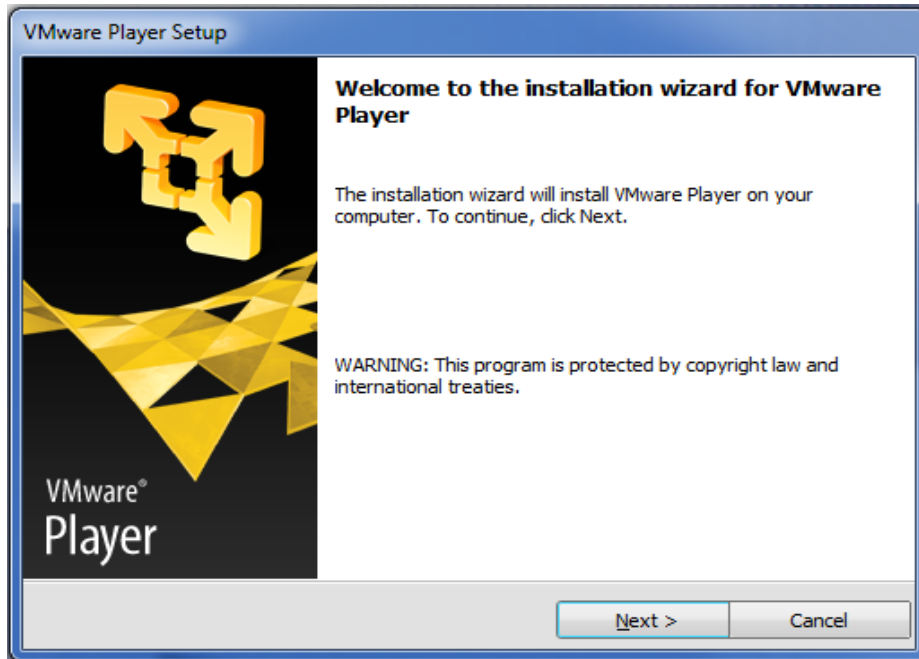


Installing VMware Player to Run Ubuntu Linux on a Windows Machine

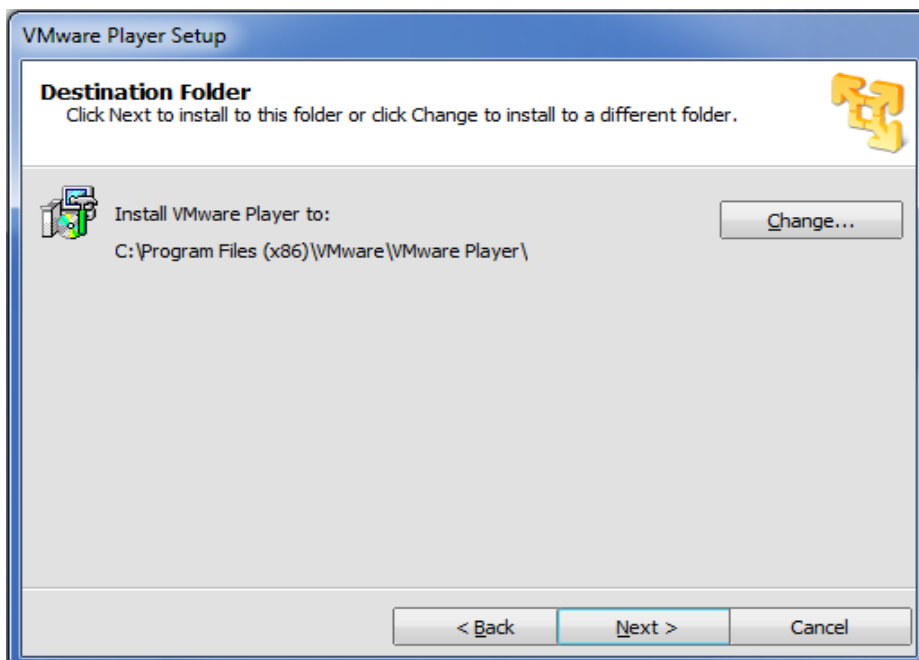
Check that you are connected to the internet before beginning (open Internet Explorer or Firefox or similar).

Installing VMware Player

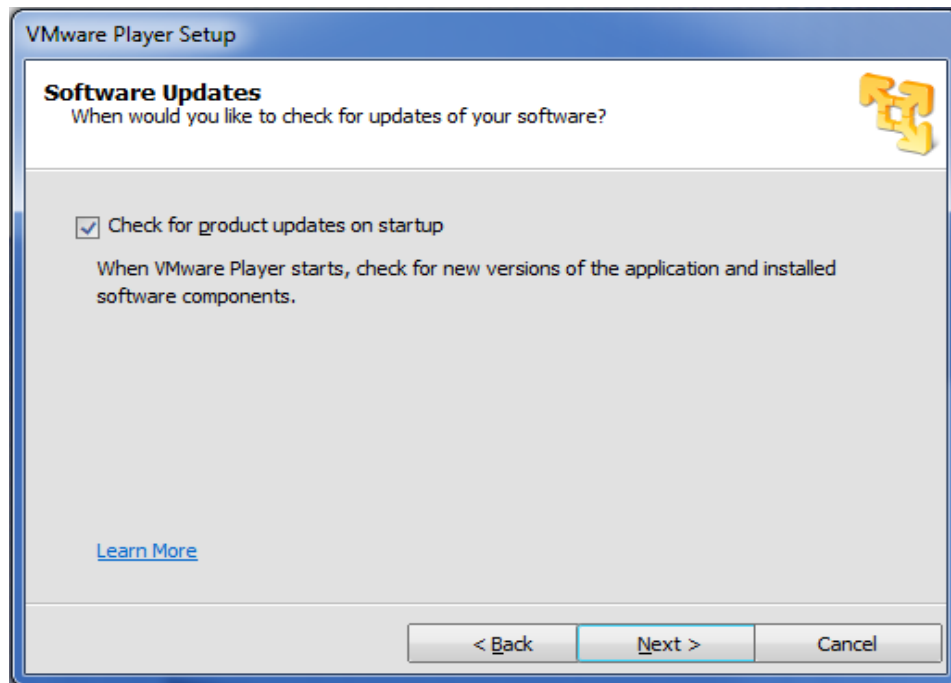
1. Obtain the installation/setup file for VMware Player (**VMware-player-5.0.2-1031769.exe**)
Copy this file from the provided media or
Download it from: <http://www.vmware.com/products/player/>
2. Run the setup file (VMware-player-5.0.2-1031769.exe). Allow it to make changes to your computer if asked.



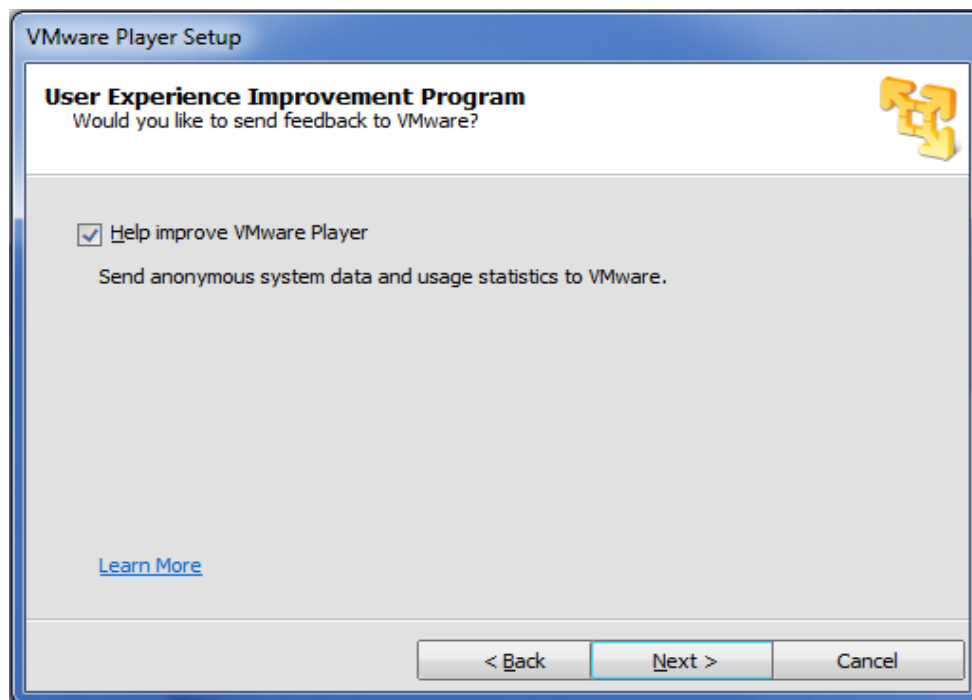
3. Follow the instructions given (allow drivers to be installed if asked).



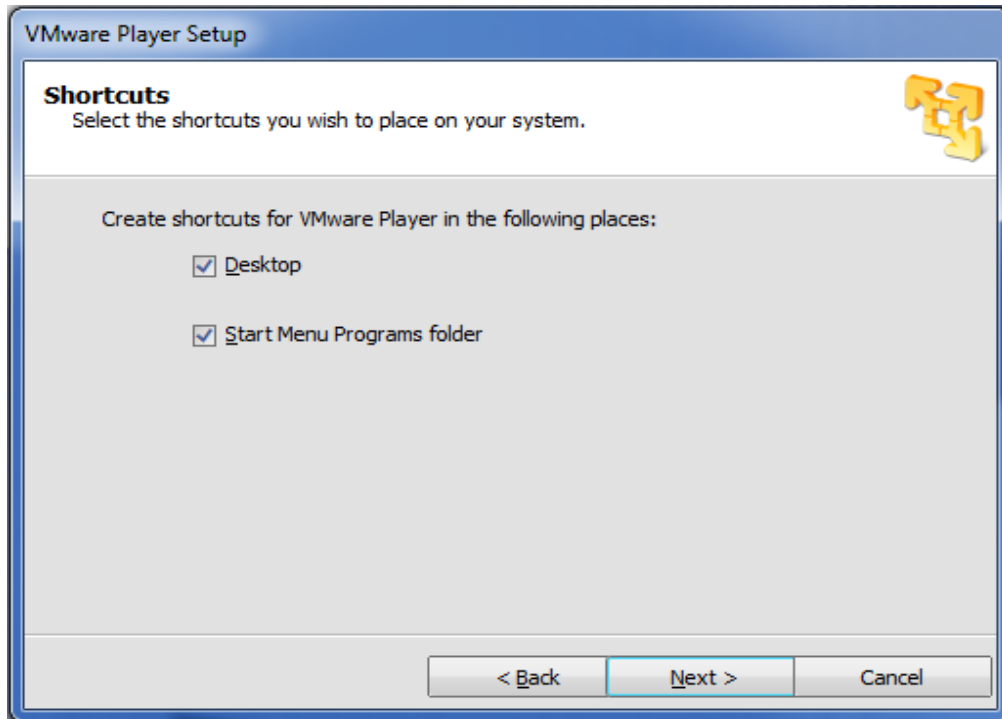
- Continue following the instructions



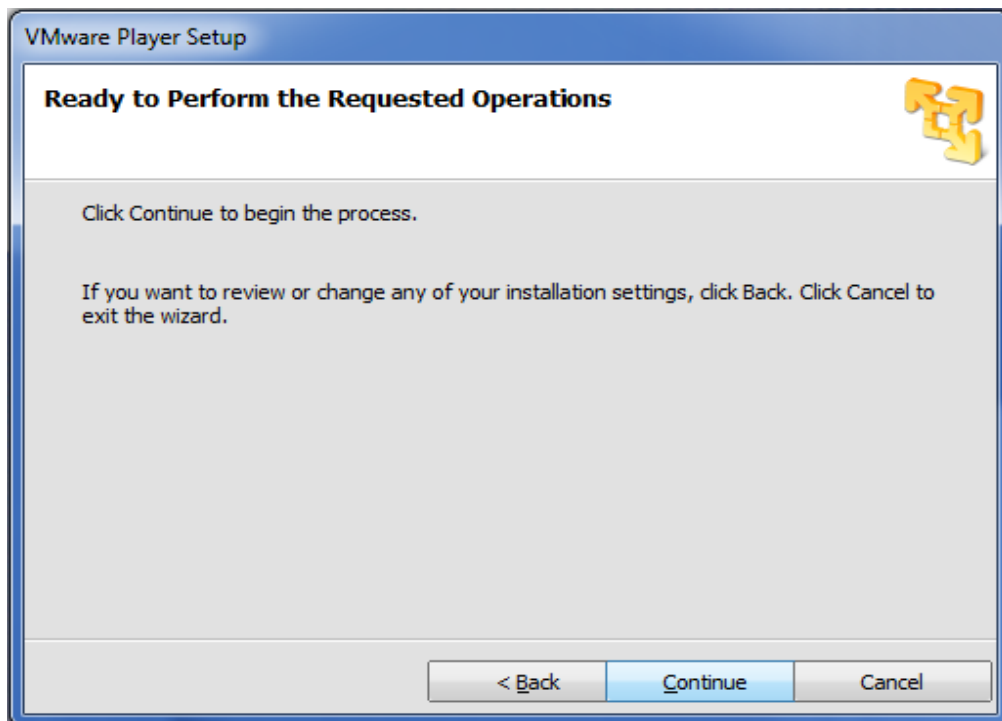
- And continue



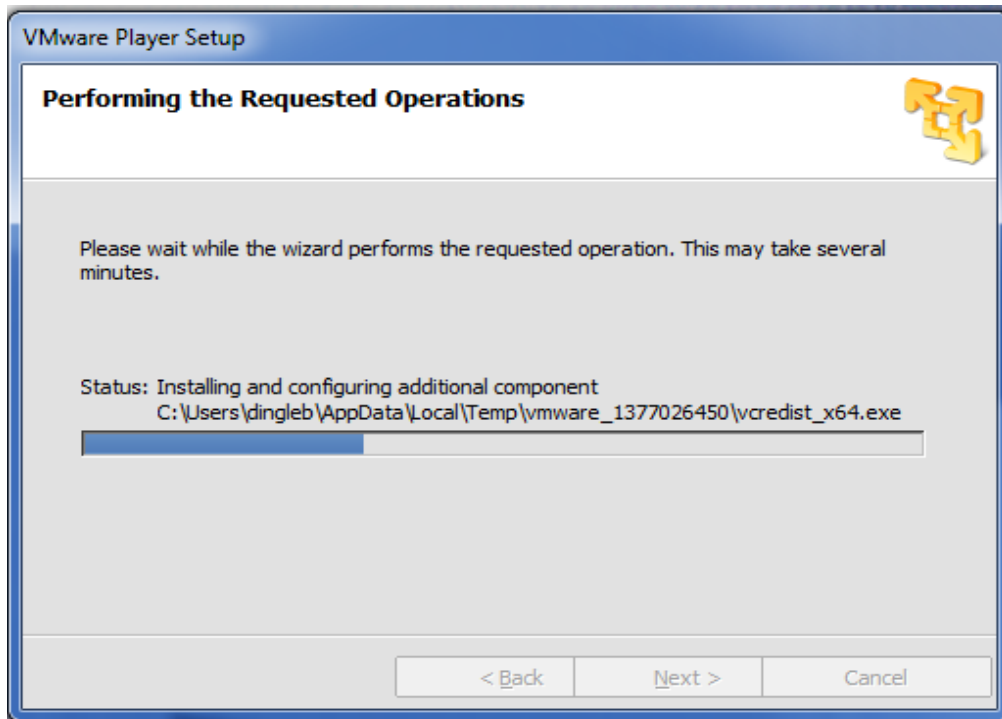
6. Keep going



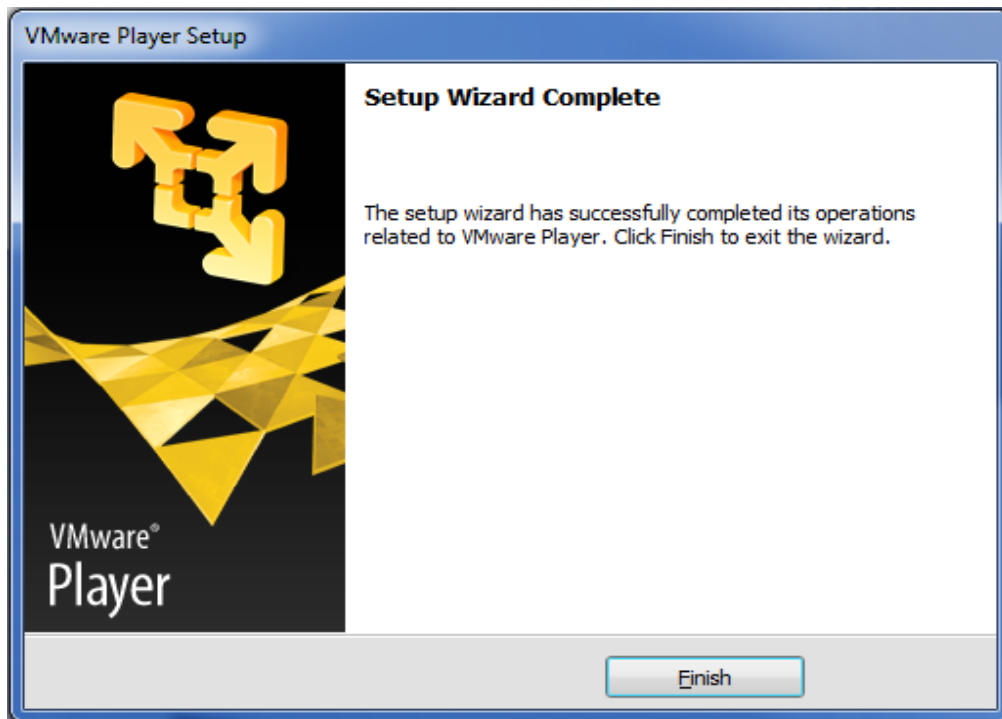
7. Continue



8. Continue



9. Keep Going



10. And now to Ubuntu Linux...

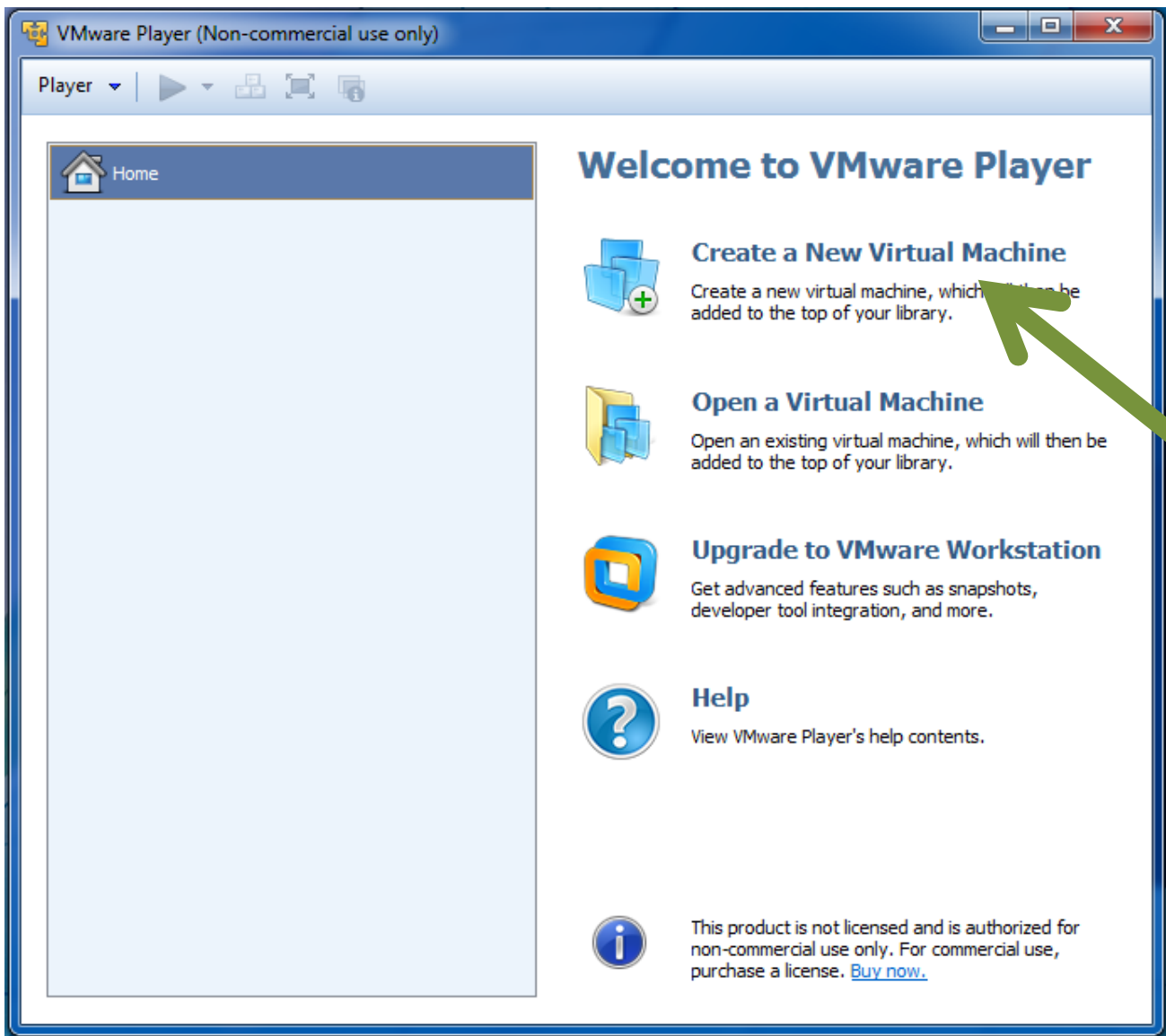
Install Ubuntu – with all the power to you

Here there are several ways you can go. At this point YOU become responsible for remembering things. So **pay attention**. In the steps below, you will need:

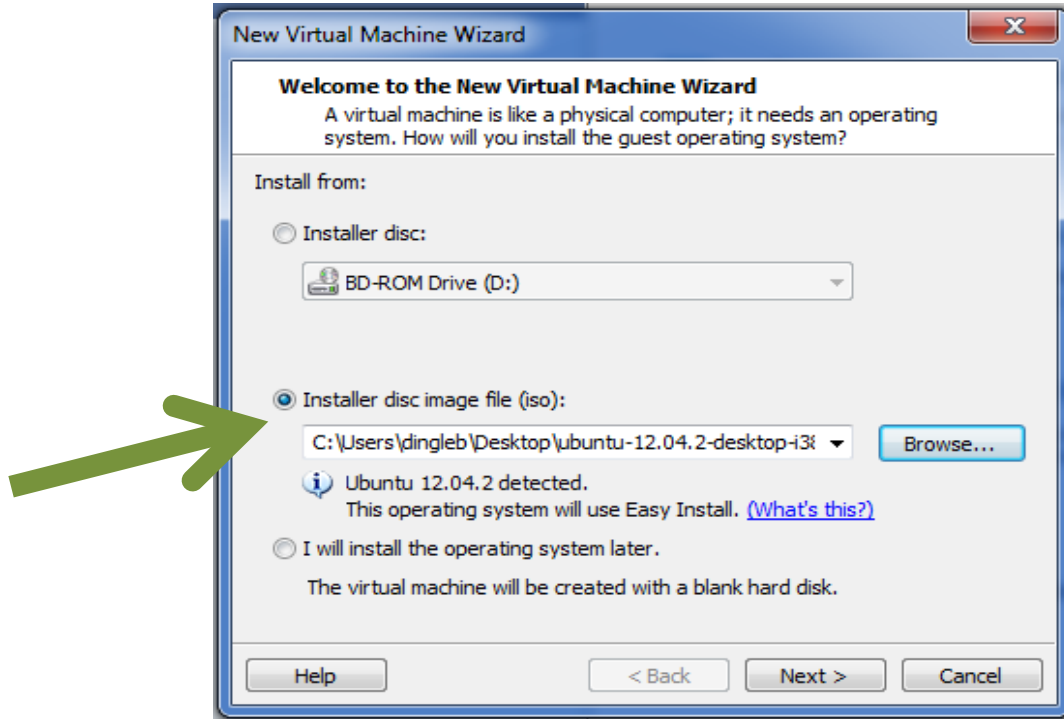
- A. The Ubuntu ISO file, **ubuntu-12.04.2-desktop-i386.iso** from the provided media or download from: <http://www.ubuntu.com/download/desktop> (version 12.04 LTS, 32-bit)
- B. A user name – I suggest using your first name.
- C. Yet another password. Make it simple – like *passCS244*

Be certain you have an internet connection before continuing! Open Internet Explorer, Firefox or similar.

1. Open VMware Player (it may pause briefly as it starts) and choose “Create a New Virtual Machine



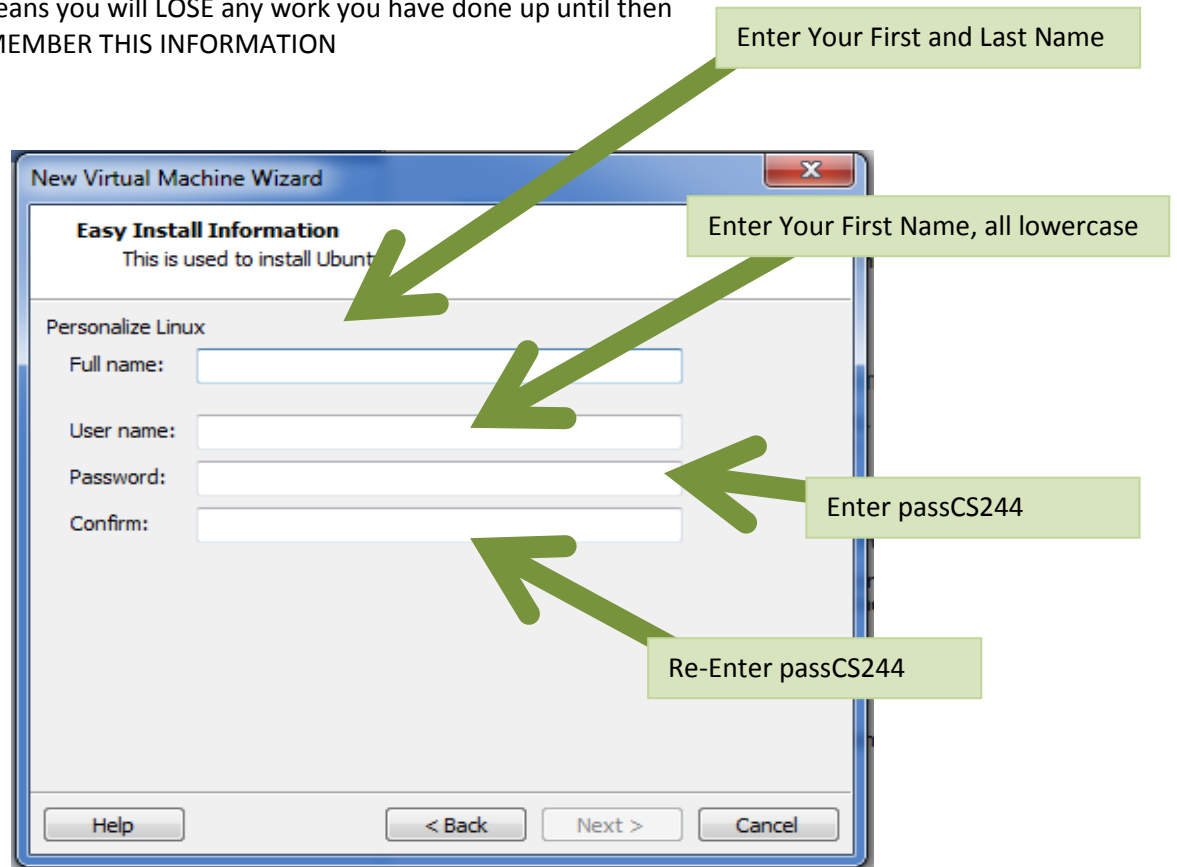
2. You will be installing Ubuntu directly from the ISO file (**ubuntu-12.04.2-desktop-i386.iso**)
So click the second option and browse to that file
Once you have selected the file, VMware Player will automatically detect Ubuntu and will show that it will be installed with “Easy Install”
After selecting the ISO file click Next



3. Next you will be prompted for:
 - a. Full Name – so **Enter Your First and Last Name**
 - b. User Name – I suggest using your first name – so **Enter Your First name (all lowercase)**
 - c. Password – I suggest something easy – so **Enter passCS244**
 - d. Confirmation of the password – so **Re-Enter passCS244** or your own chosen password

NOTE: YOU MUST REMEMBER THIS INFORMATION

If you forget it, you will likely end up needing to re-install Ubuntu
This means you will LOSE any work you have done up until then
So REMEMBER THIS INFORMATION

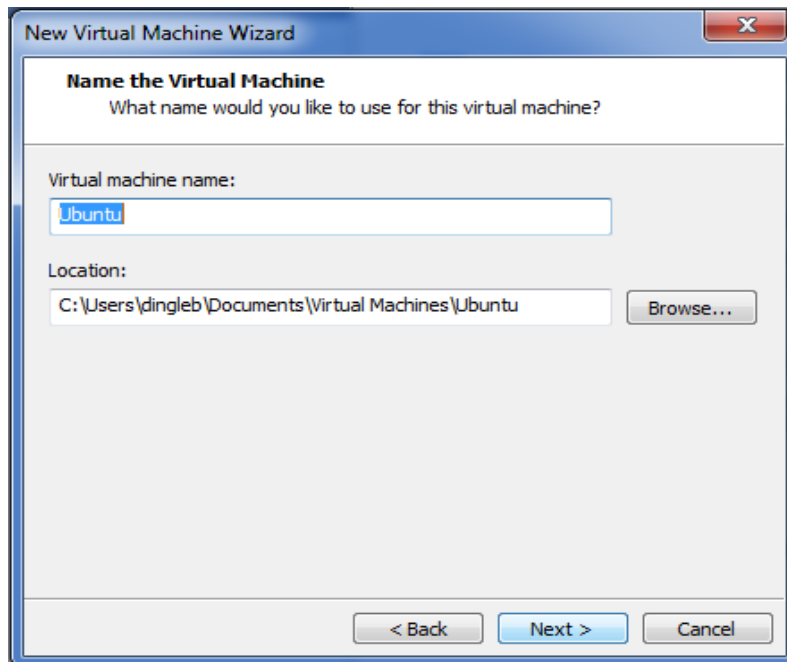


Note the User Name must be all lowercase letters and numbers 0 to 9

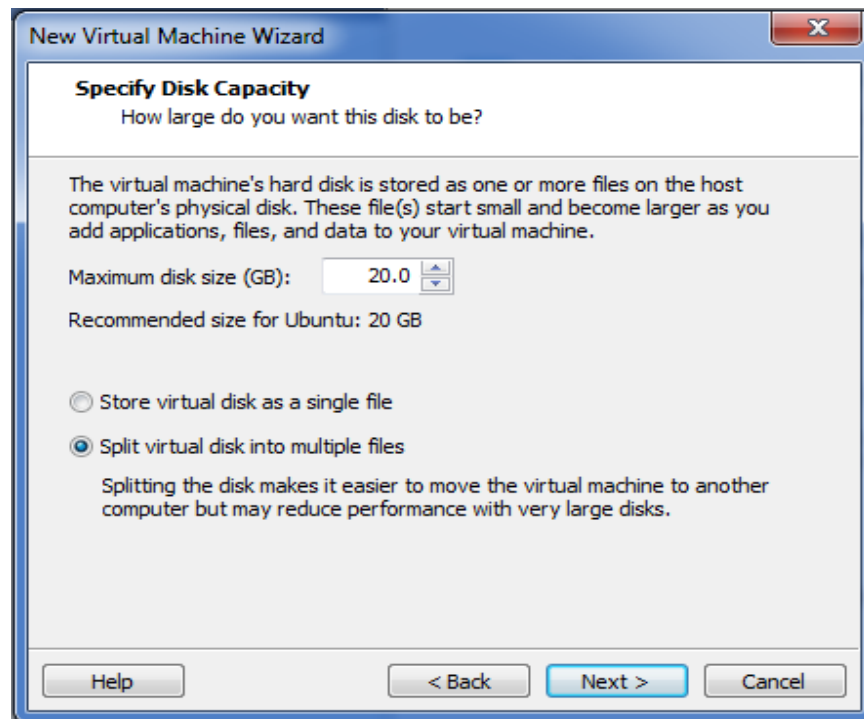
Note the Password must be at least 8 characters long

If those criteria are not met then you will see error messages pop up and you will have to choose something different

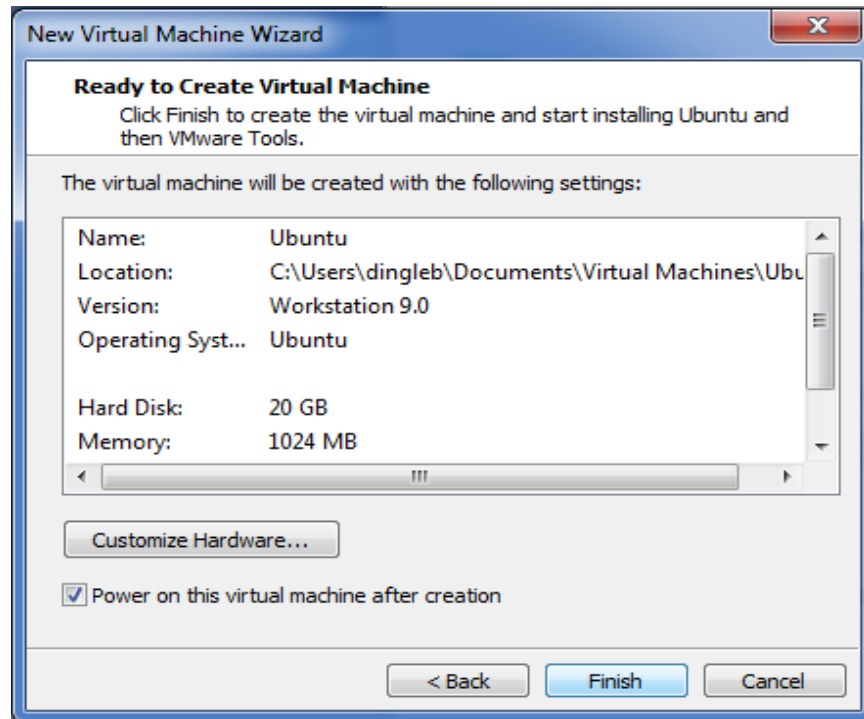
4. Choose the name for you virtual machine – **Enter Ubuntu**
And the path to save it – **Leave it as it defaults**



5. You now can choose how much space the Ubuntu virtual machine disk will have available. The default is 20 GB. That is probably enough space. You may increase it if you want. You also can store the machine's hard disk as one file or multiple. Either option will work.



6. You now get a chance to review the settings and go back if you want. Click Finish when satisfied with the settings.
Note: If you select the bottom check box, the Ubuntu Virtual Machine will automatically start when the installation completes successfully. It is recommended to leave it checked.



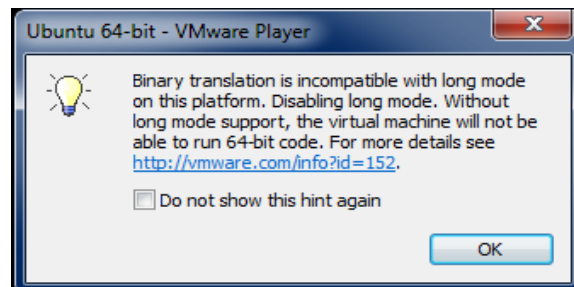
This is where you may need an internet connection active and working.

Various pop ups may occur at this point in time.

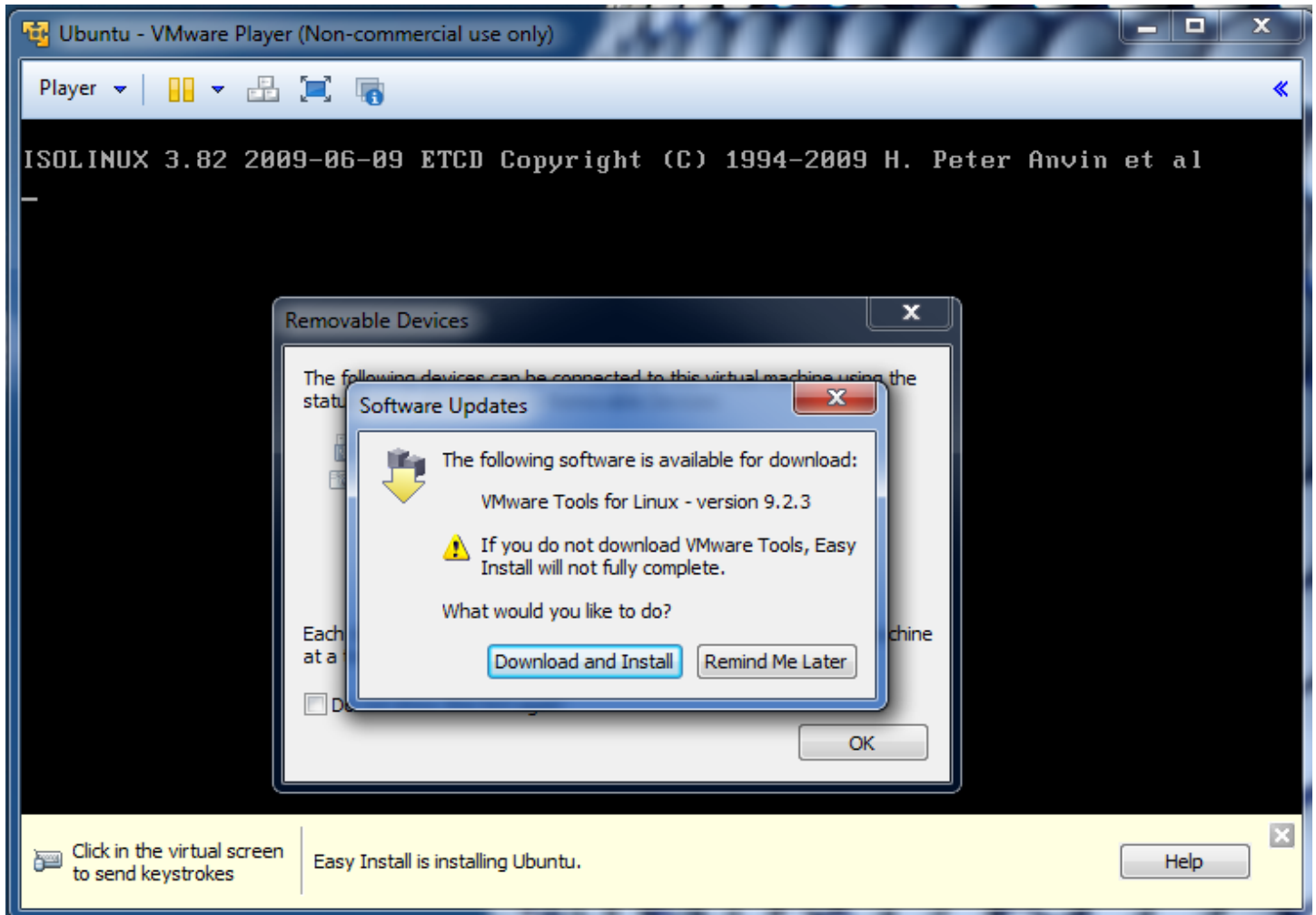
Agree to them all.

Some examples of what you may see follow.

The following is OKAY... don't panic if you see it (and don't worry if you don't see it)

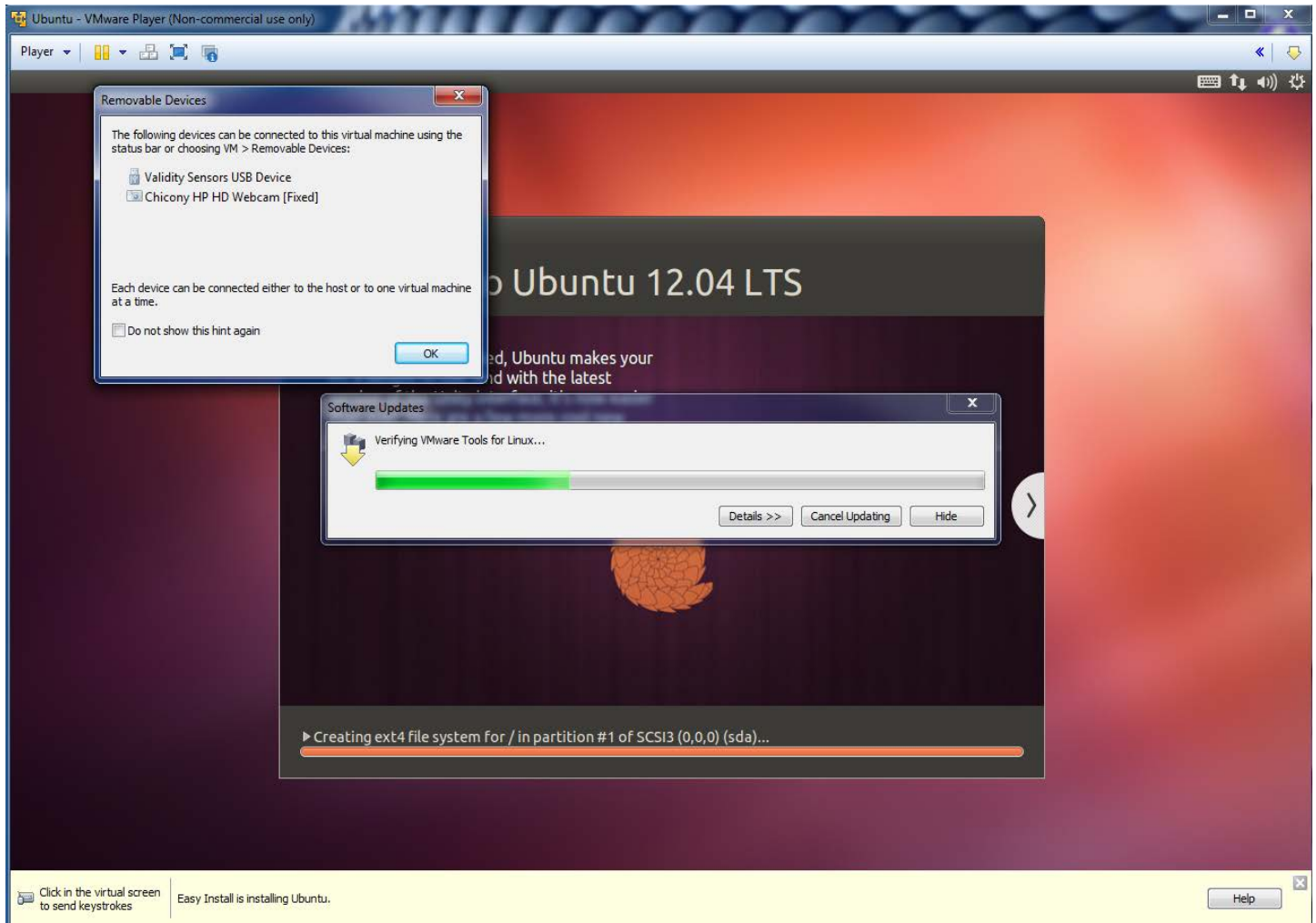


Agree to things such as:

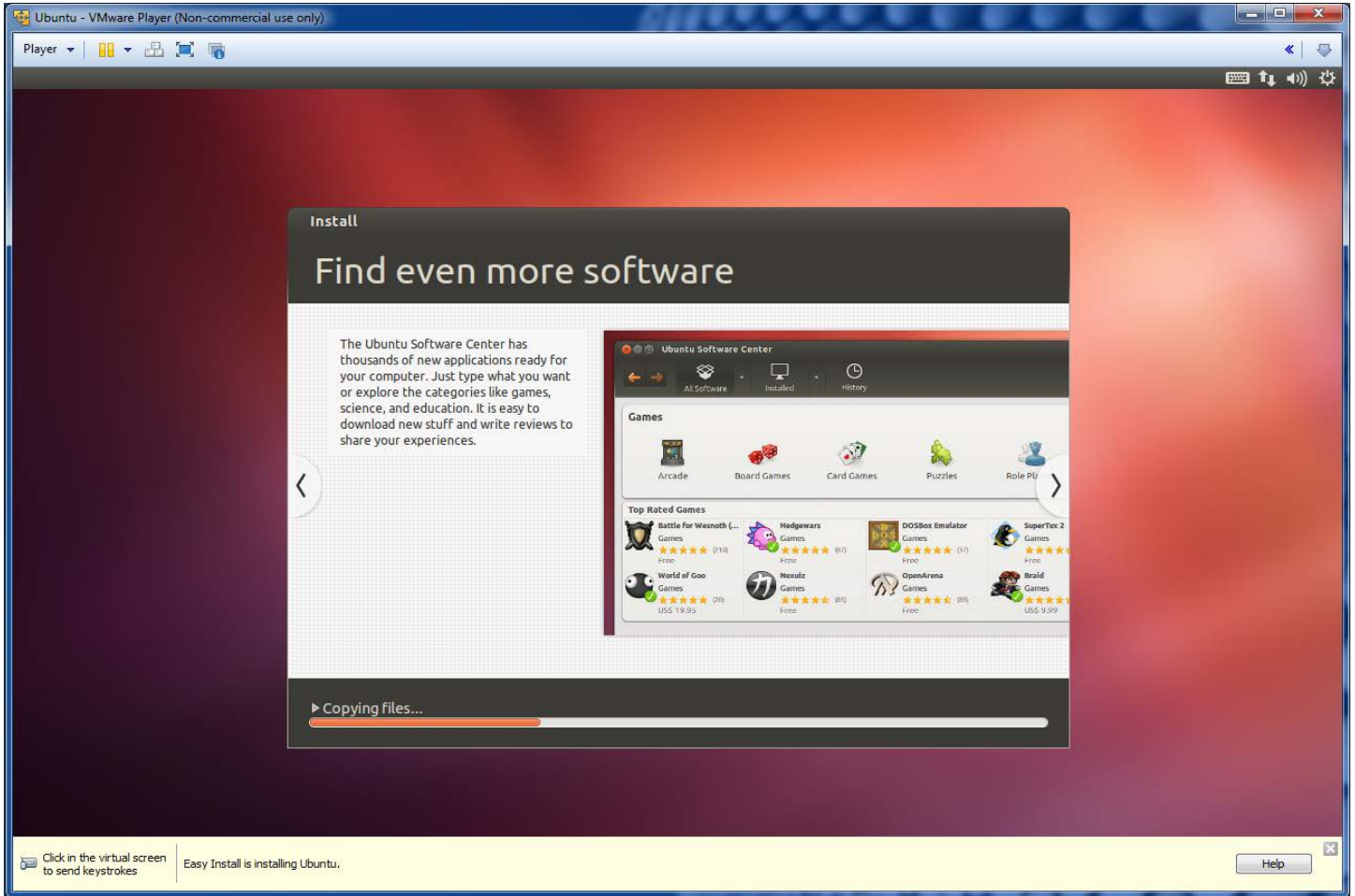


The following is also OKAY if you see it (and okay if you do not):

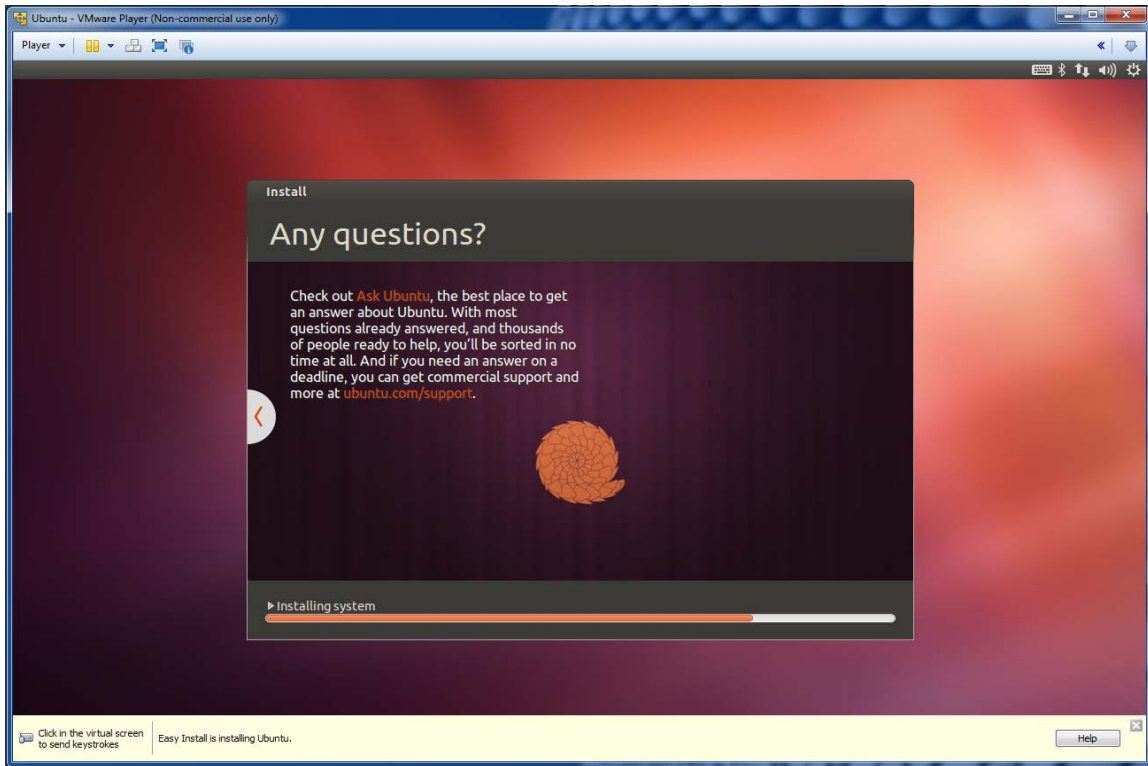
Notice the big colorful screen in the background...



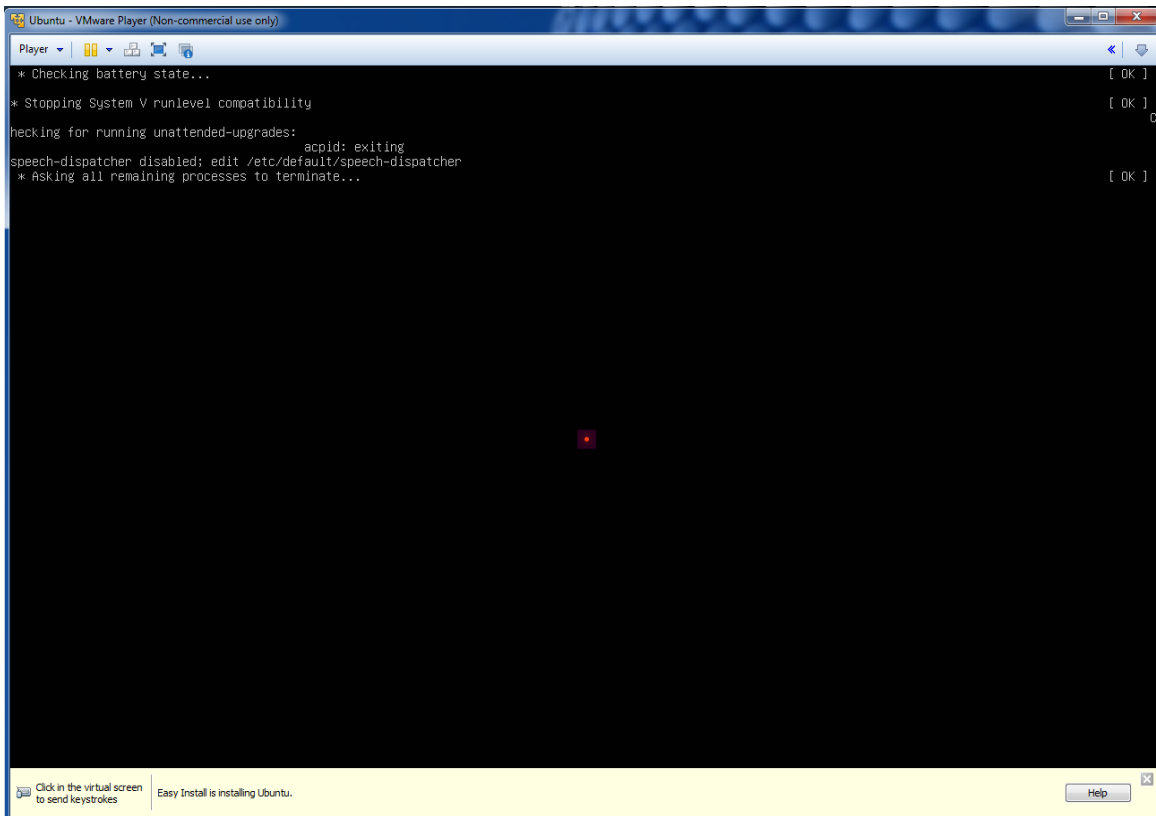
Most of the time you will be looking at something like the following:



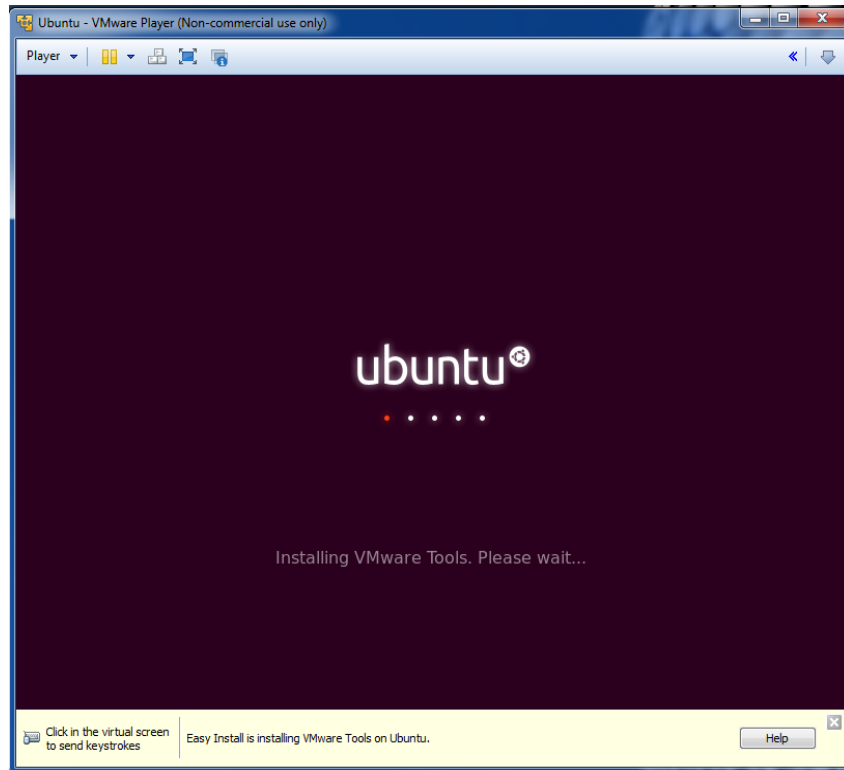
Towards the end you will see something like:



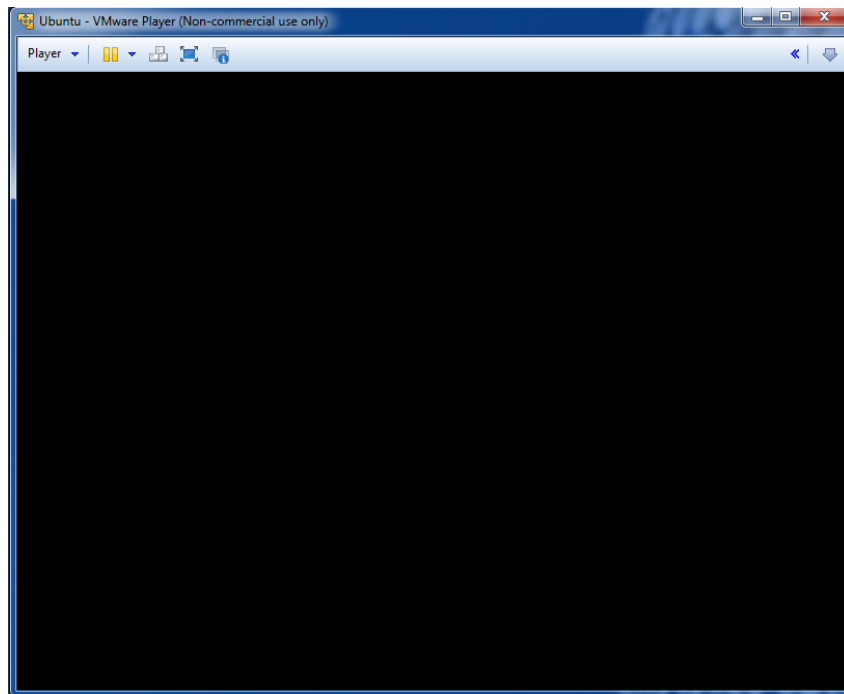
It may then flash several black screens with text like:



After which you should see a screen similar to:

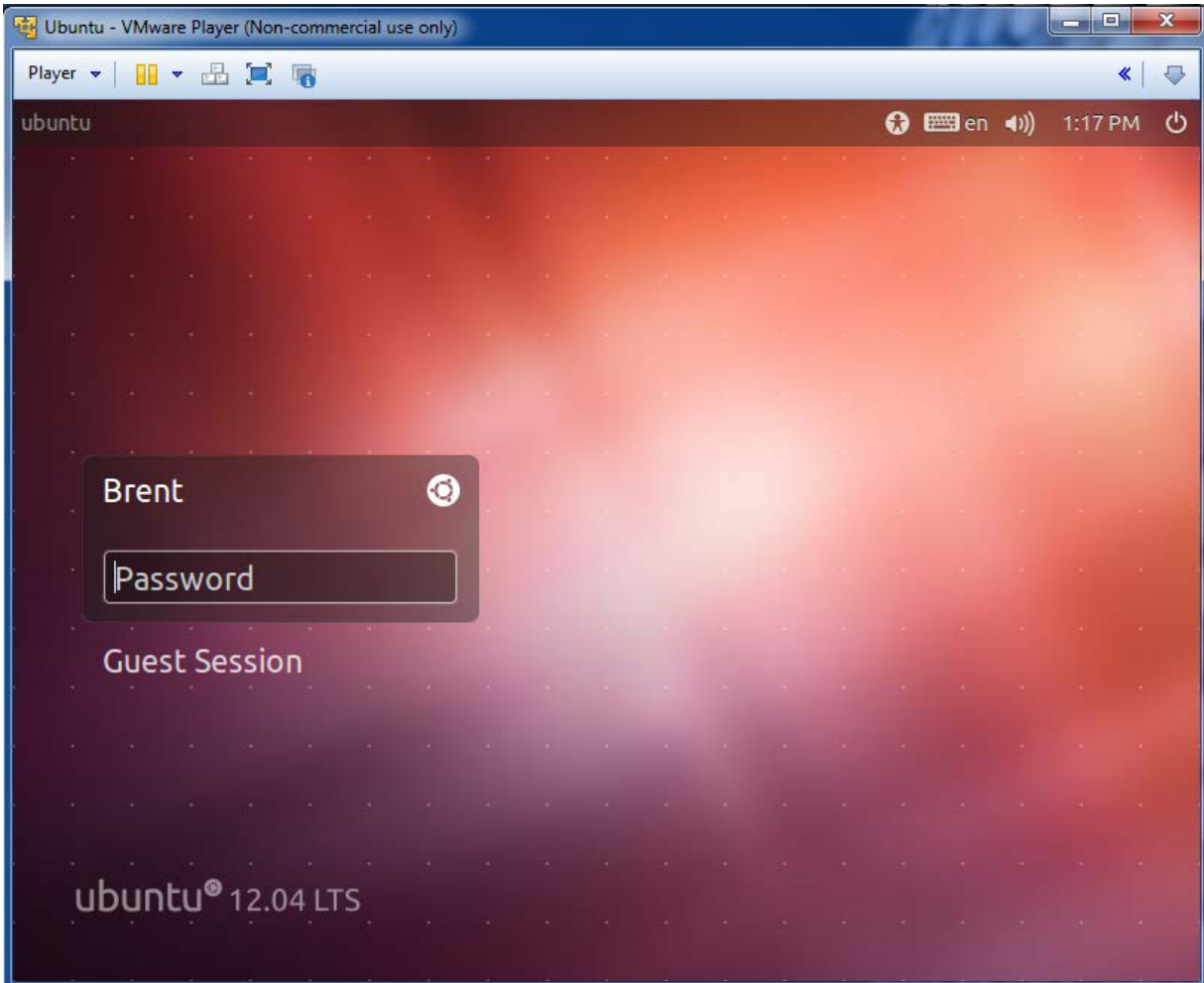


Possibly followed by another black screen that should quickly flash away



7. And FINALLY you will be able to log into your Ubuntu Virtual Machine
You are almost done
You will still need to make sure you actually get a usable C++ compiler out of all this (see farther below)

You should now see a screen similar to the following (but with your first name, not mine)



If you would like a second viewpoint on these directions or encounter some oddities, particularly due to lack of internet access... very similar instructions to the above may be found at:

<http://www.howtogeek.com/howto/11287/how-to-run-ubuntu-in-windows-7-with-vmware-player/>

(last checked August, 2013)

Additionally

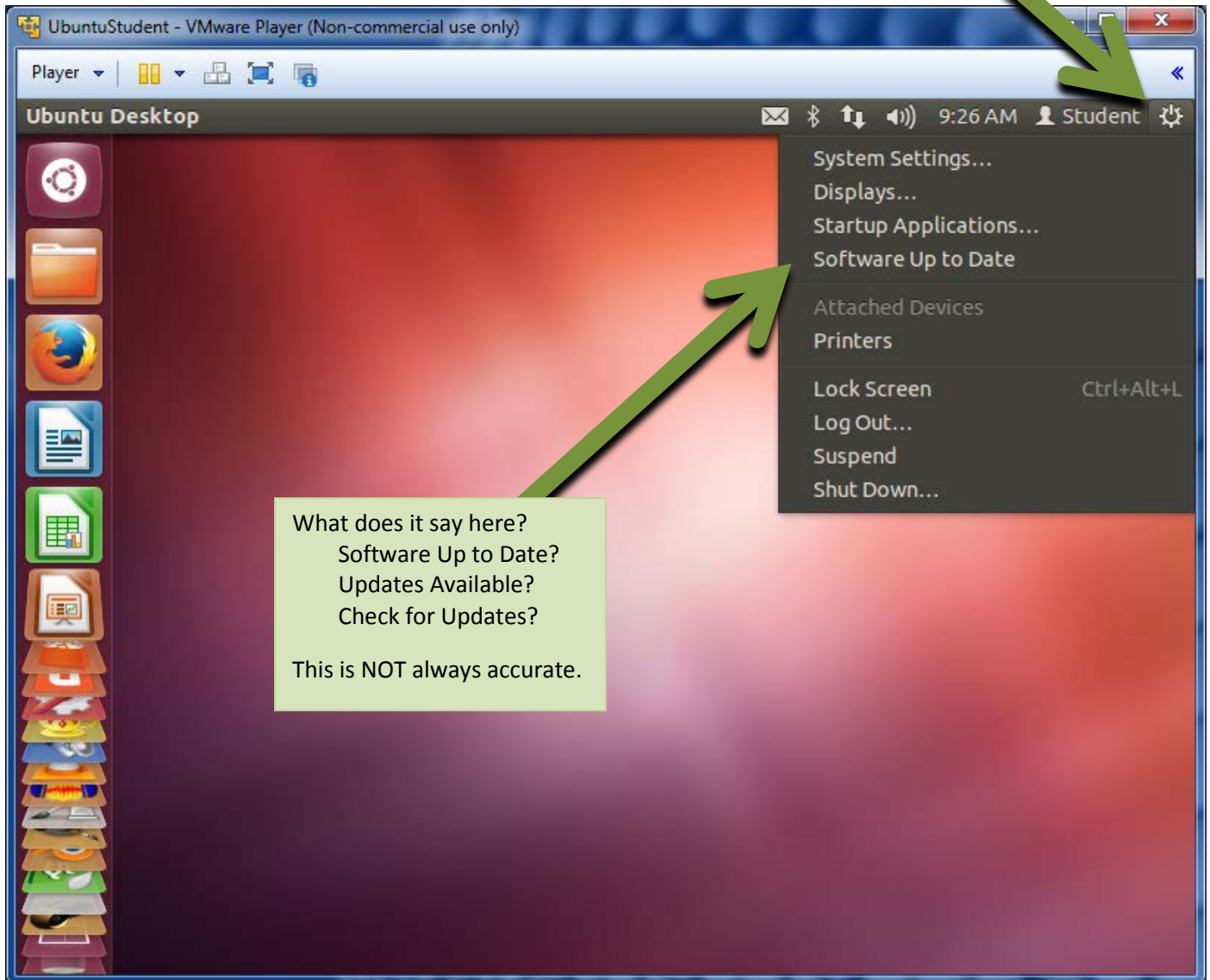
You now have an Ubuntu Linux virtual machine.
It *should* already have an internet connection, if it installed properly.

Updating Ubuntu Linux

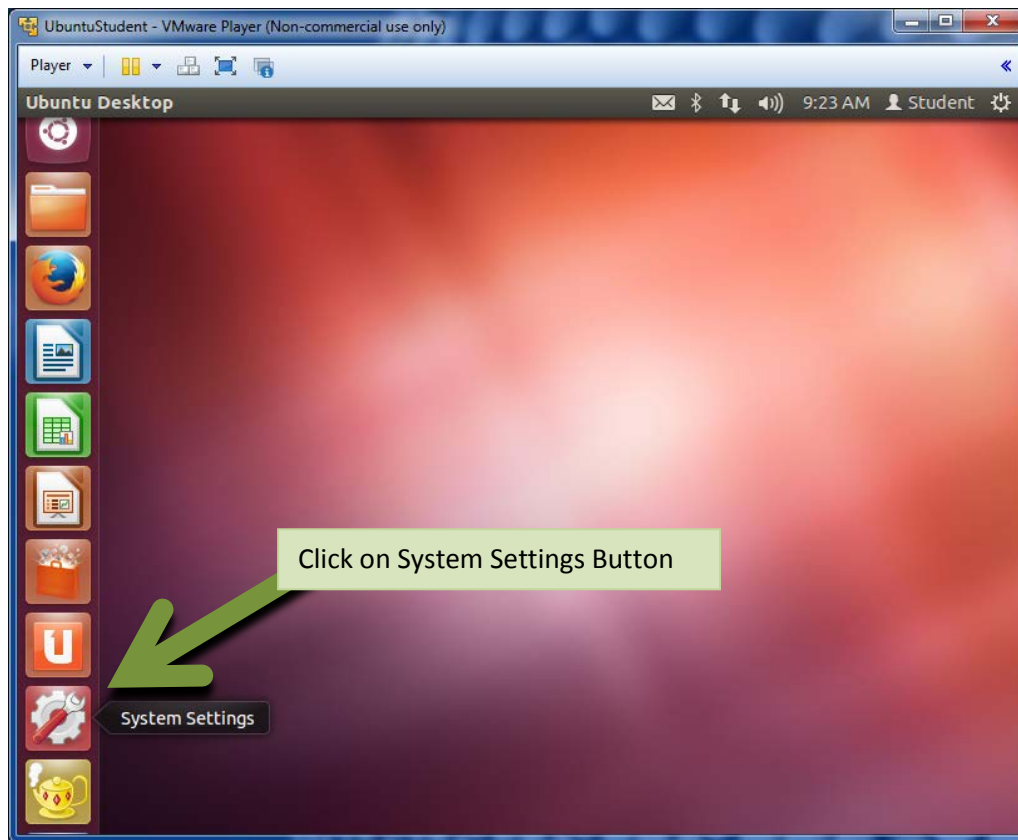
You will now need to make sure it has all the updates it needs.

A quick (sometimes unreliable) check to see if updates are needed is to click on the power switch button in the upper right corner:

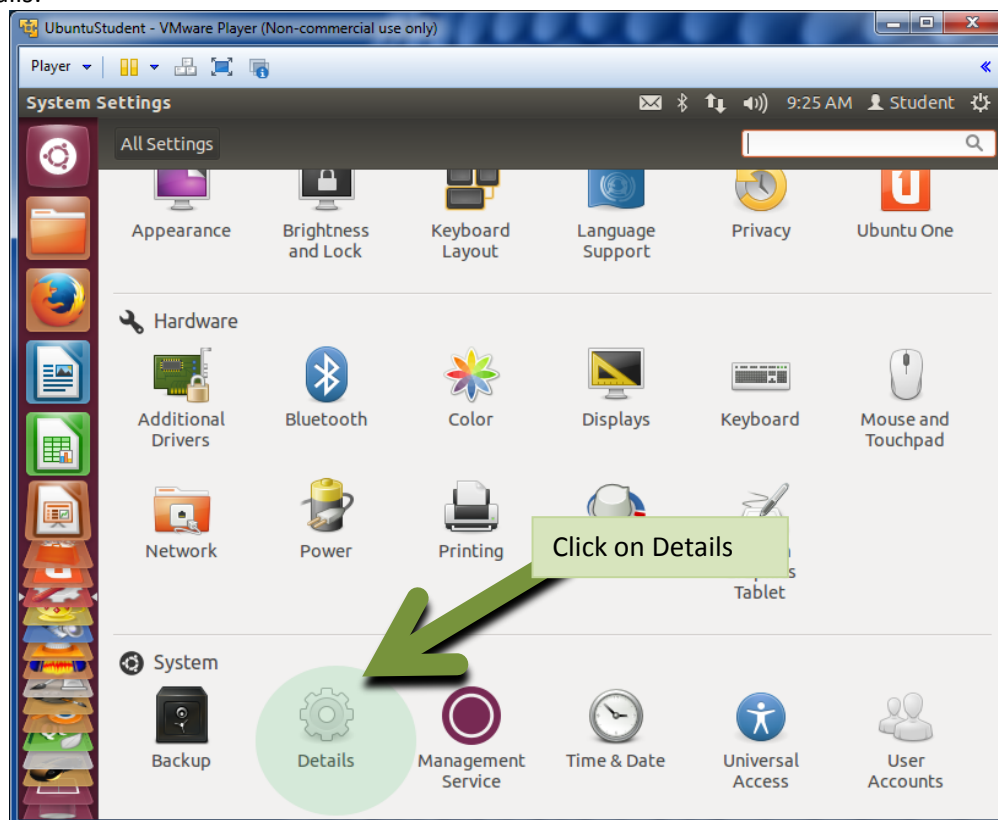
Click on the power button



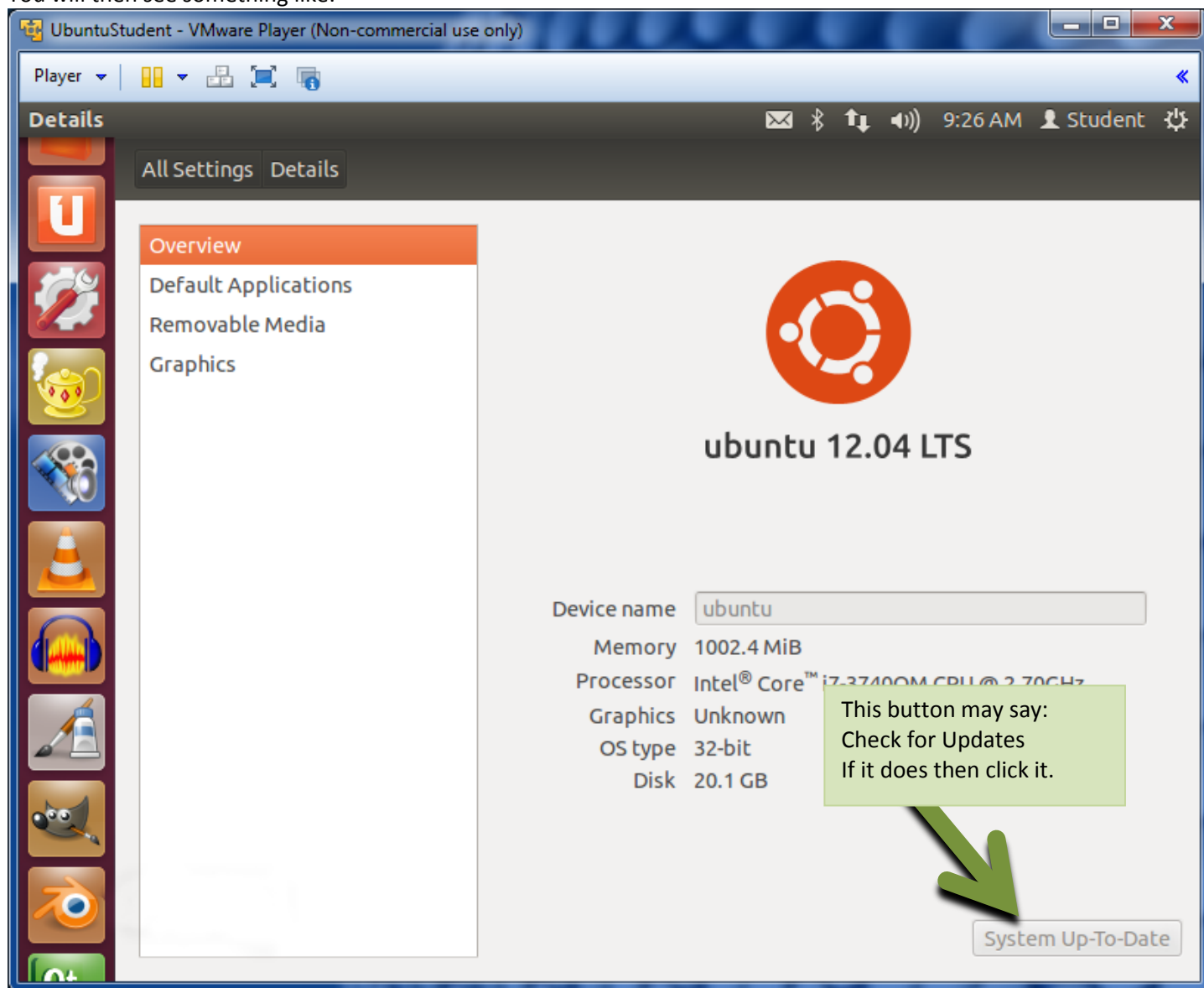
You may also check to see if updates are needed by going to System Settings:



Then click on Details:



You will then see something like:



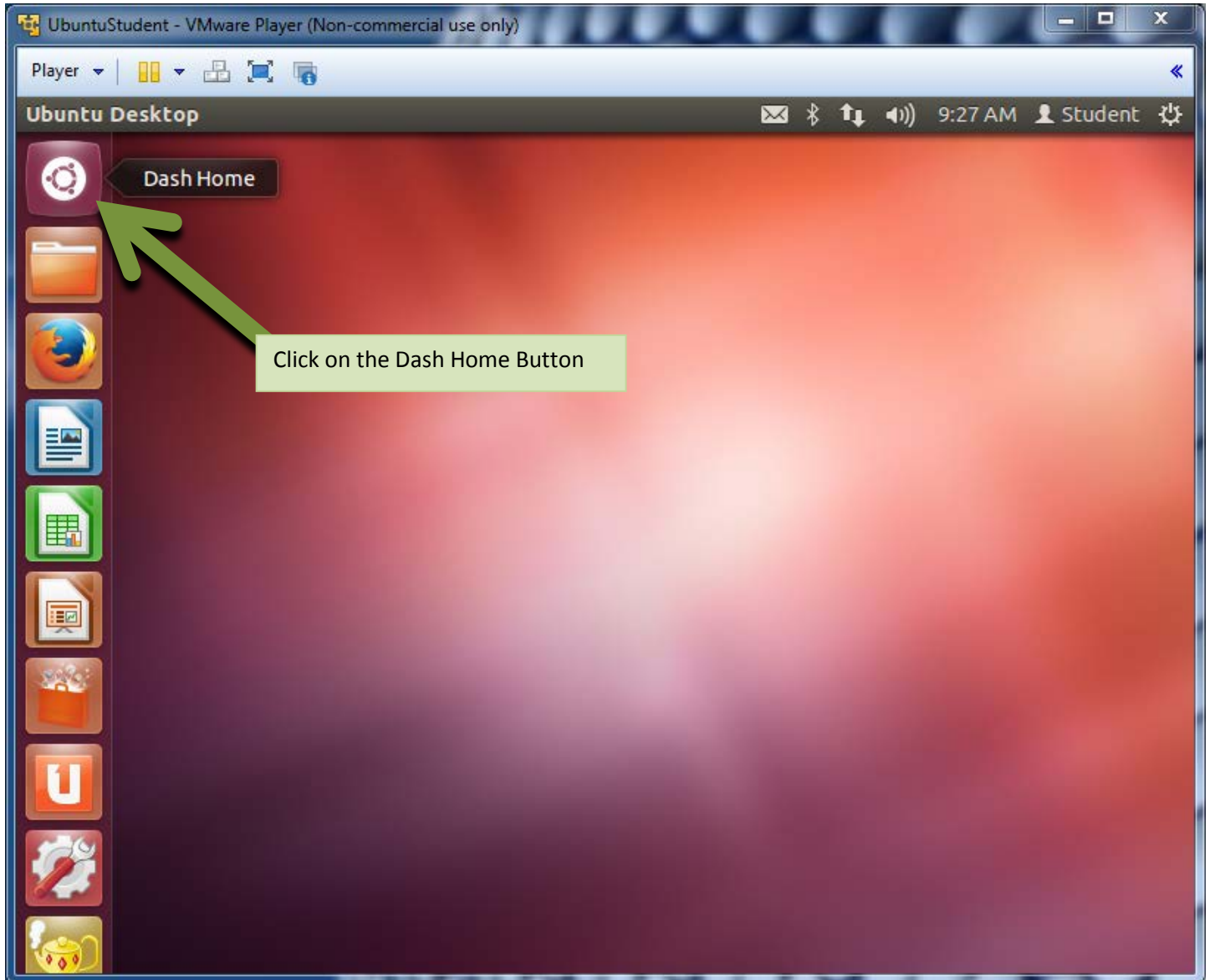
From there it is usually pretty straight forward.

Installing GNU C++ Compiler, aka g++

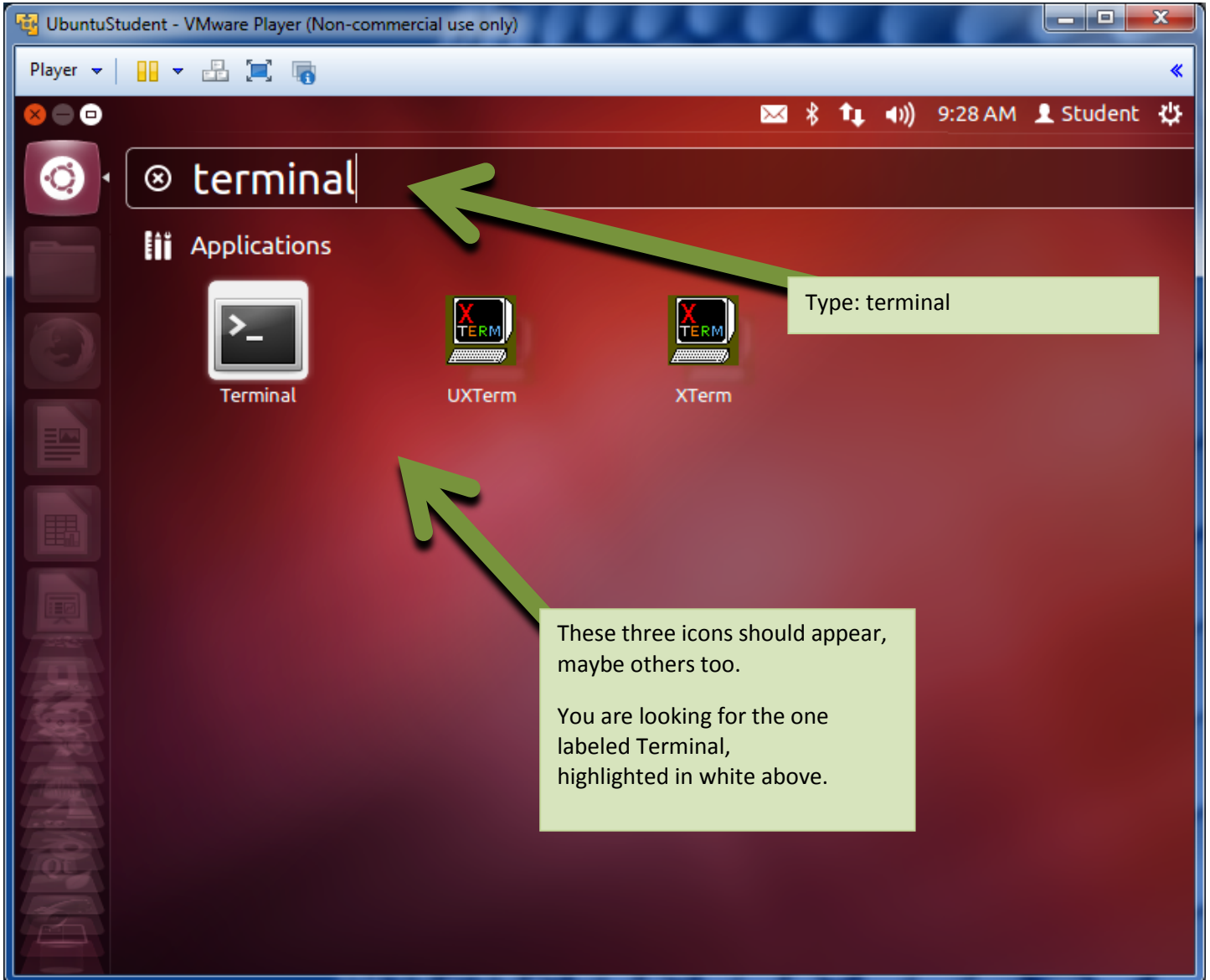
You will also need to install the GNU C++ compiler, called g++.

Be sure you have an internet connection before continuing with the below.

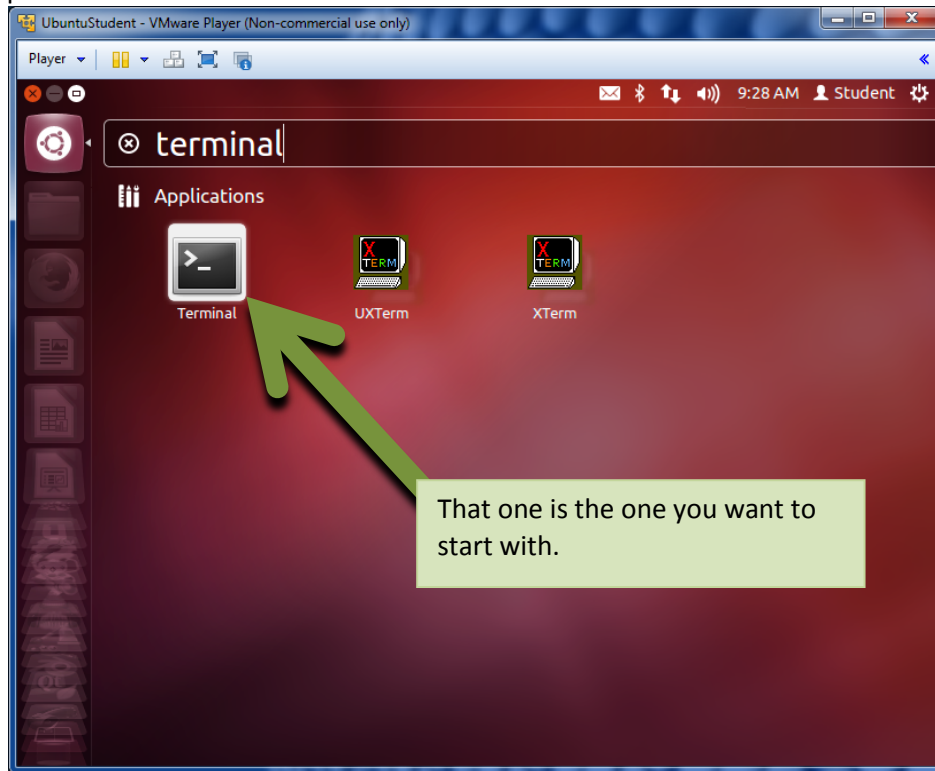
First go to a terminal prompt (via Dash Home):



Next do a search for the “terminal” application:



Find the Terminal Application and click on it:



At the prompt you should type the following:

sudo apt-get update

and then hit enter.

This will produce output that looks something like:

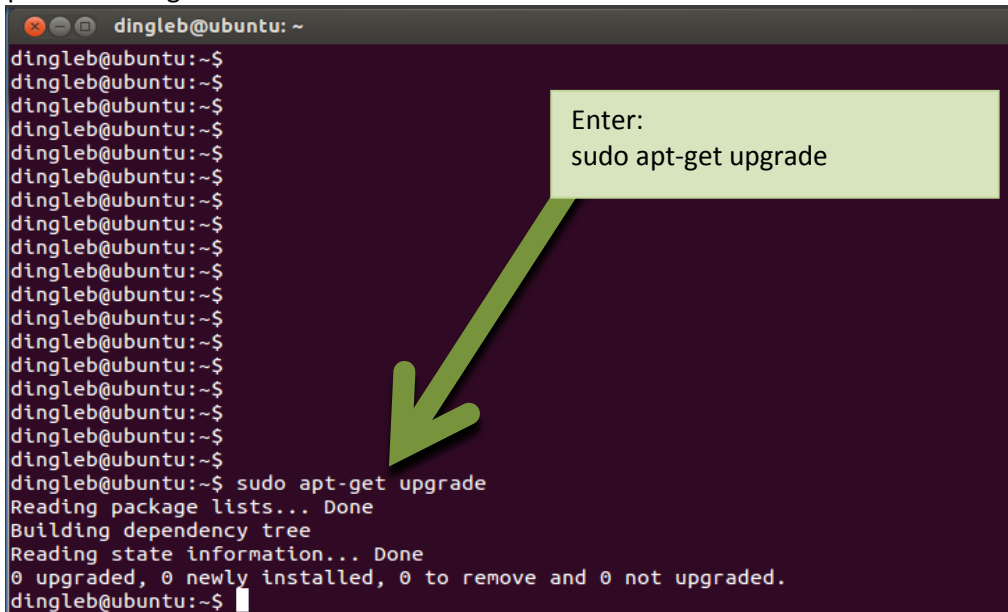
```
dingleb@ubuntu: ~
kB]
Hit http://us.archive.ubuntu.com precise-backports/main Translation-en
Hit http://us.archive.ubuntu.com precise-backports/multiverse Translation-en
Hit http://us.archive.ubuntu.com precise-backports/restricted Translation-en
Hit http://us.archive.ubuntu.com precise-backports/universe Translation-en
Ign http://extras.ubuntu.com precise/main Translation-en_US
Get:27 http://security.ubuntu.com precise-security/multiverse i386 Packages [2,633 B]
Get:28 http://security.ubuntu.com precise-security/main TranslationIndex [74 B]
Get:29 http://security.ubuntu.com precise-security/multiverse TranslationIndex [72 B]
Get:30 http://security.ubuntu.com precise-security/restricted TranslationIndex [72 B]
Get:31 http://security.ubuntu.com precise-security/universe TranslationIndex [73 B]
Ign http://extras.ubuntu.com precise/main Translation-en
Hit http://security.ubuntu.com precise-security/main Translation-en
Get:32 http://security.ubuntu.com precise-security/multiverse Translation-en [1,299 B]
Hit http://security.ubuntu.com precise-security/restricted Translation-en
Hit http://security.ubuntu.com precise-security/universe Translation-en
Fetched 2,242 kB in 4s (460 kB/s)
Reading package lists... Done
dingleb@ubuntu:~$
```

Now type

sudo apt-get upgrade

and press enter

This produces output something like:



A terminal window titled 'dingleb@ubuntu: ~' showing a series of empty prompts. A green callout box with the text 'Enter: sudo apt-get upgrade' has a green arrow pointing to the terminal. The terminal then shows the command being executed and its output: 'Reading package lists... Done', 'Building dependency tree', 'Reading state information... Done', and '0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.'

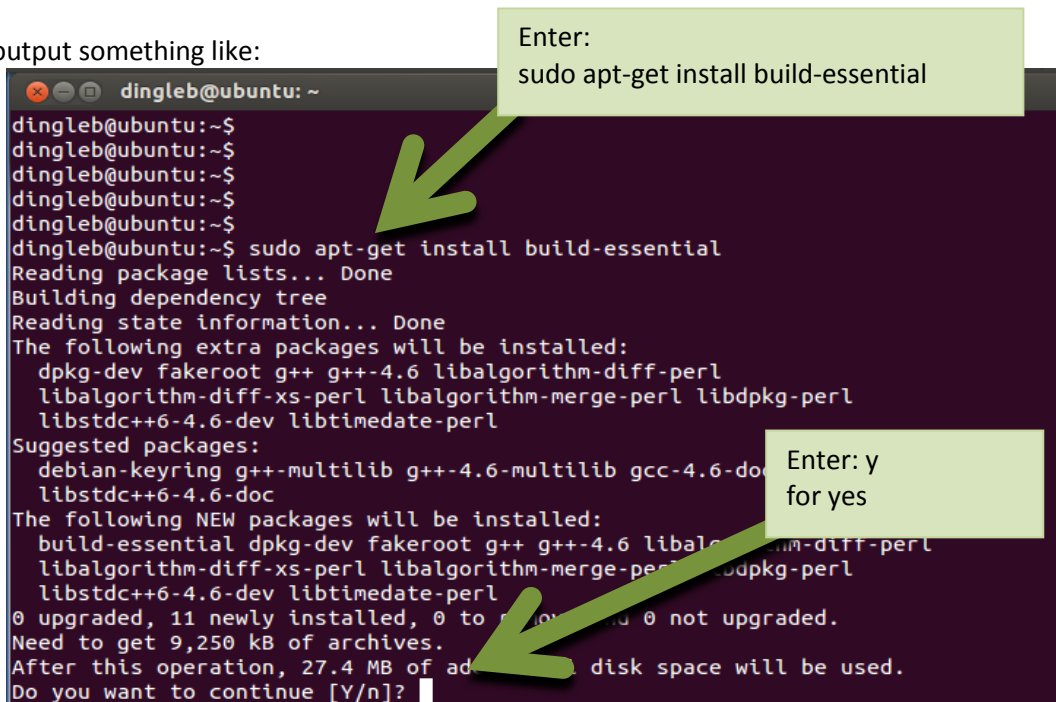
```
dingleb@ubuntu:~$  
dingleb@ubuntu:~$  
dingleb@ubuntu:~$  
dingleb@ubuntu:~$  
dingleb@ubuntu:~$  
dingleb@ubuntu:~$  
dingleb@ubuntu:~$  
dingleb@ubuntu:~$  
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dingleb@ubuntu:~$  
dingleb@ubuntu:~$  
dingleb@ubuntu:~$  
dingleb@ubuntu:~$  
dingleb@ubuntu:~$  
dingleb@ubuntu:~$  
dingleb@ubuntu:~$ sudo apt-get upgrade  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.  
dingleb@ubuntu:~$
```

Now type

sudo apt-get install build-essential

and press enter

This produces output something like:



A terminal window titled 'dingleb@ubuntu: ~' showing a series of empty prompts. A green callout box with the text 'Enter: sudo apt-get install build-essential' has a green arrow pointing to the terminal. The terminal then shows the command being executed and its output, including a list of extra packages and suggested packages. A second green callout box with the text 'Enter: y for yes' has a green arrow pointing to the prompt 'Do you want to continue [Y/n]?'.

```
dingleb@ubuntu:~$  
dingleb@ubuntu:~$  
dingleb@ubuntu:~$  
dingleb@ubuntu:~$  
dingleb@ubuntu:~$  
dingleb@ubuntu:~$ sudo apt-get install build-essential  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
The following extra packages will be installed:  
  dpkg-dev fakeroot g++ g++-4.6 libalgorithm-diff-perl  
  libalgorithm-diff-xs-perl libalgorithm-merge-perl libdpkg-perl  
  libstdc++6-4.6-dev libtimedate-perl  
Suggested packages:  
  debian-keyring g++-multilib g++-4.6-multilib gcc-4.6-doc  
  libstdc++6-4.6-doc  
The following NEW packages will be installed:  
  build-essential dpkg-dev fakeroot g++ g++-4.6 libalgorithm-diff-perl  
  libalgorithm-diff-xs-perl libalgorithm-merge-perl libdpkg-perl  
  libstdc++6-4.6-dev libtimedate-perl  
0 upgraded, 11 newly installed, 0 to remove and 0 not upgraded.  
Need to get 9,250 kB of archives.  
After this operation, 27.4 MB of additional disk space will be used.  
Do you want to continue [Y/n]?
```

Enter Y for yes when prompted.

This produces output something like:

```
dingleb@ubuntu: ~
deb) ...
Selecting previously unselected package libalgorithm-diff-xs-perl.
Unpacking libalgorithm-diff-xs-perl (from .../libalgorithm-diff-xs-perl_0.04-2bu
ild2_i386.deb) ...
Selecting previously unselected package libalgorithm-merge-perl.
Unpacking libalgorithm-merge-perl (from .../libalgorithm-merge-perl_0.08-2_all.d
eb) ...
Processing triggers for man-db ...
Setting up libtimedate-perl (1.2000-1) ...
Setting up libdpkg-perl (1.16.1.2ubuntu7.1) ...
Setting up dpkg-dev (1.16.1.2ubuntu7.1) ...
Setting up fakeroot (1.18.2-1) ...
update-alternatives: using /usr/bin/fakeroot-sysv to provide /usr/bin/fakeroot (
fakeroot) in auto mode.
Setting up libalgorithm-diff-perl (1.19.02-2) ...
Setting up libalgorithm-diff-xs-perl (0.04-2build2) ...
Setting up libalgorithm-merge-perl (0.08-2) ...
Setting up libstdc++6-4.6-dev (4.6.3-1ubuntu5) ...
Setting up g++-4.6 (4.6.3-1ubuntu5) ...
Setting up g++ (4:4.6.3-1ubuntu5) ...
update-alternatives: using /usr/bin/g++ to provide /usr/bin/c++ (c++) in auto mo
de.
Setting up build-essential (11.5ubuntu2.1) ...
dingleb@ubuntu:~$
```

This should complete the install of g++ on your Ubuntu Linux Virtual Machine.

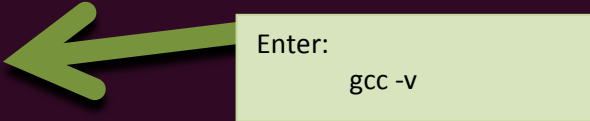
To verify it is installed you can type

gcc -v

and press enter (notice there is a space between the c and the dash)

This should produce something like:

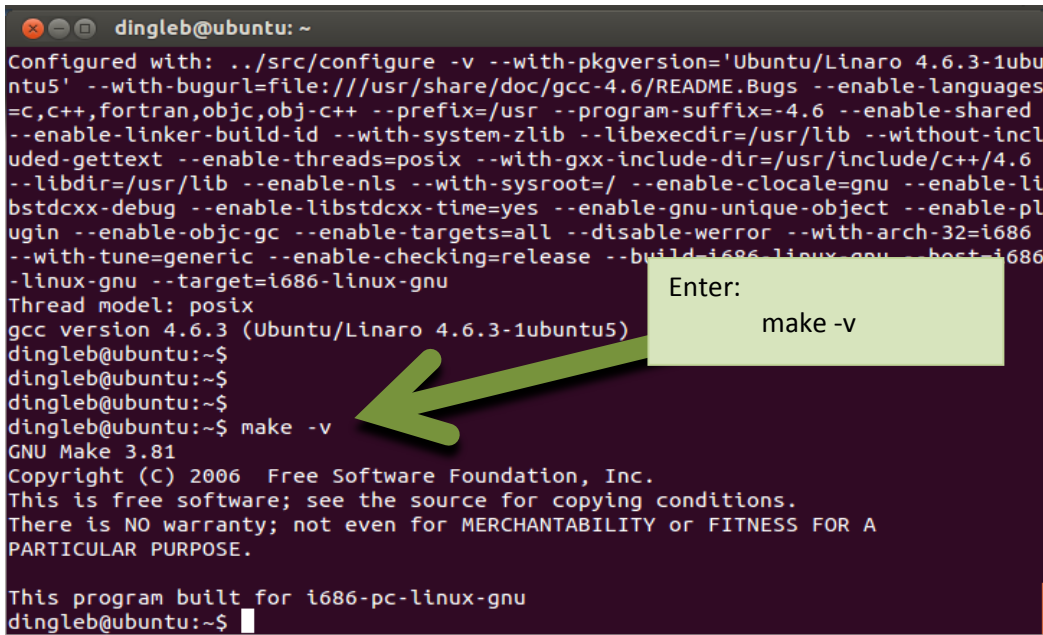
```
dingleb@ubuntu: ~
update-alternatives: using /usr/bin/g++ to provide /usr/bin/c++ (c++) in auto mo
de.
Setting up build-essential (11.5ubuntu2.1) ...
dingleb@ubuntu:~$
dingleb@ubuntu:~$
dingleb@ubuntu:~$ gcc -v
Using built-in specs.
COLLECT_GCC=gcc
COLLECT_LTO_WRAPPER=/usr/lib/gcc/i686-linux-gnu/4.6/lto-wrapper
Target: i686-linux-gnu
Configured with: ../src/configure -v --with-pkgversion='Ubuntu/Linaro 4.6.3-1ubu
ntu5' --with-bugurl=file:///usr/share/doc/gcc-4.6/README.Bugs --enable-languages
=c,c++,fortran,objc,obj-c++ --prefix=/usr --program-suffix=-4.6 --enable-shared
--enable-linker-build-id --with-system-zlib --libexecdir=/usr/lib --without-incl
uded-gettext --enable-threads=posix --with-gxx-include-dir=/usr/include/c++/4.6
--libdir=/usr/lib --enable-nls --with-sysroot=/ --enable-clocale=gnu --enable-li
bstdcxx-debug --enable-libstdcxx-time=yes --enable-gnu-unique-object --enable-pl
ugin --enable-objc-gc --enable-targets=all --disable-werror --with-arch-32=i686
--with-tune=generic --enable-checking=release --build=i686-linux-gnu --host=i686
-linux-gnu --target=i686-linux-gnu
Thread model: posix
gcc version 4.6.3 (Ubuntu/Linaro 4.6.3-1ubuntu5)
dingleb@ubuntu:~$
```



And then

make -v

and pressing enter, should produce something equally reasonable, such as:

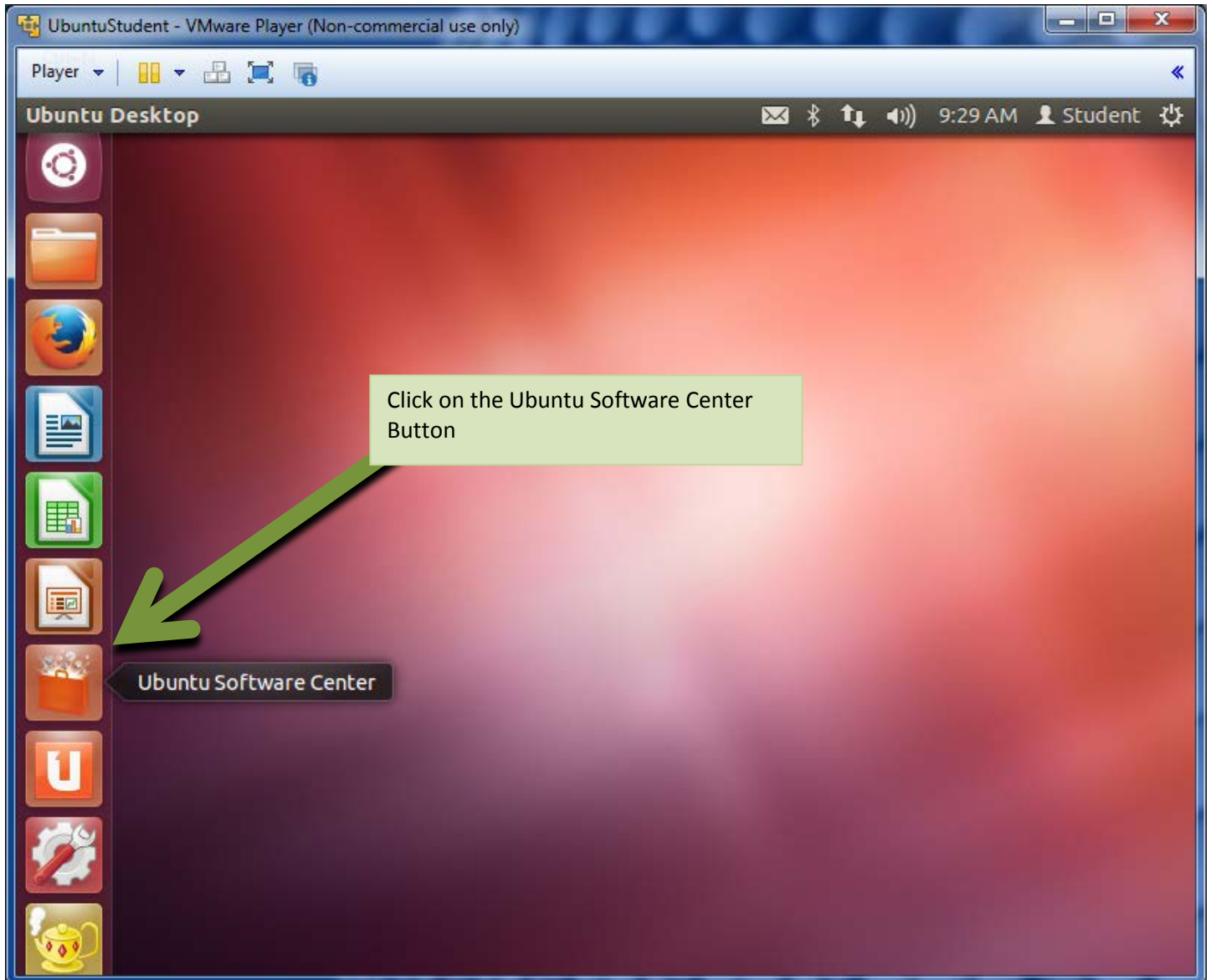


```
dingleb@ubuntu: ~  
Configured with: ../src/configure -v --with-pkgversion='Ubuntu/Linaro 4.6.3-1ubuntu5' --with-bugurl=file:///usr/share/doc/gcc-4.6/README.Bugs --enable-languages=c,c++,fortran,objc,obj-c++ --prefix=/usr --program-suffix=-4.6 --enable-shared --enable-linker-build-id --with-system-zlib --libexecdir=/usr/lib --without-included-gettext --enable-threads=posix --with-gxx-include-dir=/usr/include/c++/4.6 --libdir=/usr/lib --enable-nls --with-sysroot=/ --enable-clocale=gnu --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-gnu-unique-object --enable-plugin --enable-objc-gc --enable-targets=all --disable-werror --with-arch-32=i686 --with-tune=generic --enable-checking=release --build=i686-linux-gnu --host=i686-linux-gnu --target=i686-linux-gnu  
Thread model: posix  
gcc version 4.6.3 (Ubuntu/Linaro 4.6.3-1ubuntu5)  
dingleb@ubuntu:~$  
dingleb@ubuntu:~$  
dingleb@ubuntu:~$  
dingleb@ubuntu:~$ make -v  
GNU Make 3.81  
Copyright (C) 2006 Free Software Foundation, Inc.  
This is free software; see the source for copying conditions.  
There is NO warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.  
  
This program built for i686-pc-linux-gnu  
dingleb@ubuntu:~$
```

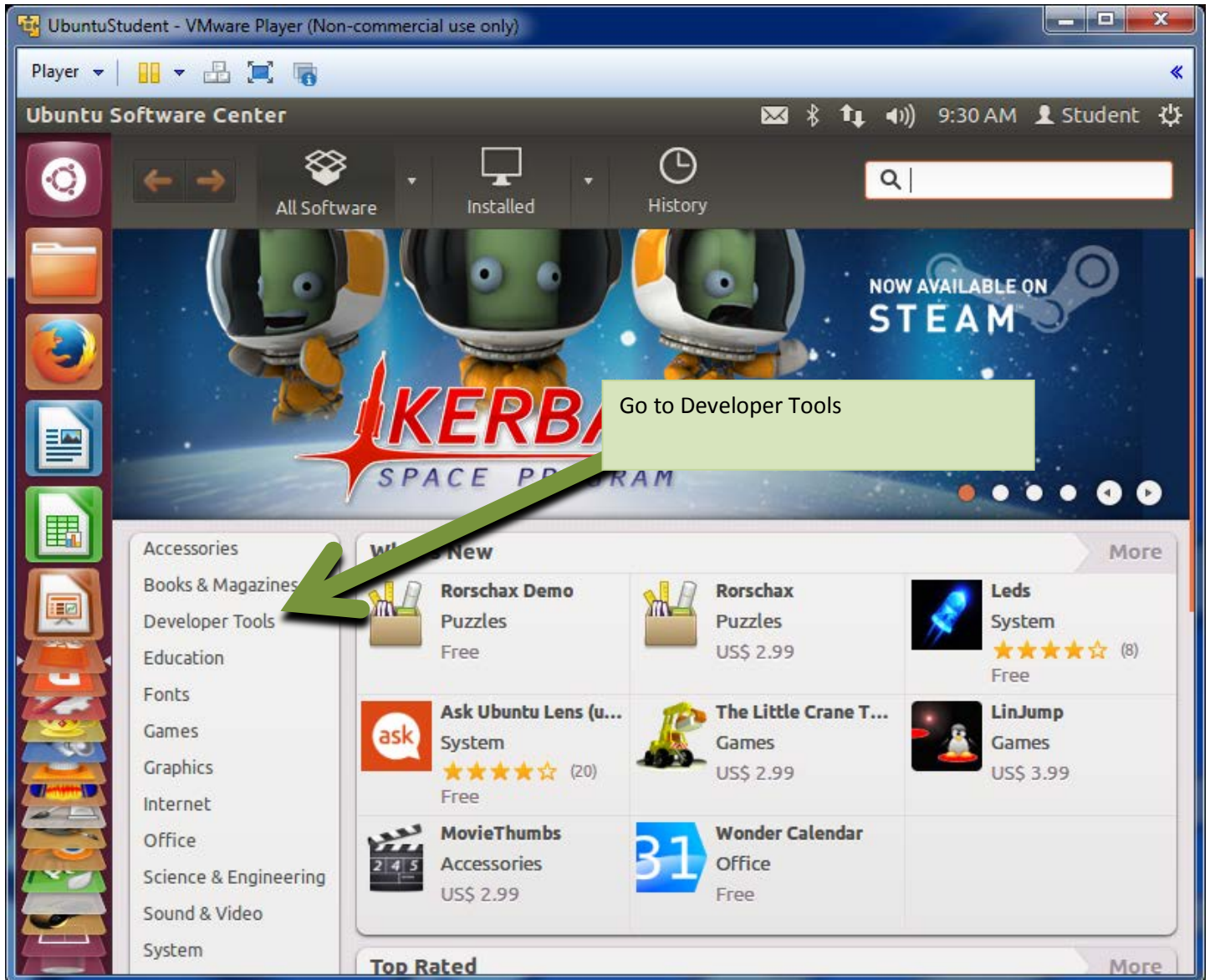

Additional Programs

You will likely want to install some form of Integrated Development Environment (IDE).
Again, be sure you have an internet connection before continuing with the below.

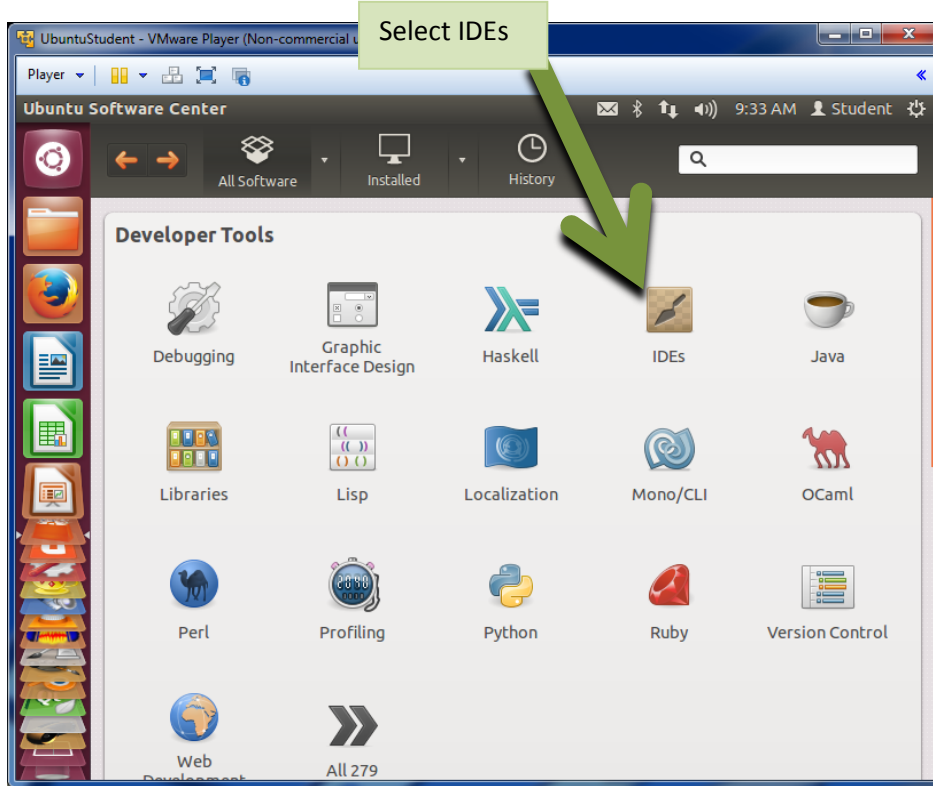
So click on the Ubuntu Software Center Button:



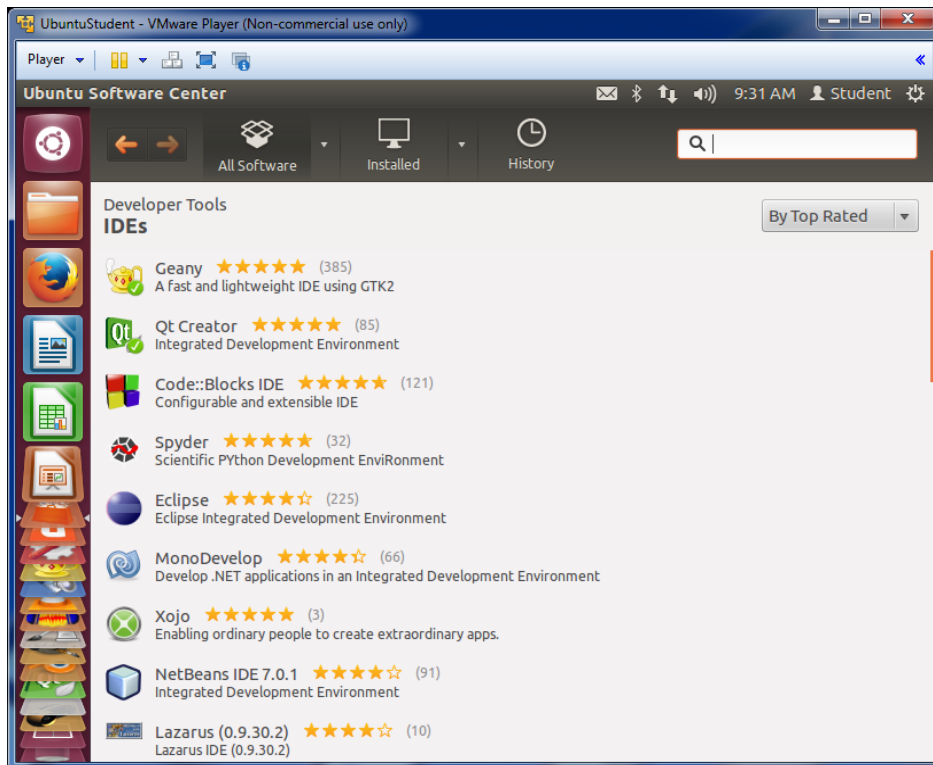
You will now see something like the below.
You will want to go to Developer Tools



You should see something like the below
Now select IDEs



This brings up a list of IDEs available.
Choose the one you want. For Data Structures the Geany IDE may work well.



And there may be other programs you want to, or need to, install.
But that is left up to you.