OJT1.1 Linux Basic

- Linux OS Structure Overview
  - ✔ Structure of File System
  - ✔ Process
  - ✔ Permission
  - ✔ user environment(bash)
- How to read online manual(summary)
- How to use major command
  - ✔ Major Command(ps, netstat, iostat, vmstat, top, grep, find, etc)
  - ✔ vi editor

1. Linux Server Installation

1. Linux Server Installation

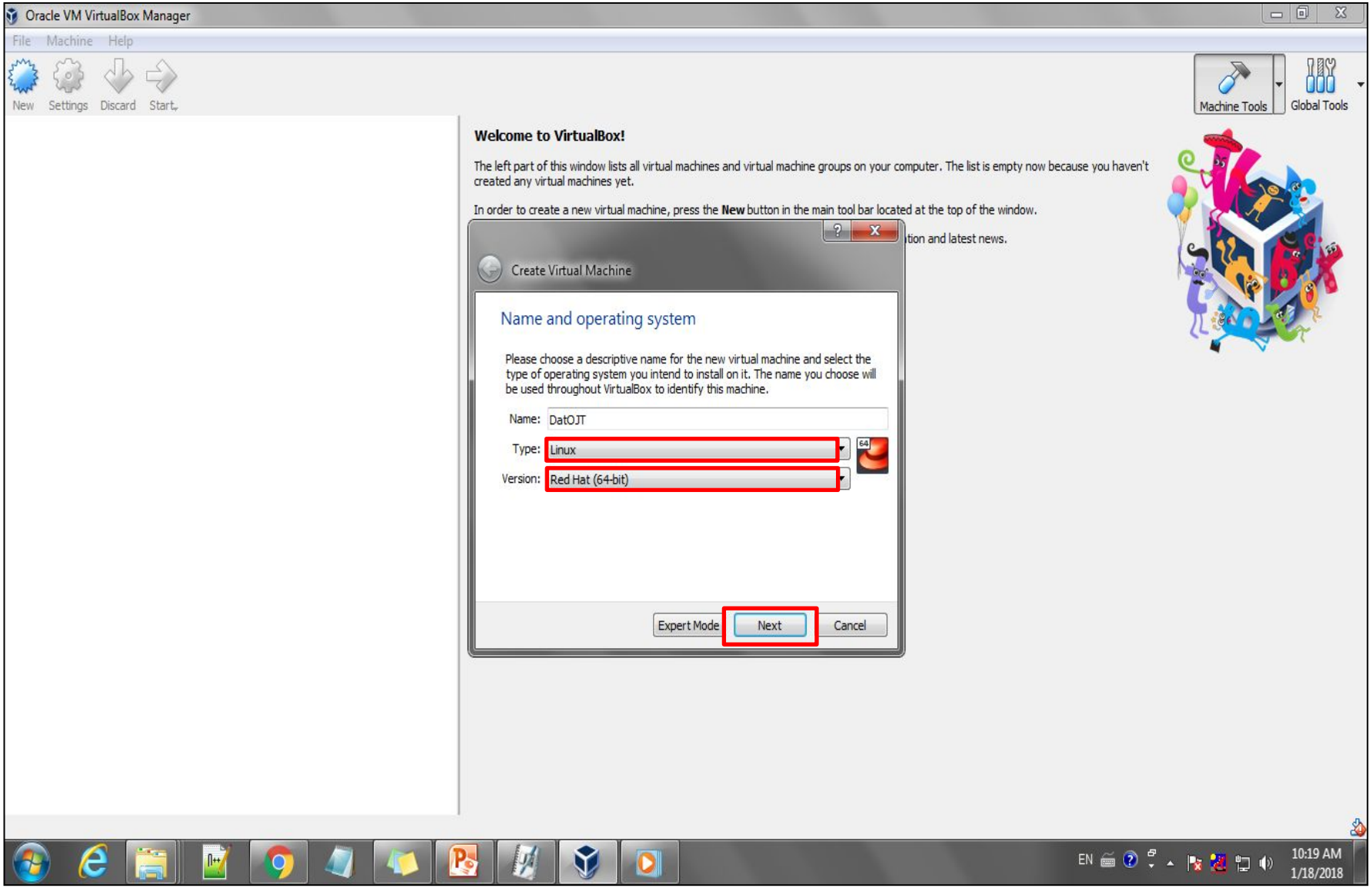
We will show the Linux server installation with the Redhat 6.2 installation.

The minimum hardware requirement for Redhat 6.2 is

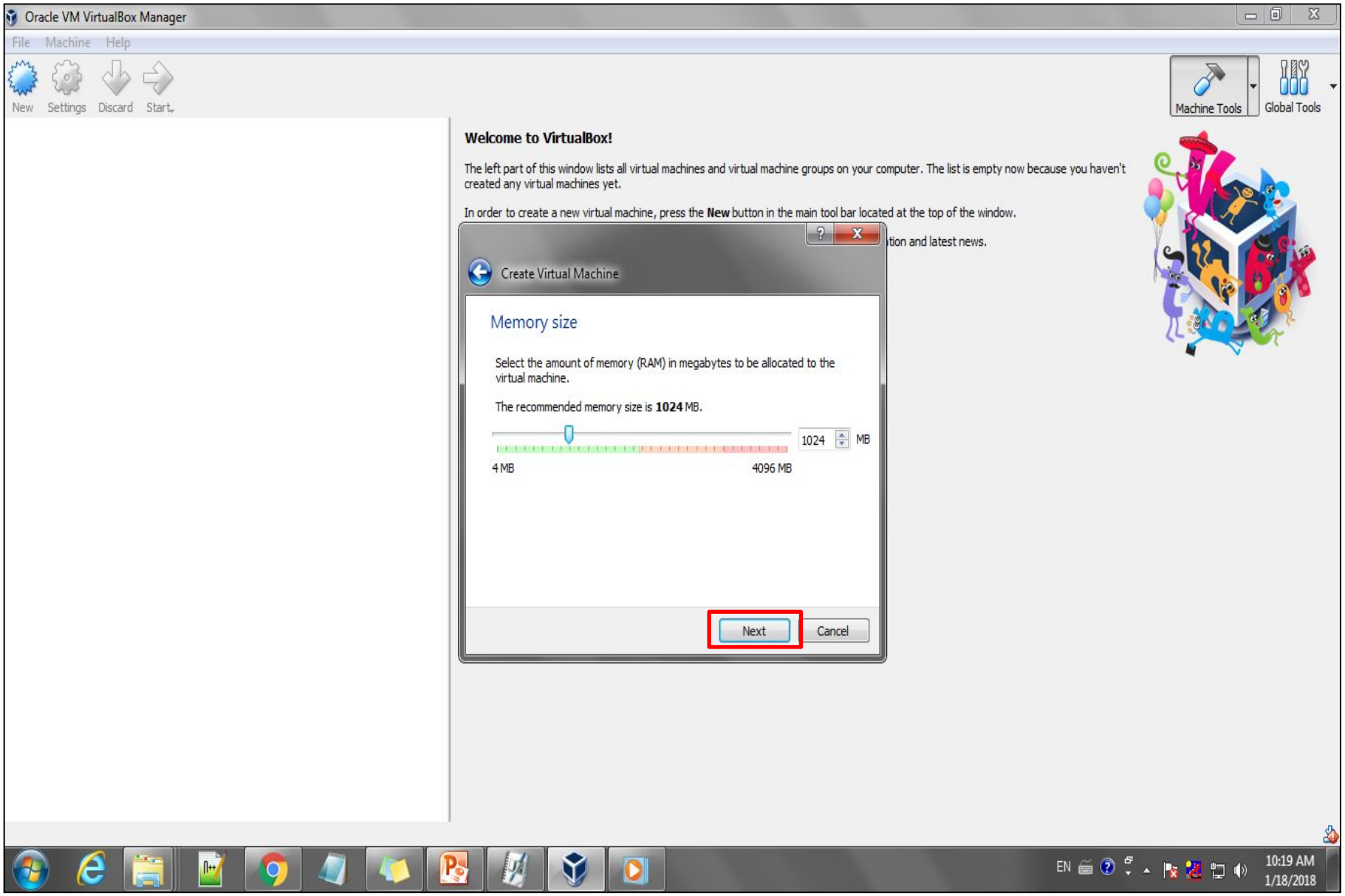
Criteria	Requirements
CPU Type	Pentium 4 or higher; 2 GHz or higher
Memory/RAM	2 GB minimum, up to the system limit
Hard Disk	6 GB minimum

1. Linux Server Installation

In this section, we will install Linux(redhat) on VirtalBox appliction.



1. Linux Server Installation



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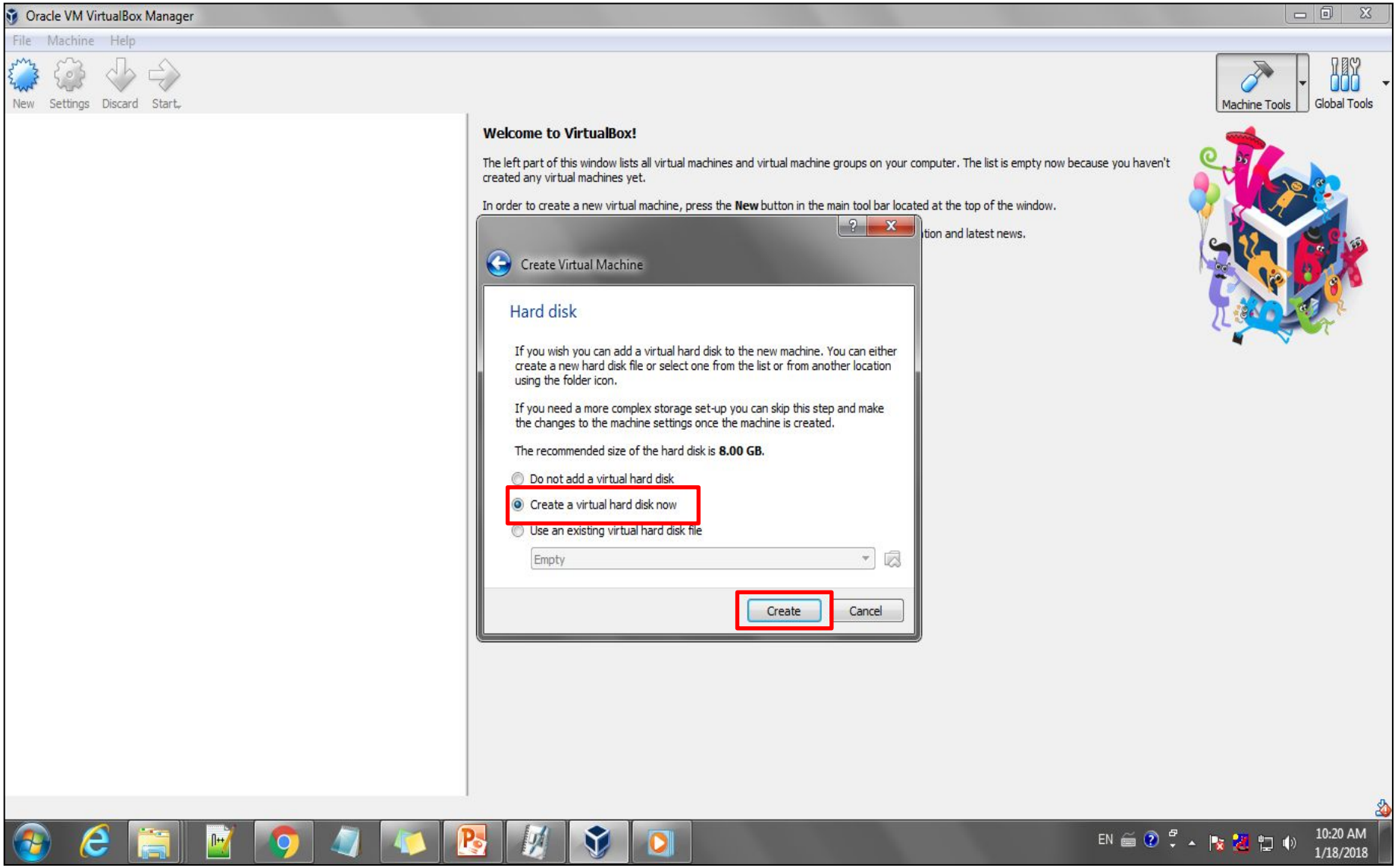

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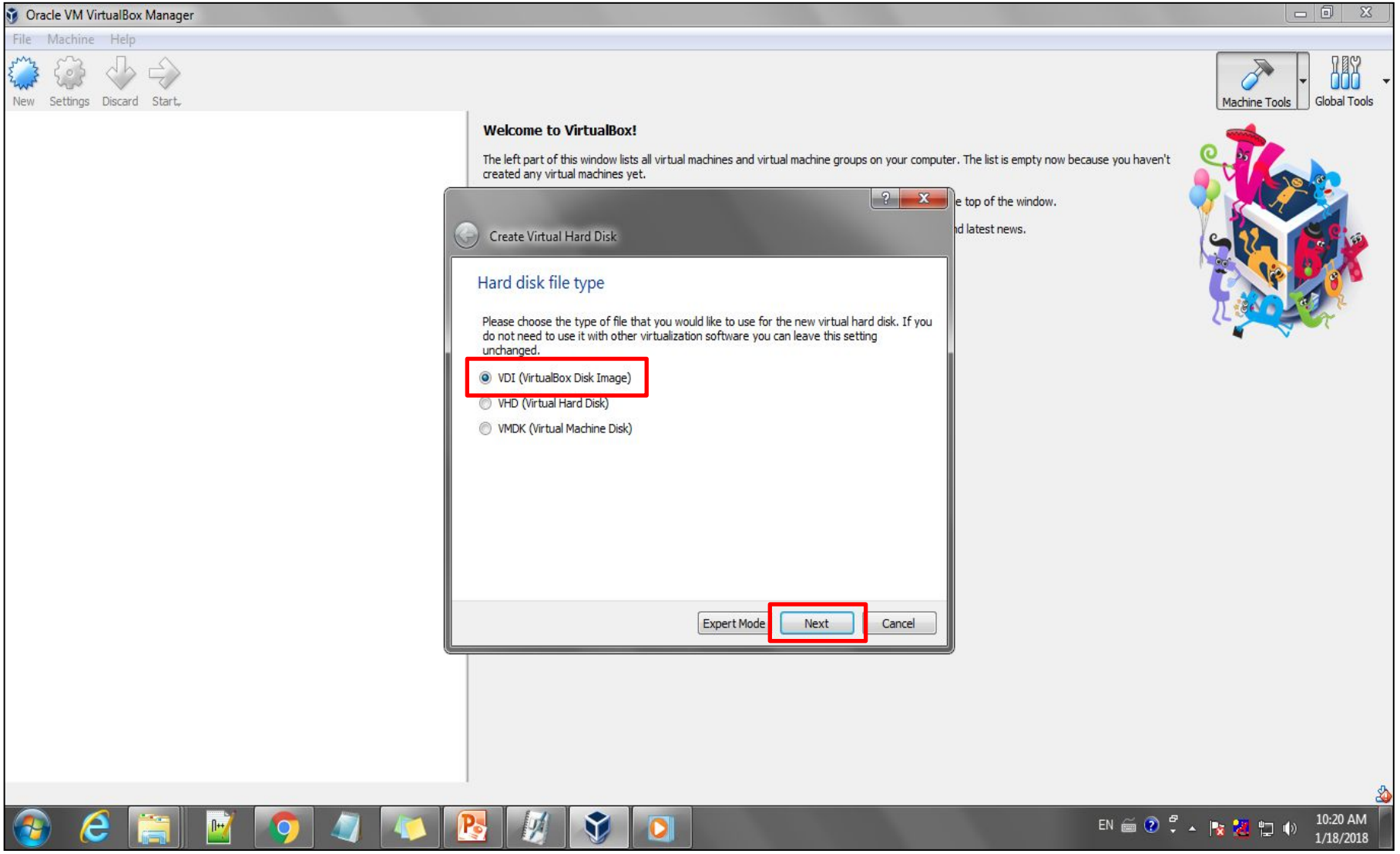

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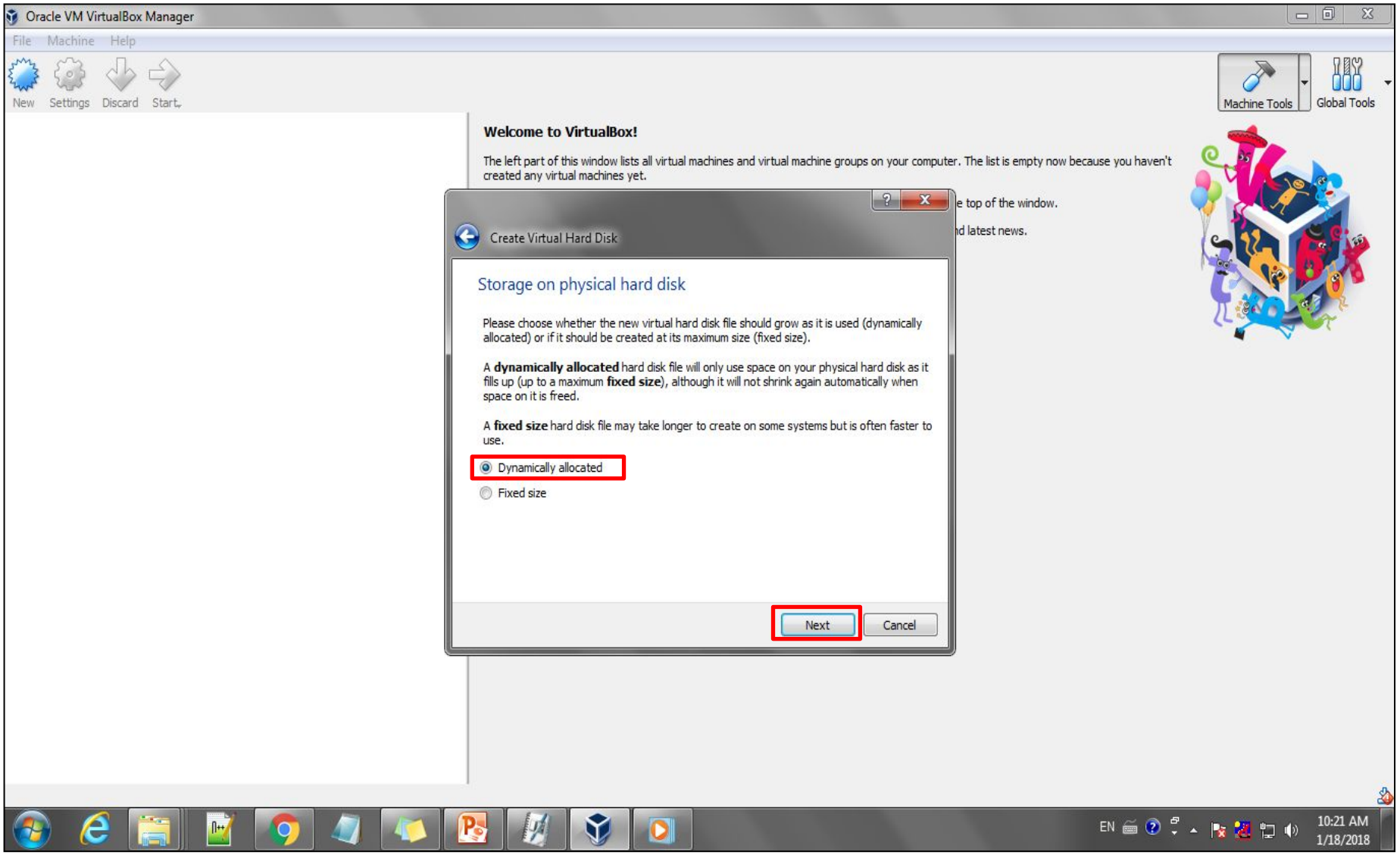

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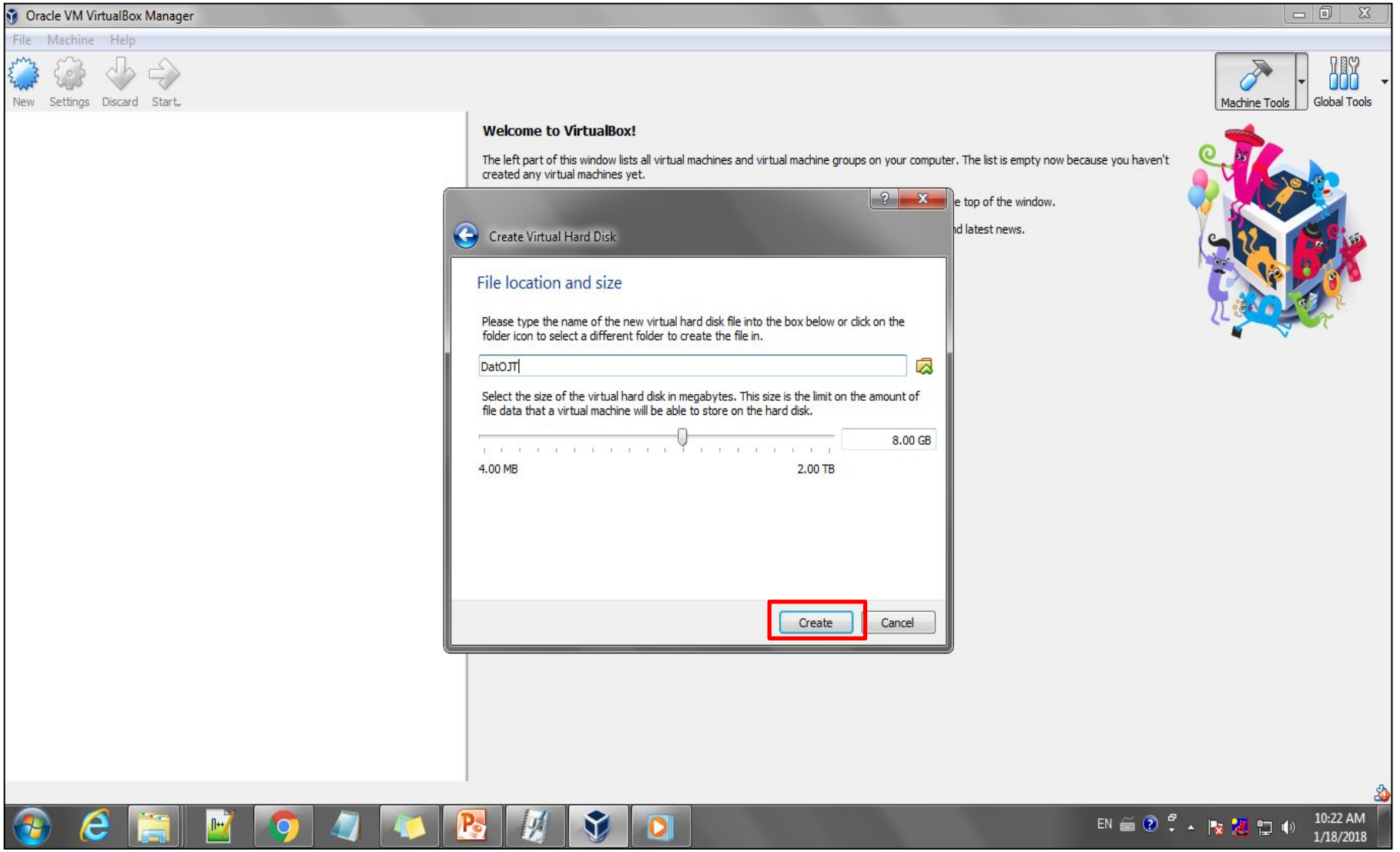

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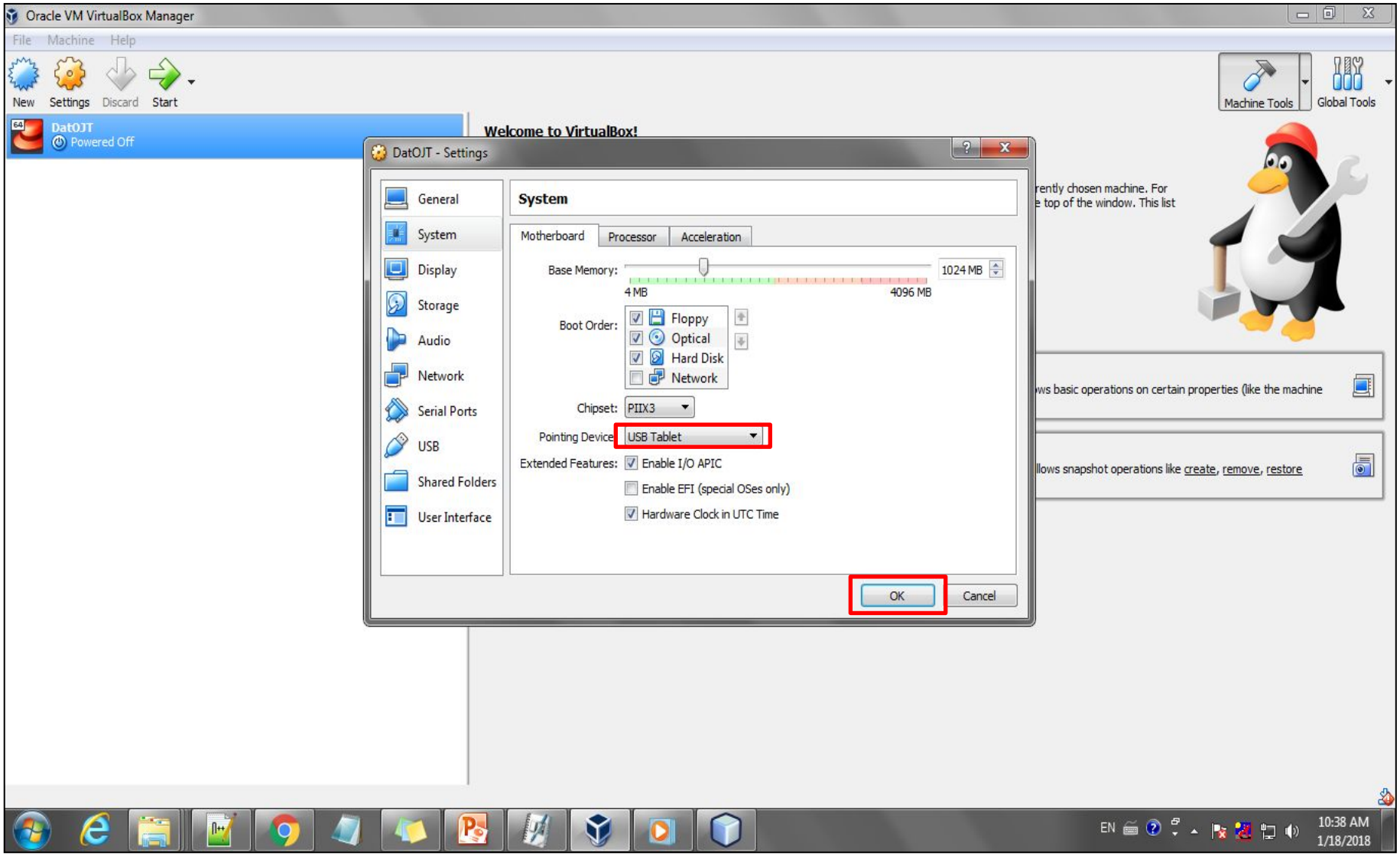
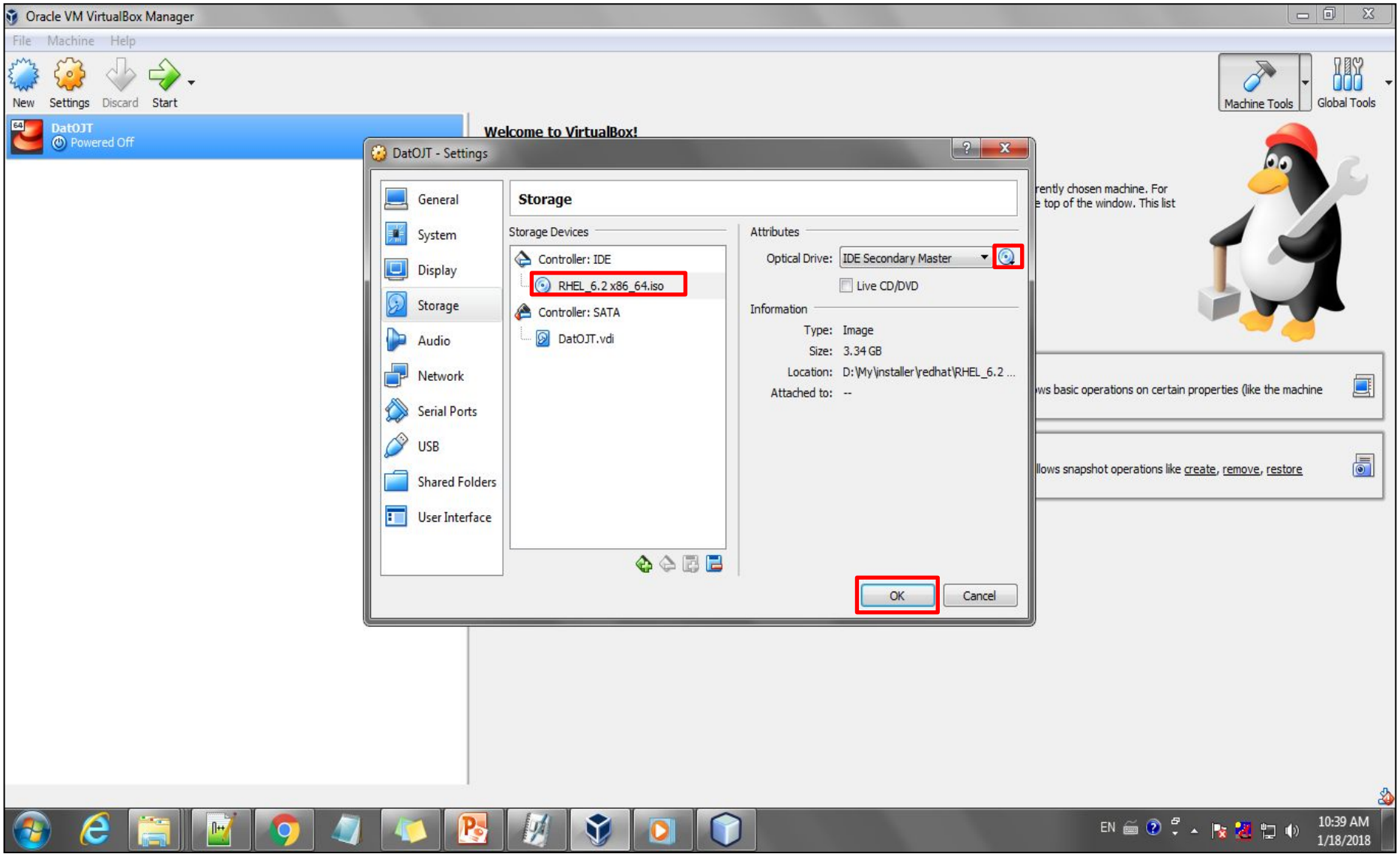
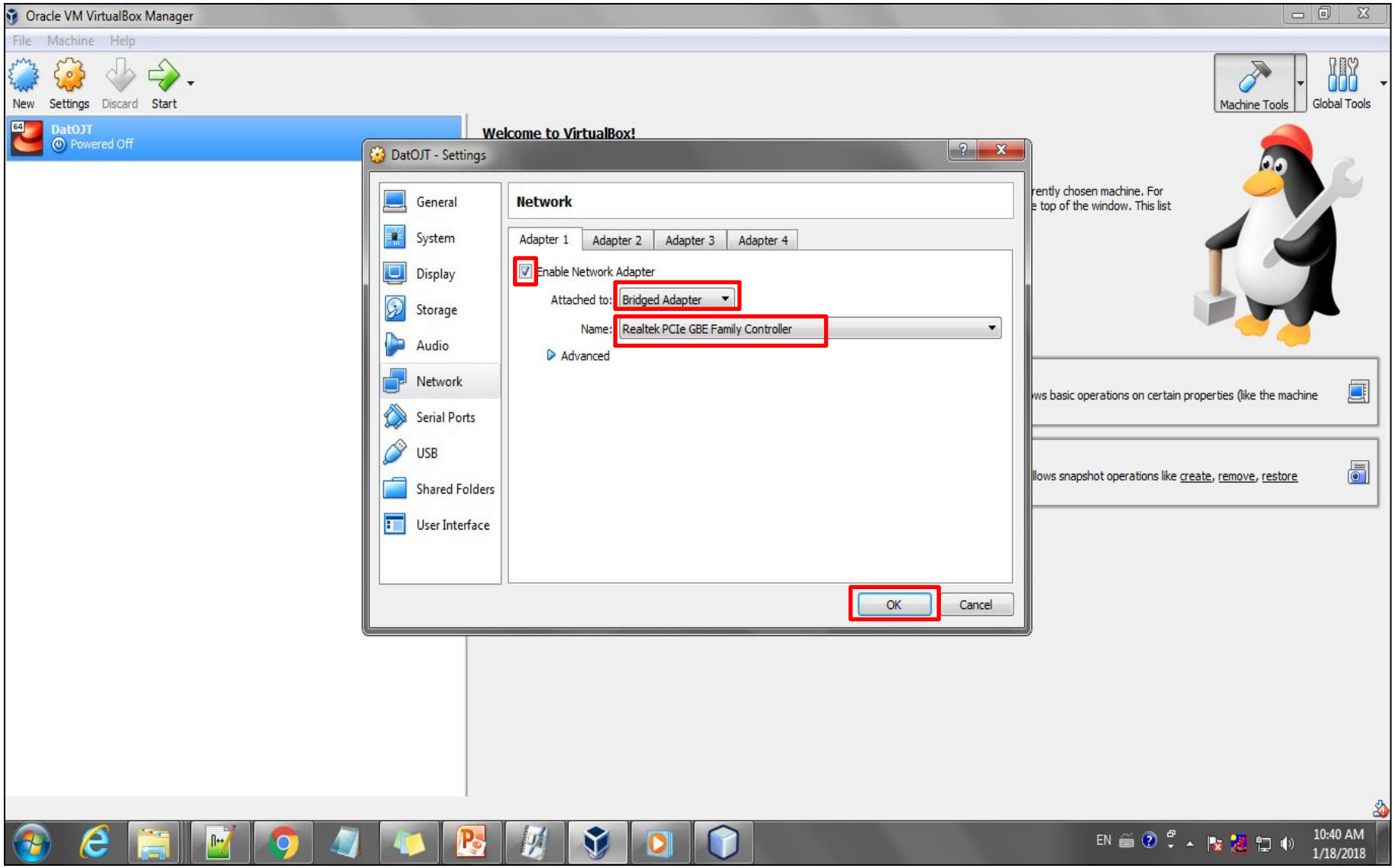


1. Linux Server Installation



1. Linux Server Installation



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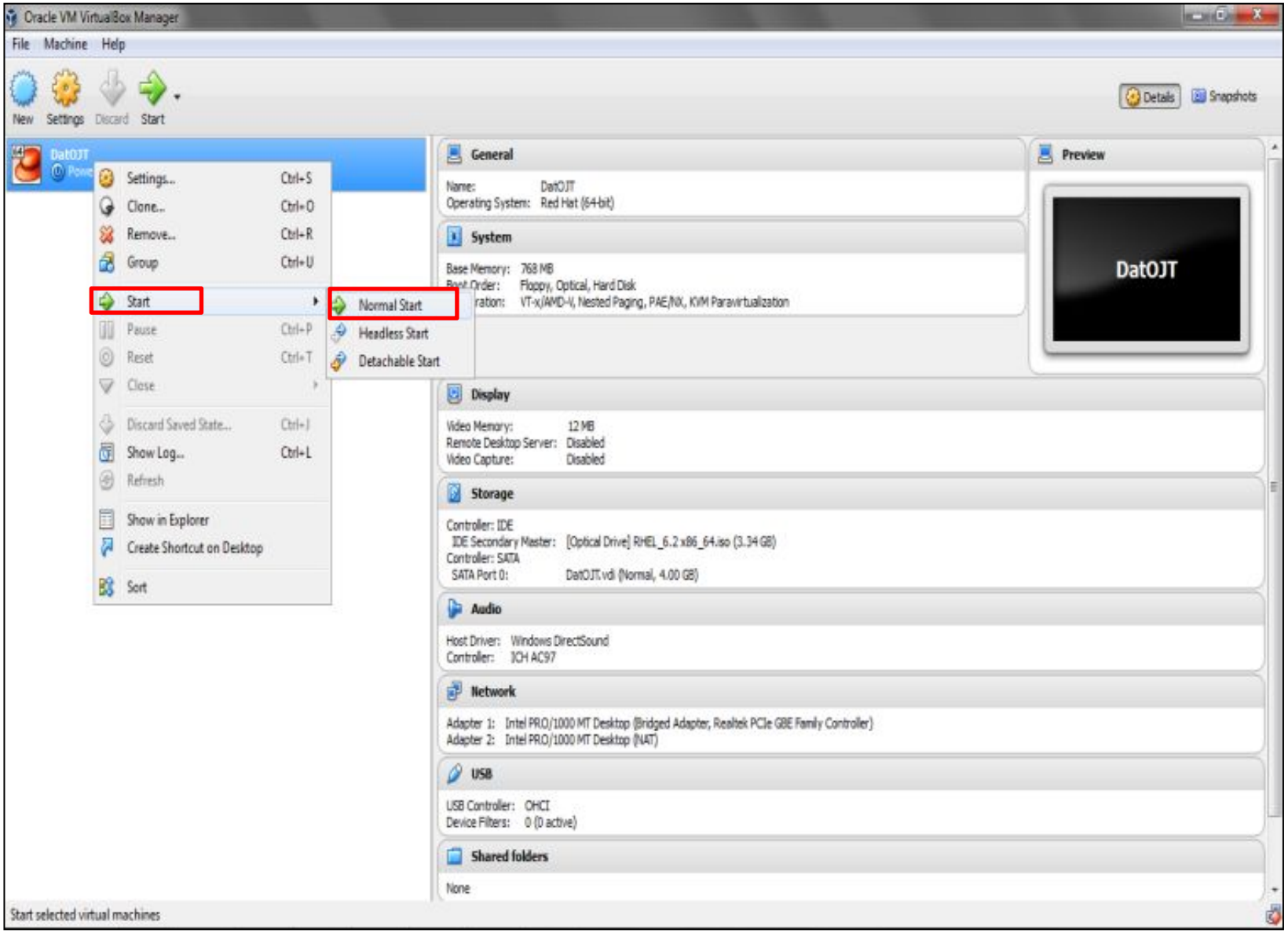


1. Linux Server Installation

1. At the Welcome wizard, choose the top menu **Install or upgrade an existing system.**

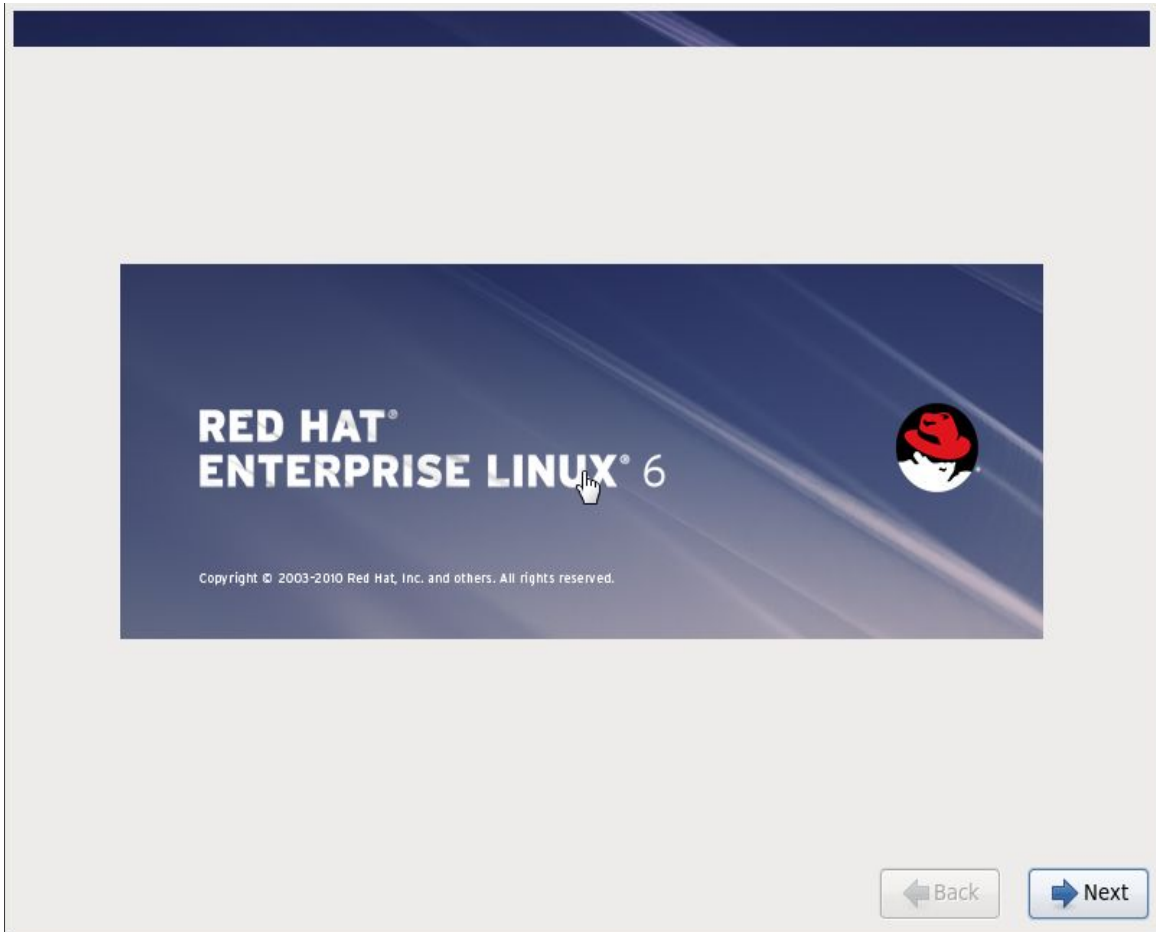
Note: choose with up or down arrow on keyboard and press enter.

1. Linux Server Installation

2. In this media testing step, choose **Skip**.

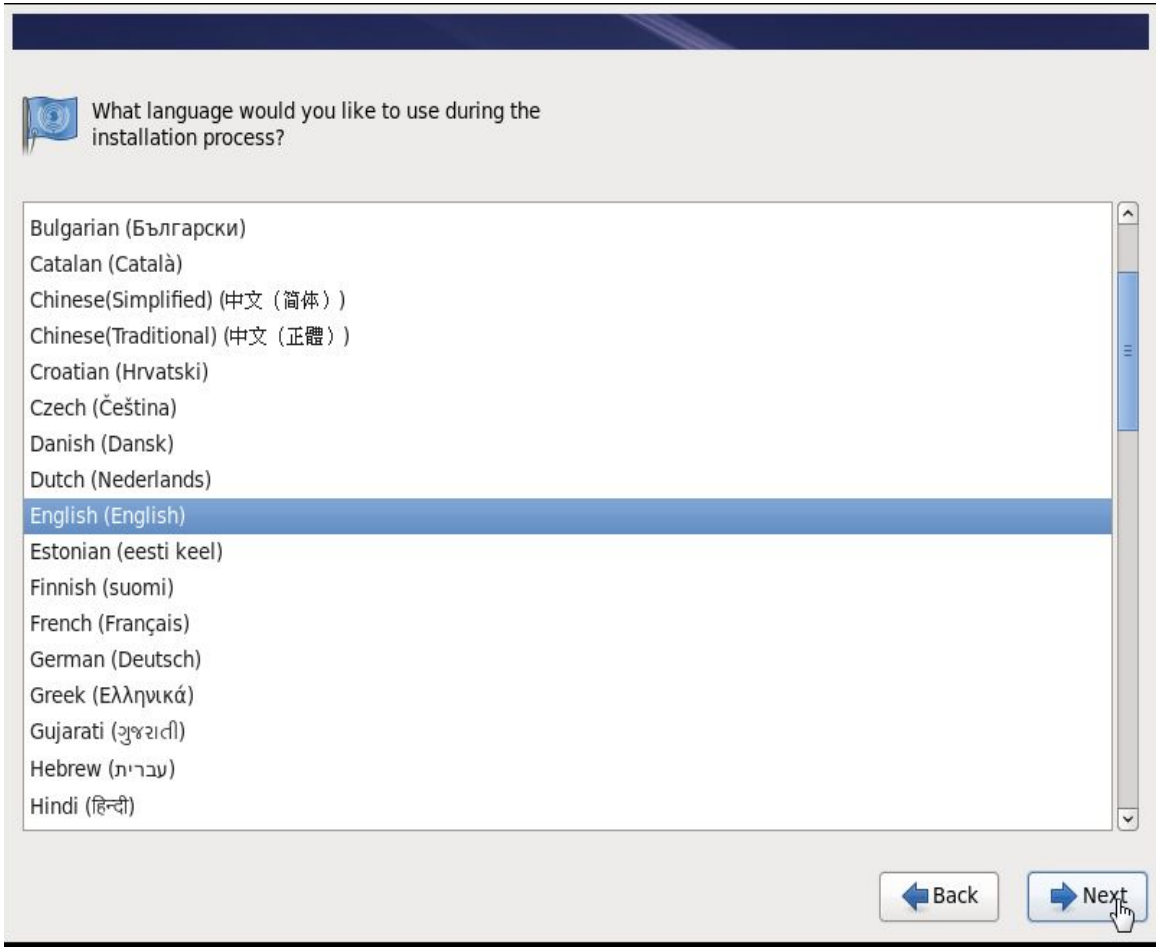
1. Linux Server Installation

3. Click **Next**.



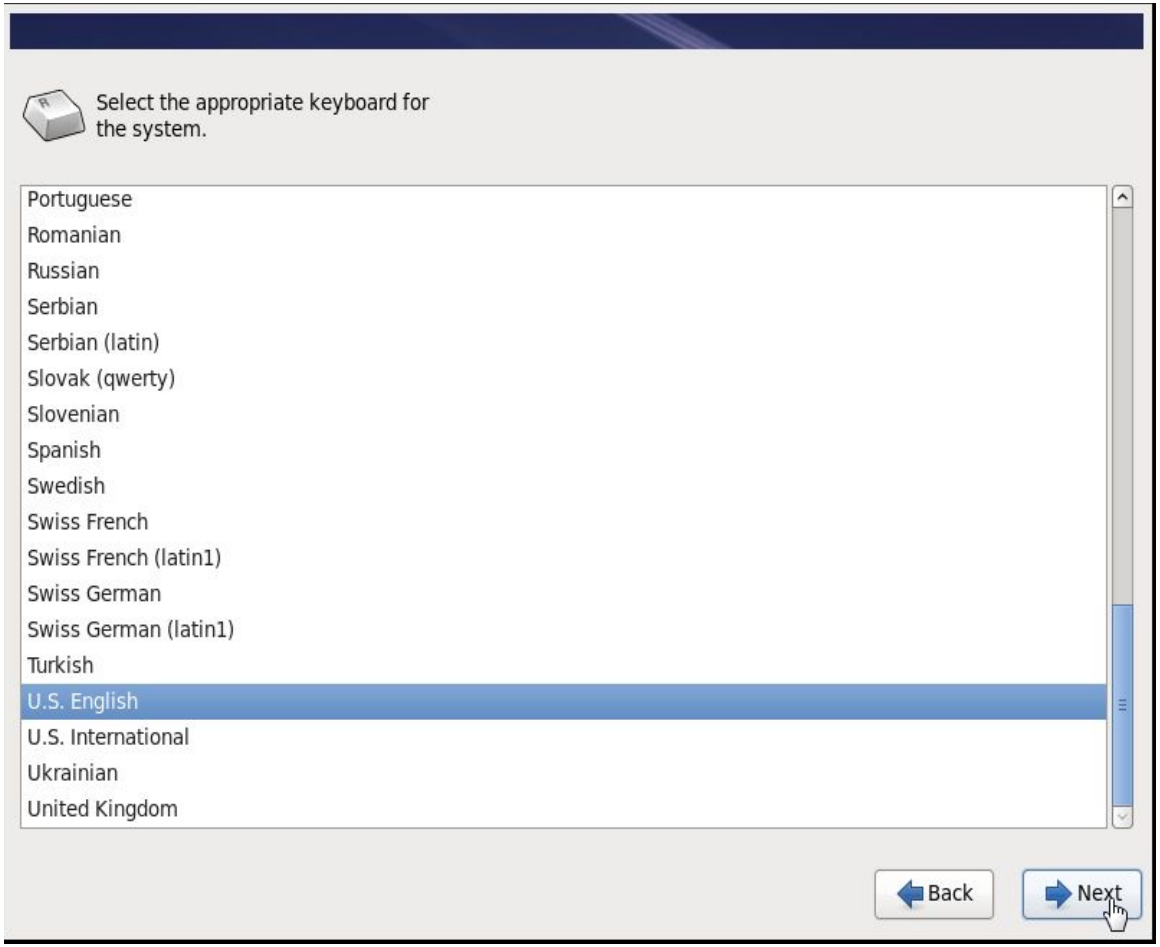
1. Linux Server Installation

4. Choose the language English (English) and click **Next**.



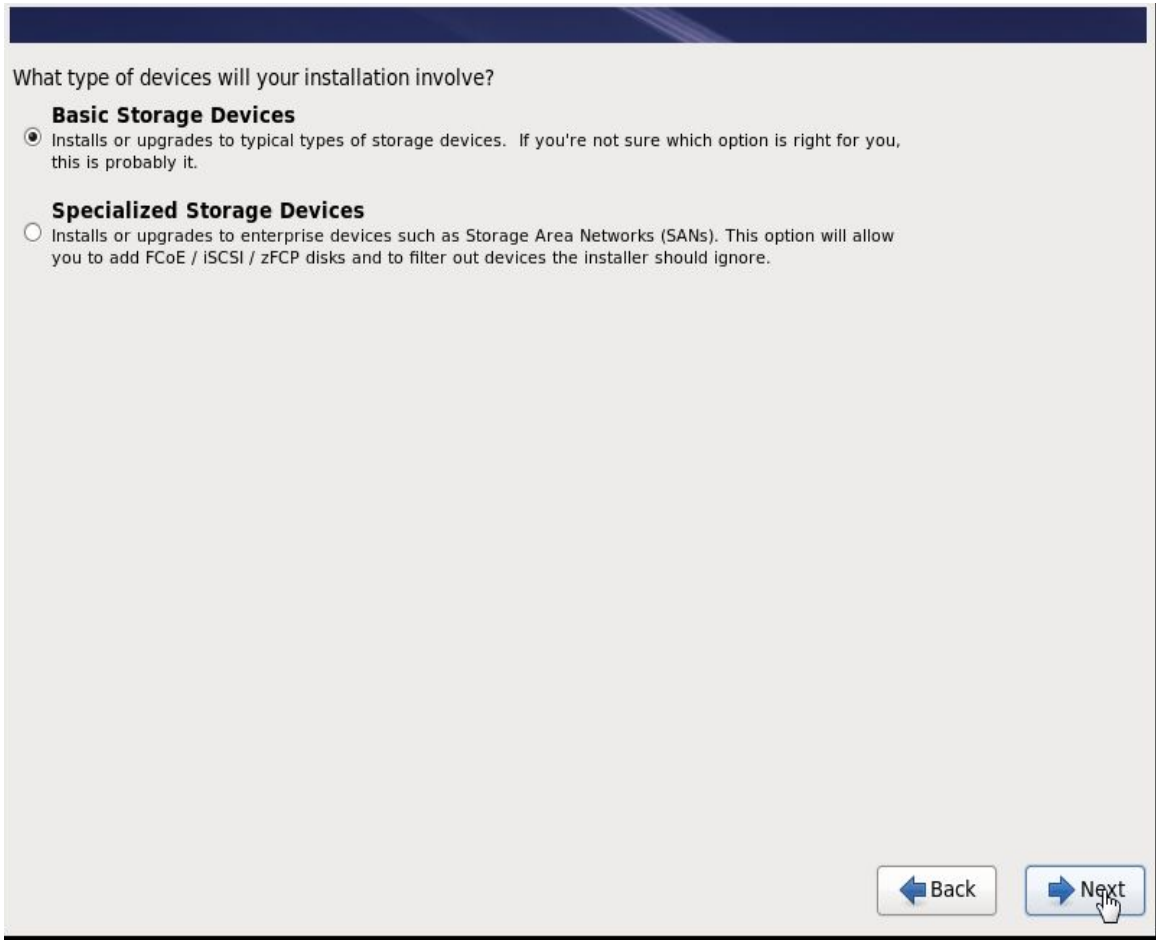
1. Linux Server Installation

5. Select U.S. English keyboard for selecting appropriate keyboard for the system.



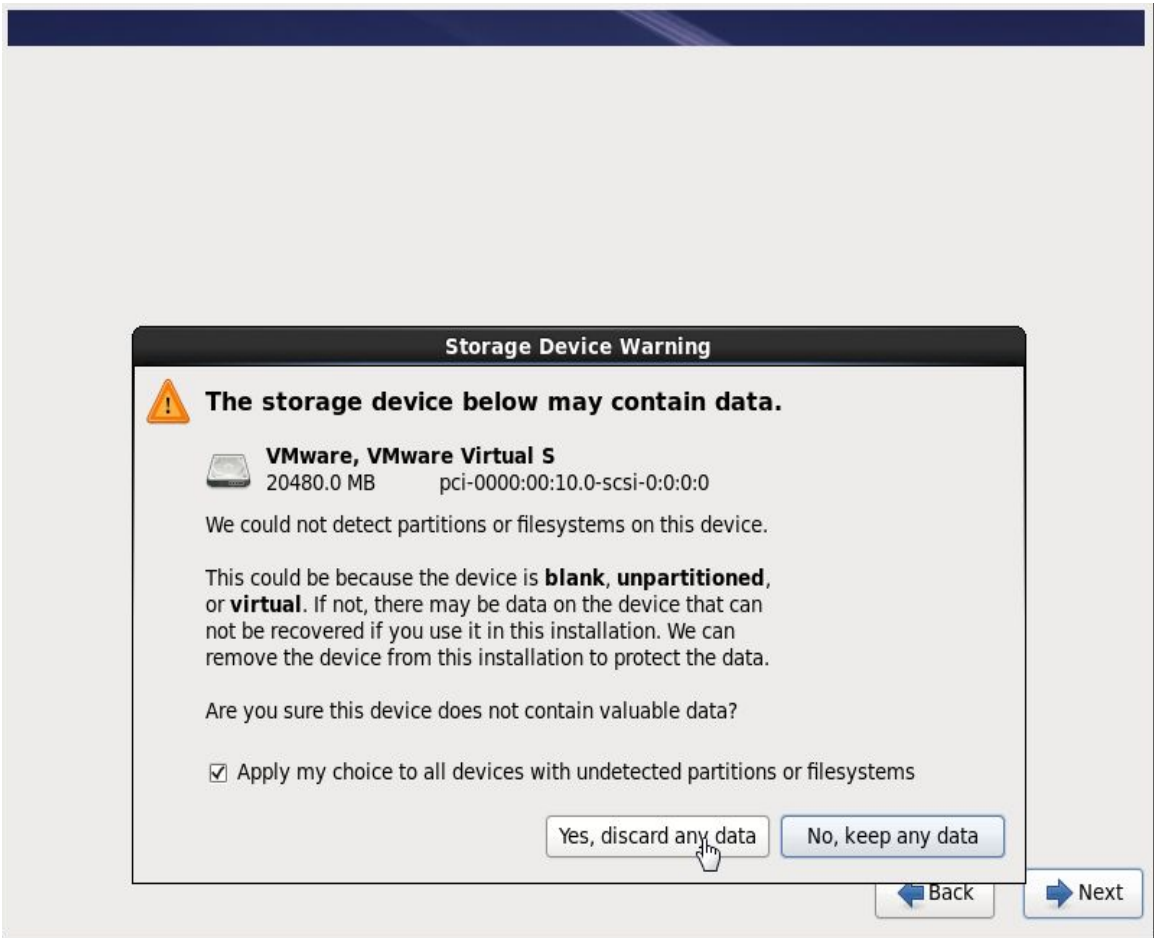
1. Linux Server Installation

6. Choose **Basic Storage Devices** and click **Next.**



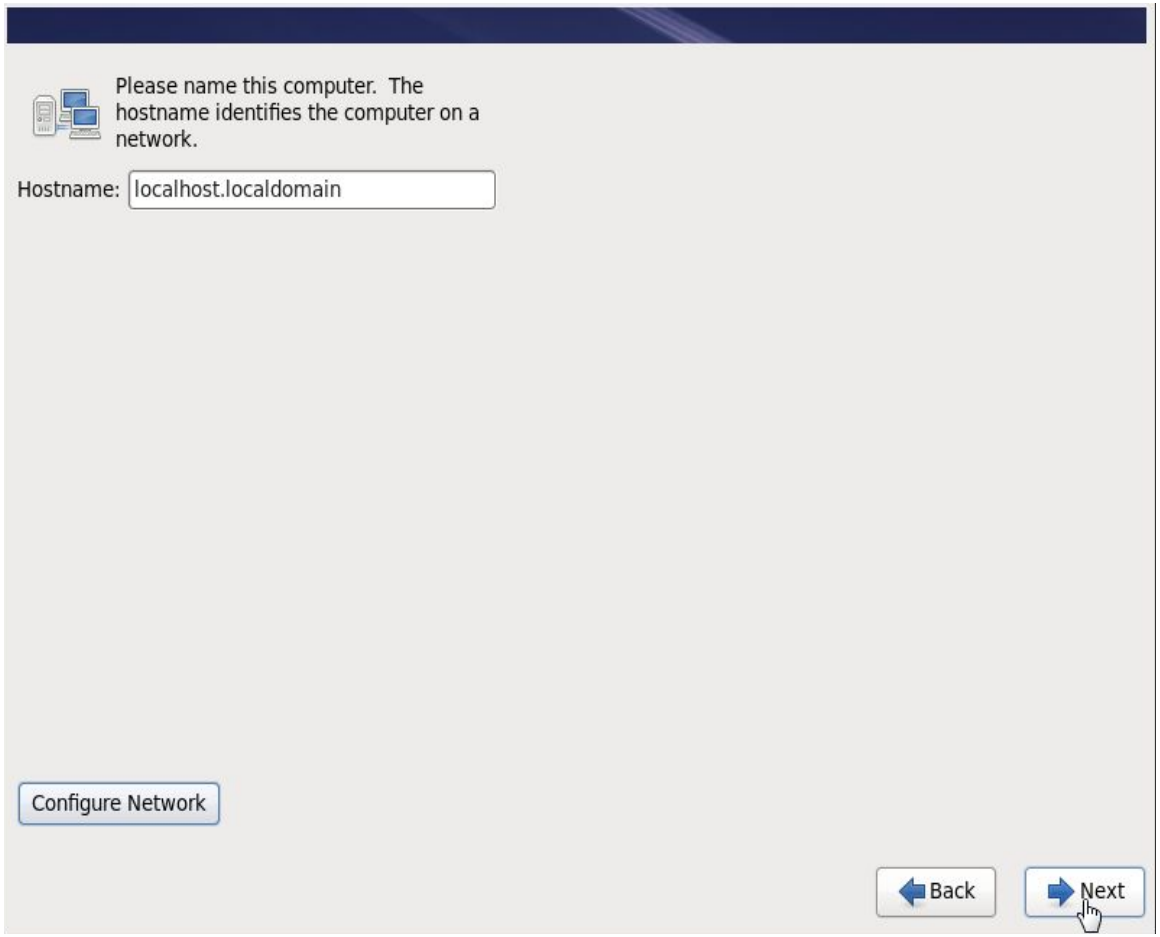
1. Linux Server Installation

7. Click **Yes, discard any data** and click **Next**.



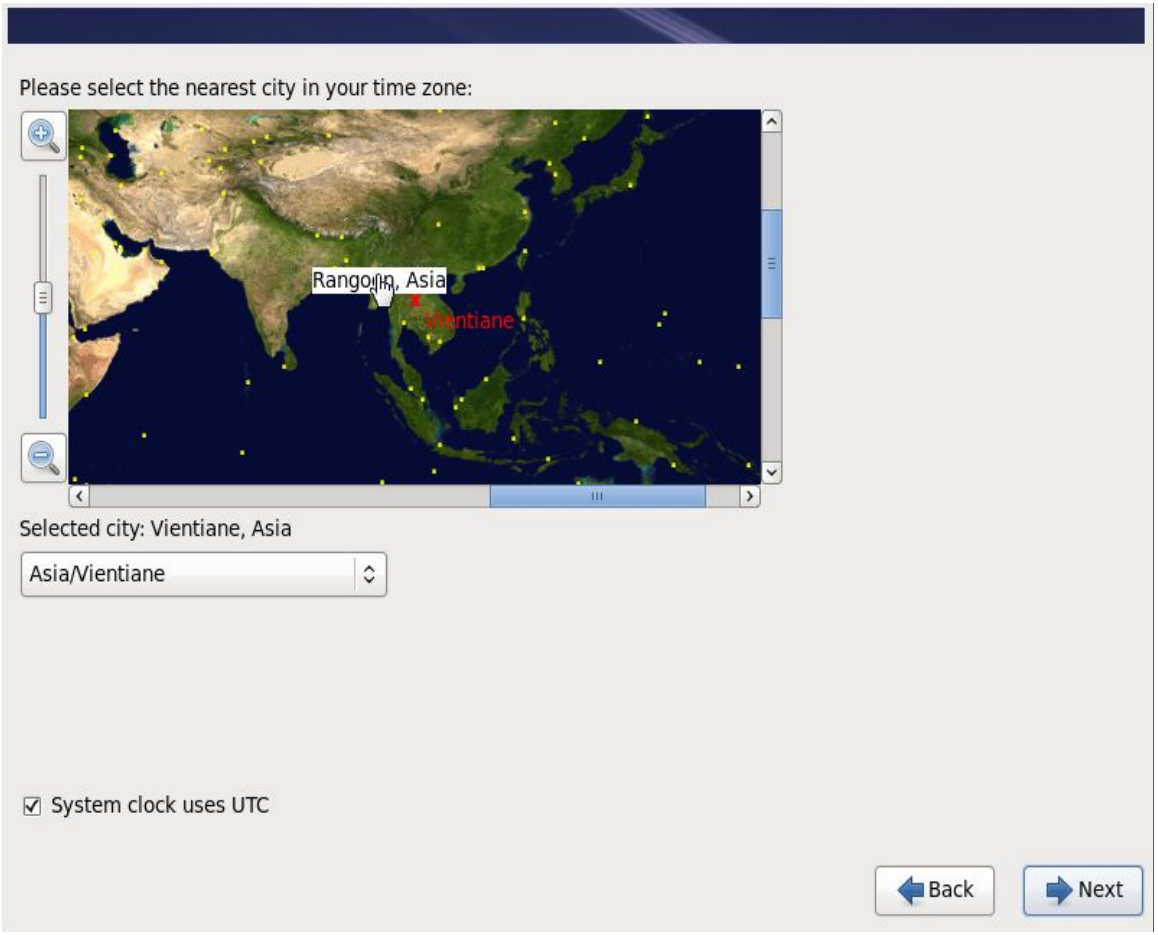
1. Linux Server Installation

8. Define hostname and click **Next**.



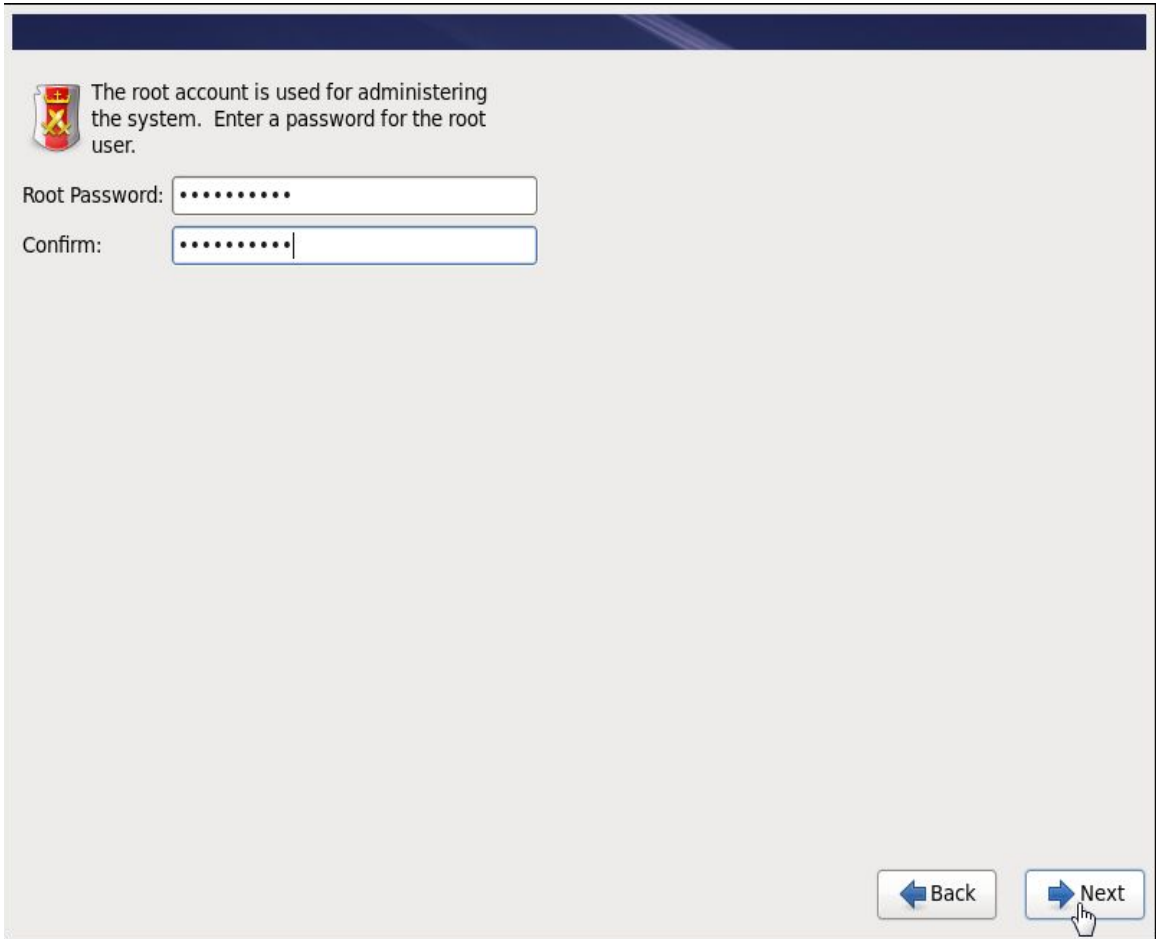
1. Linux Server Installation

9. Choose **Rangoon, Asia** time zone by click on map or choosing in drop-down menu. And then click **Next**.



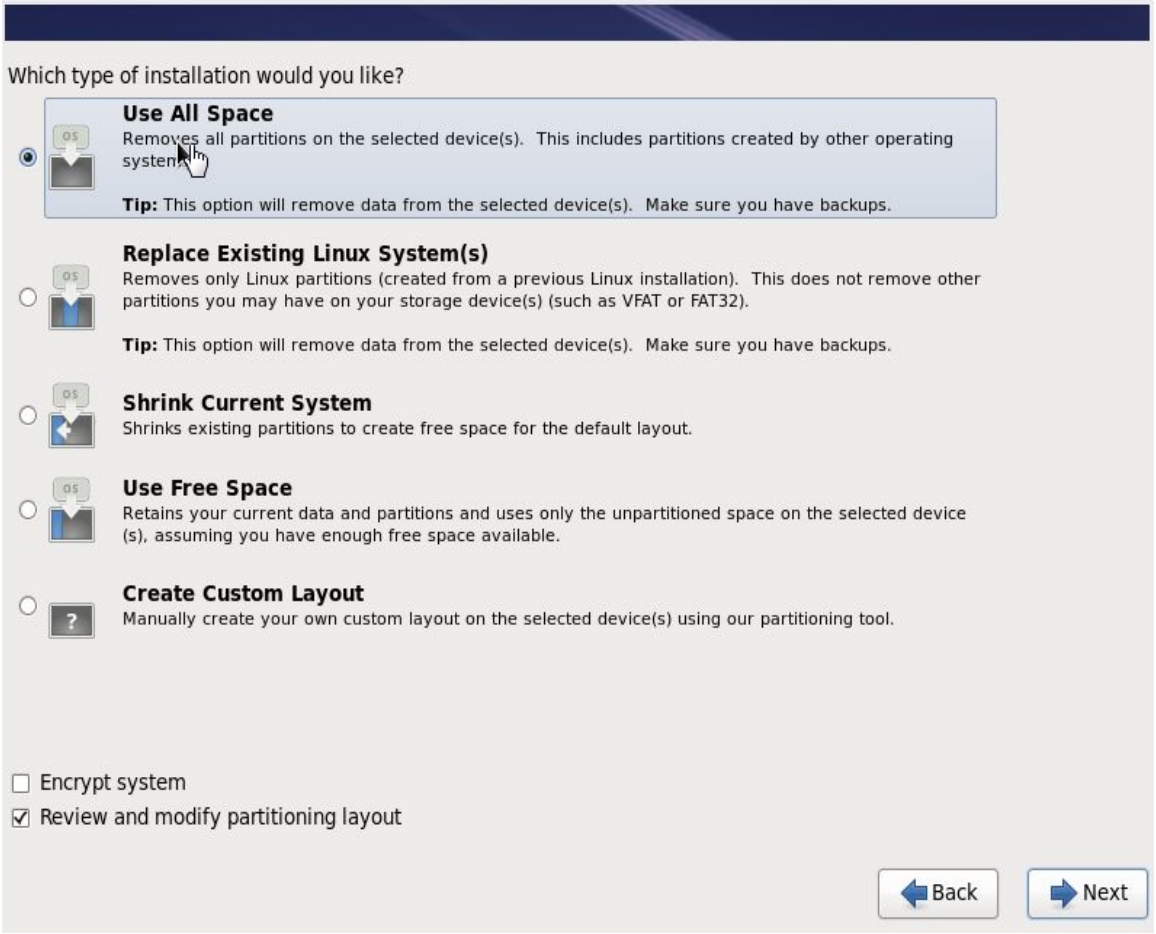
1. Linux Server Installation

10. Define Root user's password. And click **Next**.



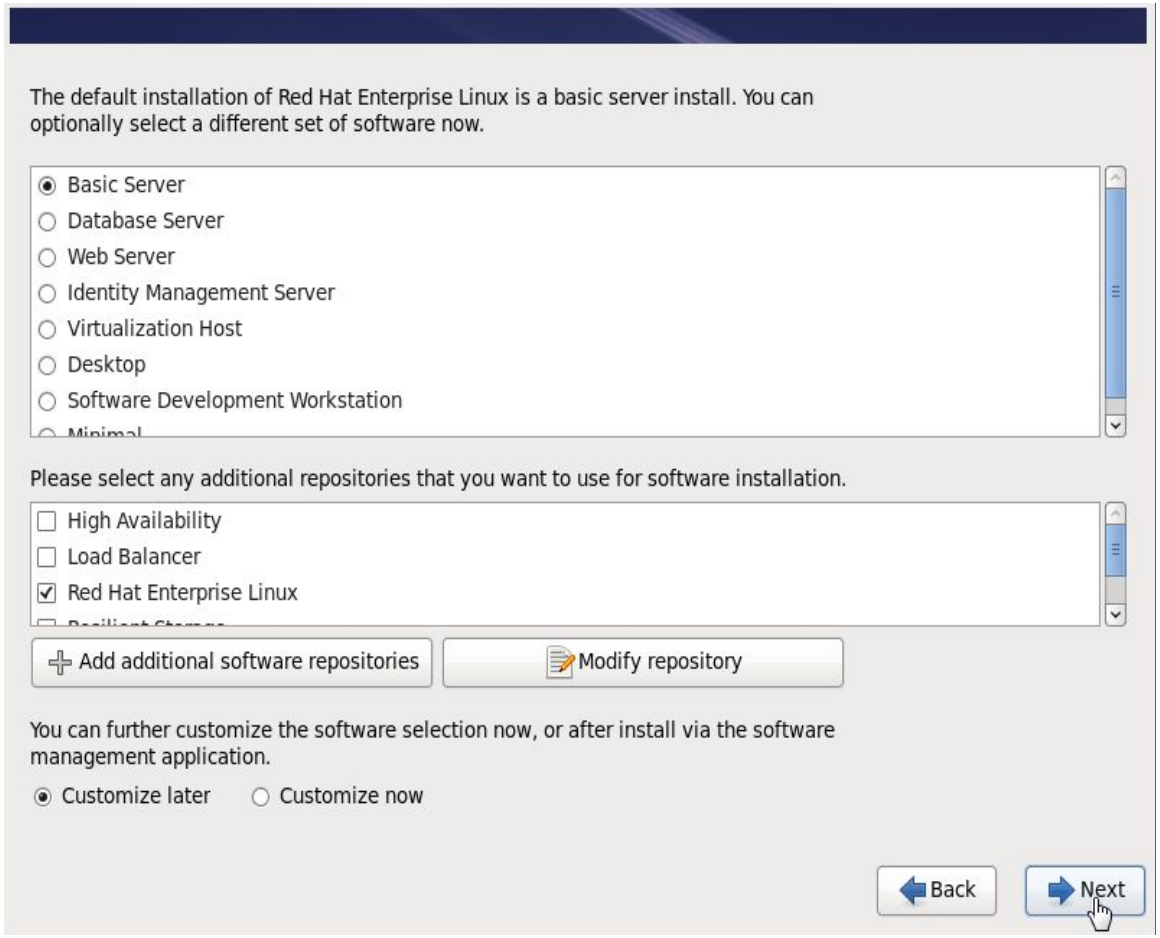
1. Linux Server Installation

11. Choose **Use All Space** for automatic partitioning and click **Next**.



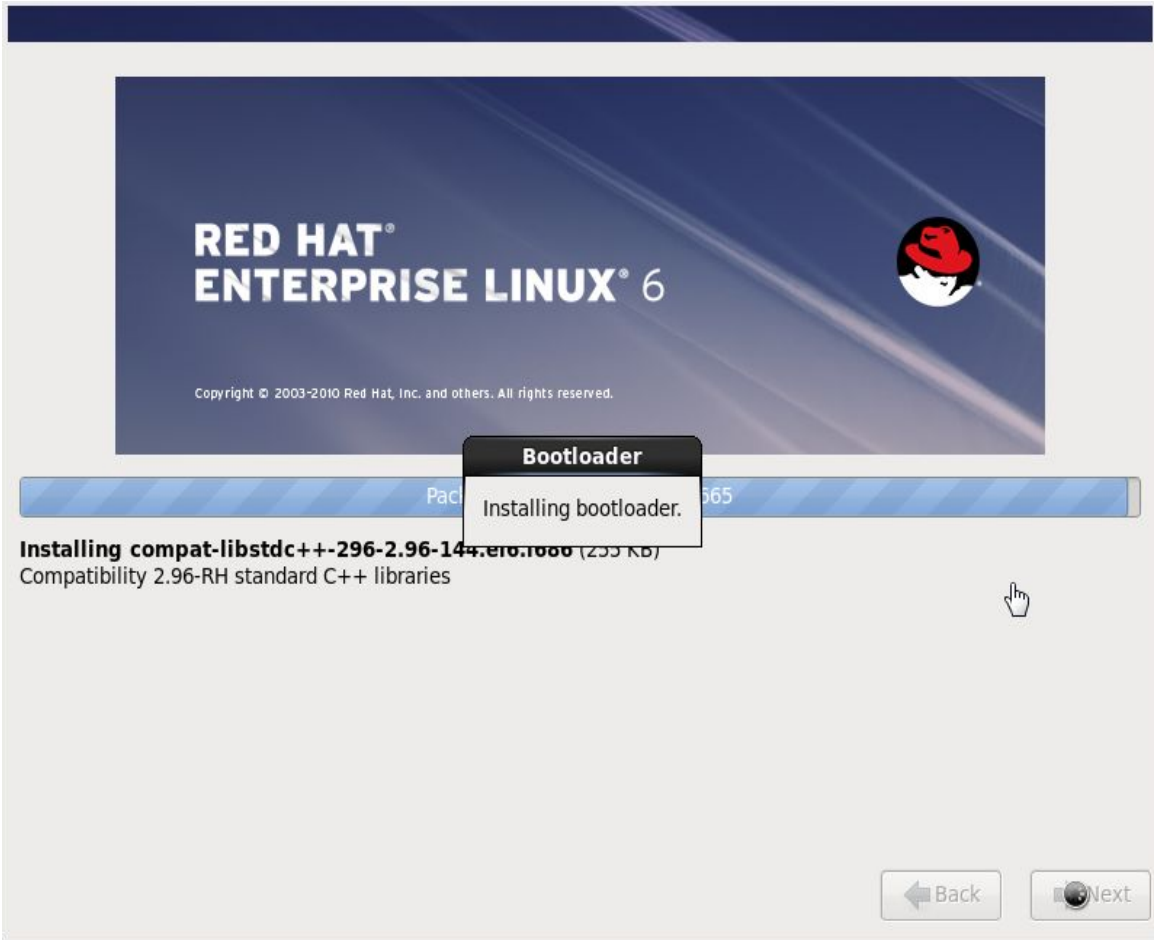
1. Linux Server Installation

16. Choose Basic Server in the upper box and choose customize later at the bottom and click **Next**.



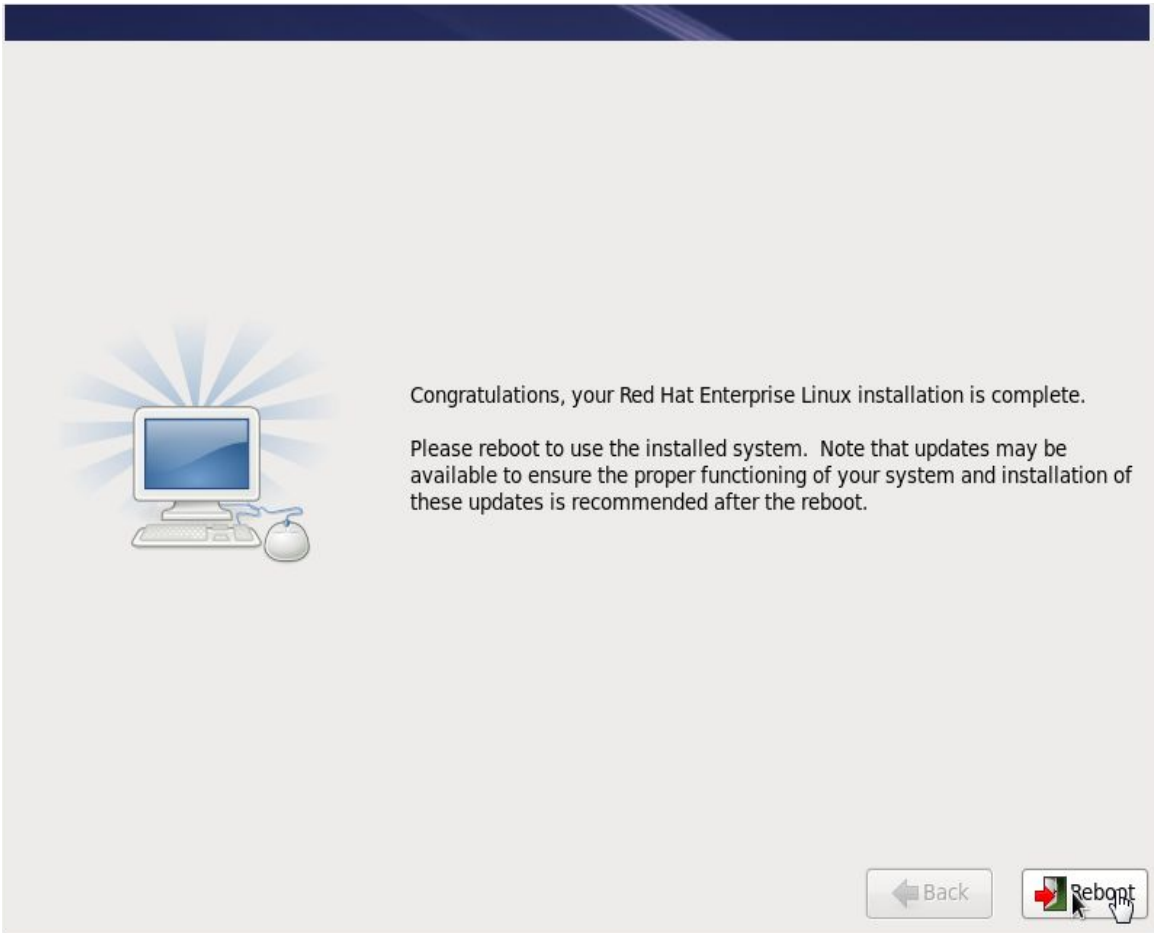
1. Linux Server Installation

17. Server is in process of installing operation system.



1. Linux Server Installation

18. After installation, system need to reboot. Click **Reboot**.



1. Linux Server Installation

19. Operation system is starting up and ready to use.

Linux OS Structure Overview
Structure of File System

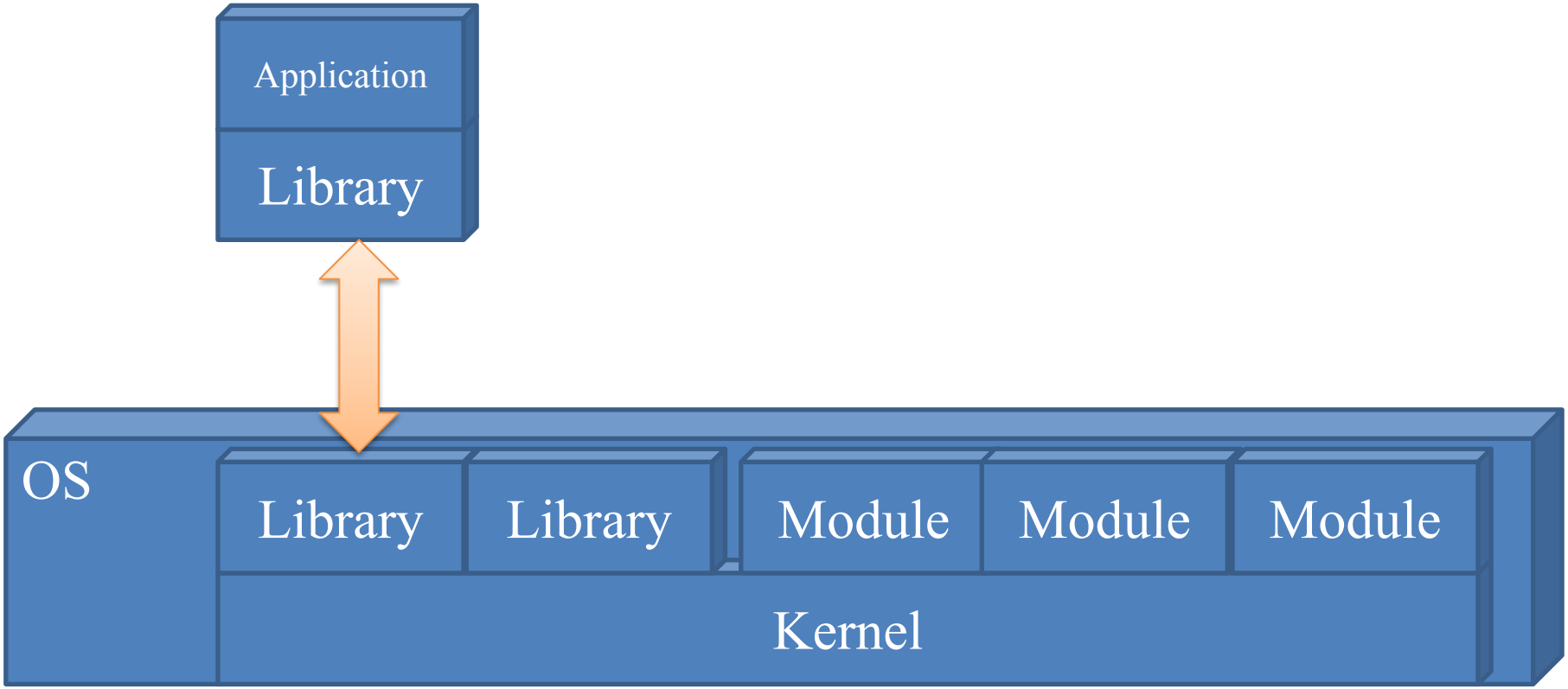
Dir	Summary
/	Root directory
/bin	Basic commands for all users. These commands can use on single user mode.
/boot	Necessary files for booting.
/dev	Device files
/etc	Configuration files
/home	Home directory for each users.
/lib	Shared library. Necessary libraries for kernel booting and basic commands execution.
/mnt	Temporally mount directory for other devices.
/opt	Additional Applications. Installation location of additional applications by RPM Package system.
/proc	Various information of kernel. Process, Memory, Parameters, Disk I/O, Network and etc.

Linux OS Structure Overview
Structure of File System

Dir	Summary
/root	Home Directory for root user
/sbin	Commands for system management
/tmp	Temporary Directory
/usr	Various Programs
/var	Working space for printing cache, mail, log files and etc.

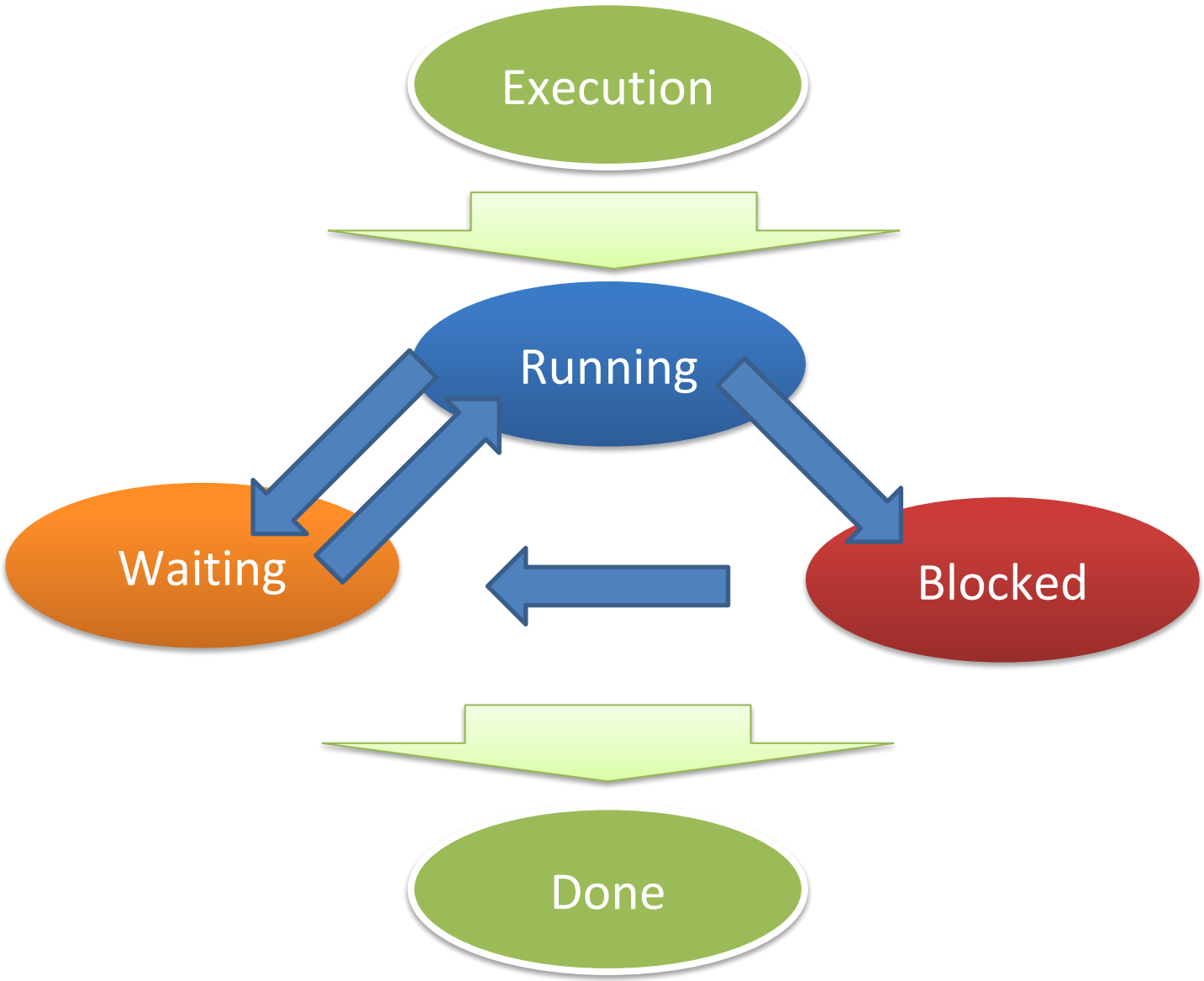
Dir	Summary
/usr/bin	Various commands that not use on single user mode.
/usr/local	Applications for system administrator
/usr/sbin	Various commands
/usr/share	Data that does not depend on the architecture
/var/cache	Temporary cache files.
/var/lock	Exclusive control files
/var/log	Log-files for various programs.
/var/run	Files are included process number

Linux OS Structure Overview
Process



Linux OS Structure Overview

Process



Linux OS Structure Overview
Permission

Linux has the two kind of users.

One kind of user is "root" user who has permission to control all.

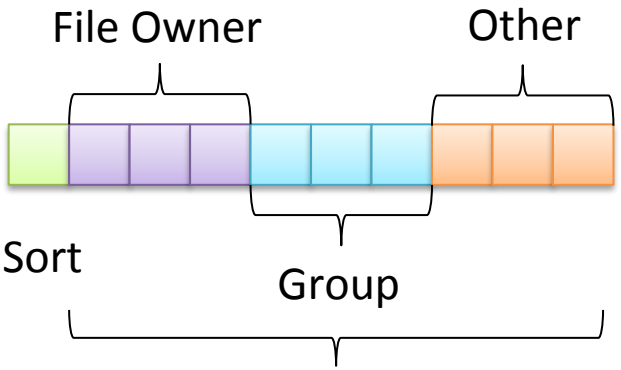
Other users are normal user who has equal permission .

The permission on Linux is very simple. that are "read", "write" and "execution".

It can set above permission on the file owner, same group user and other user.

Linux OS Structure Overview
Permission

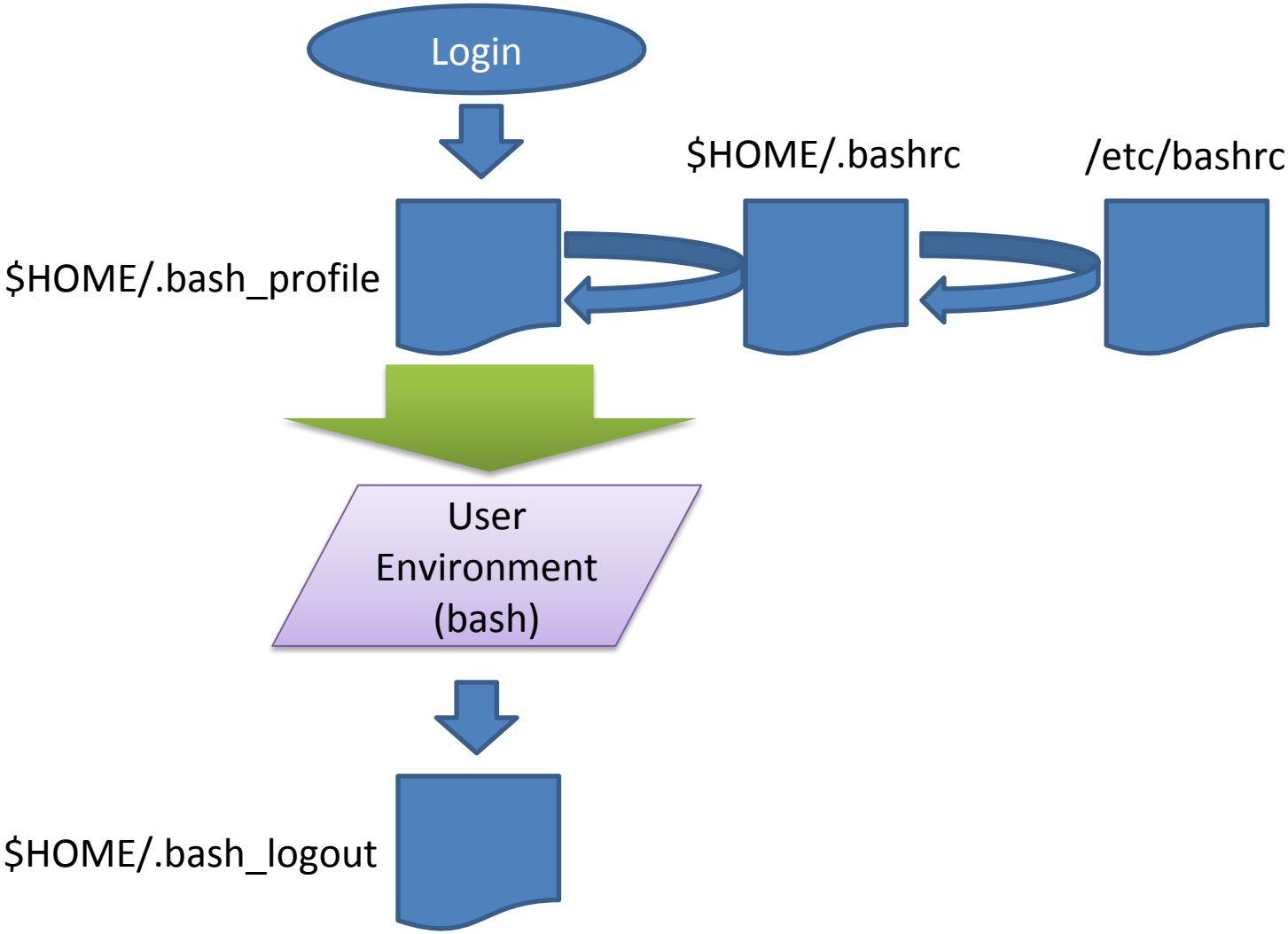
```
-rw-r--r--  1 root   root       19565 Mar 18 19:26 BATCH_sendSecurities.log
-r--r--r--  1 root   root        9306 Nov 17  2014 Client.pm
drwxr-xr-x  3   1031 users       4096 Sep  1  2014 JSON-RPC-0.96
-r--r--r--  1 root   root      486120 Aug 25  2014 OpenIPMI-libs-2.0.16-12.el6.x86_64.rpm
```



d : Directory
l : Symbolic Link
c : Character Device
b : Block Device
- : Normal File

r : Read
w : Write
x : Execute (or search for directories)
X : execute/search only if the file is a directory or already has execute permission for some users
s : Set user or group ID on execution
t : restricted deletion flag or sticky bit
S : Do not set the execute permission
T : Do not set the execute permission

Linux OS Structure Overview user environment(bash)



How to read online manual(summary)

NAME

ftp - Internet file transfer program

SYNOPSIS

ftp [-pinegvd] [host]

DESCRIPTION

Ftp is the user interface to the Internet standard File Transfer Protocol.

-i Turns off interactive prompting during multiple file transfers.

OPTIONS

-i Turns off interactive prompting during multiple file transfers.

ENVIRONMENT

SHELL

SEE ALSO

ftpd(8), RFC 959

FILES

/etc/hosts /etc/sysconfig/network

How to use major command

Major Commands

Command	Summary
groupadd	Create a group.
groupdel	Remove the group.
groupmod	To change the group information.
id	It displays the user information (user ID · user name, group ID · group name).
passwd	To configure the user's password.
su	Switch the user.
useradd	Create a user.
userdel	Delete the user.
usermod	Update the user information.

How to use major command

Major Commands

Practice

- Let create the private group.
- Let create the private account user.
  Home directory : /home/xxx
- Let change the password of created user.
- Let login the private account.

How to use major command

Major Commands

Command	Summary
chkconfig	And view and set of system services startup settings。
clear	Clear the screen of the terminal.
date	To display and set the date.
df	It displays the usage of the drive.
env	To set the temporary environment variable.
exit	Log out.
free	It displays the memory usage of the host.
hostname	To view and change the host name.
kill	It sends a signal to a process. (It the process forcing terminated.)
logger	Writes to the system log.

How to use major command

Major Commands

Practice

- Let display status(on/off) of Daemon.
- Let display the time on the GMT and Unix Time.
- Let display the usage of Disk under the root , as Megabytes.
- Let display the environment variable of shell.
- Let display hostname.
- Let write the data to system log(/dev/log/message).
- Let send the signal to the sshd process of your login.

How to use major command

Major Commands

Command	Summary
mount	Mount the file system.
clear	Clear the screen of the terminal.
ps	Displays the current process state.
pstree	And tree view of the current process state.
pwd	It displays the current directory as an absolute path name.
top	It displays the task of the host in real time.
vmstat	It displays the system operation status of the host.
netstat	It is a command line tool for monitoring network connections.
iostat	It displays CPU statistics and input/output statistics for devices and partitions.
who	It displays the information of the currently logged in user.

How to use major command

Major Commands

Practice

- Let display the list of all processes.
- Let display the full path of current directory.
- Let display the process information by top command.
- Let display the system status information by vmstat.
- Let display the listening processes.
- Let display the disk I/O information.

How to use major command

Major Commands

Command	Summary
basename	prints filename NAME with any leading directory components removed.
cd	Change to the directory where you specify the current directory (the current working directory)。
chgrp	Change the ownership group of files and directories.
chmod	Change the access rights to files and directories.
chown	Change the owner user and owner group of the file.
cp	Copy the file.
dirname	Remove the directory name from the file path.
du	To display the disk usage of files and directories.

How to use major command

Major Commands

Command	Summary
find	Search for a file or directory using the conditional expression.
ln	Link to generate a (set a different name to the directory file, a mechanism that can be accessed by its name).
ls	It displays the files and directories that exist in the directory.
mkdir	Create a directory.
mv	Move the file.
rm	Delete the file or directory.
rmdir	Remove the directory.
stat	To display the details of the file.
touch	Change the last update date and time of the file.

How to use major command

Major Commands

Practice

- Let display the filename of /tmp/a.txt by basename command.
- Let display the directory name of /tmp/a.txt by dirname command.
- Let create new file under the home directory by touch command.
- Let confirm the permission of created file by ls command.
- Let change the group of created file.
- Let change the permission of created file.

How to use major command

Major Commands

Practice

- Let copy the file from the a.txt under the home directory to the b.txt under the home directory.
- Let change the filename from the b.txt under the home directory to the c.txt.
- Let find the b.txt from root directory by find command.
- Let delete the c.txt file.

How to use major command

Major Commands

Command	Summary
cat	It displays the contents of the file。
diff	It compares two of the text file on a row-by-row basis.
cut	Displays take out the part of each line from the file.
echo	It displays the contents of the specified string or variable.
grep	File contains the specified string and, to find the line.
head	Print the first part of the file.
join	Combine the two files.
less	To browse the contents of a text file.
more	To browse the contents of a text file on a page-by-page basis.

How to use major command

Major Commands

Practice

- Let find the file that included hostname.
- Let display the contents of file that included hostname.
- Let display the contents of file that included hostname by more command.
- Let display the "hello world" by echo command.
- diff ????

vi editor

vi editor

vi is a screen-oriented text editor originally created for the Unix operating system.

Basically, vi is designed to operate only with the keyboard.

So, do not use the arrow keys to move the cursor.

Each functions are called by the shortcut keys and the command.

Therefore, It is necessary the mastery in order to use features.

vi editor
Shortcut & Command

Key	Summary
i	Change to insert mode.
r	Change to replace mode.
c	Change to replace the only one character. cw Change the word
x	Delete one character. 3x Delete 4 characters
j	Down Cursor
l	Right Cursor
h	Left Cursor
k	Up Cursor

vi editor
Shortcut & Command

Key	Summary
yy	Copy one line to the memory. 4yy Copy 4 lines to the memory.
p	Insert the data from the memory.
dd	Delete one line 4dd Delete 4 lines.
:w	Save the file. :w! Force write.
:q	Quit the editor :q! Force quit.
u	undo

vi editor
Shortcut & Command

Key	Summary
control + F	Page Down
control + B	Page Up
:xx,yytzz	Copy the line between xx and yy , to zz. xx ： line number yy ： line number zz ： line number
:%s/xx/yy/	Replace xx string to yy string.
/xxxx	find

vi editor

Practice

- Let insert word in file
- Let replace word in file
- Let delete 4 characters in file
- Let copy one line in file
- Let delete one line in file
- Let save the file
- Let quit from the file
- Let cover the previous state in file
- Let page down in file
- Let find the word in file