Install & Configure CentOS 6.5 64bit for Hadoop Install

Debadyuti RoyChowdhury

DeZyre

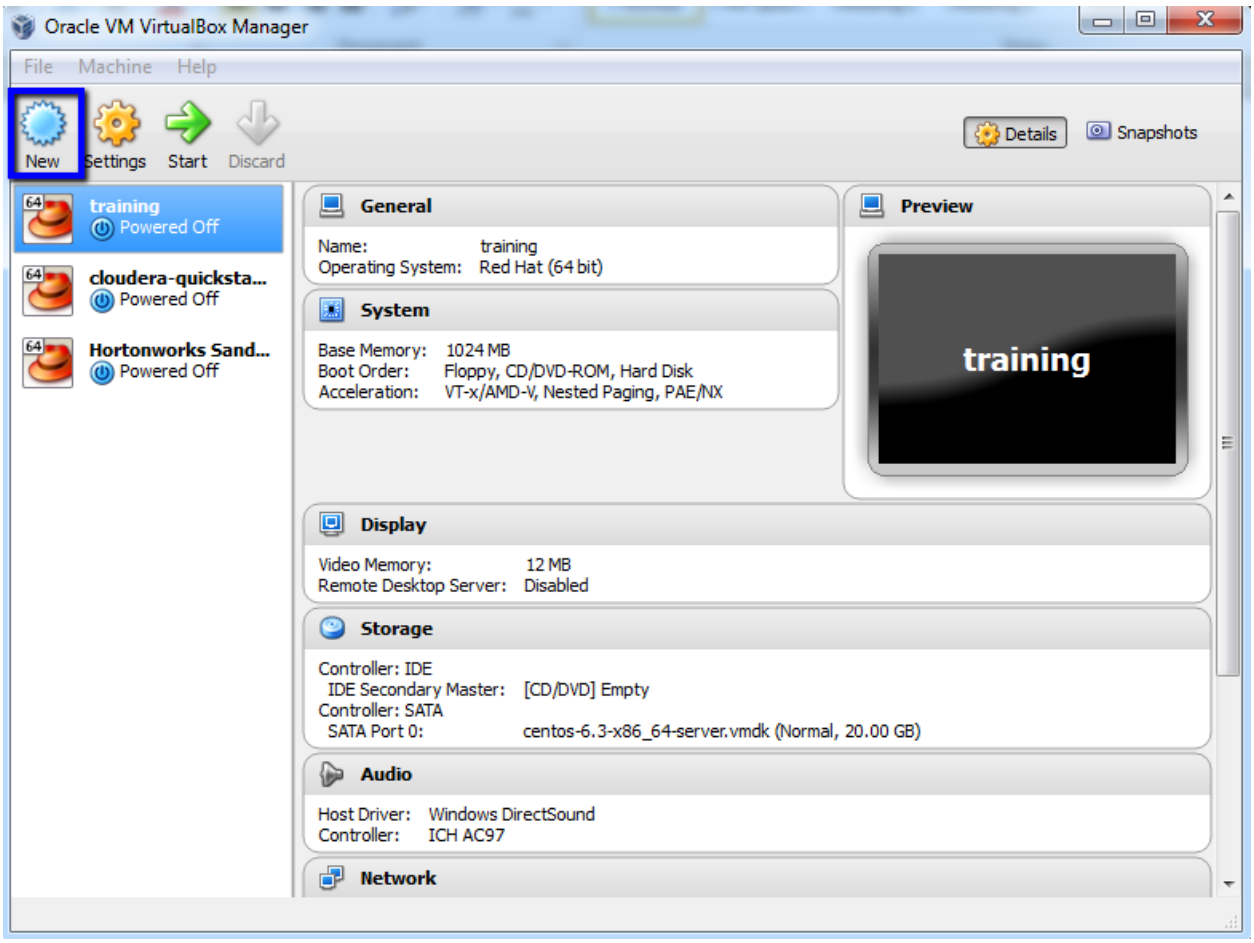
Install and configure CentOS 64 Bit on a virtual machine

Start by installing your favorite virtualization software:

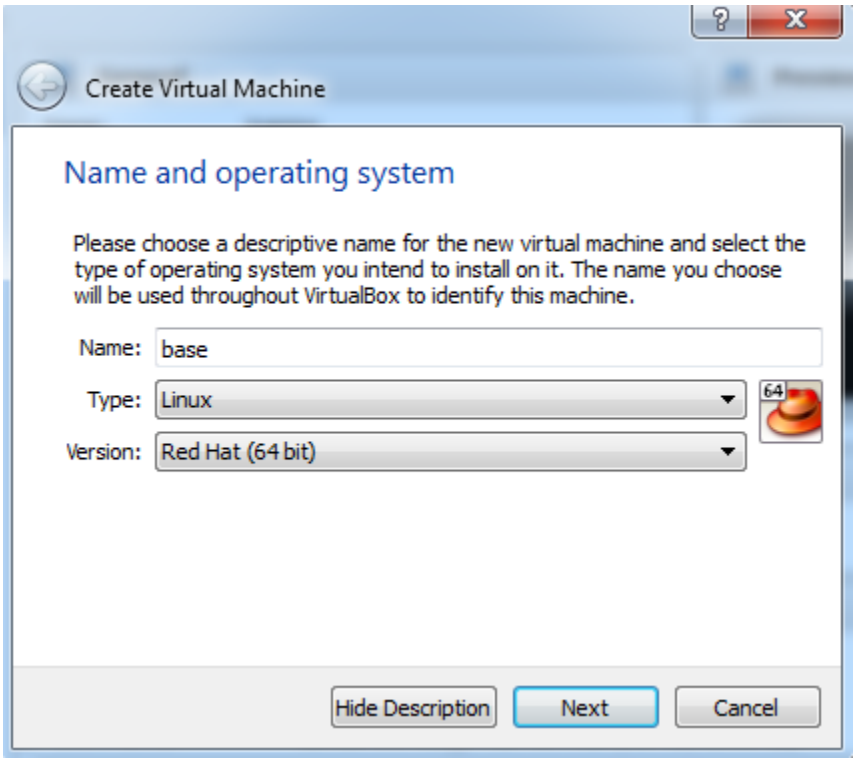
- Windows users you could choose between VMWare Player or Oracle VirtualBox
- Mac users you could chooses between VMWare Fusion, Oracle VirtualBox or KVM
- Linux users you could choose between Oracle VirtualBox and KVM

For the purpose of this document we are using Oracle VirtualBox 4.2.20 on a Windows 7 64 Bit machine.

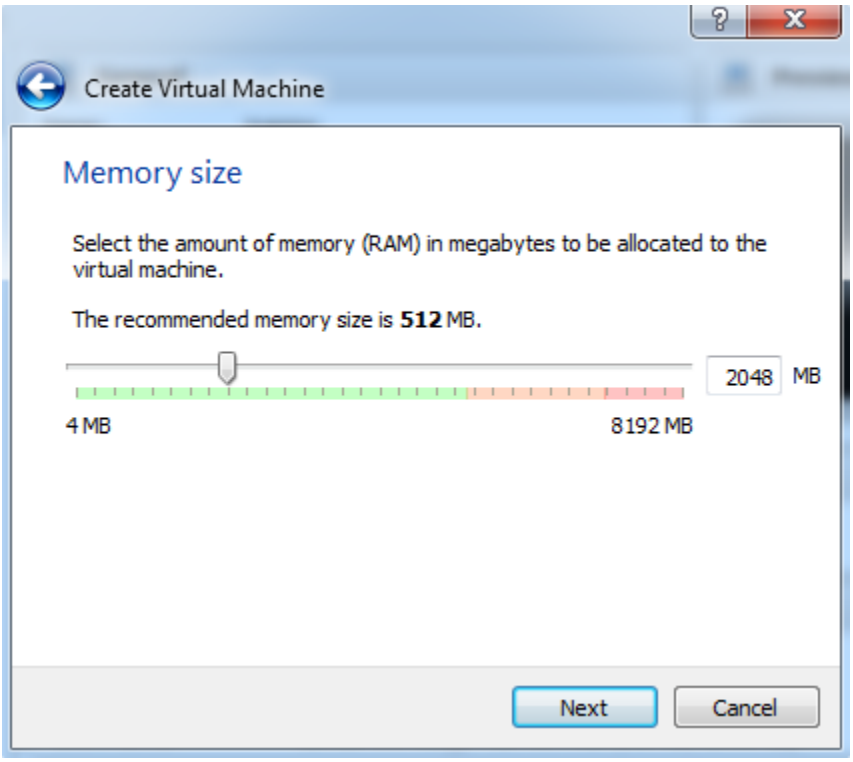
First off, create a new Virtual Machine; this can be done by selecting the new option in the VirtualBox console



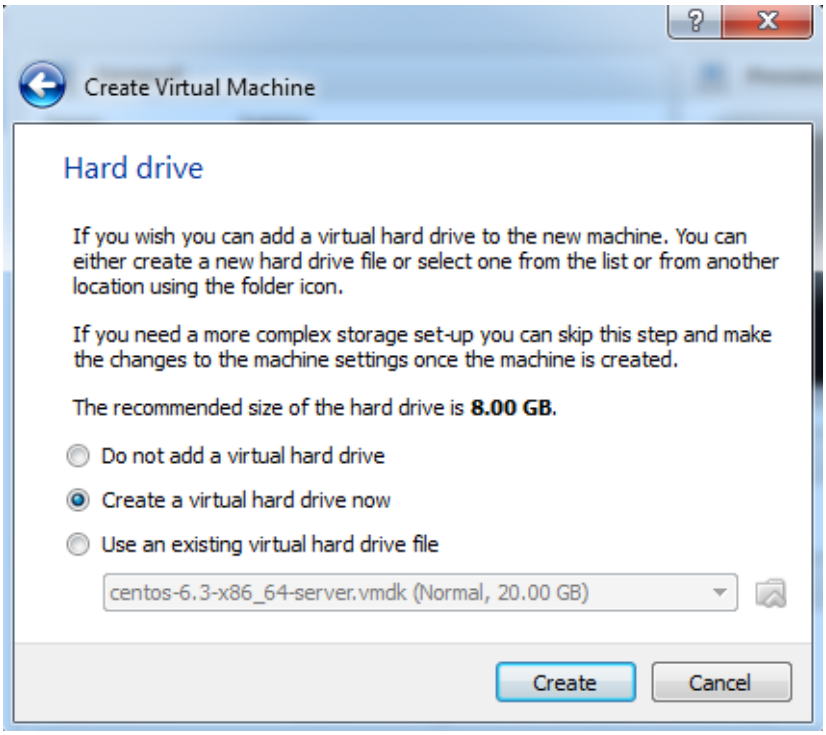
Enter the name of the machine and choose Linux operating system and the Red Hat 64 Bit as the version



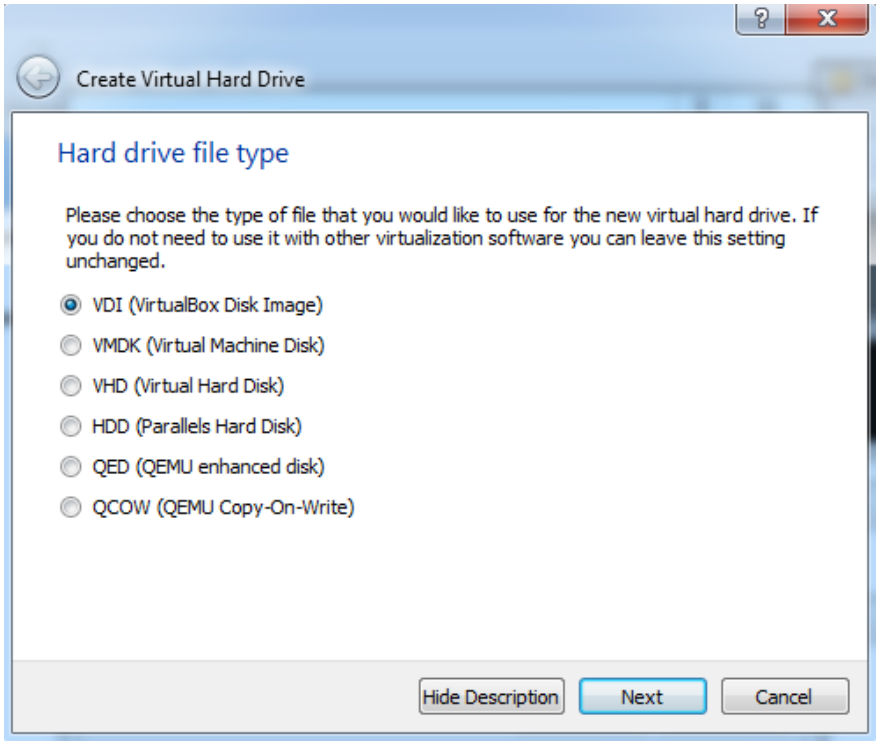
Allocate around 2GB RAM and proceed



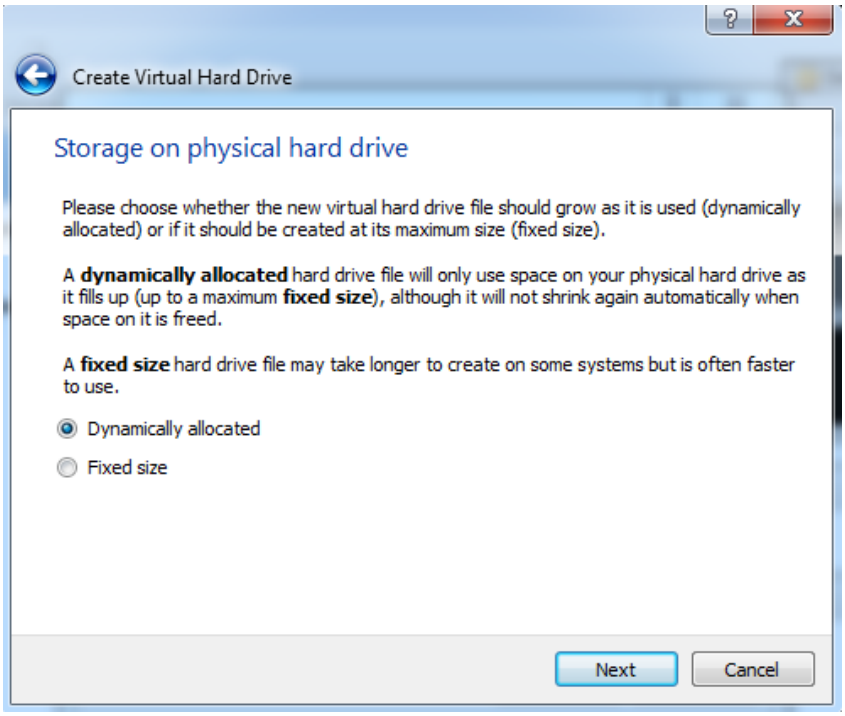
Create a Virtual Hard Drive now



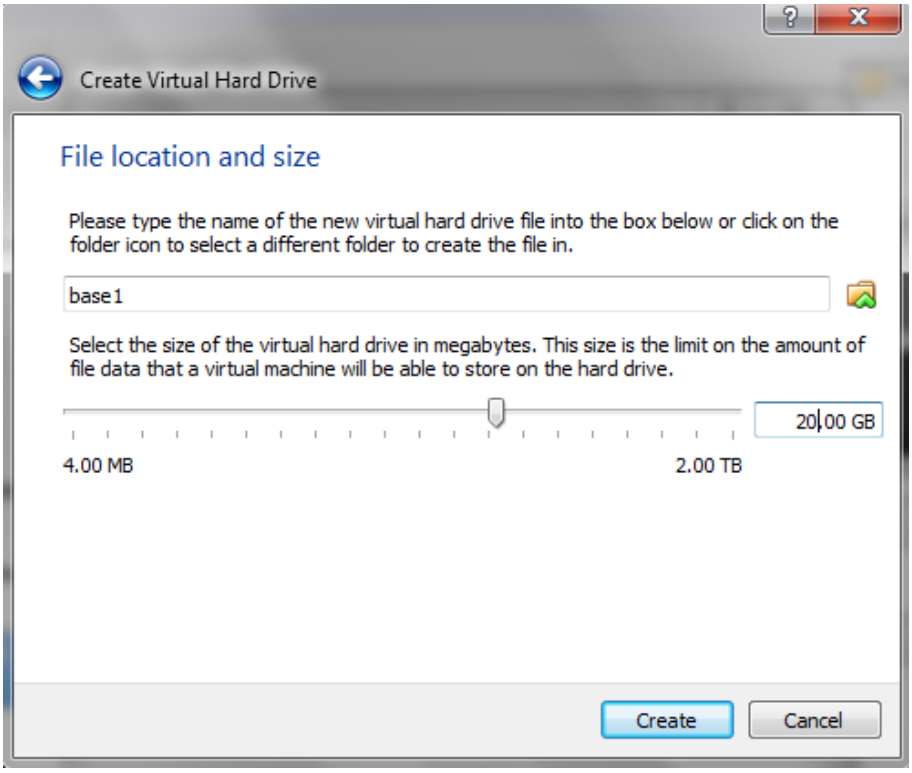
Keep the default version unchanged for the hard drive file type



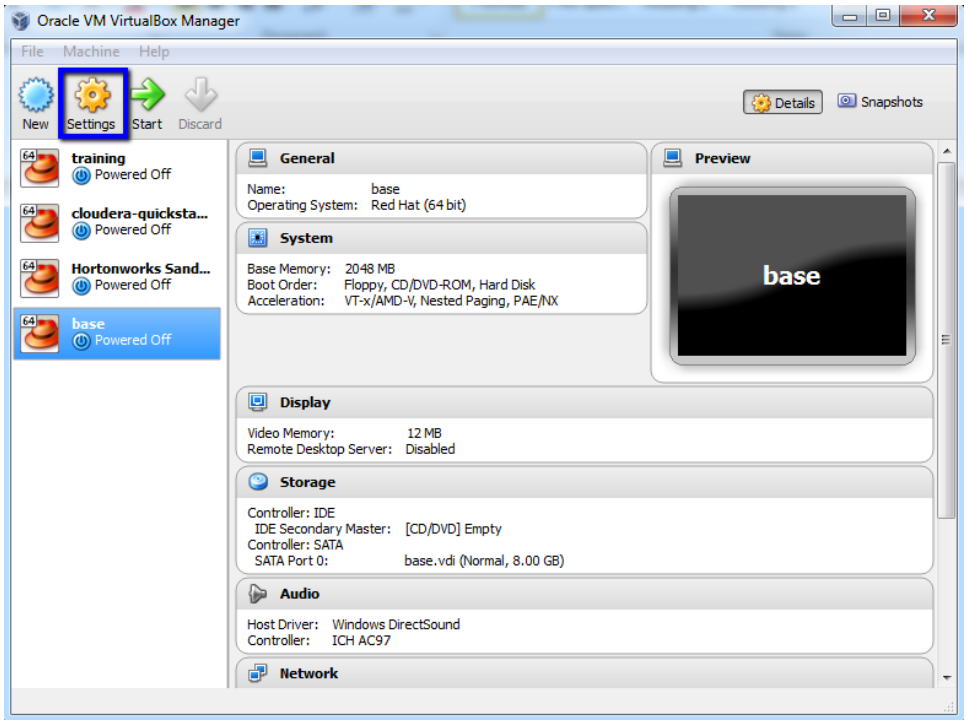
Choose Dynamic disk space allocation or fixed size. Fixed size yields better performance



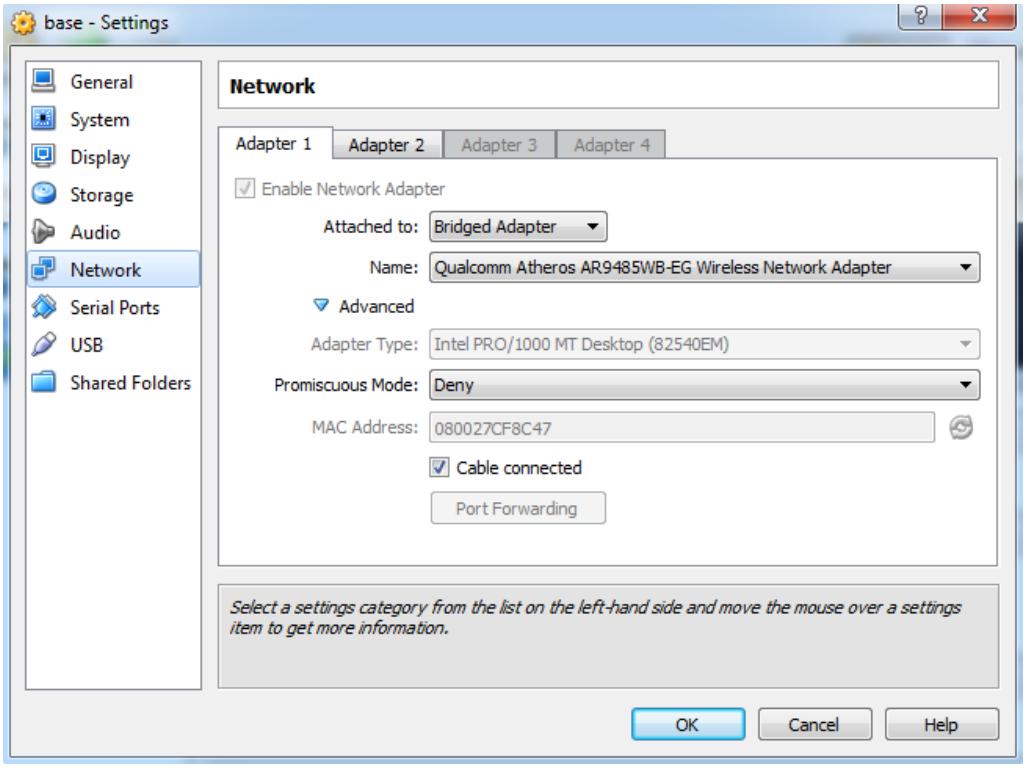
Keep the defaults and proceed to create the virtual disk of size 20GB



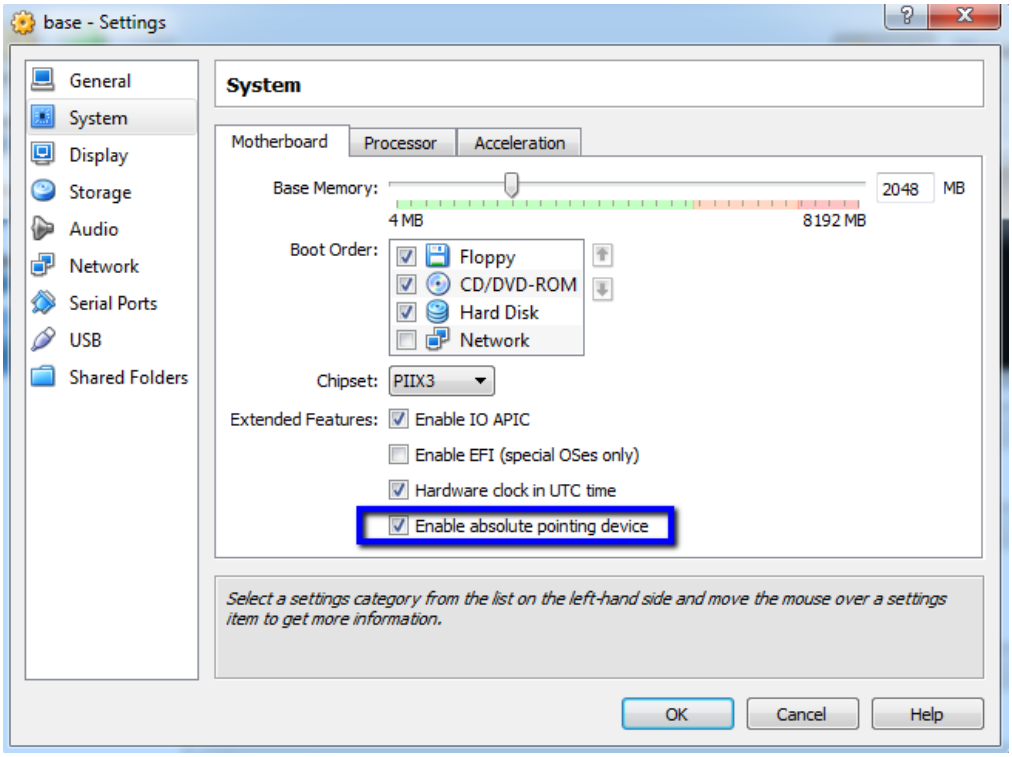
Once the virtual machine is created choose settings and make a few changes to help the setup



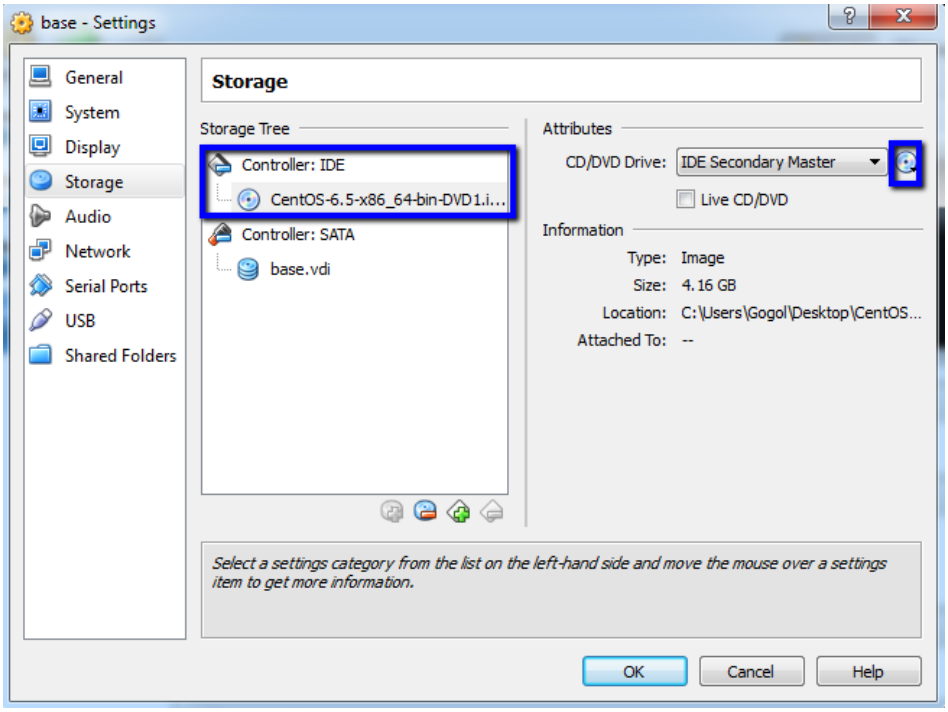
Switch the network mode to Bridged Adapter



In the settings enable absolute pointing device. Older versions of VirtualBox list this setting as pointing device. Select Multi touch table for the option.

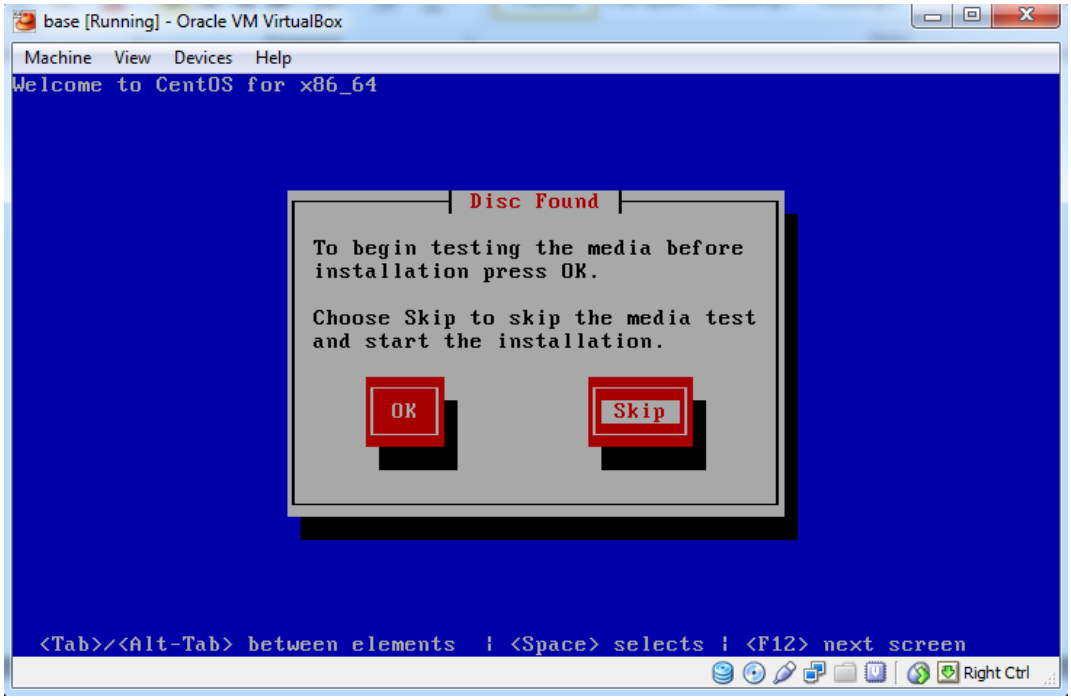


In the storage section point to the ISO image of the CentOS install disc. I am Using CentOS 6.5 64 Bit.



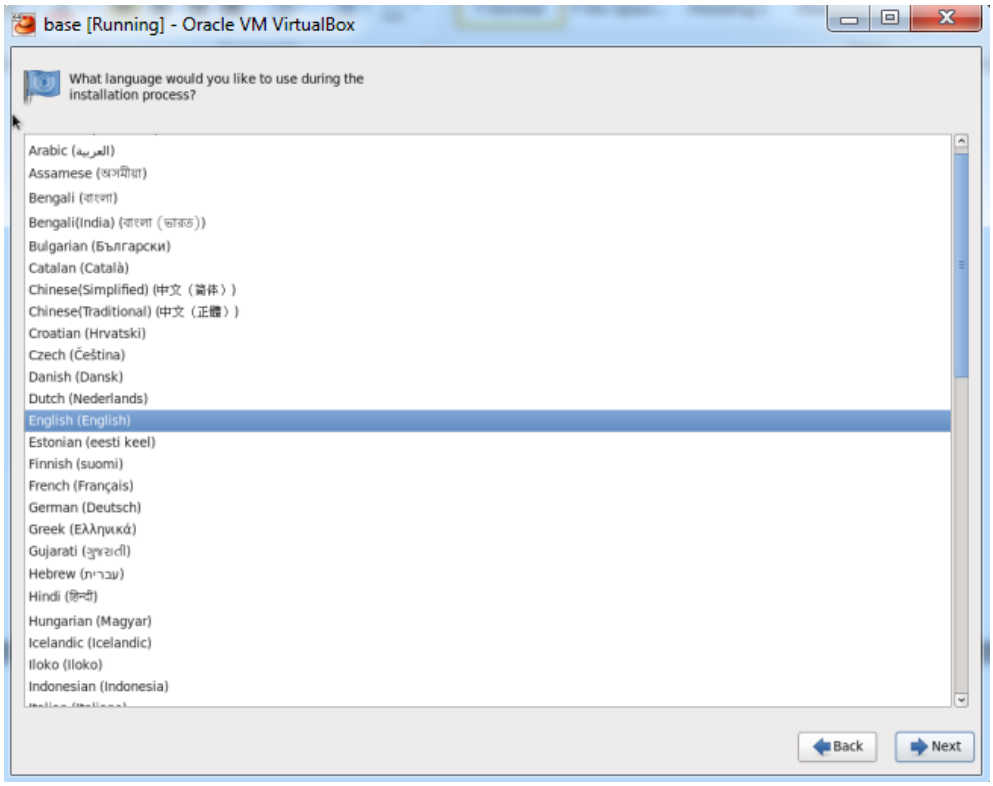
Start the virtual machine and prepare for install. Keep the first selection and hit Enter/Return

Skip the media test and proceed

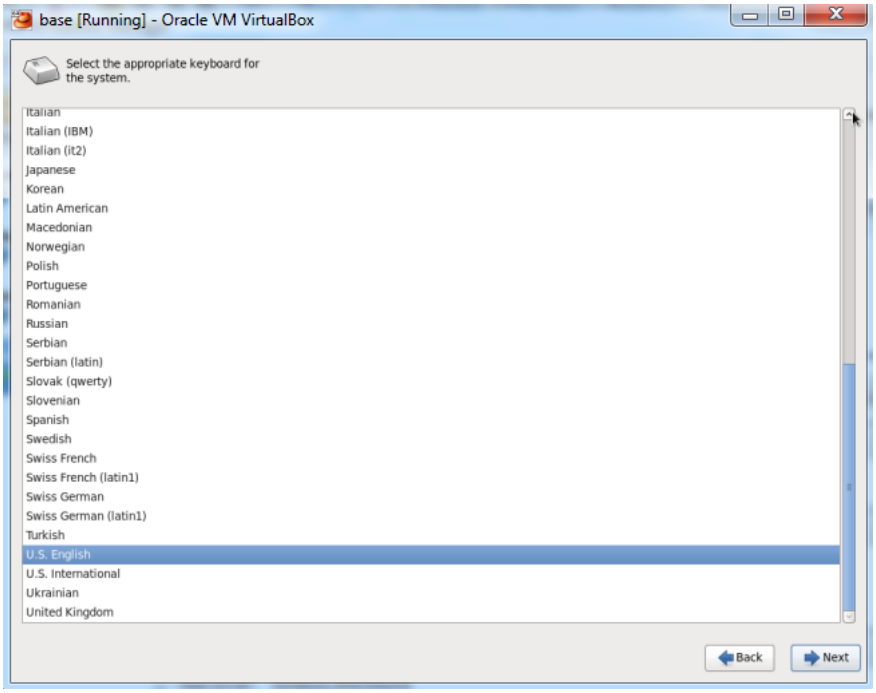


This will initialize the setup and take us to the CentOS install screen. Click Next to proceed

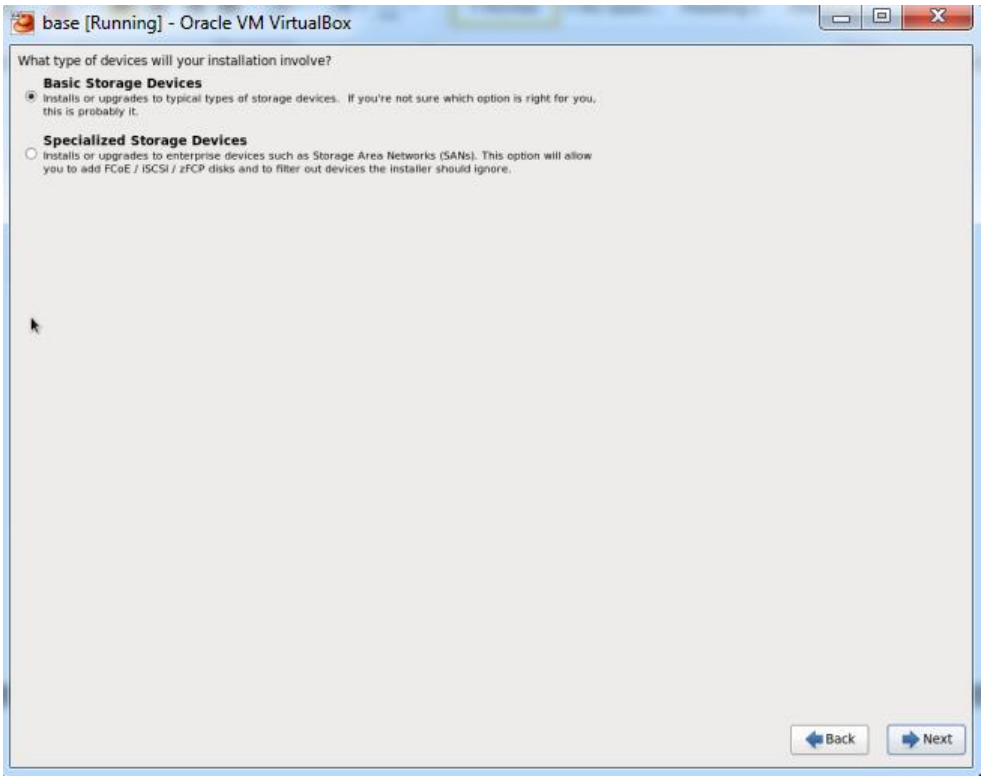
Choose the language! Click Next!



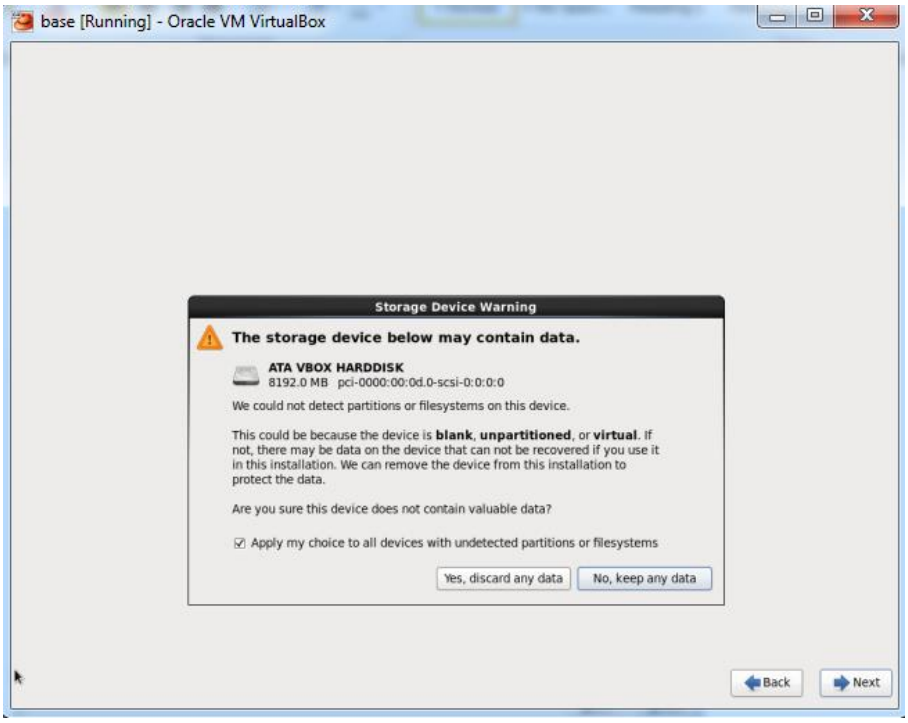
Choose the Keyboard Layout! Click Next!



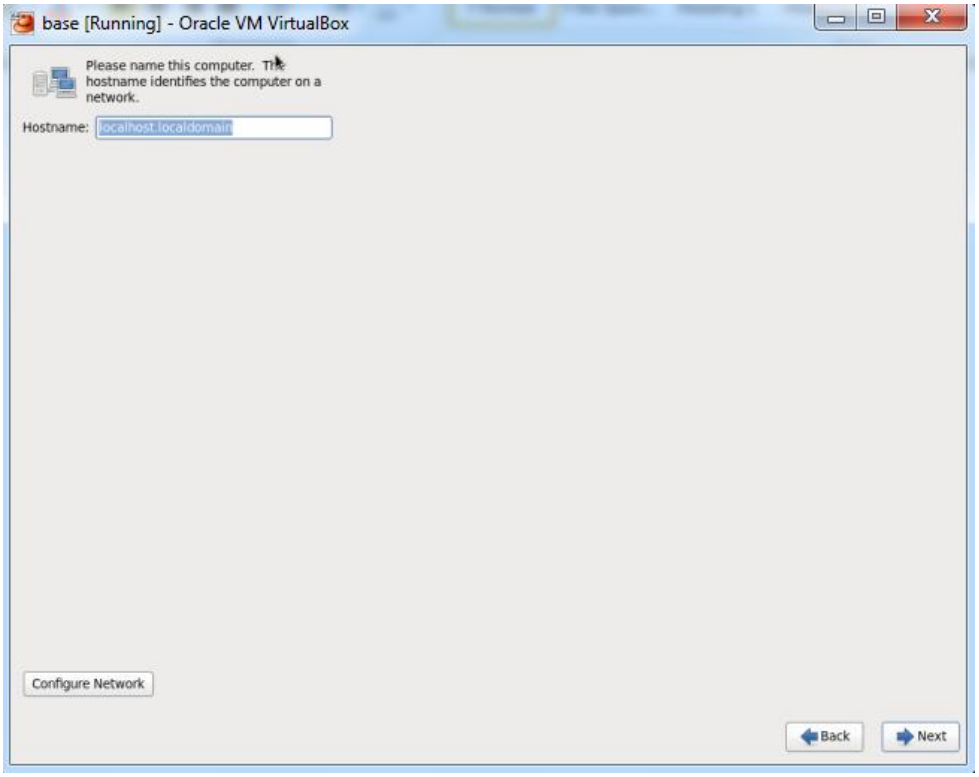
Proceed with the basic storage device. Click Next!



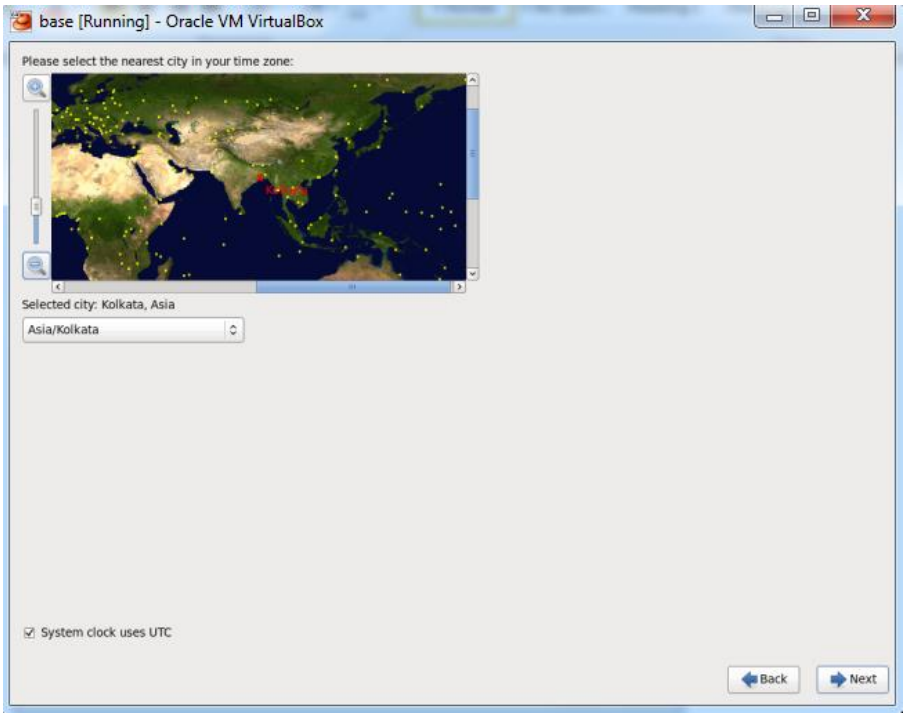
Proceed with the option of "Yes, Discard any data" you need to choose this option.



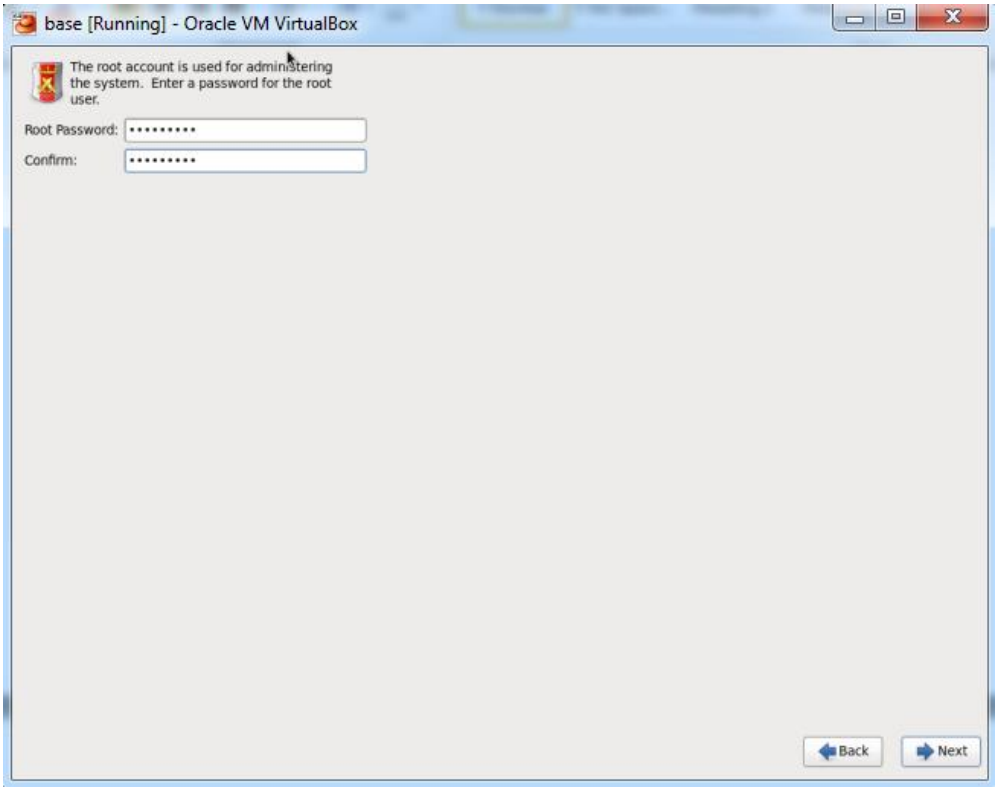
Keep the name of the computer unchanged. Click Next!



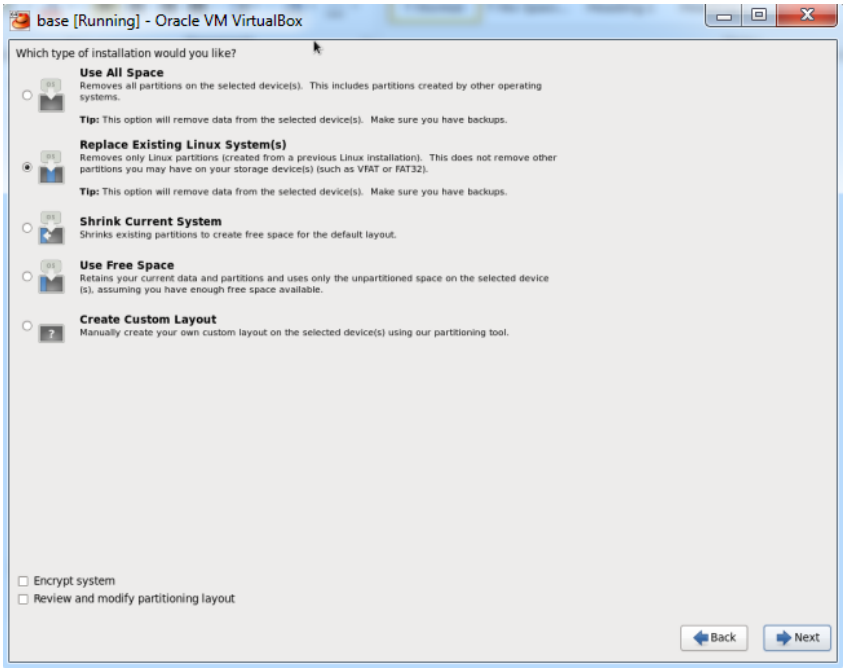
Choose the time zone and proceed. Click Next!



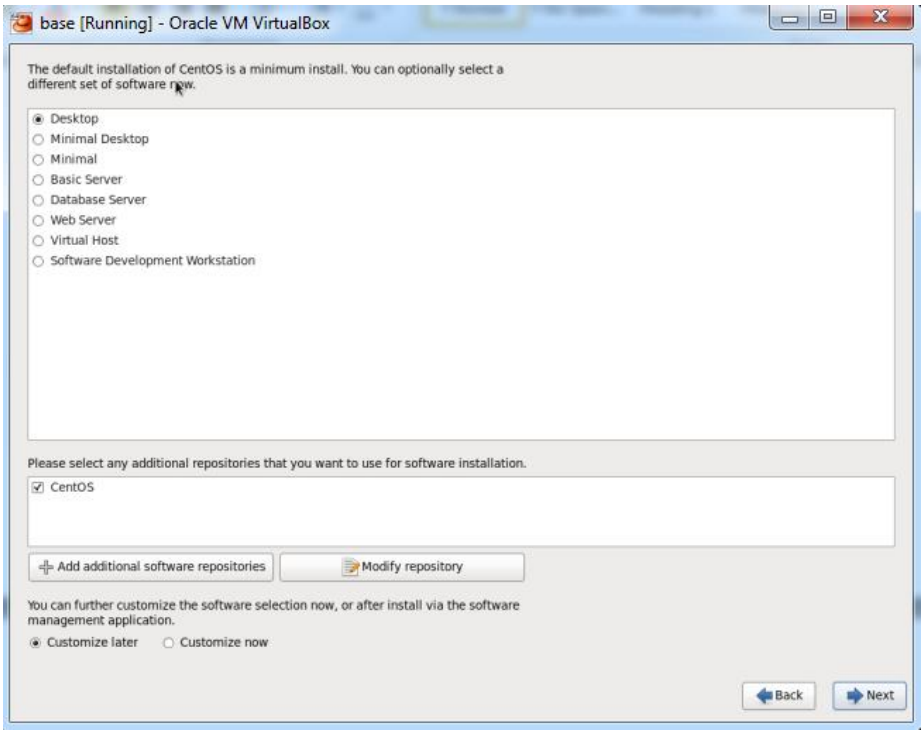
Choose a root password and proceed



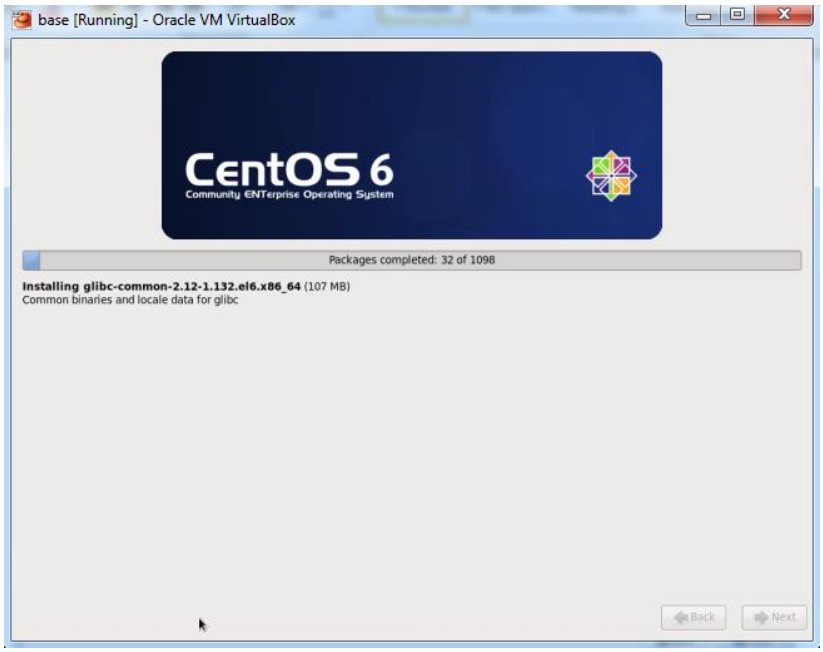
Select the default option “Replace existing Linux Systems” and select “Write changes to disk” in the prompt to start the install and choose desktop installation and click next!



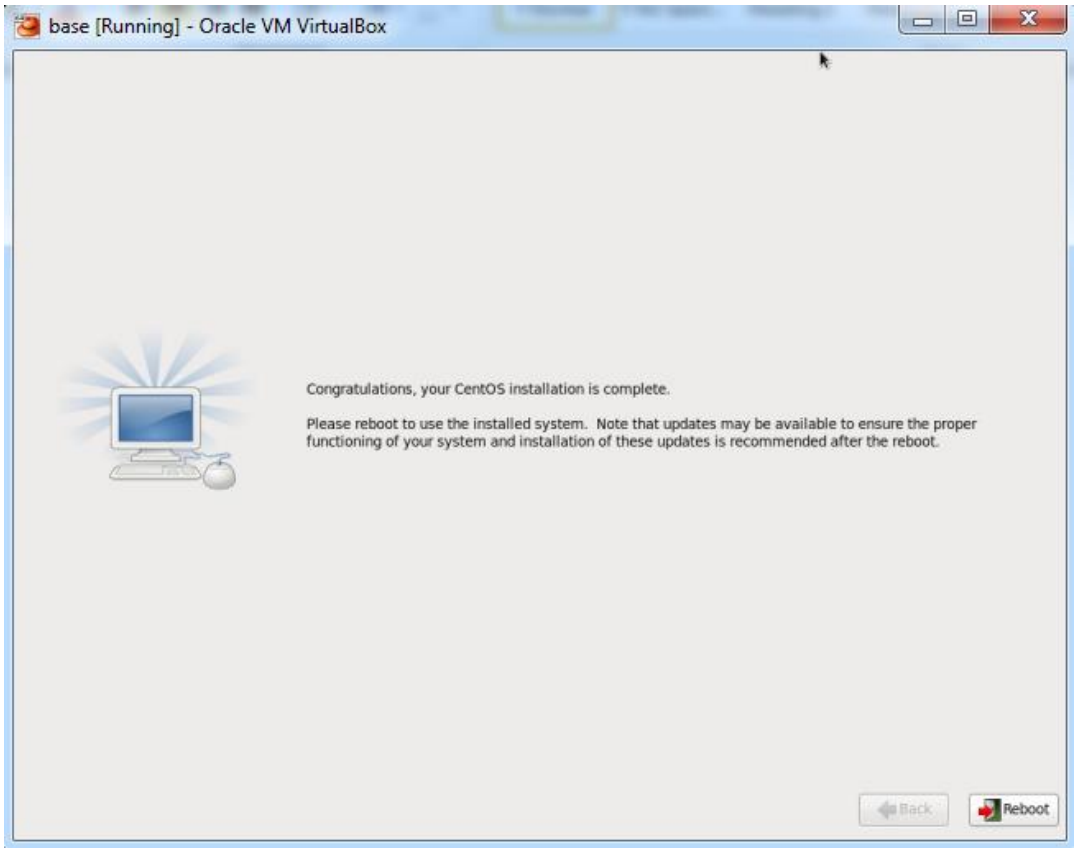
PS: In the real world the “Minimal” install is what is preferred however the minimal install only works using the CLI and there is no GUI. Additionally, ssh needs to be installed separately.



Now it will install CentOS. Get a serving of your preferred beverage (Non-Alcoholic) and wait for the install

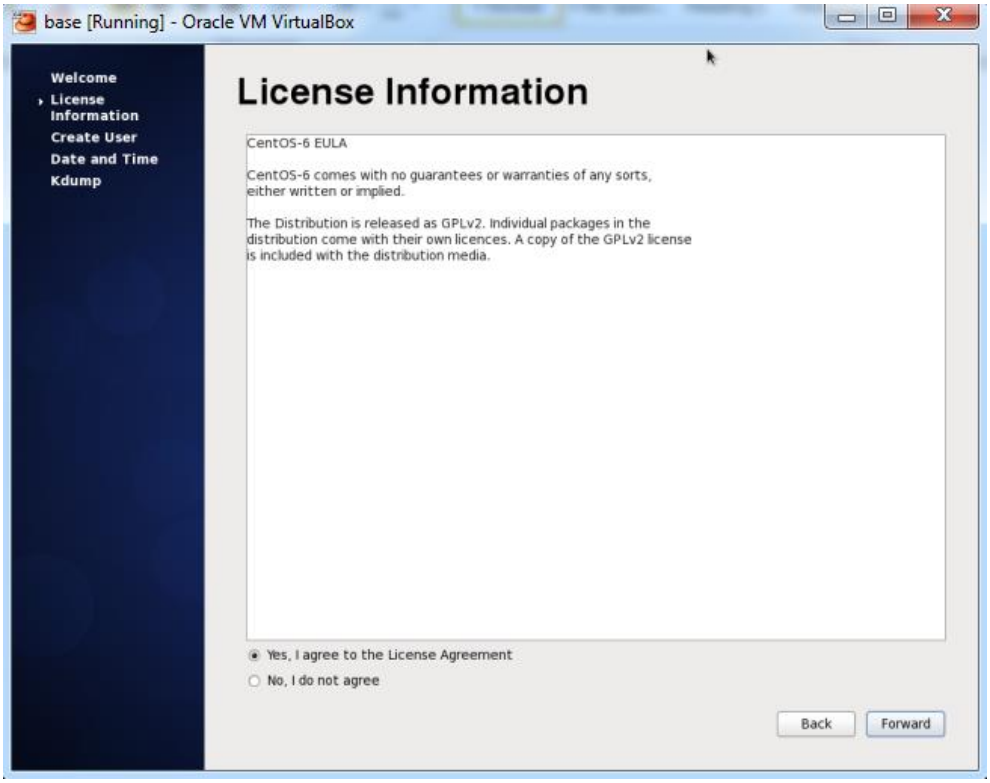


Once the installation is complete the virtual machine needs to be restarted

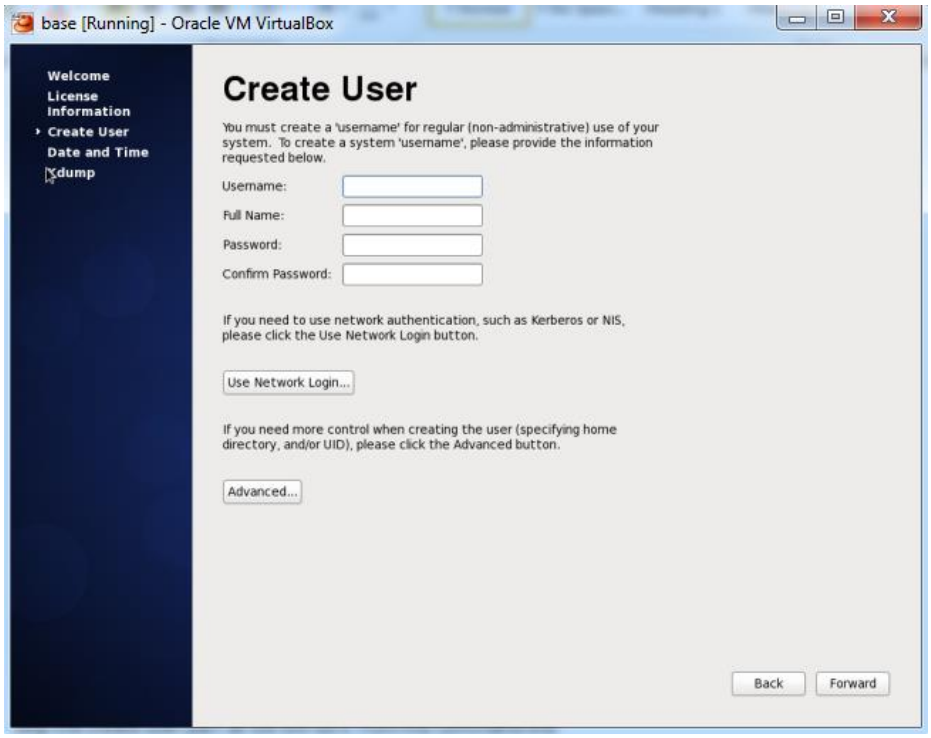


Proceed from the welcome screen. Click Forward!

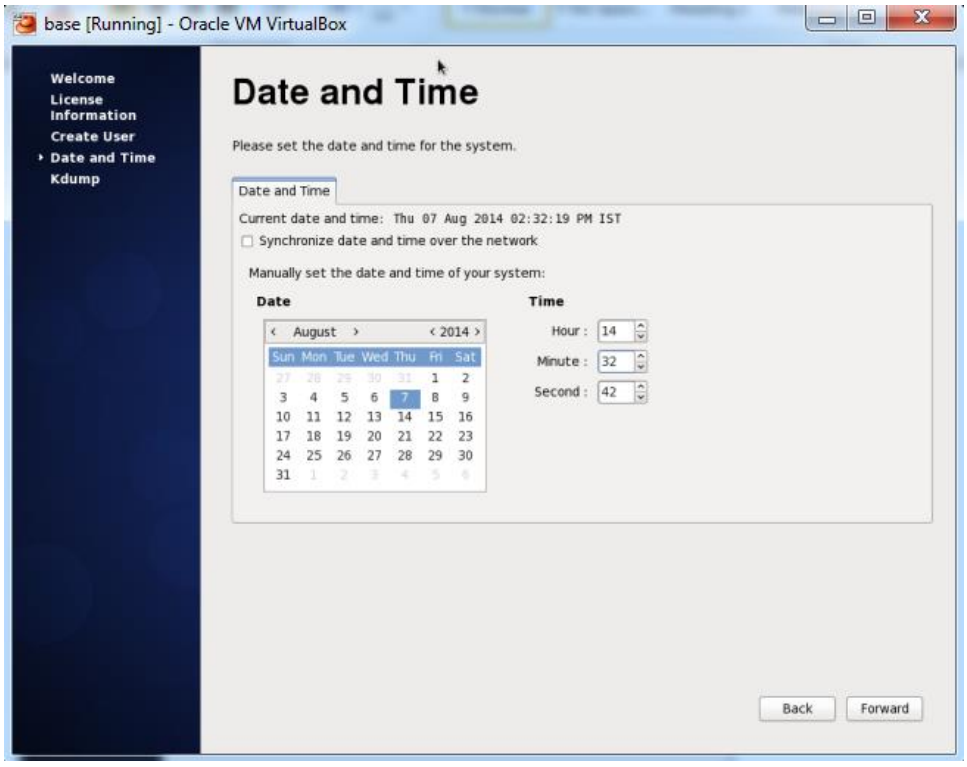
Agree to the License Agreement and move forward!



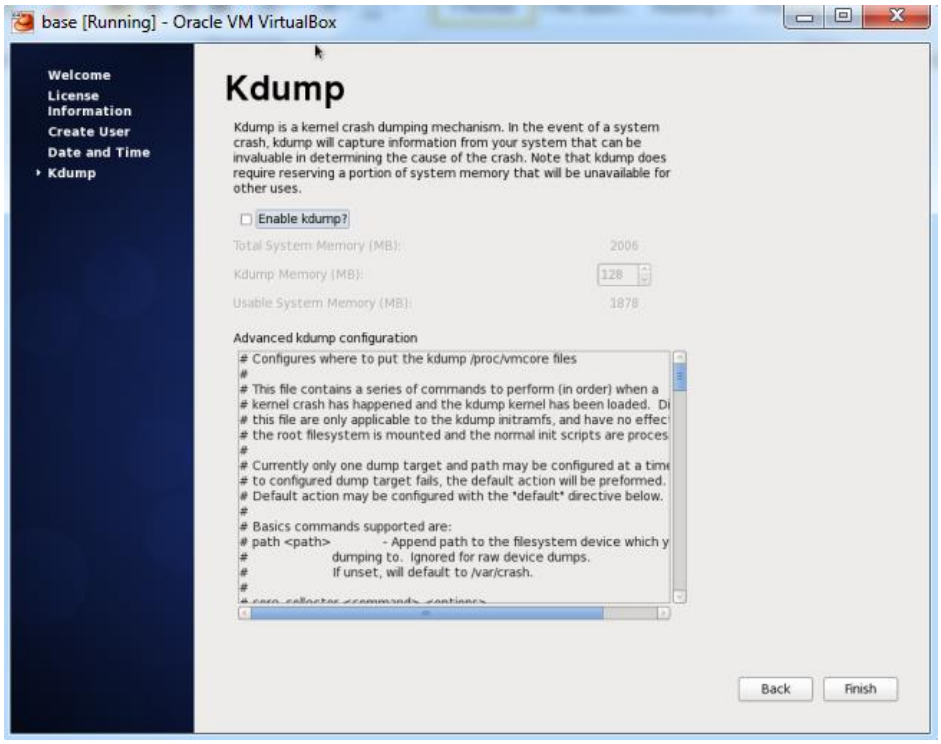
Skip the create user part do not enter any info as we will do it from the command line. Forward!



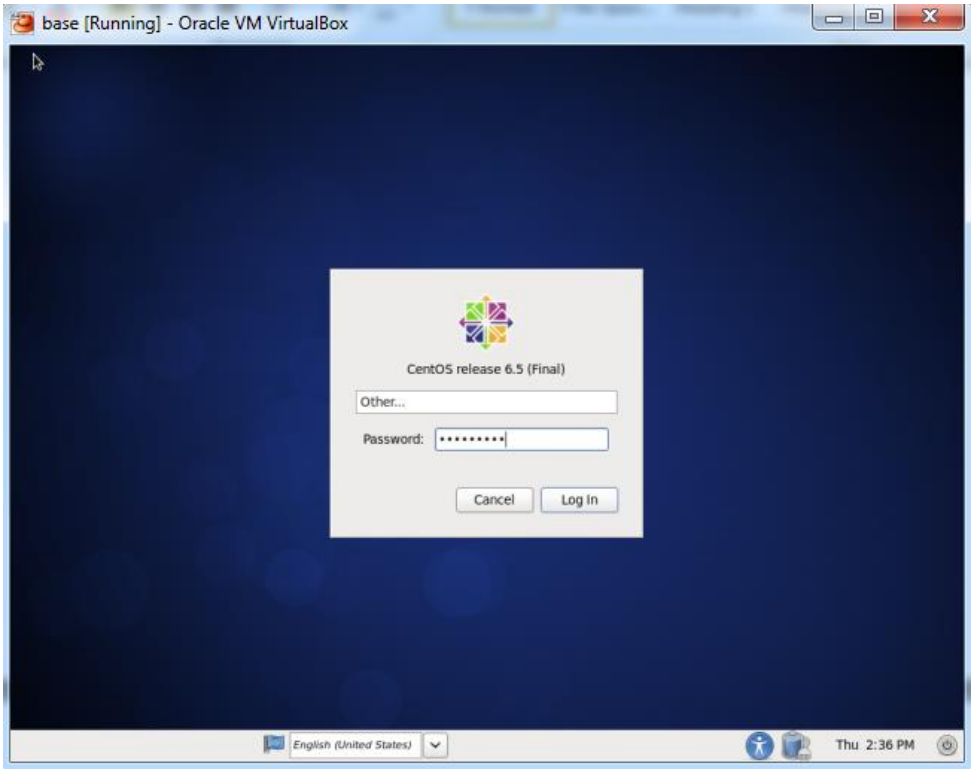
Set the date and time and move ahead



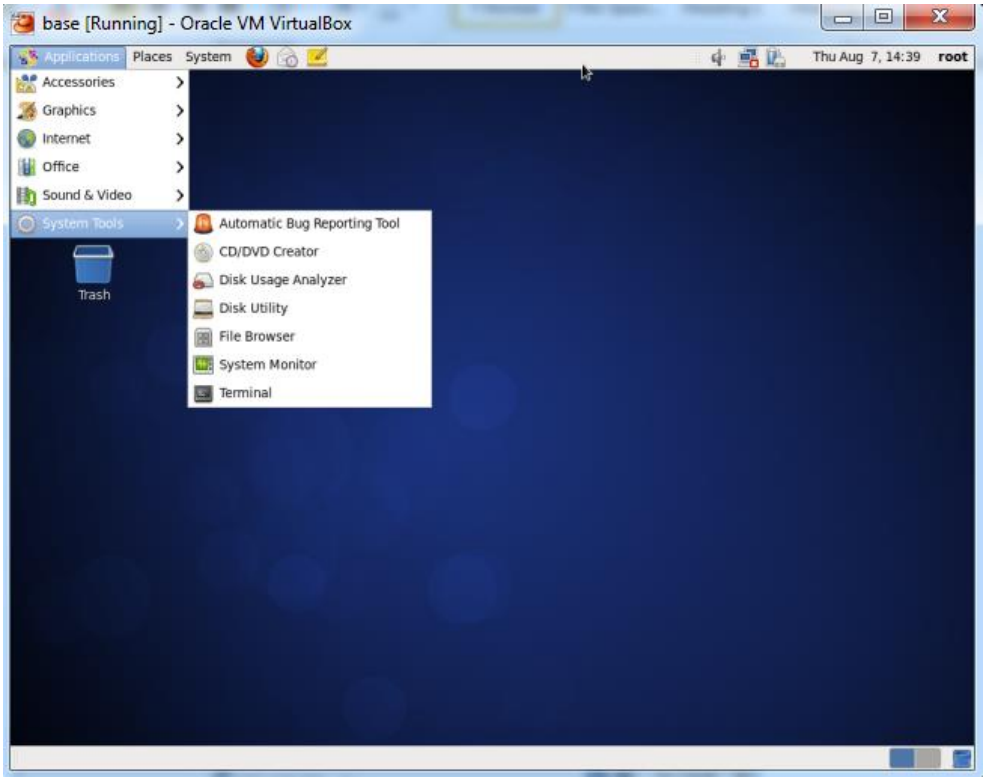
Uncheck the Enable Kdump option to utilize maximum RAM. Click Finish! The system would reboot again



At the log on prompt enter the username "root" and enter the root password to login



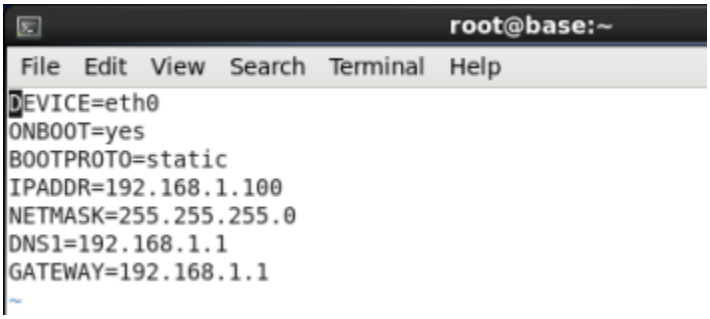
Start a terminal session and follow along…



Update the network adapter configuration to the following:

```
# vi /etc/sysconfig/network-scripts/ifcfg-eth0
```

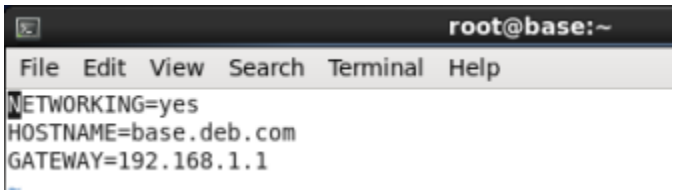
```
DEVICE=eth0
ONBOOT=yes
NM_CONTROLLED=yes
BOOTPROTO=static
IPADDR=192.168.1.100
GATEWAY=192.168.1.1
NETMASK=255.255.255.0
DNS1=192.168.1.1
```



Modify the network file:

```
# vi /etc/sysconfig/network
```

```
NETWORKING=yes
HOSTNAME=base.deb.com
GATEWAY=192.168.1.1
```



A few more important settings to configure…

Disable SELINUX and YUM Fastest mirror restart the network update the system and reboot:

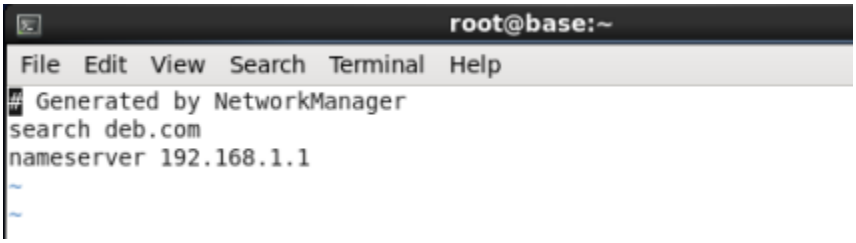
```
# vi /etc/selinux/config
SELINUX=disabled
# vi /etc/yum/pluginconf.d/fastestmirror.conf
enabled=0
# chkconfig iptables off
# chkconfig ip6tables off
# service ntpd start
# service network restart
# init 6
```

Generate a private security key to facilitate password-less ssh access:

```
# ssh-keygen -t rsa
# cat ~/.ssh/id_rsa.pub >> ~/.ssh/authorized_keys
# vi /etc/ssh/ssh_config -- set StrictHostKeyChecking no
# chmod 700 ~/.ssh
# chmod 640 ~/.ssh/authorized_keys
# chmod 600 ~/.ssh/id_rsa
# service sshd restart
```

Make sure that the file /etc/resolv.conf shows the valid host configuration and also verify internet connectivity:

```
# vi /etc/resolv.conf
search deb.com
nameserver 192.168.1.1
# service network restart
# ping google.com
```



Add a Hadoop user and group, I am calling my user hduser and put the user in a group called hadoop:

```
# groupadd hadoop
# useradd -g hadoop hduser
# passwd hduser
```

Allow the Hadoop group to perform all root actions by adding the following line in the sudoers file:

```
# visudo

*hadoop        ALL(ALL)              NOPASSWD: ALL
```

Distribute the files from /root/.ssh to the .ssh directory of the hadoop user:

```
$ su
# cp /root/.ssh/id_rsa /home/hduser/.ssh/
# cp /root/.ssh/id_rsa.pub /home/hduser/.ssh/
# cp /root/.ssh/authorized_keys /home/hduser/.ssh/
# sudo chown hduser /home/hduser/.ssh
# exit

$ sudo chmod 700 ~/.ssh
$ sudo chmod 640 ~/.ssh/authorized_keys
$ sudo chmod 600 ~/.ssh/id_rsa
$ sudo service sshd restart
```

Now we have taken care of the network configuration it is time to configure Java. By default in the Desktop CentOS install Open JDK is installed and it is preferred to uninstall the open JDK and install oracle java. Preferred version is Oracle Java 1.6.0_31 and Oracle Java 1.7.0_21. Open JDK 1.7.0_09-icedtea is certified with Hadoop 2.2.0 by Hortonworks. Removing the installed OpenJDK and installing oracle java.

```
$ su
# yum remove java-1.6.0-openjdk
# yum remove java-1.7.0-openjdk
```

Install and configure java 6 update 31 or 7 update 2. Download oracle java1.6.0_31/1.7.0_21 tarball from the oracle website. I am using 1.7.0_21 download the tar.gz file and extract it:

```
# cd /home/hduser/Downloads
# mv jdk-7u21-linux-x64.tar.gz /usr/lib/java/
# cd /usr/lib/java/
# tar -zxvf jdk-7u21-linux-x64.tar.gz
# alternatives --install /usr/bin/java java /usr/lib/java/jdk1.7.0_21/bin/java 2
# alternatives --config java -- choose the option to the correct path
# java -version /*should return java version "1.7.0_21"*/
```

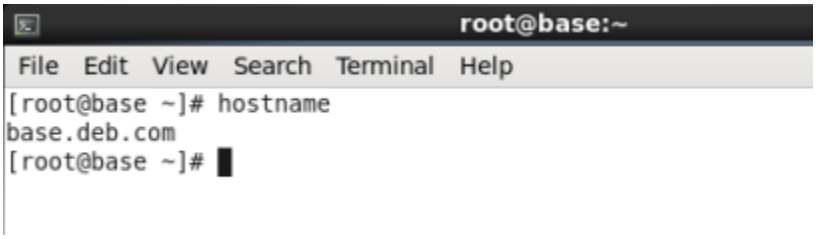
Edit the bash profile i.e the .bashrc file with the following and save it:

```
# vi ~/.bashrc
```

```
export JAVA_HOME=/usr/lib/java/jdk1.7.0_21
export JRE_HOME=/usr/lib/java/jdk1.7.0_21/jre
export PATH=$PATH:$JAVA_HOME:$JRE_HOME
```

Reboot the machine! Login as hduser

Once rebooted validate the hostname of the machine but typing hostname in the CLI:



Now you are ready to install Hadoop and other tools.

Thank You!