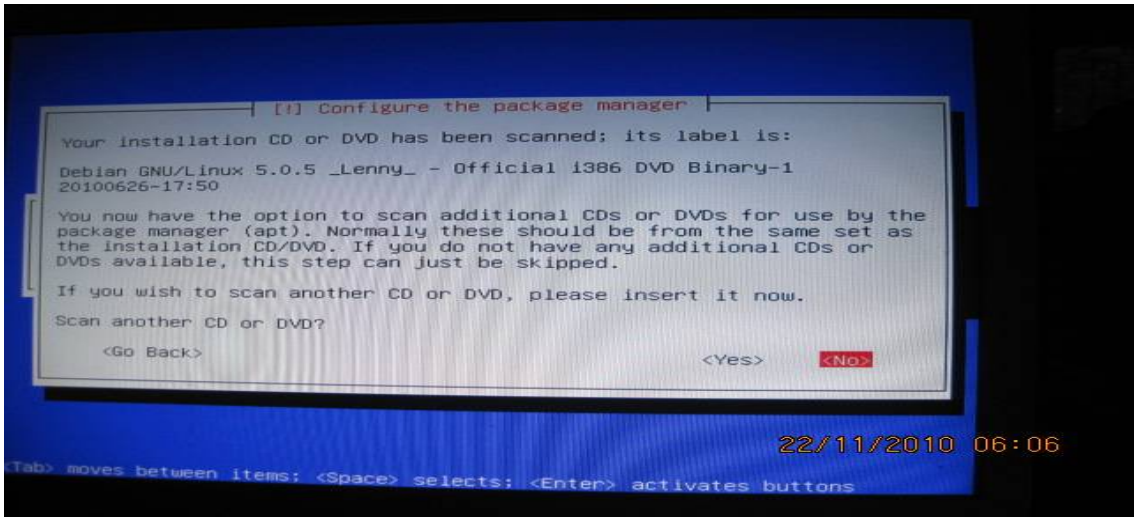
16. The next window will include the partition formatting, and then the window related to the installation of the base system, as shown in the figure below.



17. After the process of installing the base system is completed, a new window will appear and ask us to write the root password and to confirm this password again. Moreover, we will be asked later to write the full name of the user, the username for our account, and the password for this new user. After we completed all these steps, we have to press the **Enter** button to let the system to configure the apt, as shown in the figure below.

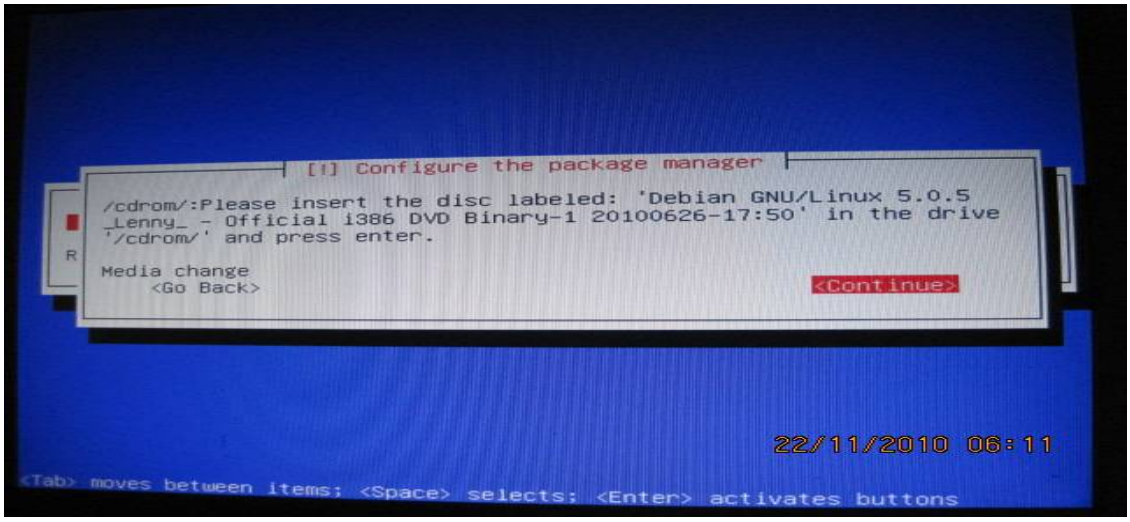


18. After that the window that is related to the configuration of the package manager will appear and shows the message (Your installation CD or DVD has been scanned; its label is: Debian GNU/Linux 5.0.5 _Lenny_-Official i386 DVD Binary-1 20100626-17:50). If we have another CD or DVD to be scanned, we have to add it by choosing the option **Yes,** and insert the new CD set; otherwise we have to choose the option **No** and press the button **Enter** to continue the installation.

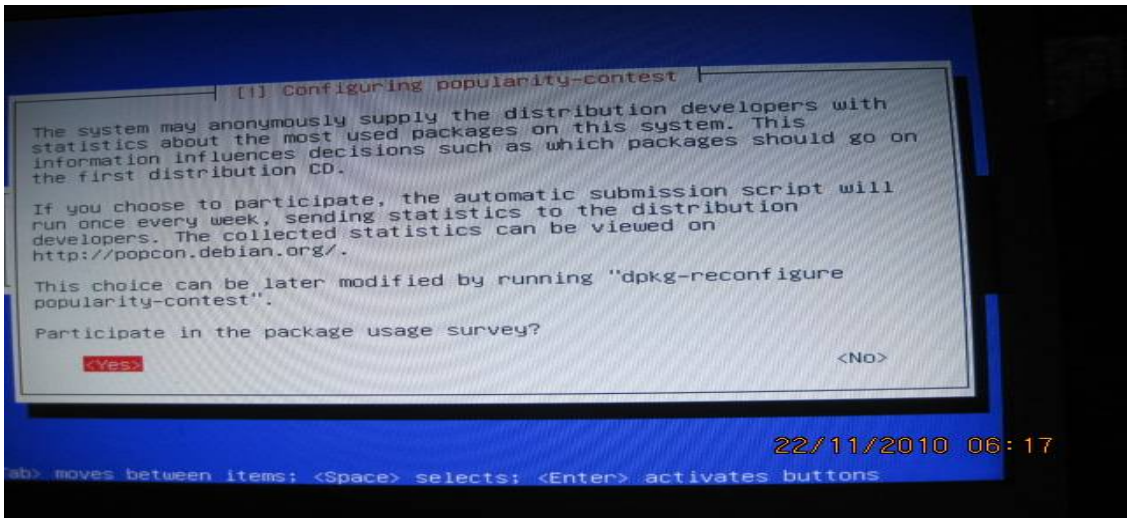


19. After we completed scanning all the CDs or DVDs that we wish to scan and press the choise **No**, a new window will appear and ask us to insert the CD or DVD with the

label Binary-1, and then press the **Enter** button to continue, as shown in the figure below.

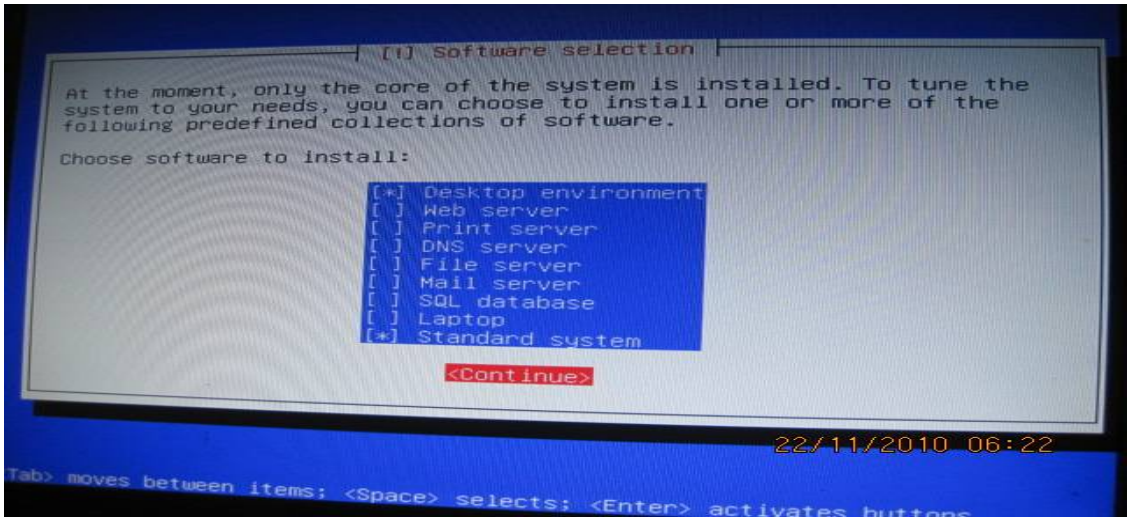


20. In some cases, we might be asked to participate in the package usage survey. This step is not important and can be answered with yes or no depending on your needs, as shown in the figure below.

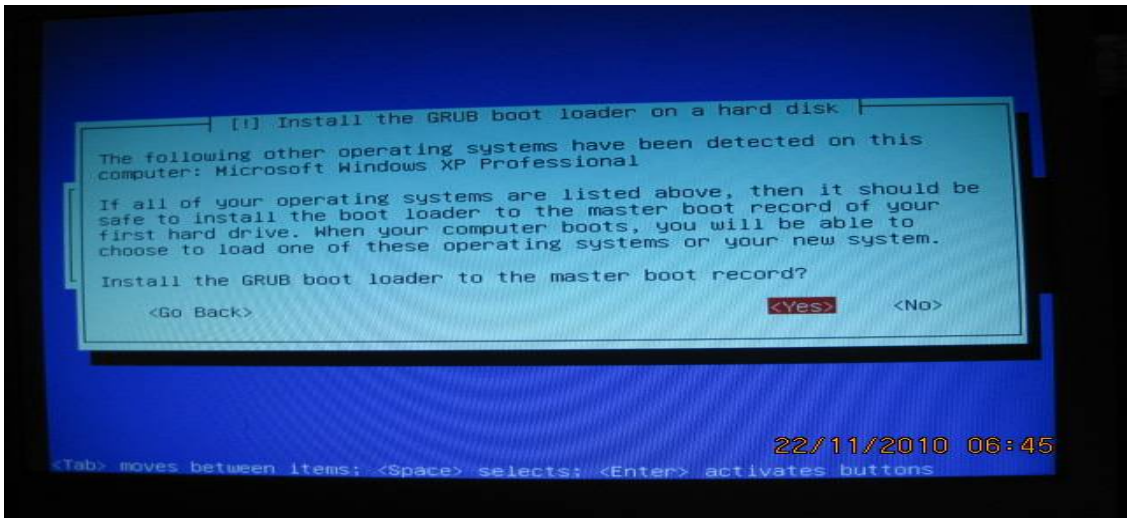


21. The next step of installation is to select the software we wish to install. Depending on our need, we have to choose only the core of the system to be installed by moving to the continue item through the Tab **key**, and press the **Enter** button to continue the

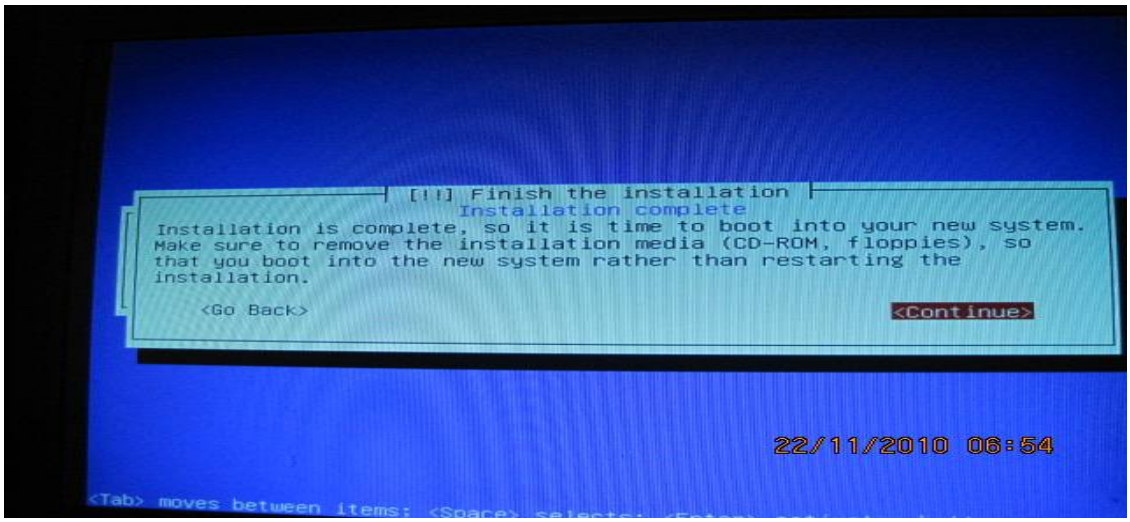
installation, as shown in the figure below. The system then will retrieve files. This process will last for a long time, so please be patient.



22. If we have another operation system on out device, we should be safe to install the boot loader to the master boot record of our first hard drive to be able to choose to load one of these operation systems. So, we will be asked to install the GRUB boot loader to the master boot record. In this case we have to choose **Yes** and press Enter button, as shown in the figure below.



23. After the installation finished, we will be asked to remove the installation media (CD or DVD) and press the **Enter** button to restart the system, as shown in the figure below.



24. Congratulation. After the system restarted, everything is ok and the Linux is ready to use, as shown in the figure below.

Steps required to install ns-2.34 on Linux

1. Download the ns-2 all-in-one file. Go to the ns-2 official website: http://sourceforge.net/projects/nsnam/files/allinone/.

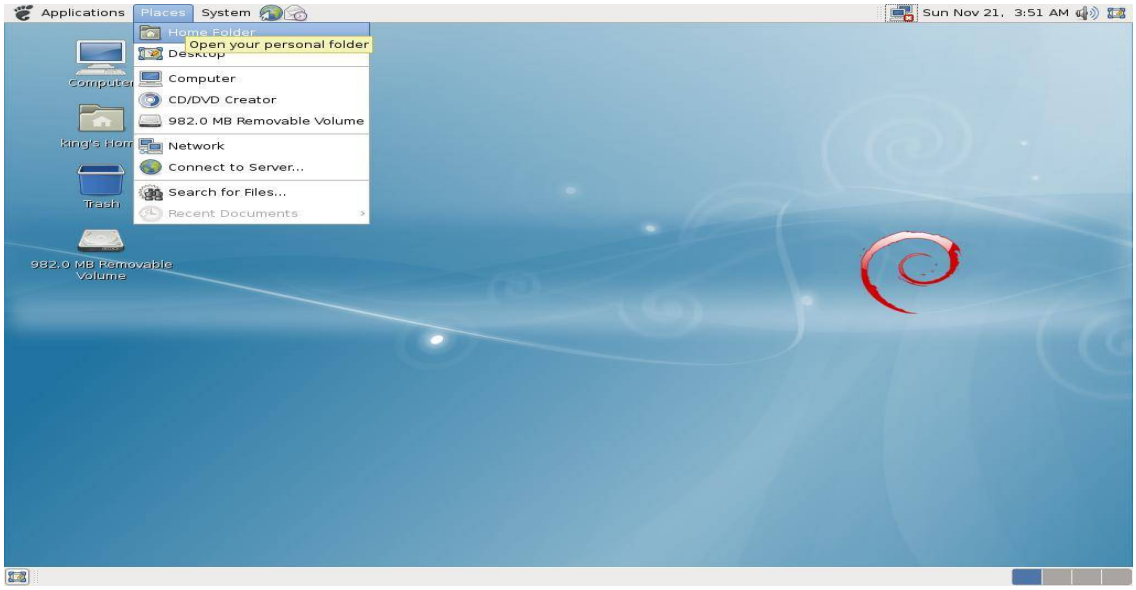
   And Download ns2.34 allinone package.

   Also you can use this command in your shell

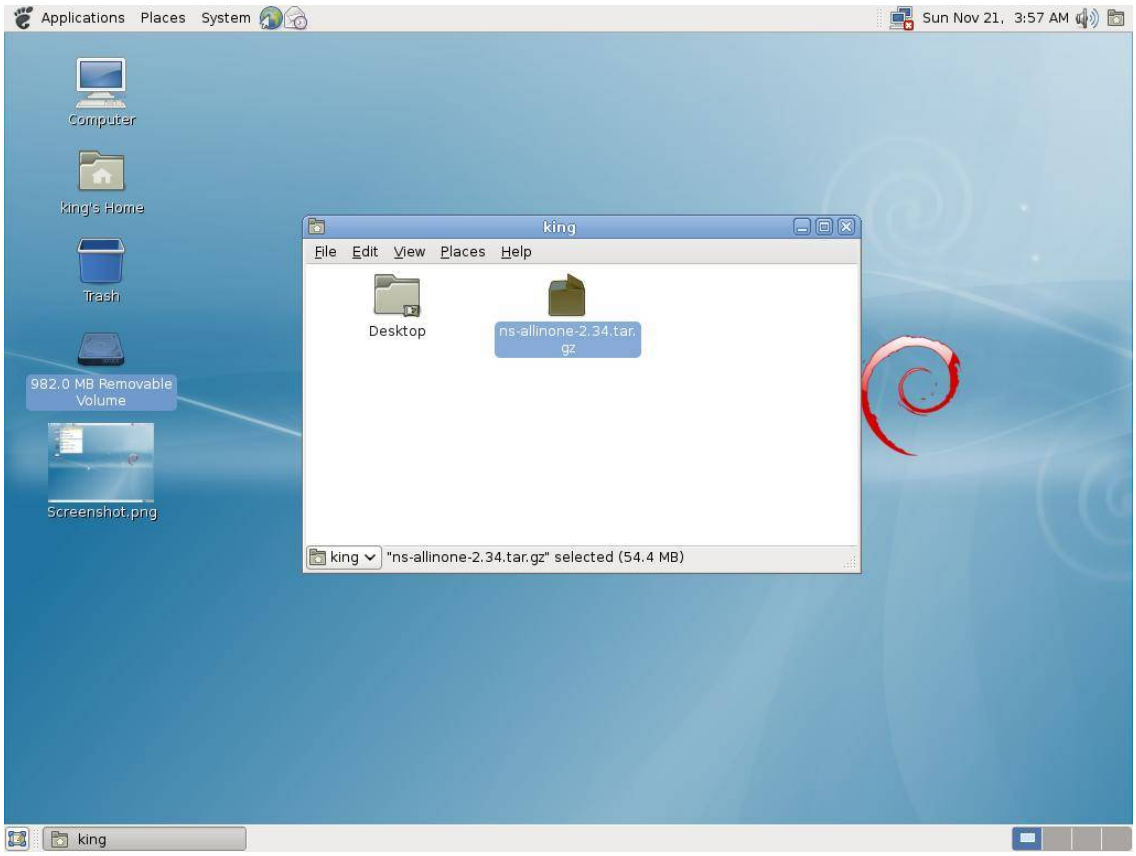
   $ wget http://sourceforge.net/projects/nsnam/files/allinone/ns-allinone-2.34/ns-allinone-2.34.tar.gz/download

   Put the package in an appropriate place

   It is recommended to go to the **places** menu and open your home folder, as shown in the figure below.



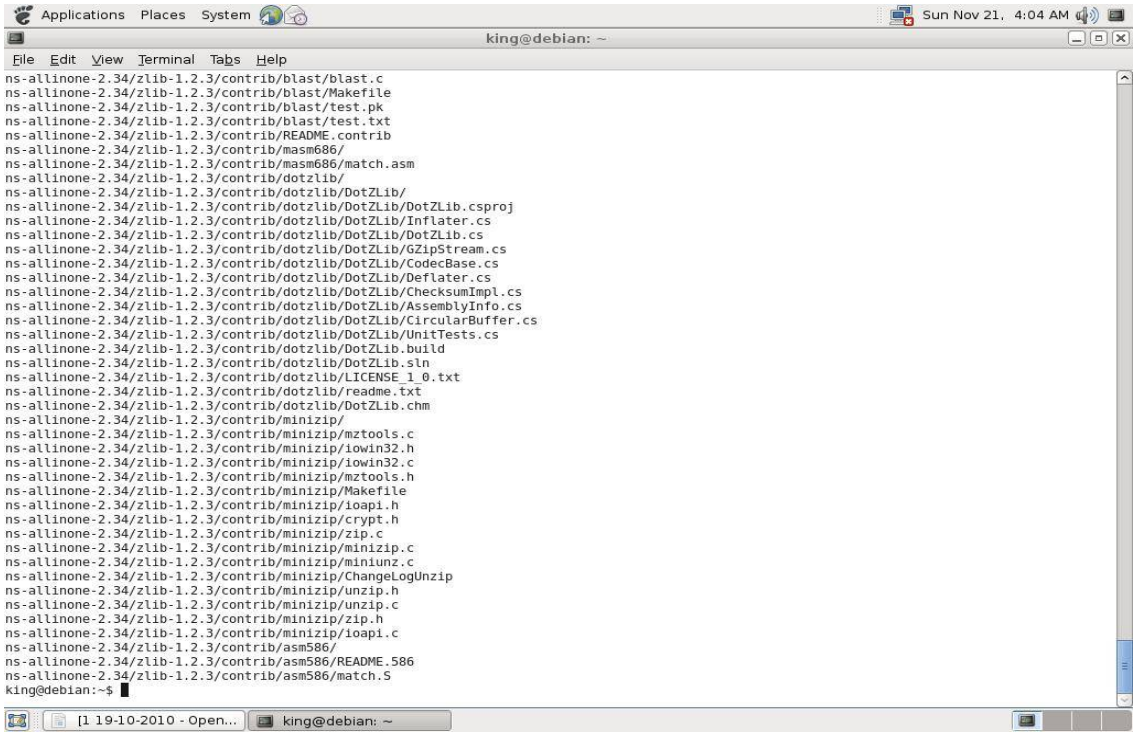
   After you opened your home folder, put the file ns-allinone-2.34.tar.gz inside your home folder, as mentioned in the figure below.



You have to extract this file by opening a new shell (terminal) and write the following command:

$ tar -xzvf ns-allinone-2.34.tar.gz

This command will extract the file. The result after extraction should be like in the figure below;



After that type the following command to enter the new created file

$ cd ns-allinone-2.34

2. Install Linux Packages: Before installing everything else, it is helpful to get a few packages from the Linux repositories or else it won't build correctly. You must login as a root to be authorized to achieve this task. This can be done through the command

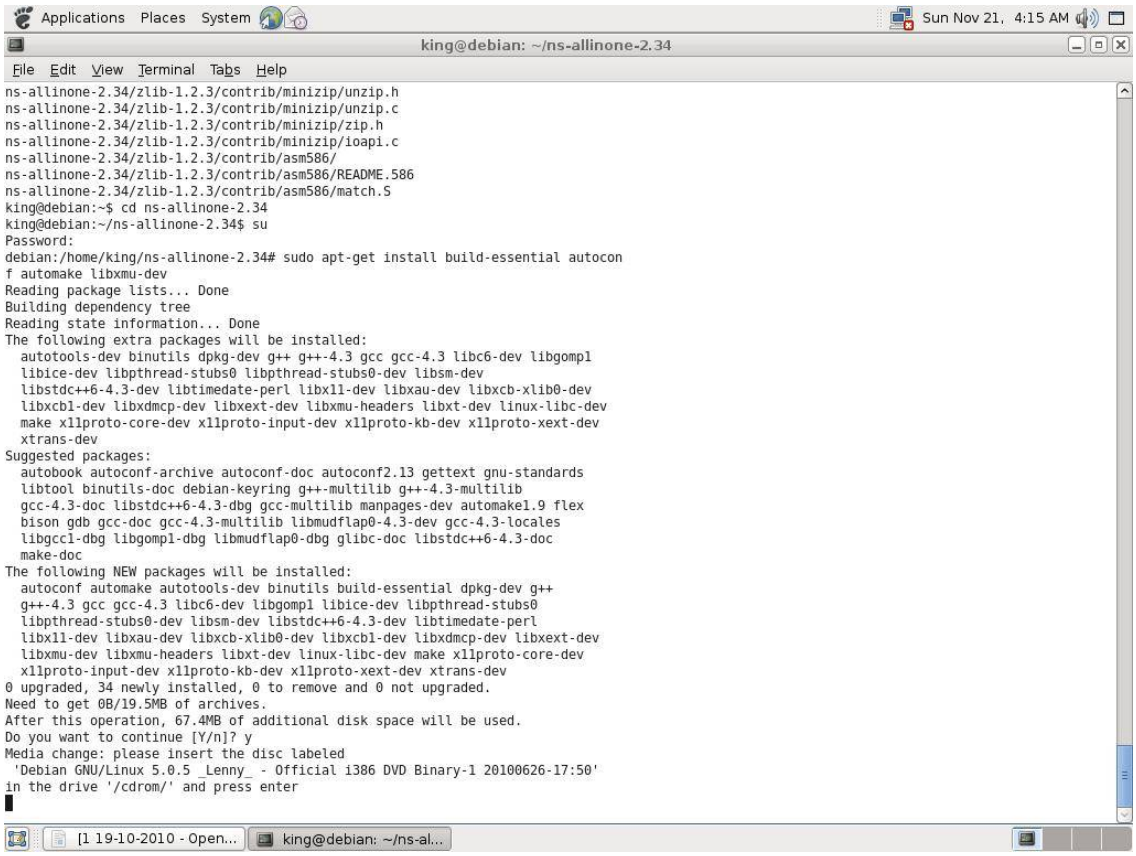
   $ **su**

   And then enter the password for root, and then enter the following command in the terminal to install the necessary packages.

   $ sudo apt-get install build-essential autoconf automake libxmu-dev

   After typing this command, you will be asked to continue with this operation as an agreement to the changes that will be happened after this operation, so you have to answer with **Yes** by typing the letter **Y**.

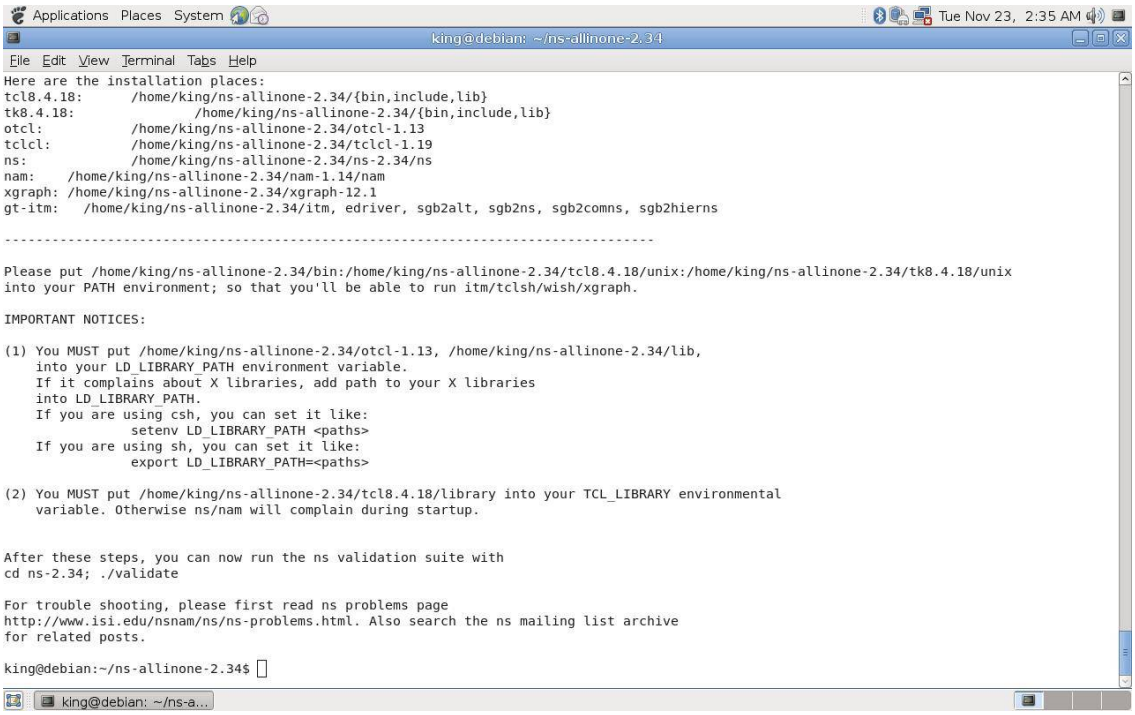
   As a response for this process, you will be asked to insert the media set labeled **Binary-1** to continue the installation, as mentioned in the figure below.



2. Now open a new shell (terminal) and enter inside the file ns-allinone-2.34 and run this command to install ns-2 :

$ ./install

Grab a cup of coffee it might take a while to complete the installation. The result of the installation must be like in the figure below:



3. Set Environment Variable :

   Use your shell and go to your home folder and then edit this file:

   $ cd

   $ gedit ~/.bashrc

   Add the following lines to the end of it and save this change. Remember to replace "/home/king/" by something like "/home/yourname/" where you put your package.

   If you installed another version of ns-2, then you must change the versions of ns-allinone-2.xx, otcl, tcl, tcltk, and nam.

   ##################### For NS-2.34

   # LD_LIBRARY_PATH

   OTCL_LIB=/home/king/ns-allinone-2.34/otcl-1.13

   NS2_LIB=/home/king/ns-allinone-2.34/lib

   X11_LIB=/usr/X11R6/lib

   USR_LOCAL_LIB=/usr/local/lib

```
export
LD_LIBRARY_PATH=$LD_LIBRARY_PATH:$OTCL_LIB:$NS2_LIB:$X1
1_LIB:$USR_LOCAL_LIB

# TCL_LIBRARY
TCL_LIB=/home/king/ns-allinone-2.34/tcl8.4.18/library
USR_LIB=/usr/lib
export TCL_LIBRARY=$TCL_LIB:$USR_LIB

# PATH
XGRAPH=/home/king/ns-allinone-2.34/bin:/home/king/ns-allinone-
2.34/tcl8.4.18/unix:/home/king/ns-allinone-2.34/tk8.4.18/unix
NS=/home/king/ns-allinone-2.34/ns-2.34/
NAM=/home/king/ns-allinone-2.34/nam-1.14/
PATH=$PATH:$XGRAPH:$NS:$NAM
################### End For NS-2.34
```

3. Let it take effect immediately by running this command to refresh the bash:
   $ source ~/.bashrc

4. Now, the installation has been completed. Try:
   $ ns
   The "%" symbol appears on the screen. Type the command “exit” to quit the mode and go back to “$”.

5. Validation: If you want to make sure your version of ns-2 is working correctly after the install you can run the validation test from within the ns2 source directory. To run the ns validation suite, run the commands:
   $ cd ns-allinone-2.24/ns-2.34
   $ ./validate

You need to wait around 30 minutes to validate

You should see that the test output agrees with the reference output. Congratulations you have a working version of ns-2.34 installed.

6. Getting Started with NS2: These are some quick tips to get you started using ns2 if you are a beginner. All example files are located in ns/tcl/ex. You can run these scenarios on ns2 using the command **ns filename.tcl.** The best way to start is probably changing things in these files until you understand what is happening more thoroughly. The output will usually be a trace file with a similar name (**filename.tr**). Trace files can usually be viewed with a text-editor program. There are also tools to analyze the trace files and pull stats from them. These may require some tweaking however depending on the format of the trace file. Additionally, a nam output file for visualization may be generated as well. This will usually be named **filename.nam**. To view the visualization run the command: **nam filename.nam**