INTERNSHIP REPORT ON ISP SERVER CONFIGURATION IN LINUX AND MIKROTIK PLATFORM

SUBMITTED

BY

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Computer Science and Engineering

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DHAKA, BANGLADESH
MAY 2018

APPROVAL

This Internship titled **"INTERNSHIP REPORT ON ISP SERVER CONFIGURATION IN LINUX AND MIKROTIK PLATFORM"**, submitted by Md. Saddam Hossain to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on MAY 7, 2018

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DECLARATION

I hereby declare that, this internship report is prepared by me, Md. Saddam Hossain, ID No: 152-15-6229 to the department of Computer Science and Engineering, Daffodil International University. Under the supervision of Fahad Faisal, Senior Lecturer, Department of CSE, Daffodil International University.

I also declare that neither this internship report nor any part of this internship report has been submitted elsewhere for award of any Degree or Diploma. I also declare that, I collect information from Daffodil Online Limited (DOL), Data Center and Internet Service Provider (ISP) Based Company, Books and Internet.

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I am grateful to **Mr. Sabbir Ahamed, General Manager of Daffodil Online Limited**. I am also grateful to Mr. **Mohammad Abul Basher, System Admin (Network & Training) of Daffodil Online Limited**. Without their continuous support I can't continue my internship in the company. Other members of the company helped me tremendously for doing my internship.

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Finally, I must acknowledge with due respect the constant support and patients of parents.

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ABSTRACT

This internship report is intended for the completion of BSc in computer science and engineering. I heard that DOL (Daffodil Online Limited) is the best organization for internship in Linux administration and security. DOL gave me the opportunity for Linux server configuration, mail server, FTP server, samba server, Network configure, broadband connection, MikroTik router configure, Static configure, Dynamic configure, bridge connection, NAT, Firewall, bandwidth management etc. Linux is always considered as very secure operating system. MikroTik is one of the very popular platforms in digital Bangladesh. We can do almost everything using mikroTik including router static connection, DHCP connection, site block, etc. In this report mostly the detailed steps for configuring the Linux and MikroTik has been described.

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TABLE OF CONTENTS

CONTENTS	PAGE NO
Approval	I
Declaration	II
Acknowledgement	III
Abstract	IV
Table of contents	V-VII
List of Figures	VIII- X
CHAPTER	
CHAPTER 1: INTRODUCTION	**1-2**
1.1 Introduction	1
1.2 Motivations	1
1.3 Internship Objectives	1
1.4 Introduction to the Company	2
1.5 Report Layout	2
CHAPTER 2: INTERNSHIP ENTERPRISE	**3-5**
2.1 Introduction	3
2.2 Product and Market Situation	3
2.3 Target Group	4
2.4 SWOT Analysis	4
2.5 Organizational Structure	5
CHAPTER 3: INTERNSHIP ROLES AND RESPONSIBILITIES	**6-57**
3.1 Daily Task and Activities	6
3.2 Events and Activities	7
3.3 Project Task and Activities	7
3.4 Linux ACL permission	8
3.5 Selinux security	8
3.6 Linux file system	8

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3.7 SSD vs. HDD 9
3.8 Creating Linux Partition 9
3.9 Linux Run-Level Used by Centos 9
3.10 The Basic Command of Linux Centos 10
3.11 User Create and Password Management 10
3.12 To Know About the Logged In User 12
3.13 To Copy or Move a File 12
3.14 Vi Editor 13
3.15 Install/Update/Remove Packages in Centos 13-15
3.16 File and Directory permission change 15
3.17 Linux OS installation and partition 16-28
3.18 USB pen-drive mount and umount 33
3.19 How to Network Configure IP Address, DNS, Hostname assign 34-37
3.20 How to be a Root password break in Linux 37-39
3.21 Introduction of NFS and configure 34-37
3.22 Introduction of VSFTPD and configure 37-43
3.23 MikroTik Router 43
3.24 RouterOS 44
3.25 Features 44
3.26 Model of MikroTik Router 44
3.27 How to be a MikroTik Configuration 45
3.28 Initial Step 45
3.29 How to be a static MikroTik Router Configuration 46-50
3.30 How to be a Dynamic (DHCP) MikroTik Router Configuration 51-52
3.31 How to be a Bridge Configuration 53-55
3.32 How to be a Site Block Configuration 55-57
3.33 Challenges 57

CHAPTER 4: Competencies and Smart Plan 58

4.1 Competencies Earned 58

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4.2 Smart Plan 58

4.3 Reflections 58

CHAPTER 5: Conclusion and Future Career 59

5.1 Discussion and Conclusion 59

5.2 Scope for Further Career 59

REFERENCES IX

APPENDICES X

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LIST OF FIGURES

FIGURES	PAGE NO
Figure 1: Organization of Daffodil Online Limited	5
Figure 2: SSD vs. HDD	9
Figure 3: Screenshot of useradd, add password, userdel	11
Figure 4: userlock, unlock & userdel from home directory	11
Figure 5: groupadd, groupdel & show group name	12
Figure 6: Screenshot of file copy	12
Figure 7: Screenshot of yum install package	13
Figure 8: Screenshot of remove package	14
Figure 9: Screenshot of update package	15
Figure 10: Screenshot of directory permission	15
Figure 11: Screenshot of VMware install step1	16
Figure 12: Screenshot of VMware install step2	17
Figure 13: Screenshot of VMware install step3	17
Figure 14: Screenshot of VMware install step4	18
Figure 15: Screenshot of new virtual machine creates	19
Figure 16: Screenshot of select ISO file	19
Figure 17: Screenshot of select Linux and centos 64bit	20
Figure 18: Screenshot of select maximum disk size	20
Figure 19: Screenshot of setting customizes finish	21
Figure 20: Screenshot of password fill-up	21
Figure 21: Screenshot of create layout	22
Figure 22: Screenshot of create partition	23
Figure 23: Screenshot of standard create partition	23
Figure 24: Screenshot of /boot partition	24
Figure 25: Screenshot of LVM create partition	24
Figure 26: Screenshot of LVM maximum size	25
Figure 27: Screenshot of LVM Volume partition	25
Figure 28: Screenshot of LVM Volume add all partition	26
Figure 29: Screenshot of LVM Volume view all partition	26
Figure 30: Screenshot of LVM Volume complete then write changes to disk	27
Figure 31: Screenshot of installing file	27
Figure 32: Screenshot of finally output OS setup, partition and open VMware	28
Figure 33: Screenshot of usb dirve mount and umount	28
Figure 34: Screenshot of IP address show	29
Figure 35: Screenshot of IP address, netmask, gateway assign	29
Figure 36: Screenshot of DNS name, ip assign	30
Figure 37: Screenshot of service on, off, status	30
Figure 38: Screenshot of hostname assign	31
Figure 39: Screenshot of select centos version mode	32

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Figure 40: Screenshot of select kernel mode 32
Figure 41: Screenshot of space 1 select 33
Figure 42: Screenshot of new password setup 33
Figure 43: Screenshot of nfs install package 34
Figure 44: Screenshot of rpcbind install package and check version 34
Figure 45: Screenshot of directory create, vim exports, nfs restart 35
Figure 46: Screenshot of yum rpc install package,chkconfig service restart 35
Figure 47: Screenshot of ifconfig check, /data 192.168.0.102/24 client ip 36
Figure 49: Screenshot of ip assign 37
Figure 50: Screenshot of version update 37
Figure 51: Screenshot of Complete update 38
Figure 52: Screenshot of vsftpd install chkconfig vsftpd on 38
Figure 53: Screenshot of vsftpd location check and vim vsftpd.conf 38
Figure 54: Screenshot of ftpd fileserver name change 39
Figure 55: Screenshot of vim iptables and # mark delete 39
Figure 56: Screenshot of port number assign and copy line 39
Figure 57: Screenshot of directory create and cd/var/pub location 40
Figure 58: Screenshot of open winscp and ip assign login click 40
Figure 59: Screenshot of soft winscp file sharing 41
Figure 60: Screenshot of file sharing show command 41
Figure 61: Screenshot of user create and modify 42
Figure 62: Screenshot of noc user login 42
Figure 63: Screenshot of noc login share file 43
Figure 64: MikroTik Router model 43
Figure 65: Network Diagram 44
Figure 66: Screenshot of Reset MikroTik Router 45
Figure 67: Screen Screenshot of IP Address 45
Figure 68: Screen Screenshot of DNS set up add IP 46
Figure 69: Screen Screenshot of Gateway 47
Figure 70: Screen Screenshot of DNS IP Rule 47
Figure 71: Screen Screenshot of Firewall 48
Figure 72: Screen Screenshot of Gateway IP 49
Figure 73: Screen Screenshot of Gateway output 49
Figure 74: Screen Screenshot of Static configures output 50
Figure 75: Screen Screenshot of DHCP Configure 50
Figure 76: Screen Screenshot of DHCP Setup Successfully message 51
Figure 77: Screen Screenshot of DHCP Mac address Enable 51
Figure 78: Screen Screenshot of bandwidth speed management 52
Figure 79: Screen Screenshot of Bridge create name 52
Figure 80: Screen Screenshot of Bridge port WAN assign 53
Figure 81 Screen Screenshot of DHCP setup assigns. 54
Figure 82: Screen Screenshot of DHCP Complete message. 54

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Figure 83: Screen Screenshot of Block site IP Assign and Rule create. 55
Figure 84: Screen Screenshot of IP Source assign and Rule create. 55
Figure 85: Screen Screenshot of IP drop forward rule create. 56
Figure 86: Screen Screenshot of Finally output. 57

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CHAPTER 1:
Introduction

1.1 Introduction:

This is the era of Information Technology. Now a day's a large number of people all over the world use internet technology and server is a part and parcel. Linux is quite possibly the most important free software achievement since the original Space War, or, more recently. We cannot do anything relating to internet communication without server. So DNS server is very important for internet technology. Internship is an old practice to make students understand the real working, environment and challenges of jobs. Medical Science, Engineering and Accounts all branches have their own importance of internship before degree award. Today every business and commerce is very much related to software based communication and internet technology. This is called E-Commerce. Internet Banking, SMS Alert Banking, Mobile Banking, EFT (Electronic Fund Transfer) etc. are not possible without server. DNS (domain name system) is also very useful server and we can operate different types of services by using this system. Internet technology, E-mail, E- Business, Telecommunication, Mobile technology etc. are not possible without server and DNS is one of them. Today, Banking industry and other business organization totally depends upon different types of Software and Online Technology and Server is very essential. ATM Technology(Switching Software), Banking Software, Debit Card, Credit Card, Online Transaction etc. are very much depends upon Software and different types of Server and Linux is one of them. It has developed into an operating system for business, education, and personal productivity.

1.2 Motivation:

I am currently pursuing my Bachelors in Computer Science Engineering at Daffodil International University, I understand the importance of gaining practical knowledge which will complement the textbook knowledge and help a student gain a wider perspective of the subjects.

During the internship I have found that I am perfectly skilled in the details of Linux network and server management and mikroTik. As an internet service provider I've getting my point across very well, communicating with people, understanding their needs and providing them better service. My skills lie in my ability to comprehensively read and understand the situation and act quickly and yet smartly.

1.3 Internship Objectives:

Ultimate objective of my internship program is to prepare myself as an eligible one in the competitive job market. So this is very effective of skill development. I would like to gather some extraordinary quality to provide myself as skilled one.

The internship in computer science is designed to provide work experience while students are still in school, to coordinate job experience with academic training, and to help student to make the transition from classroom to job.

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1.4 Introduction to the Company:

Daffodil Online Ltd. prides itself as one of the leading nationwide Internet Service Provider (ISP) in Bangladesh. They are the most experienced and oldest company in the ICT field where they are basic business ethics is Long Term Relationship with they are customers. As we look at the growth over the decade since our inception, they are extremely proud of what they have achieved, and even more excited about they are outlook for an equally promising future.

It may please you to know that they started they are operation in the year **2002**. During the past years, they extended they are operation and service portfolio according to the customer's recommendation and considering demands of time. They worked with many national projects and international organizations and achieved the reputation. They are using the latest technologies and upgrading the services wherever it is required. They are Corporate Network Solution department is capable to provide state-of-art network and telecommunication solutions with a highly efficient technical expertise group.

1.5 Report Layout:

In the chapter (1) I have described objective of internship, Motivation of internship and
Introduction to the company.

In the chapter (2) I have described the methodology of my internship. And this chapter gives the information about where the internship has been attached to undertake this program. Also included about how did perform the internship works, about the company, what are the IT service offered in DOL and what are the roles of in jobs market of Linux.

In the chapter (3) I have described about daily task and activities, Events and Activities and Challenges.

In the chapter (4) I have described is Competencies Earned, Smart Plan, Reflections.

In the chapter (5) I have described is Conclusion and Future Scope. I discuss Future Scopes of Linux and write conclusion.

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CHAPTER 2:
Internship Enterprise

2.1 About the Company:

Daffodil Online Ltd. (DOL) is proud to be one of the trailblazers and oldest ISP/ASPs in Bangladesh and providing one stop integrated ICT services and solution since July 2002. It has its own Fiber Optic & Radio Link WAN infrastructure to serve corporate, SME and individual clients. The institute worked with many national projects and international organizations with high appreciation from all concerned. It using the latest technologies and upgrading the services wherever it is required.

The centers Corporate Network Solution department is capable of providing state-of-art network and telecommunication solutions with a group of highly efficient technical experts. DOL has a very strong professional engineering and management team certified and associated with SUN, Cisco, Microsoft, Linux, and Oracle and actively involved with world leading computing associations including IEEE, ACM, ACS, BCS, and PMI. Its Corporate Social Responsibility ethos strengthens the sense of responsibility on Community, Workstation, Location and Market place. As a Group concern, DOL promotes 3 major platforms e.g., education, nation-building and environment, through its programs and services [1].

2.2 Product and Market Situation:

Daffodil Online Ltd. prides itself as one of the leading nationwide Internet Service Provider (ISP) in Bangladesh. They are the most experienced and oldest company in the ICT field where they are basic business ethics is Long Term Relationship with the are customers. As they look at the growth over the decade since our inception, they are extremely proud of what we have achieved, and even more excited about our outlook for an equally promising future. Daffodil Online Ltd also provides different IT Services and Professional Training services. These are given below.

- **IT Services:**
    - Security solution.
    - Domain registration and web hosting.
    - Open source application solution.
    - Internet Service Provider
    - Hi speed Wi-Fi Zone.
    - Data Connectivity, Data center & Co-Location.
    - Proxy & DNS Server solution, Mail Server Solution.
    - And All computer accessories
    - Professional course and trainings:

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- **Professional Training Services:**
    - ISP Setup and administration using Linux.
    - Training Course on Certified Ethical Hacking (CEH).
    - ISP Setup and Administration using MikroTik.
    - Web site Development with Joomla.
    - Red Hat Certified Security Specialist (RHCSS).
    - Red Hat Certified Engineer (RHCE).

2.3 Target Group:

The company's customer base includes all consumers and all small- to medium-sized businesses, including start-ups. The company plans to concentrate on SOHO clients, as these are perfect targets for our new high-speed offerings, and hold the greatest growth potential for the company. Web Solutions feels that these market segments have special pricing and service needs, and make more dedicated, reliable customers.

2.4 SWOT Analysis:

SWOT Analysis is a useful technique for understanding your Strengths and Weaknesses, and for identifying both the Opportunities open to you and the Threats you face.

- **Strengths:**
    - ✓ Communication between people separated by distance (at home and within the workplace)
    - ✓ Working from home with ease
    - ✓ Setting up an online business
    - ✓ Gathering information (valuable asset in business)

- **Weaknesses:**
    - ✓ New entrants underestimate levels of expertise needed to survive the market
    - ✓ Large sums of money required to set up businesses
    - ✓ Competition for small resellers
    - ✓ Numerous pricing tariffs and service options

- **Opportunities:**
    - ✓ Age structure of the population changing
    - ✓ Number of households in the UK increasing
    - ✓ Introduction of simpler tariffs
    - ✓ Revision of regulatory framework

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- **Threats:**
  - ✓ The Economic Crisis - Householders less likely to increase their Broadband subscriptions Stock Market's lack of confidence in the digital-communications market.
  - ✓ It remains to be seen how far consumers can be persuaded to embrace Internet access.

2.5 Organizational Structure Dol Online Limited:

Figure 1: Organization of Daffodil Online Limited

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CHAPTER 3:

Tasks, Projects and Activities:

3.1 Daily Task and Activities

- Month - 1: In the first month of internship on daffodil online limited I have learned and performed the following tasks:
  - Introduction of Linux.
  - Understanding About Network Configure.
  - Linux ACL permission.
  - Linux user's types.
  - SeLinux Security.
  - Linux File System.
  - Difference between SSD and HDD.
  - Understanding Linux HDD Partitions.
  - Learning & understanding Linux Run Level.
  - Linux installation and partition.

- Month - 2: In the second month of internship on daffodil online limited I have learned and performed the following tasks:
  - Basic Centos Commands.
  - Linux User and Password Management.
  - Know About logged in users.
  - File and Directory Accessing.
  - To Copy and Move File and Directories.
  - USB drive mount and umount.

- Month – 3: In the third month of internship on daffodil online limited I have learned and performed the following tasks:
  - File and Directory Permissions.
  - Install, Update and Remove Package Using YUM.
  - Concept of IP Addressing.
  - Linux Network Configure IP Address, DNS, Hostname assign in Centos.
  - Root password break in Linux system.

- Month – 4: The last month of internship on daffodil online limited I have learned and performed the following tasks:
  - How to be a NFS server configure.
  - How to be a VSFTPD server configure.
  - Introduction of MikroTik.
  - Router reset command.
  - Static mikrotik configure.

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- Dynamic mikrotik configure.
- Bridge connection
- IP assign, DNS, Gateway assign.
- Firewall and NAT connection.
- Nobody can access any site block rules.

3.2 Events and Activities

- Monitor and Maintain Computer Systems and Network.
- Setting up user accounts, permissions and passwords.
- Troubleshooting servers and routers.
- Troubleshooting local area networks and switches.
- Fixing network faults.
- Technical support for people using the network.
- Day to day admin and monitoring of network use.
- Suggesting IT solutions to business problems.
- Client Support over the phone or Physical move to client Ends.
- Checking Fiber Optical Media Convertor & Fiber Optic Transmission devices.

3.3 Project Task and Activities:

- Introduction of Linux:
  Linux:
  Linux is a free Open Source Operating System It is based on Unix was created 1991 by Linus Torvalds. It is supported platform x86,ARM, SPARC. It is the most common use as server But Linux is used in Desktop, Computers and Smartphone.

- Linux Network Configure:
  Network is a collection of computers, servers, mainframes, network device and peripherals device that can share data. When we configure Linux network then we have to know IP Address, Subnet Mask, and Gateway.

  N.B. If on boot is NO Then it has to off because it is used for Static configure.

- Linux user's types:
  Three types of user's such as
  - ✓ Root user: Administrator (#).
  - ✓ System user: Service (Mail/Ftp/Games/Daemon) – can't Login
  - ✓ Regular user: Student, Guest, Sakib ($).

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➢ 3.4 Linux ACL permission:

Access Control List (ACL) are filters that enable to control which routing updates or packets are permitted or denied in or out of a network. They are specifically used by network administrators to filter traffic and to provide extra security for the network.

Why use ACL:

- ✓ Limits network traffic to increase network performance.
- ✓ ACLs provide traffic flow control by restricting the delivery of routing updates.
- ✓ It can be used as additional security.
- ✓ Controls which type of traffic are forwarded or blocked by the router.
- ✓ Ability to control which areas a client access.

Types of Access Control Lists:

- User
- Groups
- Others

➢ 3.5 SeLinux Security :

Selinux is enhance Linux security and developed by NSA on red hat Enterprise Linux. It works Firewall Iptables (Layer3 and Layer4) – IP, TCP, ICMP, UDP. Selinux Directory based (Samba, FTP, HTTP, and Nfs).
There are three types of selinux modes.

- Enforcing modes (1).
- Permissive modes (0).
- Disable modes.

➢ 3.6 Linux File System:

Two types of Linux file system such as

- Windows file system – FAT32, NTFS.
- Linux file system – ext2, ext3, ext4, XFS.

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➢ **3.7 SSD Vs. HDD deference:**

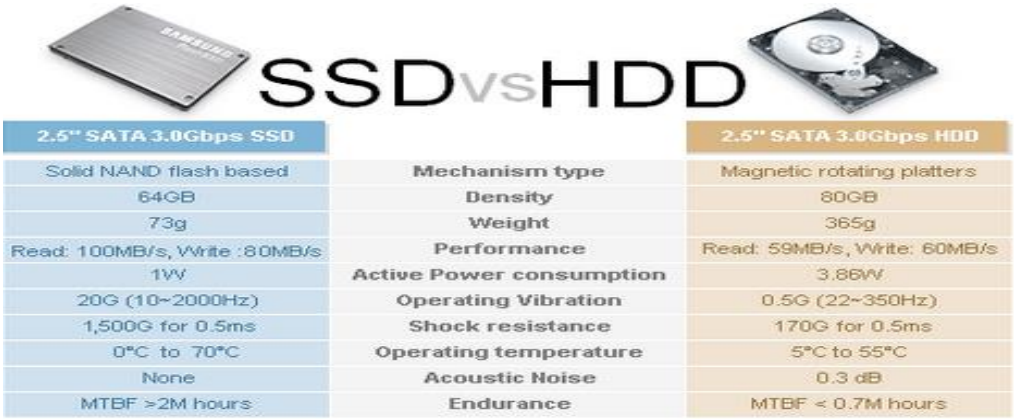

Figure 2: Screenshot of SSD vs. HDD

Centos Install:

➢ **3.8 Creating Linux Partition :**

When we Installation of Linux we have to create must 3 partitions Root (/), Boot, and Swap.

- **Root Partition: /**

A Root Partition there is where "/" The root directory is located all files (except in /boot) are on the root partition. Minimum 5 GB HDD Space Required.

- **Boot Partition: /boot**

The partition boot (200 MB): the partition mounted on /boot/ contains the operating system kernel along with files used during the bootstrap process. Due to limitations, creating a native ext3 partition to hold these files is required. For most users, a 200 MB boot partition is sufficient.

- **SWAP Partition: swap**

This partitions swap is used to support virtual memory. Data is written to a swap partition when there is not enough RAM to store the data your system is processing. Partition Swap should equal 2x physical RAM for up to 2 GB of physical RAM, and then an additional 1x physical RAM for any amount above 2 GB, but it cannot less than 32 MB.

➢ **3.9 Linux Run-Level Used by Centos:**

Init (space) 0 = Shut Down.
Init (space) 1 = Single User Mode.
Init (space) 2 = Multi User Mode.

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Init (space) 3 = Full Multi User Mode.
Init (space) 4 = Unused.
Init (space) 5 = X-Window (GUI Mode)
Init (space) 6 = Reboot.
See current run-level = who –r

N.B: After write init then space will be gived.

- **3.10 The Basic Command of Linux Centos:**

Show hidden file = ls-l
All partition shows = fdisk –l.
Suid permission = chmod.
Shutdown = poweroff, init 0.
Partition table update = partprobe /dev/vda.
fstab file update=mount –a.
Reboot = reboot or init 6.
All helping command search = man (man passwd command).
Display a calendar = Cal, cal 2018, cal 10 1972
Display or change date or time = date.
Last 5 lines = tail -5 passwd.
1st 5 lines = head -5 passwd.
Present Working Directory = pwd.
Show file and directory = ls –la.
Linux Text Editor = vi, vim, gedit, pico.
File shows = cat file name.
File and dir properties = ll.
Create a blank file = touch saddam (File name).
Create a directory = mkdir saddam (directory name).
List information about file = ls.
Changing Directory = cd /root/Desktop (directory path).

- **3.11 User Create and Password Management:**

Adding user = adduser saddam (username).

Set a Password = passwd saddam (username).

Password Disable or Remove = passwd -d saddam (username).

Verify user information = finger saddam (username).

Shows user = cat /etc/passwd | grep (username).

Locking an account = passwd -l saddam (username).

Unlock an account = passwd –u saddam (username).

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Delete a user = userdel saddam (username).

Delete a user with home directory = userdel –r saddam (username).

Shows password user = cat /etc/shadow | grep saddam (username).

Adding group = groupadd saddam (groupname).

Group delete = groupdel saddam (groupname).

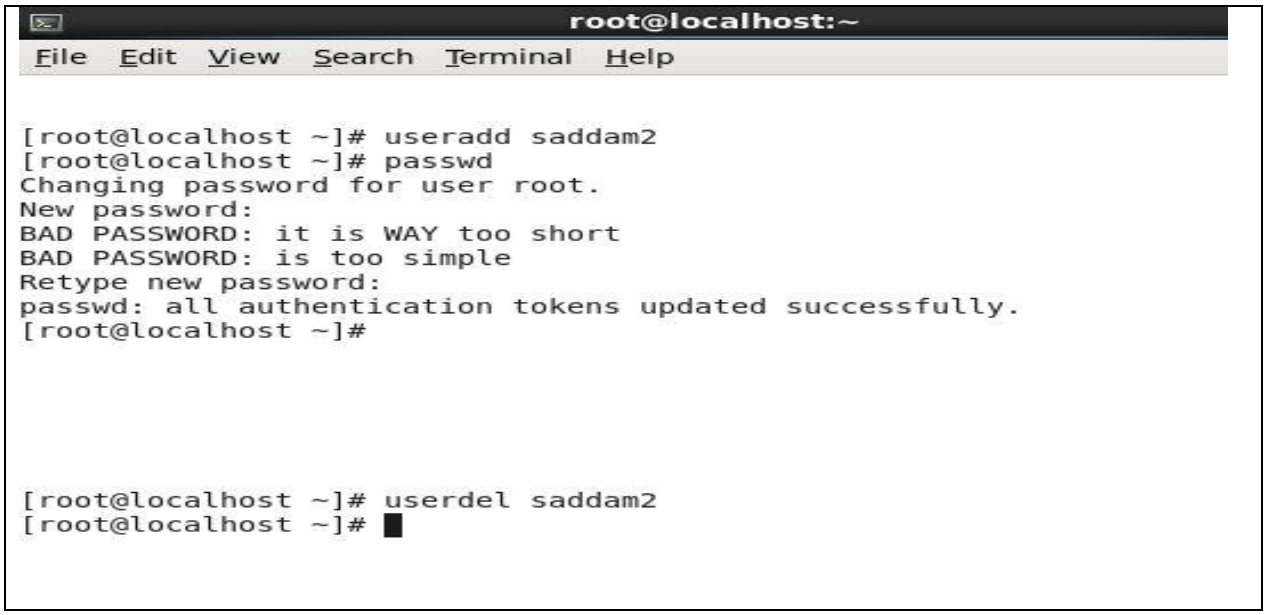

Figure 3: Screenshot of useradd, add password, userdel

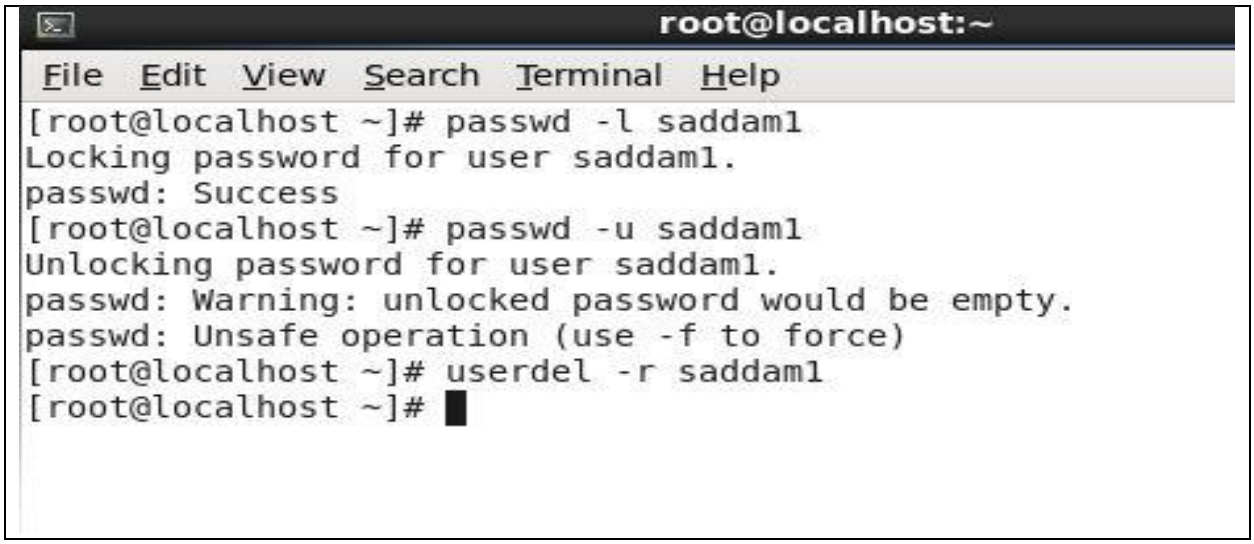

Figure 4: Screenshot of userlock, unlock and userdel from home directory.

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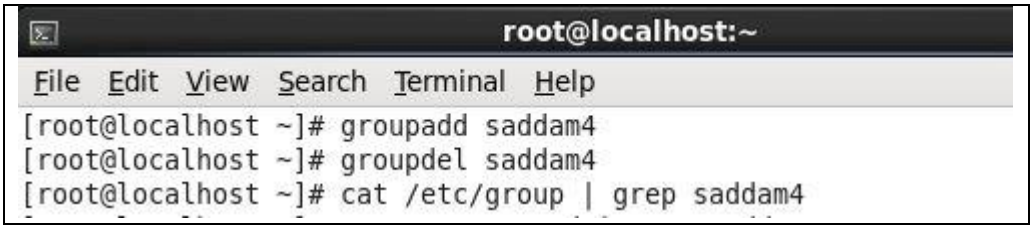

Figure 5: Screenshot of groupadd, groupdel and show group name

- **3.12 who is Logged In User:**

  Who am i
  Who
  W

- **3.13 To Copy or Move a Folder:**

Copy = cp filename destination example: cp file /root/Downloads
Move = mv filename destination example: mv saddam1 saddam

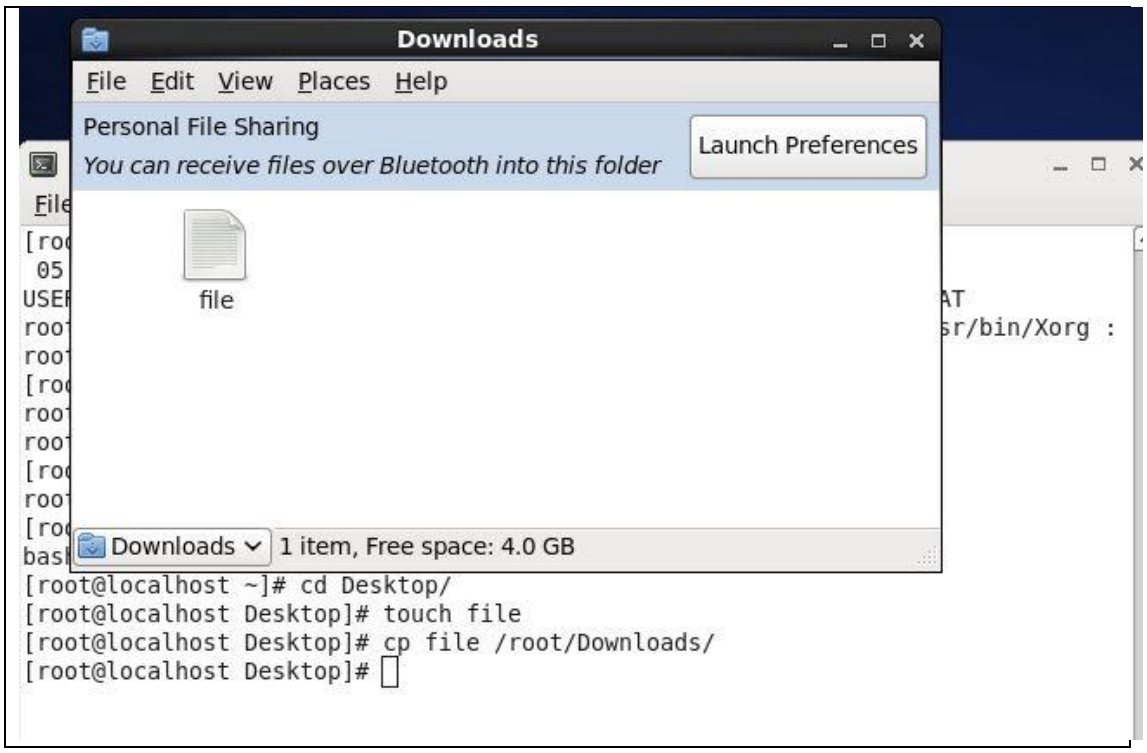

Figure 6: Screenshot of file copy

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➢ 3.14 Vi Editor:

For Go bottom of the lines =:$
Edit a File = vim saddam (file name)
Insert Text = press a or i
Delete the character = press x or dd
Copy line = press esc key and type 5yy to copy 5 line.
delete line number = set nonu
Search something = /abc for search abc
paste = press p for paste.
Set line number =: set nu
For Go top of the lines =:0
For Go Specific Line =:50 to go 50 no line.
To save the document =: wq! {Save the current changes and exits vim editor}
=: w {save the current changes but does not exist vim editor}
=: q {exits vim editor without saving any changes}

➢ 3.15 Install Packages in Centos:

Yum install vsftpd (package name) –y

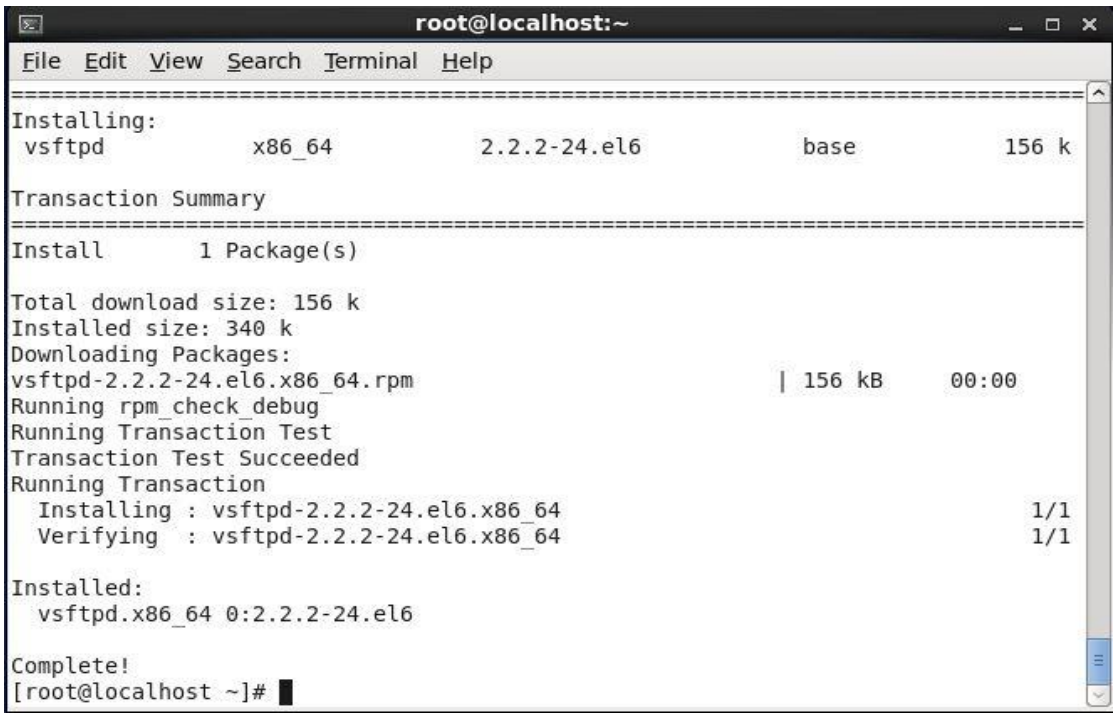

Figure 7: Screenshot of package installation

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Remove package in centos:

Yum remove vsftpd (package name).

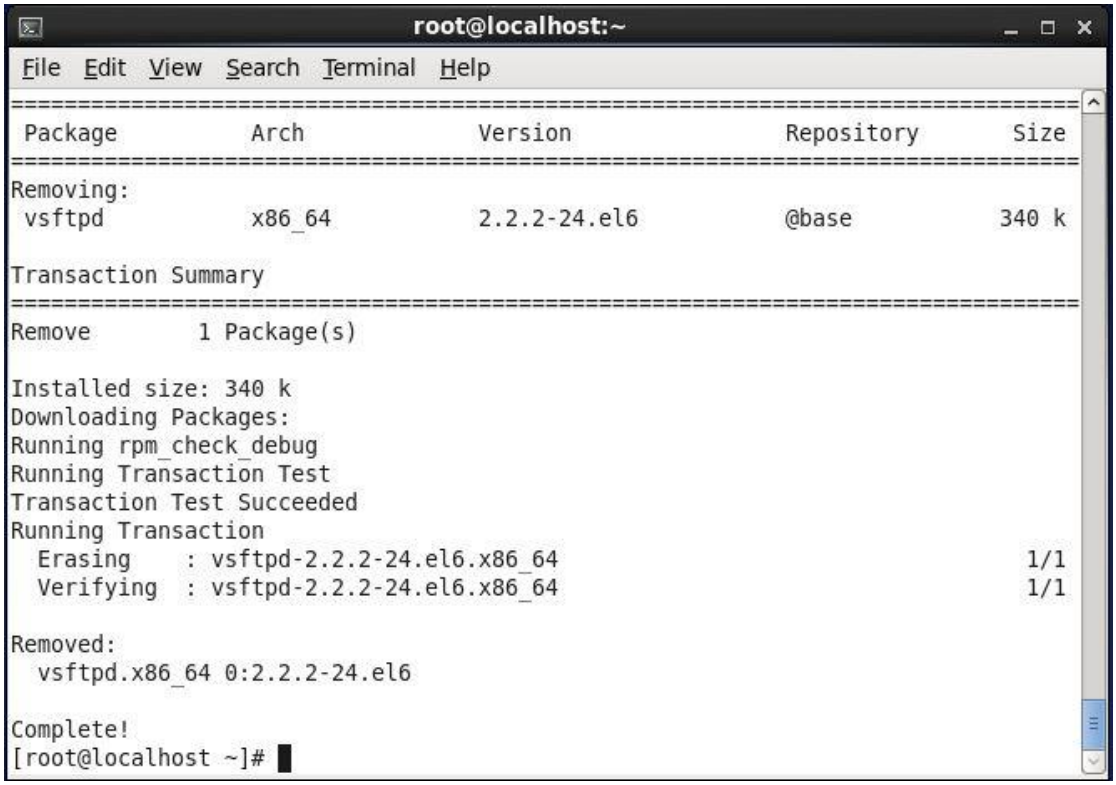

Figure 8: Screenshot of remove package

Update package in centos:

Yum update Firefox (package name) + y+ apply ok.

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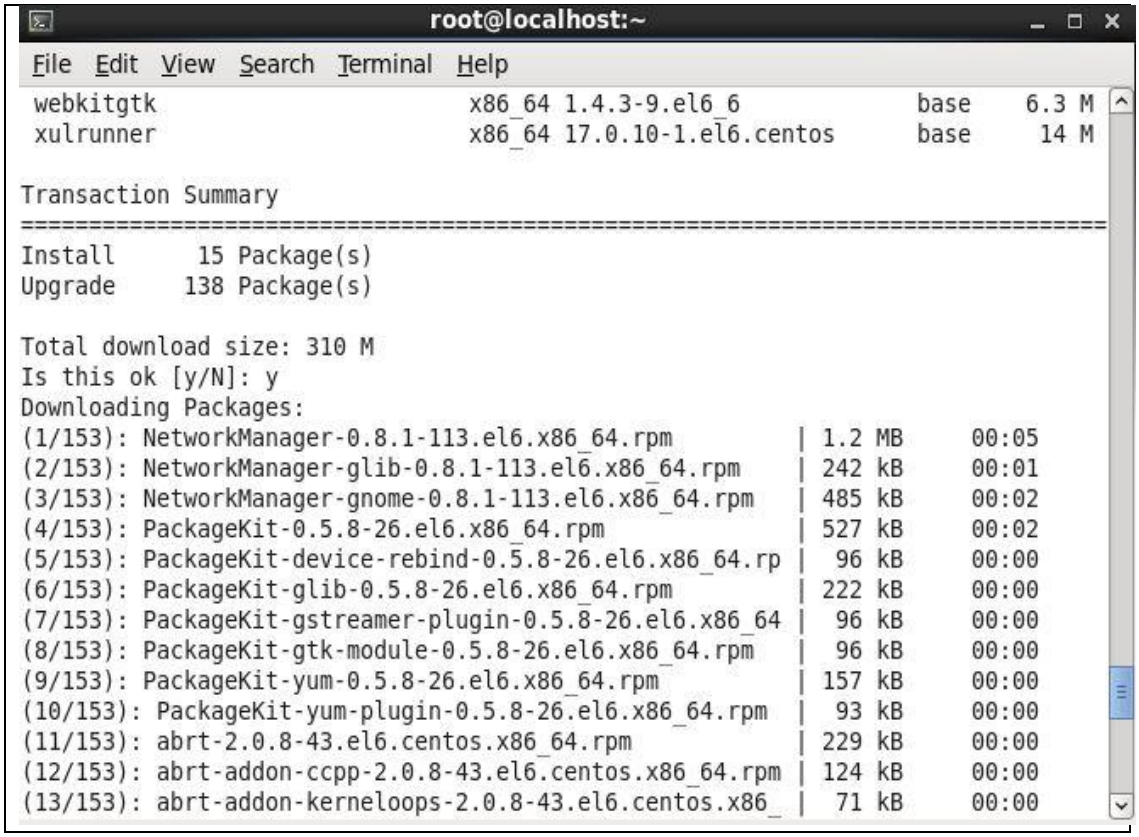

Figure 9: Screenshot of update package.

➢ 3.16 File and Directory permission change:

Make directory or file in the desktop + inter into directory or file + check ls-la command + chmod 345 (any three number type) + directory or file name.

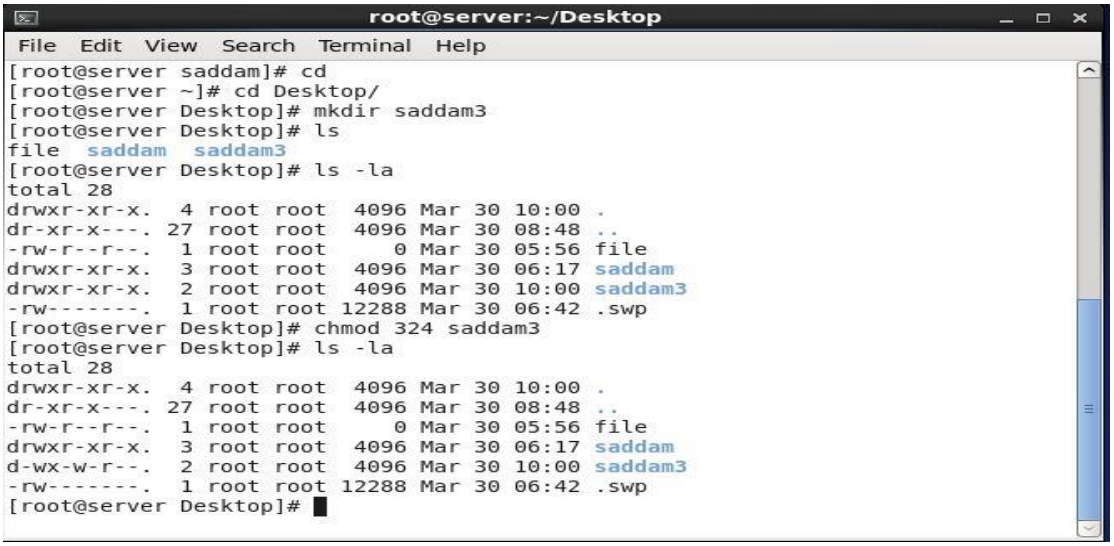

Figure 10: Screenshot of directory permission

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➢ 3.17 Linux OS installation and partition:

Process of install VMware software:

When we will setup OS Linux then it will need VMware workstation software. First of all, Double click on the VMware software + Next …..+ Coping file + Finish.

➢ Step 1:

Figure 11: Screenshot of VMware installation step1

- Step 2:

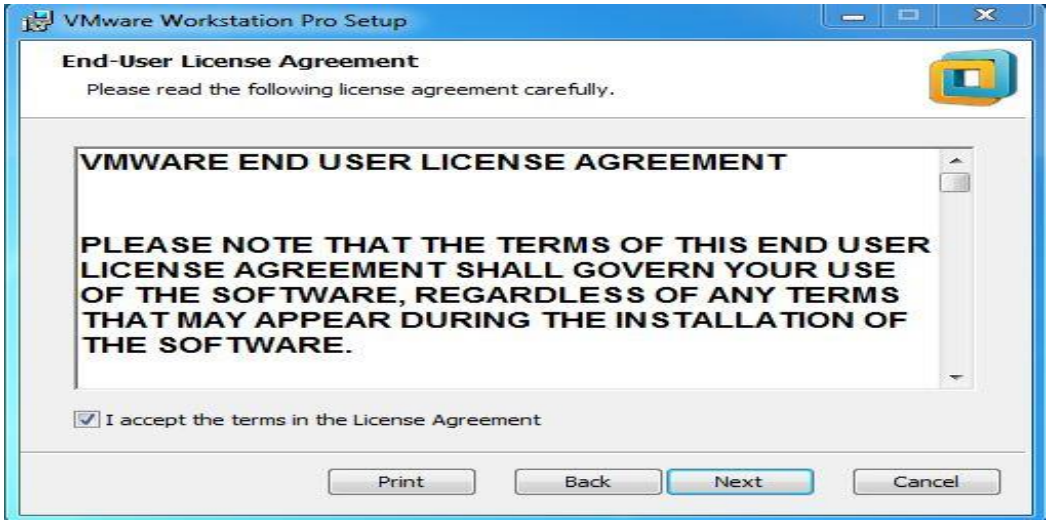

Figure 12: Screenshot of VMware installation step 2

- Step 3:

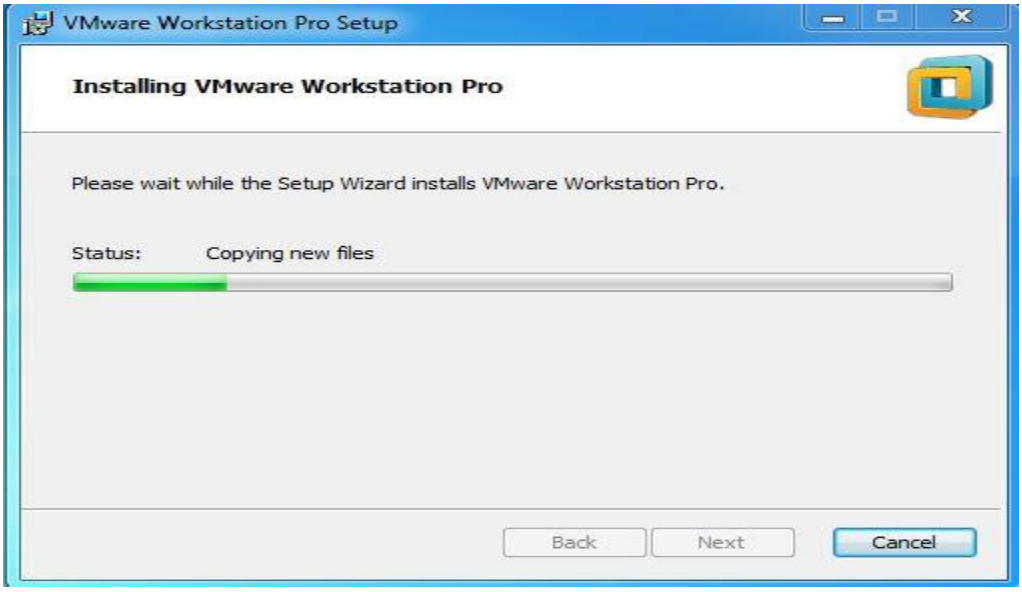

Figure 13: Screenshot of VMware installation step 3

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➢ Step 4:

Figure 14: Screenshot of vmware installation step 4

Linux OS setup process:

At first open vmware software + New virtual machine wizard + Next + Select installer ISO file + Next + Select Linux and version 64bit + Next + Virtual machine select and Location select + Next + Maximum disk size select + Next + customize hardware + RAM size double + Select ISO file + Network adapter custom select + After that new machine power on it will be setup OS + apply ok.

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➢ Step 1:

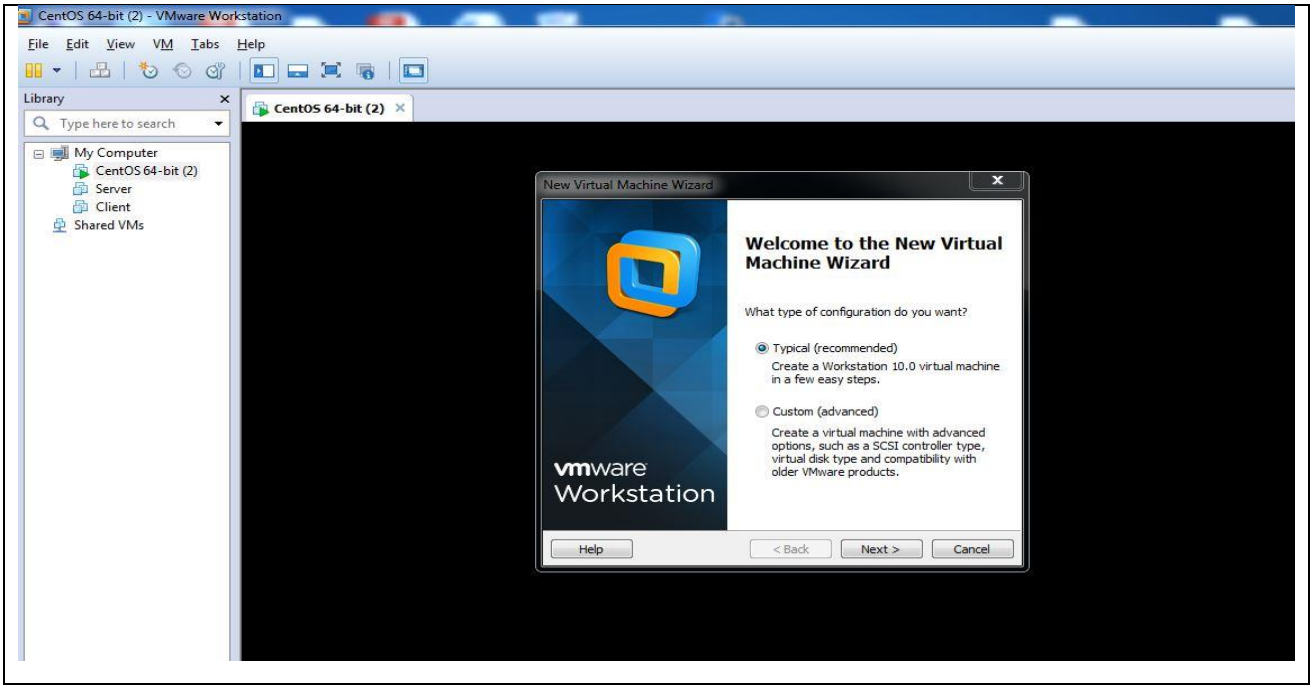

Figure 15: Screenshot of new Virtual machines create

➢ Step 2:

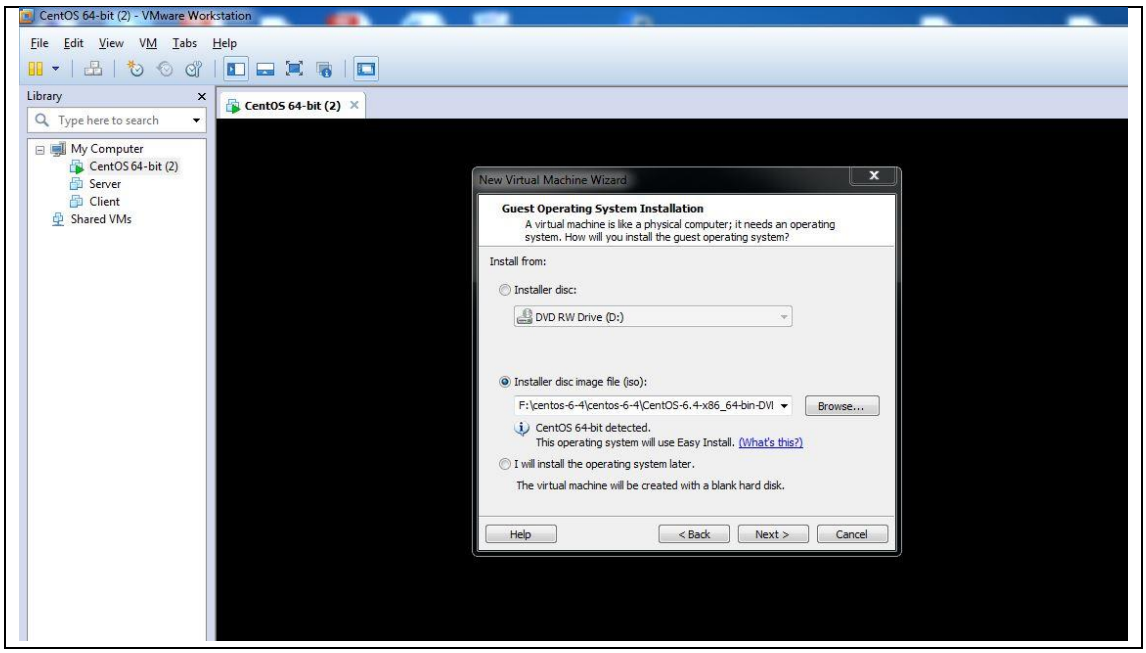

Figure 16: Screenshot of select ISO file

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➢ Step 3:

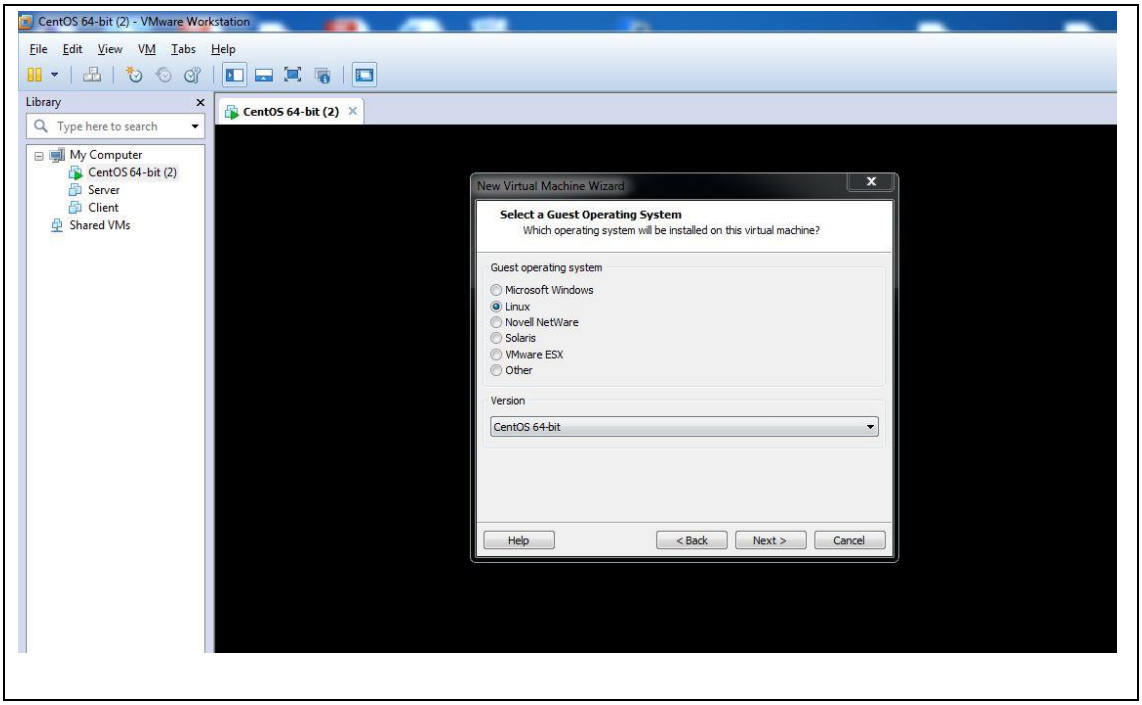

Figure 17: Screenshot of select Linux and centos 64bit

➢ Step 4:

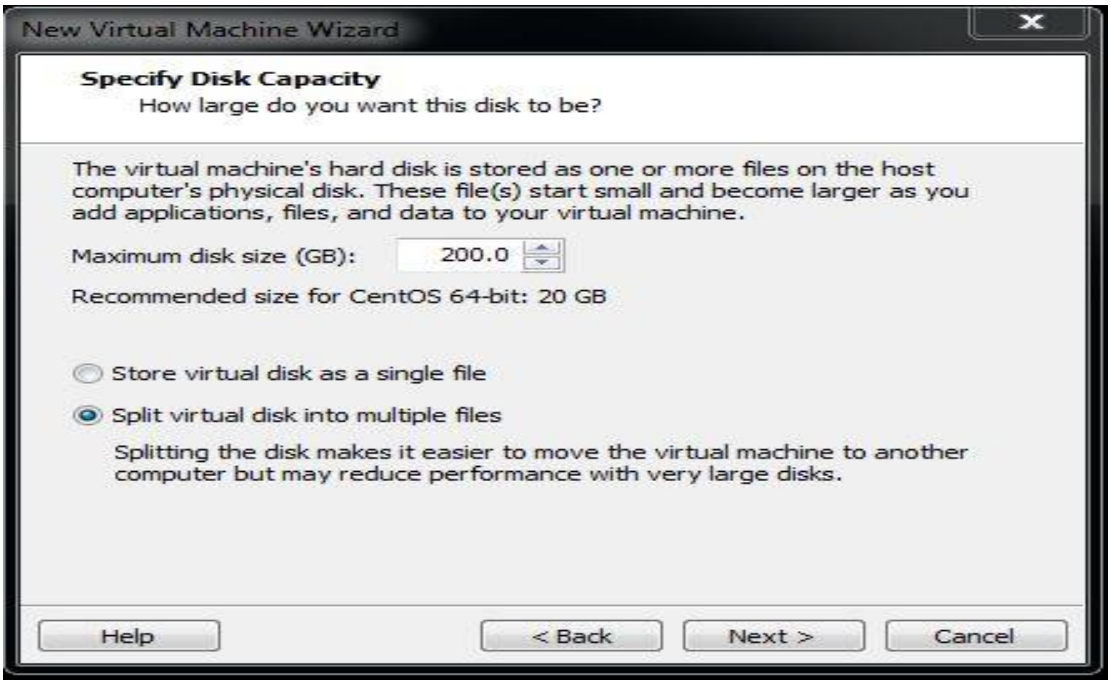

Figure 18: Screenshot of maximum disk size

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➢ Step 5:

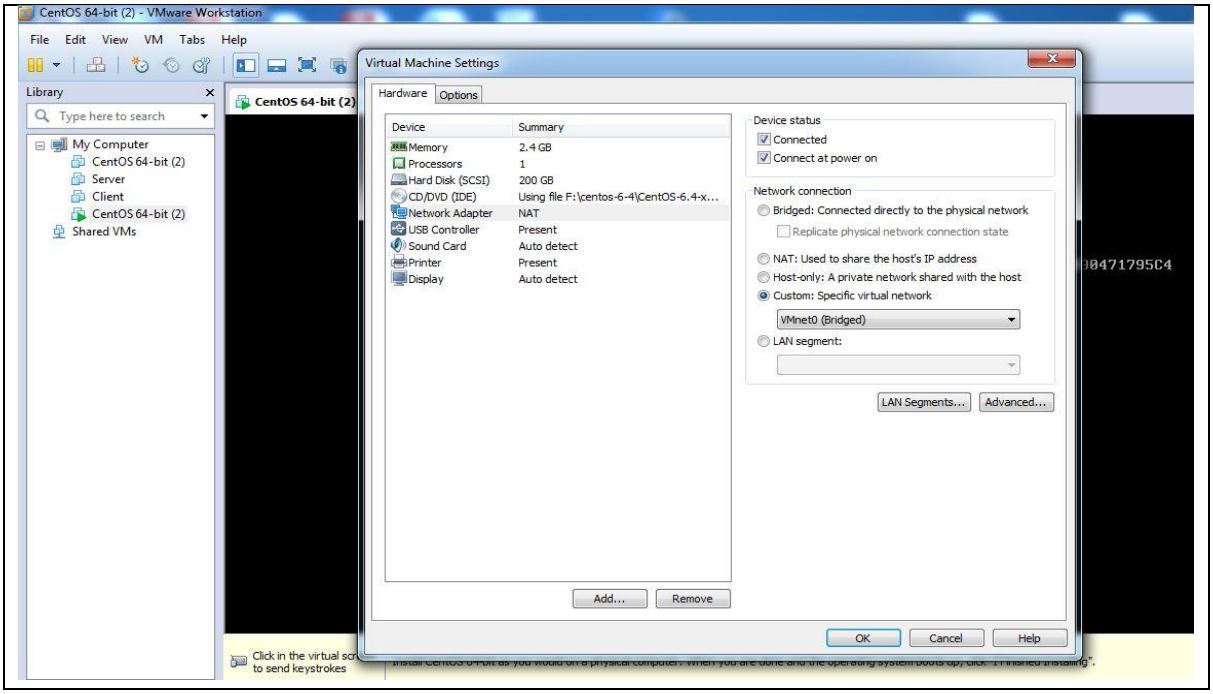

Figure 19: Screenshot of setting customize

➢ Step 6:

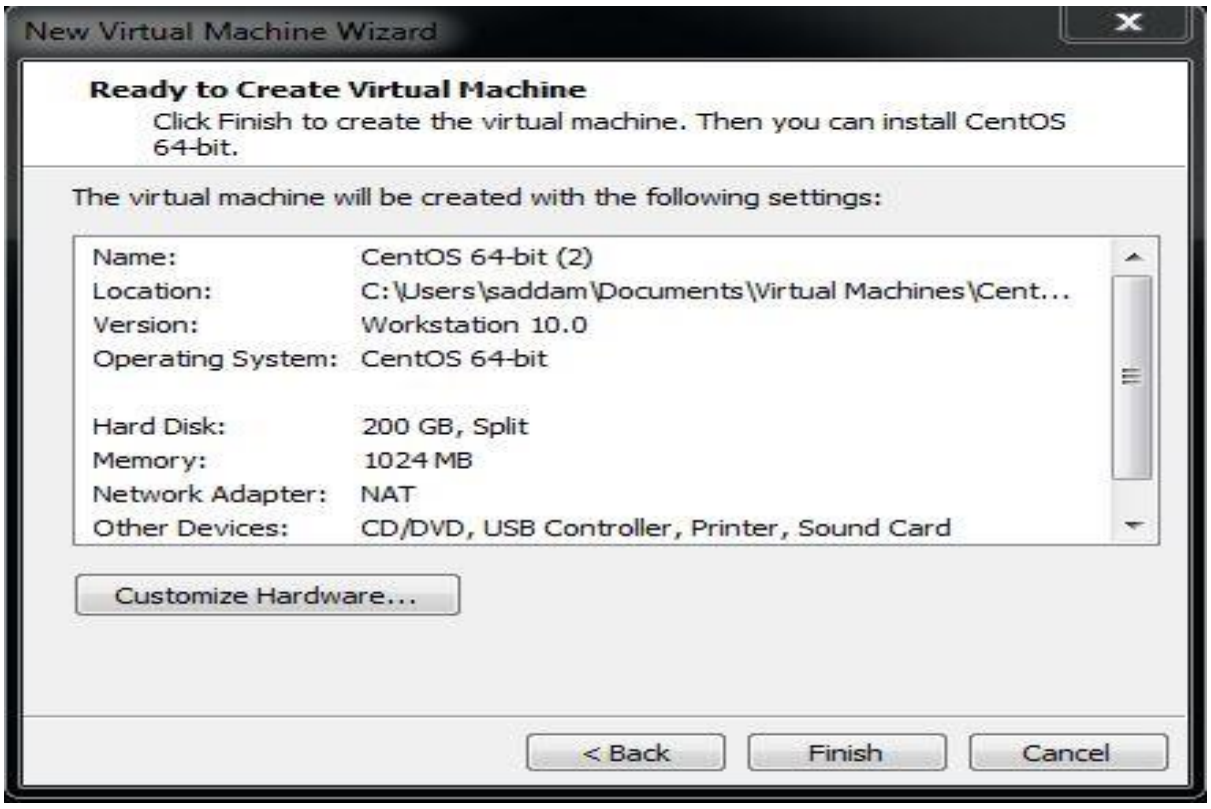

Figure 20: Screenshot of setting customize Finish

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Linux partition setup process:

After complete customize then process will come Root password fill up + use anyway + next + create custom layout + next + Hard drives and SDA Partition list +select standart partition + create + mount point : select /boot + file system type: ext4 + select fixed size + ok + LVM physical Volume + create + file system type: LVM + fill to maximum allowable size + select LVM Volume Group + create + add /home size 10000MB + add / size 10000MB + add /usr size 182548MB + ok + write changes to disk + next ……+ reboot.

- Step 1:

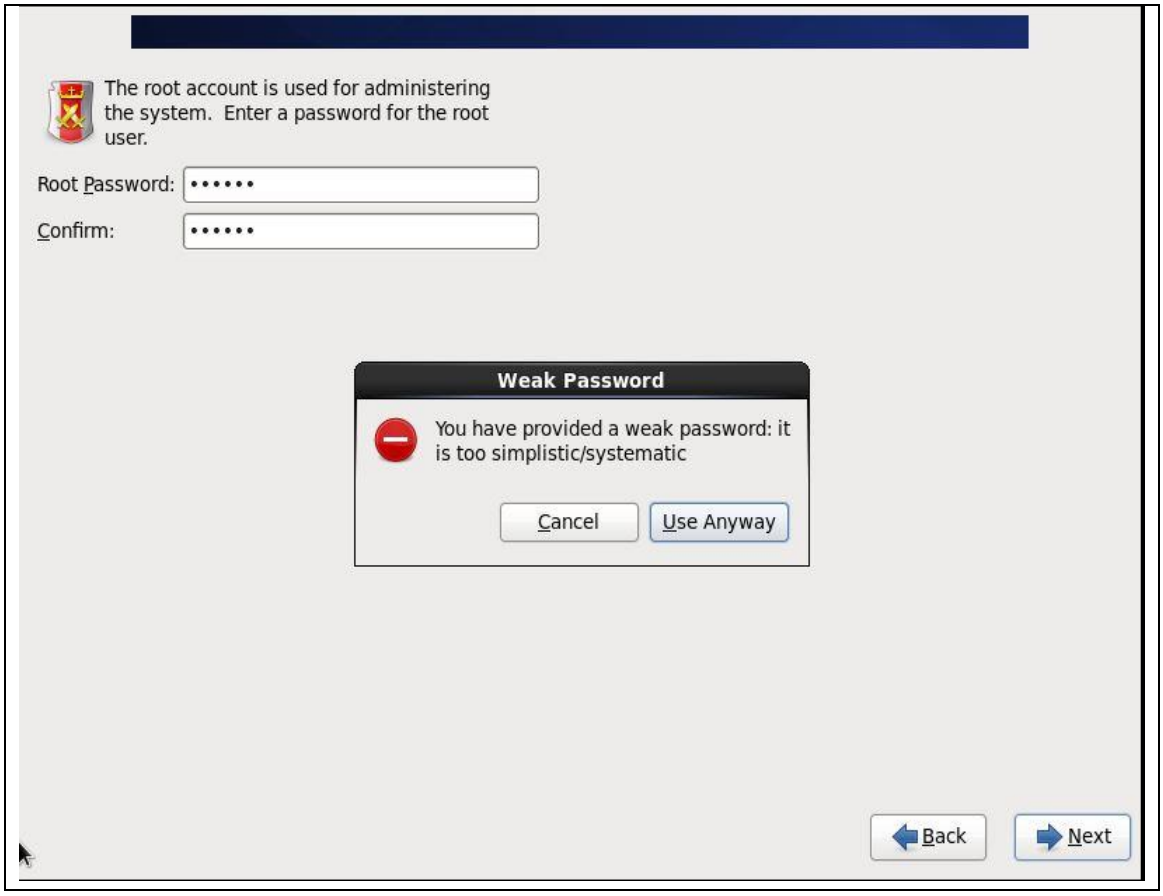

Figure 21: Screenshot of password fill up

➢ Step 2:

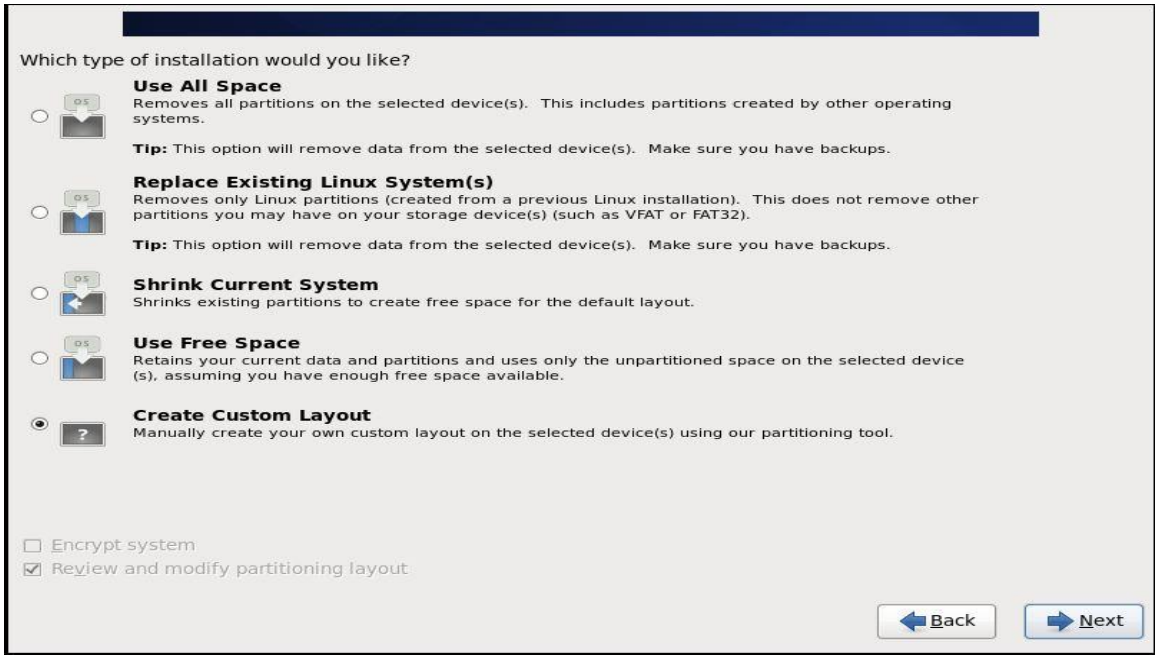

Figure 22: Screenshot of create layout

➢ Step 3:

Figure 23: Screenshot of create partition

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➢ Step 4:

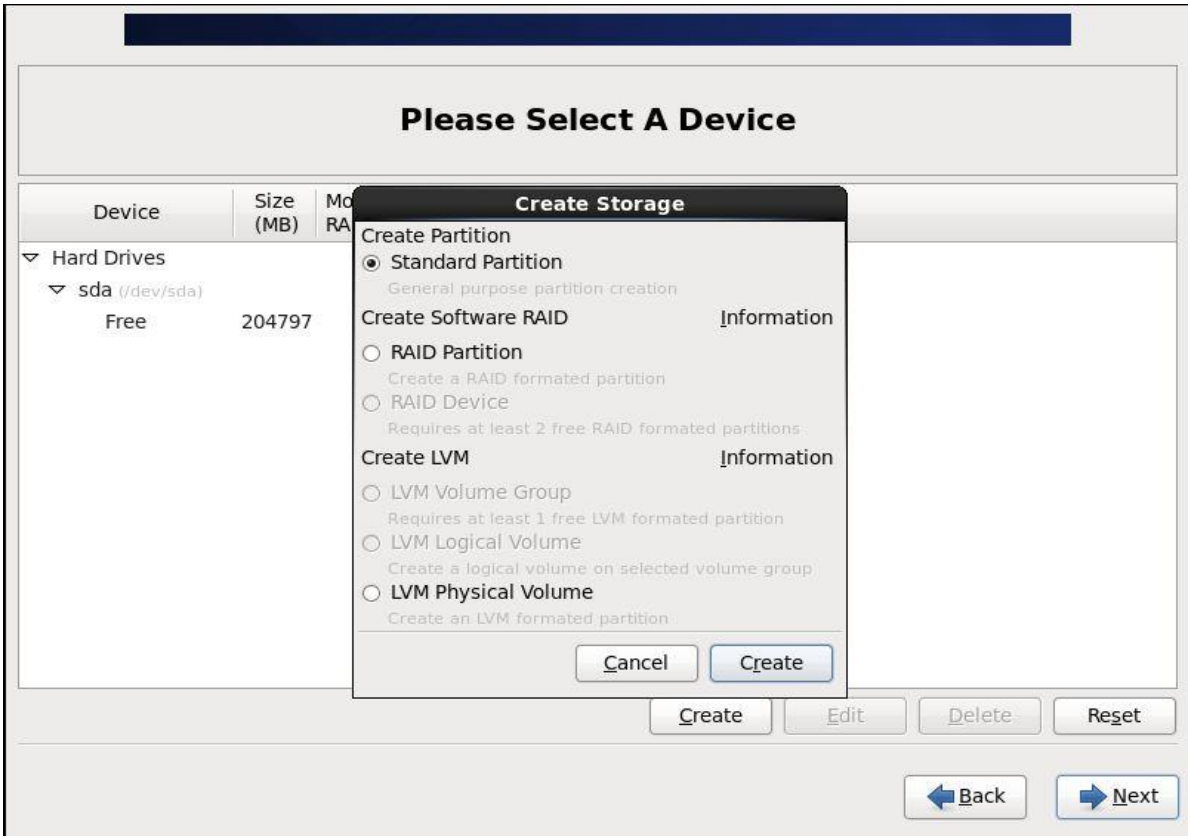

Figure 24: Screenshot of standard create partition

➢ Step 5:

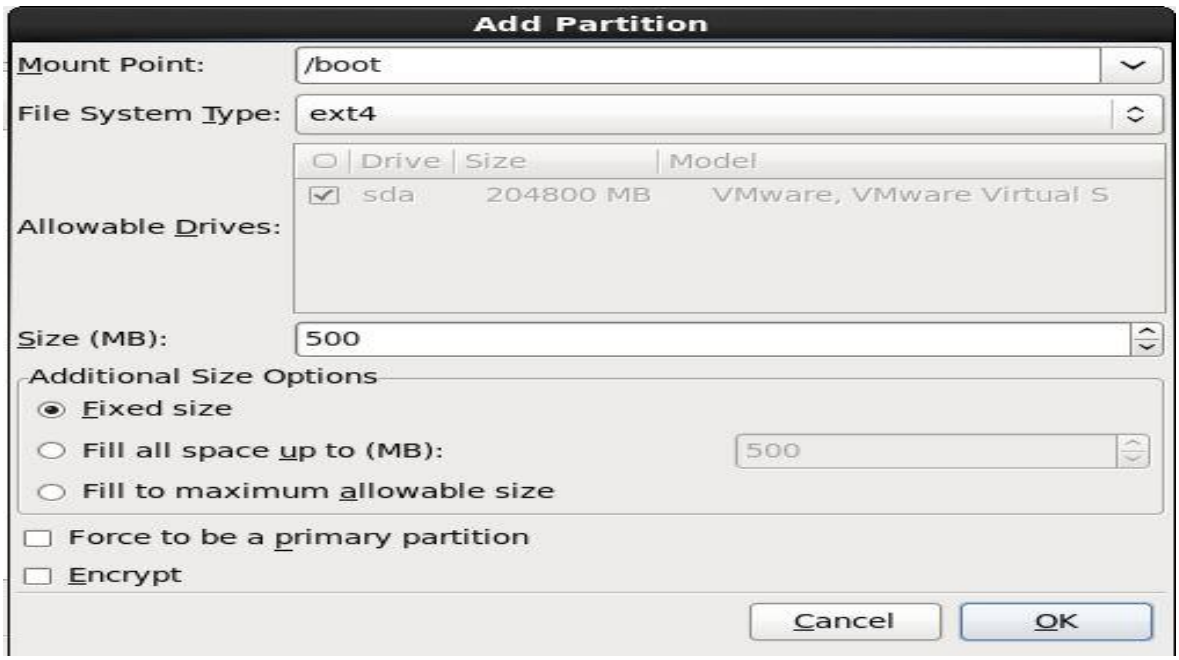

Figure 25: Screenshot of standard /boot create partition

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➢ Step 6:

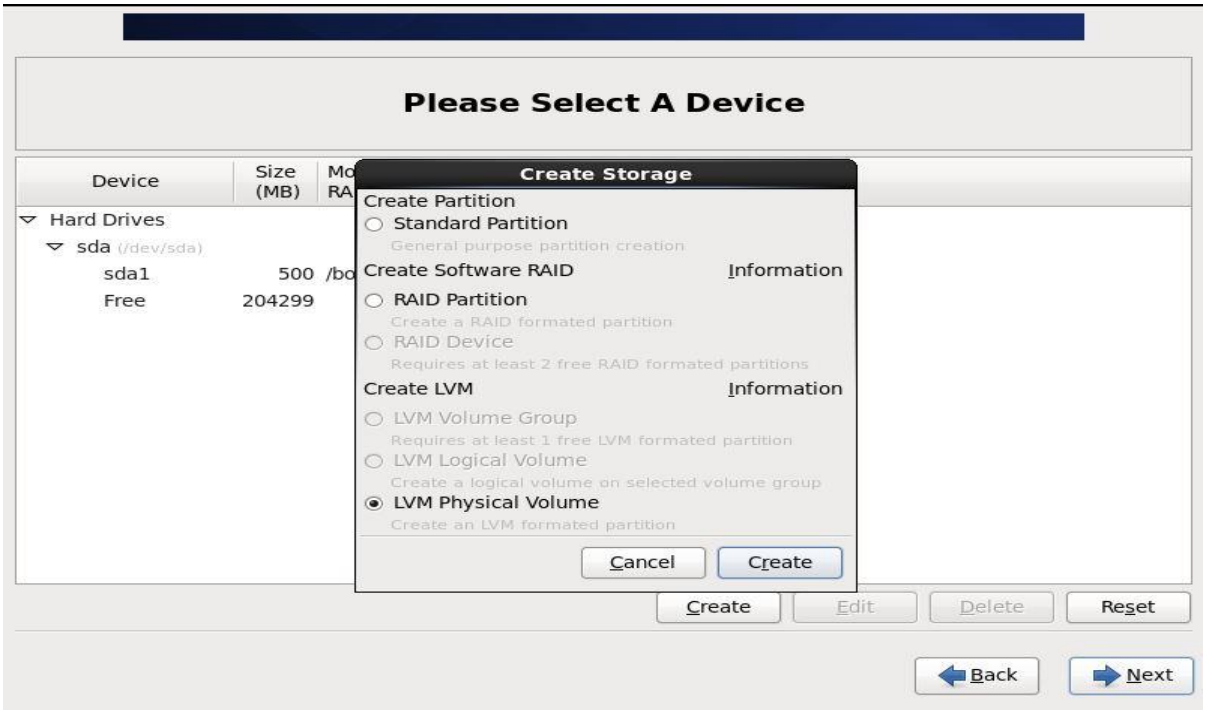

Figure 26: Screenshot of LVM Physical Volume create partition

➢ Step 7:

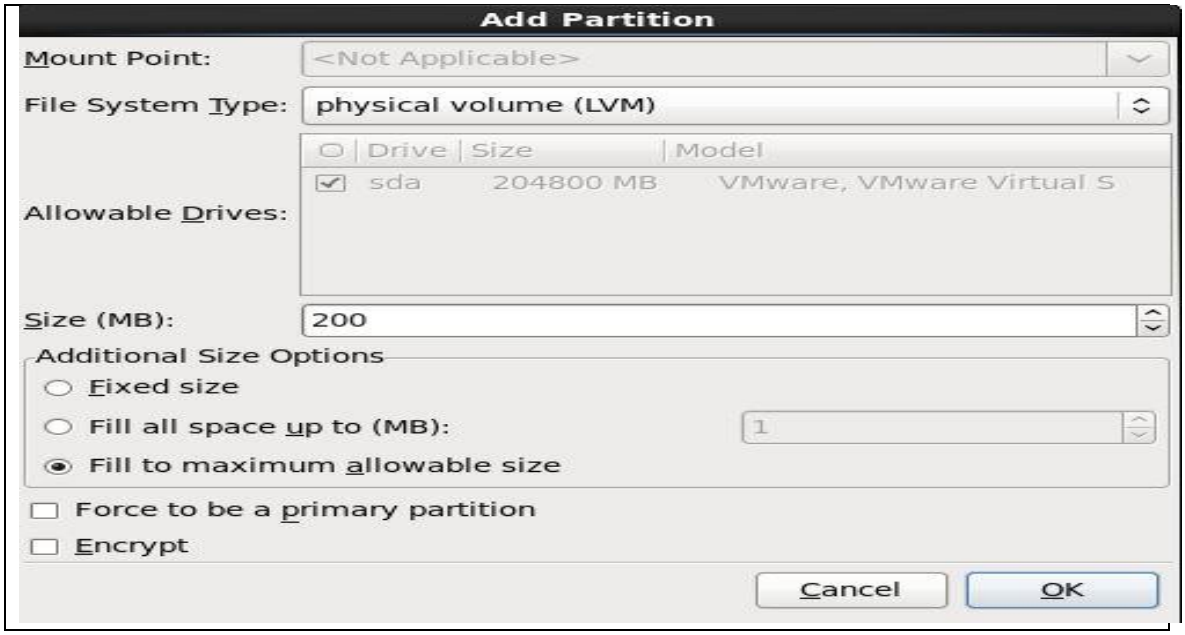

Figure 27: Screenshot of LVM Physical Volume maximum size

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➢ Step 8:

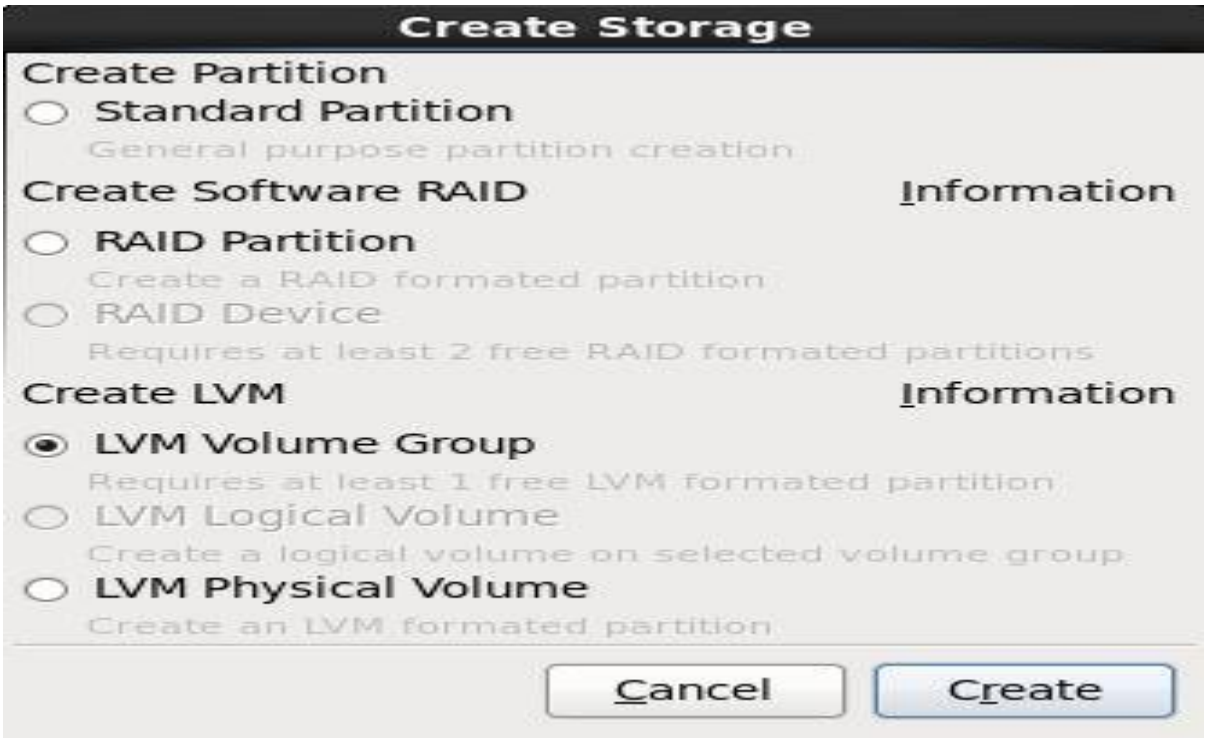

Figure 28: Screenshot of LVM Volume partition

➢ Step 9:

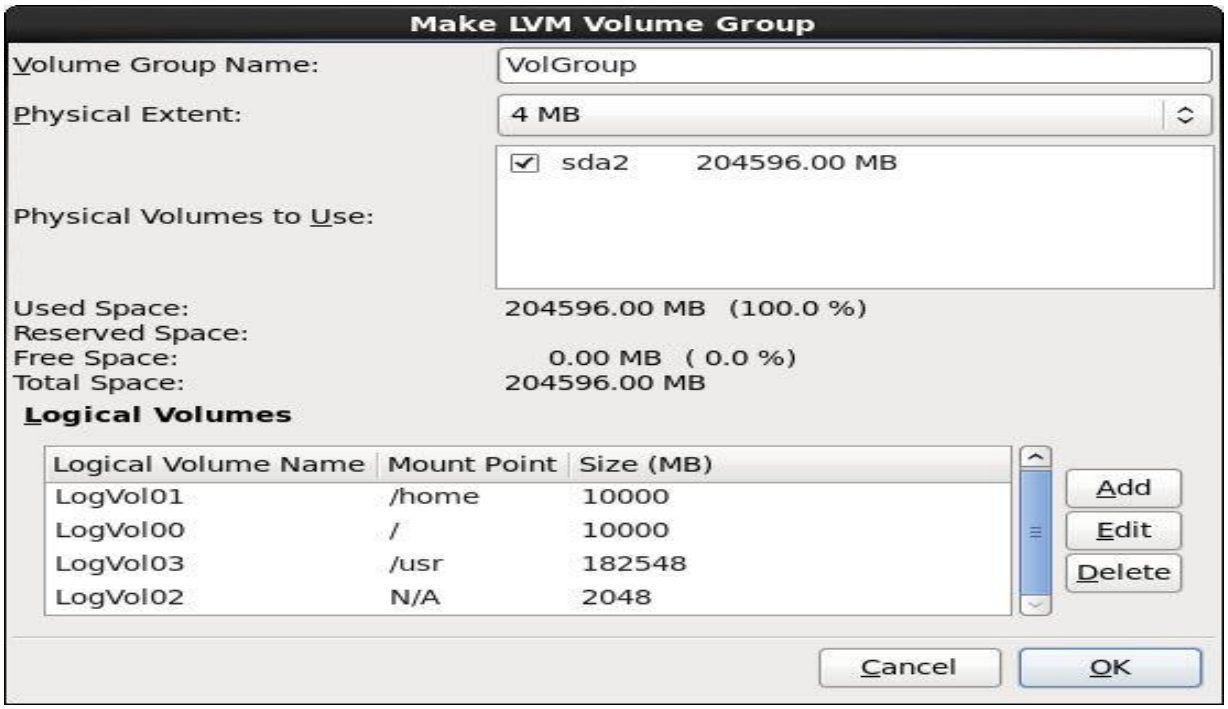

Figure 29: Screenshot of LVM Volume add all partition

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➢ Step 10:

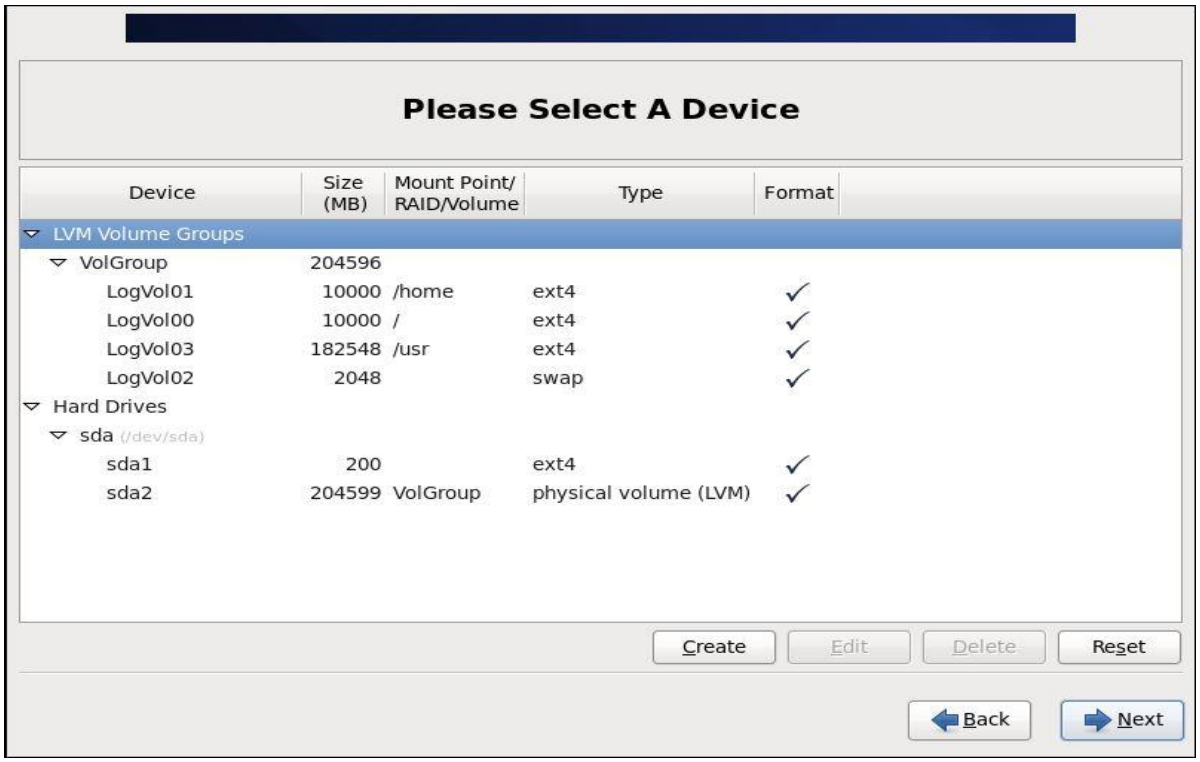

Figure 30: Screenshot of LVM Volume view all partition

➢ Step 11:

Figure 31: Screenshot of LVM Volume complete then write changes to disk

NEXT……

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➢ Step 12:

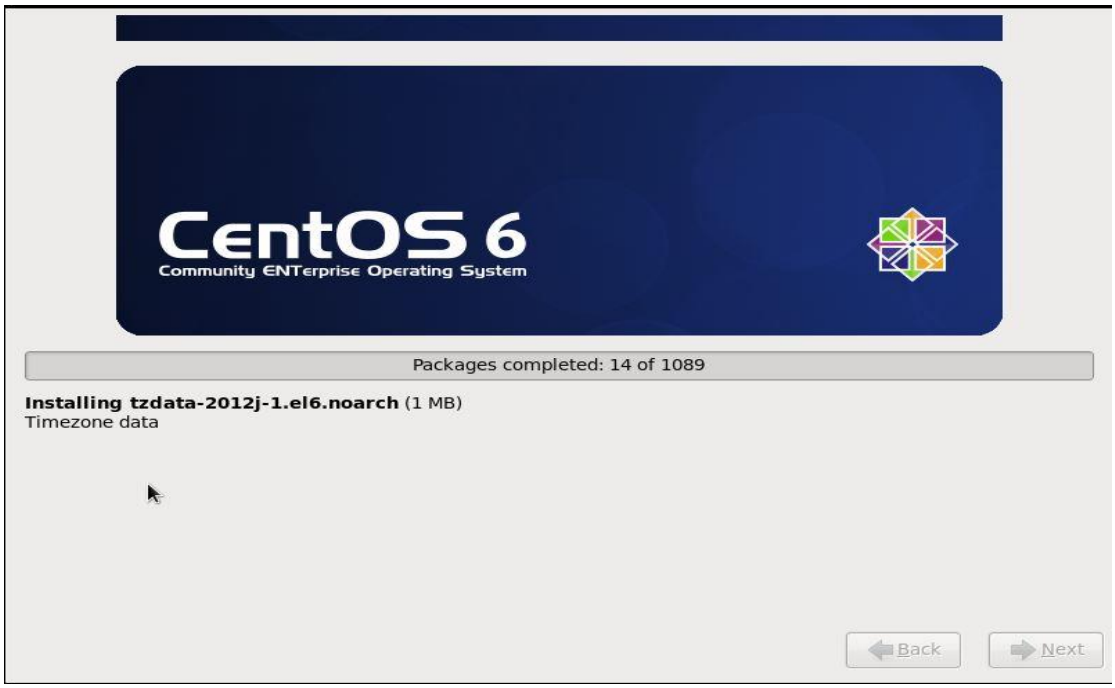

Figure 32: Screenshot of installing file

➢ Step 13:

Figure 33: Screenshot of finally output OS setup, partition and open vmware machine

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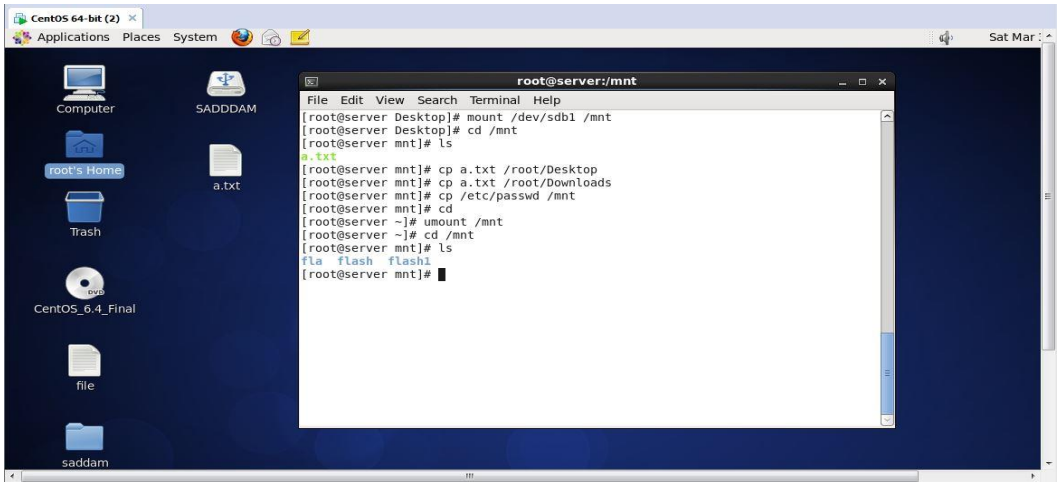
➢ 3.18 USB pen-drive mount and umount:

At first pen-drive insert usb port in the laptop + check the device name command



fdisk -l show it device name sdb1 usb drive + mount command start mount /dev/sdb1 /mnt + cd /mnt + ls file show + cp file name(a.txt) location /root/Desktop + cd + umount command start umount /mnt + cd /mnt+ ls show file flash.

Figure 34: Screenshot of usb dirve mount and umount

➢ 3.19 How to Network Configure IP Address, DNS, Hostname assign:

IP address command ifconfig.

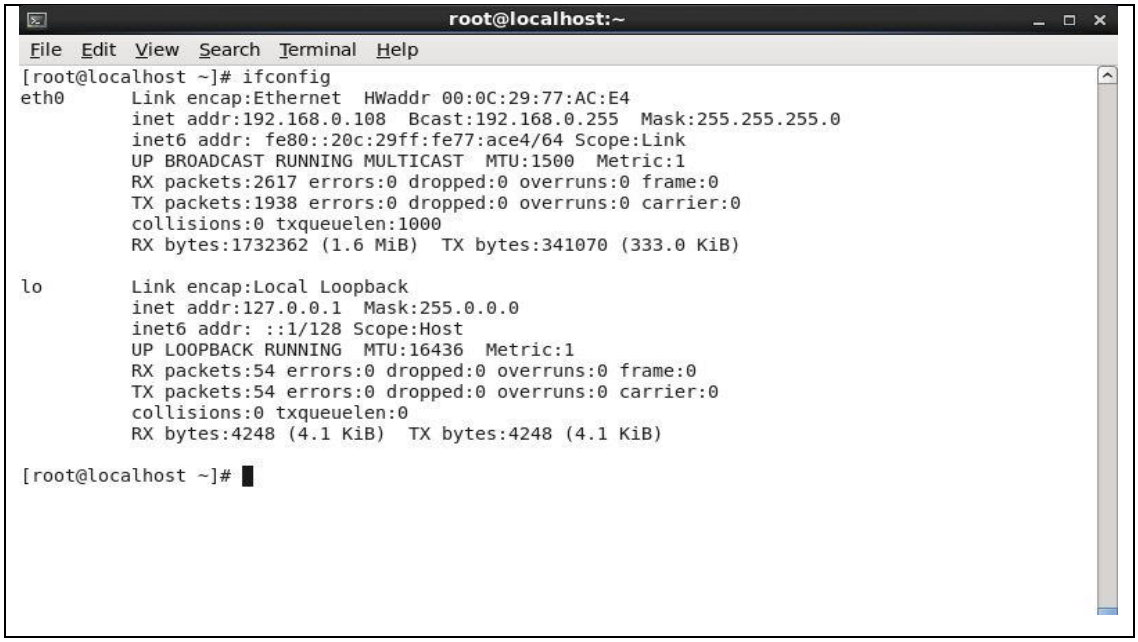


Figure 35: Screenshot of IP address show

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Command line: Vim /etc/sysconfig/network-scripts/ifcfg-eth0.

Figure 36: Screenshot of IP address, netmask, gateway assign

DNS assign:

Command line: vim /etc/resolv.conf

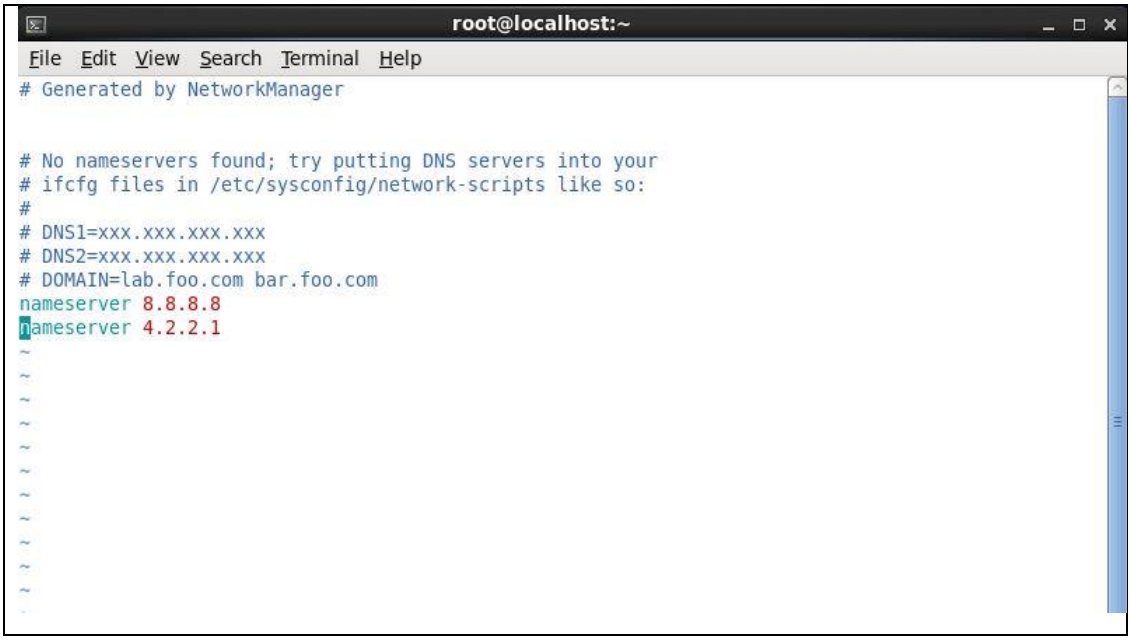

Figure 37: Screenshot of DNS name, ip assign

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- After DNS complete then some command will be need for network configure.

Chkconfig Network Manger off + service Network Manger status + service network restart.

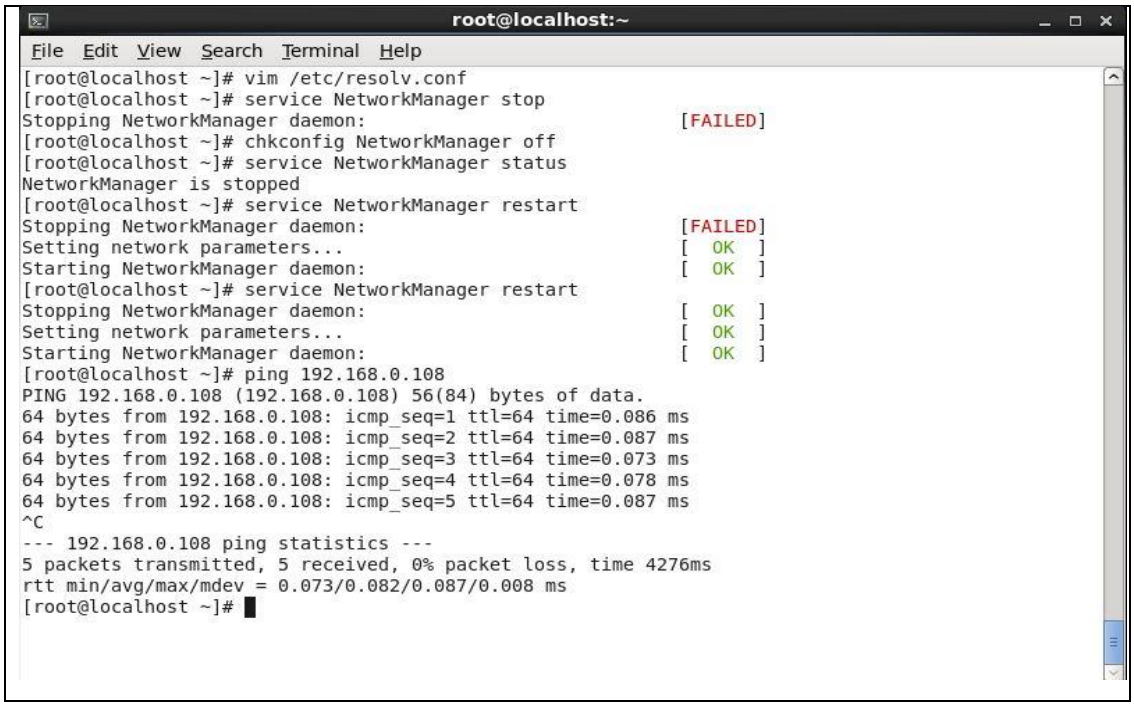
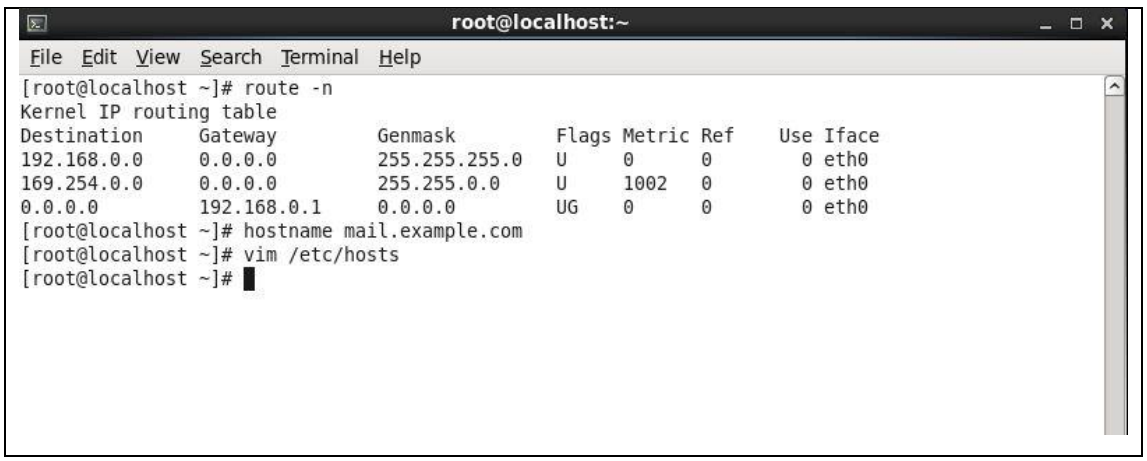


Figure 38: Screenshot of service on, off, status

At first command line: hostname mail.example.com + vim /etc/hosts + ip address (192.168.0.108)hostname (mail.example.com).

N.B:Dot (.) com must be assigned otherwise not setup.



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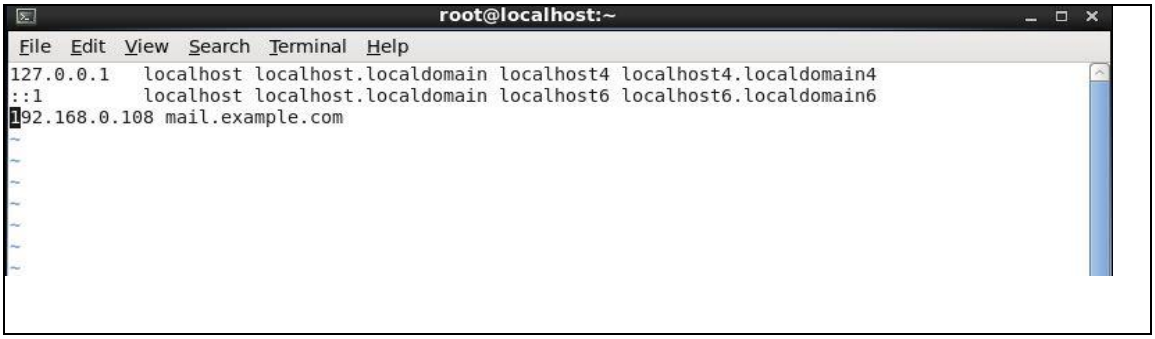

Figure 39: Screenshot of hostname assign

➢ **3.20** How to be a Root password break in Linux **:**

At first ctrl alt delete press or restart machine + space press + e + kernel /vmlinuz select + e + space 1 + enter + b + passwd + new password setup + retype password + init 6 + login root user with new password apply.

➢ Step 1:

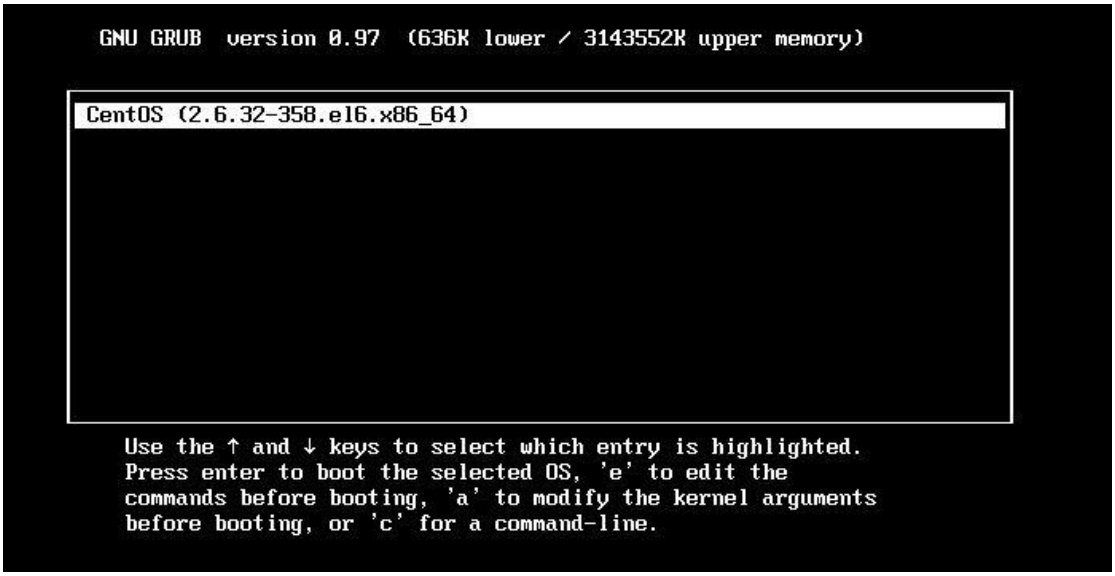

Figure 40: Screenshot of select centos version mode

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- Step 2:

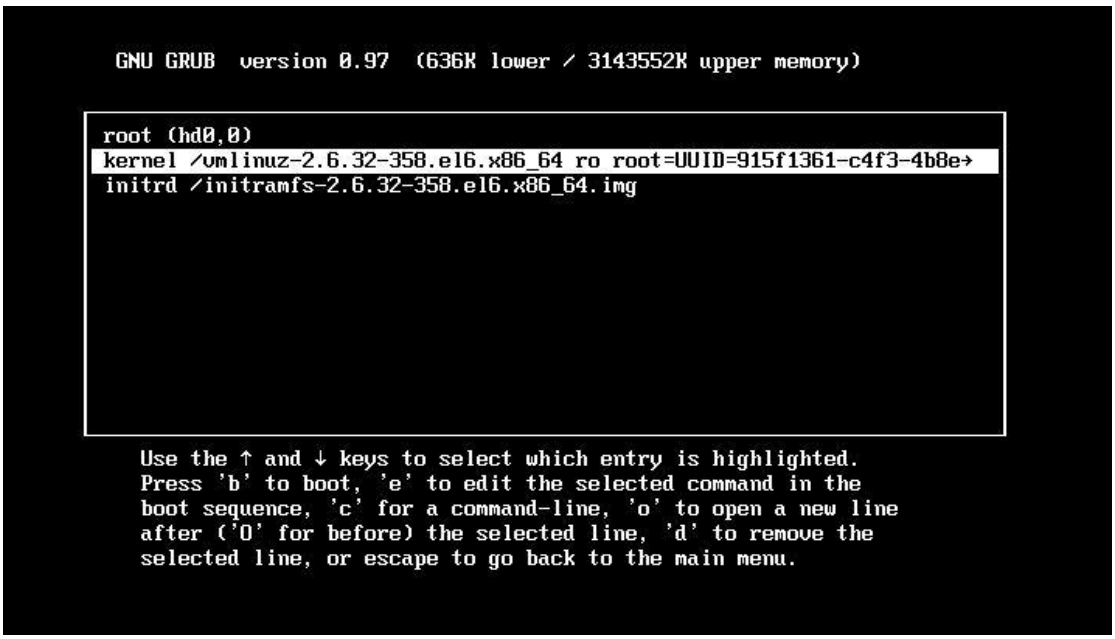

Figure 41: Screenshot of select kernel mode

- Step 3:

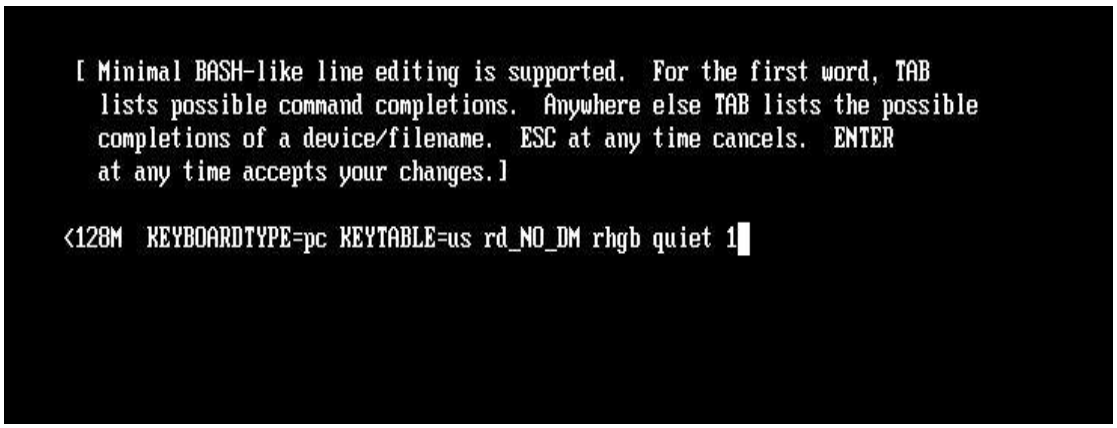

Figure 42: Screenshot of space 1 select

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➢ Step 4:

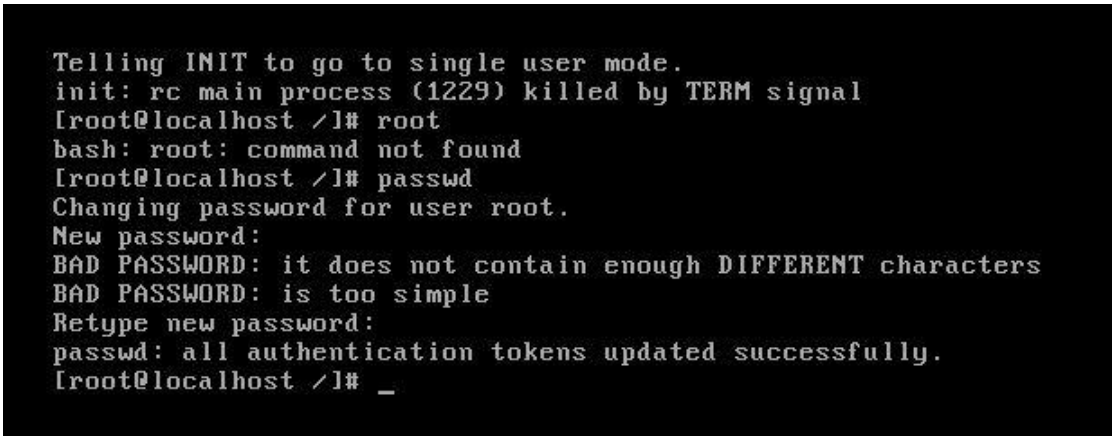

Figure 43: Screenshot of new password setup

➢ 3.21 Introduction of NFS and configure:

NFS means Network File System. A network file system operation local user to remote file and data access method it is locally used.
It was developed by sun microsystems in 1980.

➢ How to be a NFS configure:

Command line: yum install nfs* press enter.

➢ Step 1:

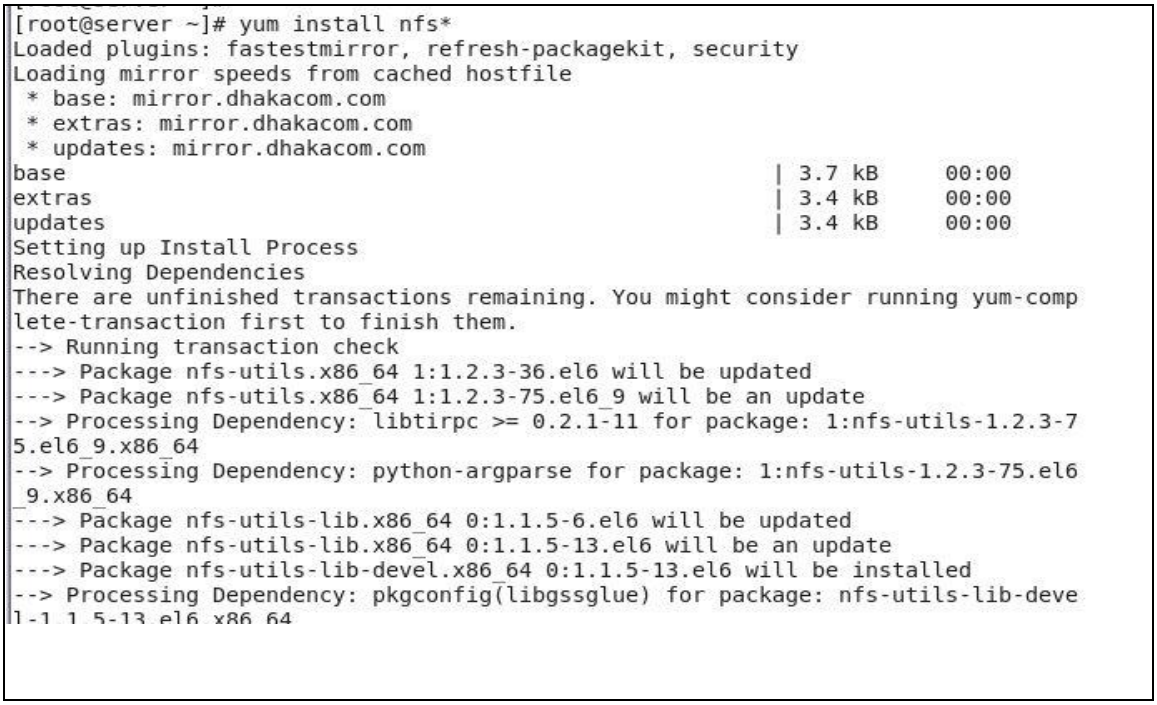

Figure: 44: Screenshot of nfs install package

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- Step 2:

Command line: rpm –qa nfs* check package is not install + yum install rpcbind* press enter.

```
[root@server ~]# rpm -qa nfs*
nfs-utils-1.2.3-75.el6_9.x86_64
nfs4-acl-tools-0.3.3-8.el6.x86_64
nfs-utils-lib-devel-1.1.5-13.el6.x86_64
nfs-utils-lib-1.1.5-13.el6.x86_64
[root@server ~]# yum install rpcbind*
Loaded plugins: fastestmirror, refresh-packagekit, security
Loading mirror speeds from cached hostfile
 * base: mirror.dhakacom.com
 * extras: mirror.dhakacom.com
 * updates: mirror.dhakacom.com
Setting up Install Process
Resolving Dependencies
There are unfinished transactions remaining. You might consider running yum-comp
lete-transaction first to finish them.
--> Running transaction check
---> Package rpcbind.x86_64 0:0.2.0-11.el6 will be updated
---> Package rpcbind.x86_64 0:0.2.0-13.el6_9.1 will be an update
```

Figure: 45: Screenshot of rpcbind install package and check version

- Step 3:

Command line: cd / + mkdir /data + ls + vim /etc./exports + service nfs restart

```
Updated:
  rpcbind.x86_64 0:0.2.0-13.el6_9.1

Complete!
[root@server ~]# cd /
[root@server /]# mkdir /data
[root@server /]# ls
bin  boot  data  dev  etc  ftp  home  lib  lib64  lost+found  media  misc  mnt  net  opt
[root@server /]# vi /etc/exports
[root@server /]# service nfs restart
Shutting down NFS daemon:                                  [FAILED]
Shutting down NFS mountd:                                  [FAILED]
Shutting down NFS quotas:                                  [FAILED]
Starting NFS services:                                     [  OK  ]
Starting NFS quotas:                                       [  OK  ]
Starting NFS mountd:                                       [  OK  ]
Starting NFS daemon:                                       [  OK  ]
[root@server /]# service nfs restart
Shutting down NFS daemon:                                  [  OK  ]
Shutting down NFS mountd:                                  [  OK  ]
Shutting down NFS quotas:                                  [  OK  ]
Shutting down NFS services:                                [  OK  ]
Shutting down RPC idmapd:                                  [  OK  ]
Starting NFS services:                                     [  OK  ]
Starting NFS quotas:                                       [  OK  ]
Starting NFS mountd:                                       [  OK  ]
Starting NFS daemon:                                       [  OK  ]
Starting RPC idmapd:                                       [  OK  ]
[root@server /]#
```

Figure: 46: Screenshot of directory create, vim exports and service nfs restart

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- Step 4:

Command line: yum install rpc* + show it rpc version command line rpm –qa rpc* + service rpcbind restart + chkconfig rpcbind on + service nfs restart.

```
[root@server /]# yum install rpc*
Loaded plugins: fastestmirror, refresh-packagekit, security
Loading mirror speeds from cached hostfile
 * base: mirror.dhakacom.com
 * extras: mirror.dhakacom.com
 * updates: mirror.dhakacom.com
Setting up Install Process
Package rpcbind-0.2.0-13.el6_9.1.x86_64 already installed and latest version
Nothing to do
[root@server /]# service rpcbind restart
Stopping rpcbind:                                          [  OK  ]
Starting rpcbind:                                          [  OK  ]
[root@server /]# chkconfig rpcbind on
[root@server /]# service nfs restart
Shutting down NFS daemon:                                  [  OK  ]
Shutting down NFS mountd:                                  [  OK  ]
Shutting down NFS quotas:                                  [  OK  ]
Shutting down NFS services:                                [  OK  ]
Shutting down RPC idmapd:                                  [  OK  ]
Starting NFS services:                                     [  OK  ]
Starting NFS quotas:                                       [  OK  ]
Starting NFS mountd:                                       [  OK  ]
Starting NFS daemon:                                       [  OK  ]
Starting RPC idmapd:                                       [  OK  ]
```

Figure: 47: Screenshot of yum rpc install package, chkconfig and service nfs restart

- Step 5:

Command line: chkconfig nfs on + ifconfig check + showmount –e ip address pc

```
[root@server /]# chkconfig nfs on
[root@server /]# localhost
bash: localhost: command not found
[root@server /]# ifconfig
eth0      Link encap:Ethernet  HWaddr 00:0C:29:77:AC:E4
          inet addr:192.168.0.100  Bcast:192.168.0.255  Mask:255.255.255.0
          inet6 addr: fe80::20c:29ff:fe77:ace4/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:2517 errors:0 dropped:0 overruns:0 frame:0
          TX packets:1558 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:1099469 (1.0 MiB)  TX bytes:232110 (226.6 KiB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:16436  Metric:1
          RX packets:60 errors:0 dropped:0 overruns:0 frame:0
          TX packets:60 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:4040 (3.9 KiB)  TX bytes:4040 (3.9 KiB)

[root@server /]# showmount -e 192.168.0.100
Export list for 192.168.0.100:
/data 192.168.0.102/24
```

Figure 48: Screenshot of ifconfig check and /data 192.168.0.102/24 client ip share file

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- Step 6:

```
[root@server /]# showmount -e 192.168.0.100
Export list for 192.168.0.100:
/data 192.168.0.102/24
[root@server /]# #mount -t nfs 192.168.0.100:/data /mnt/temp
[root@server /]# vi /etc/fstab
```

Figure 49: Shows Screenshot of mount nfs Ip: /data /mnt/temp and edit fstab

- Step 7:

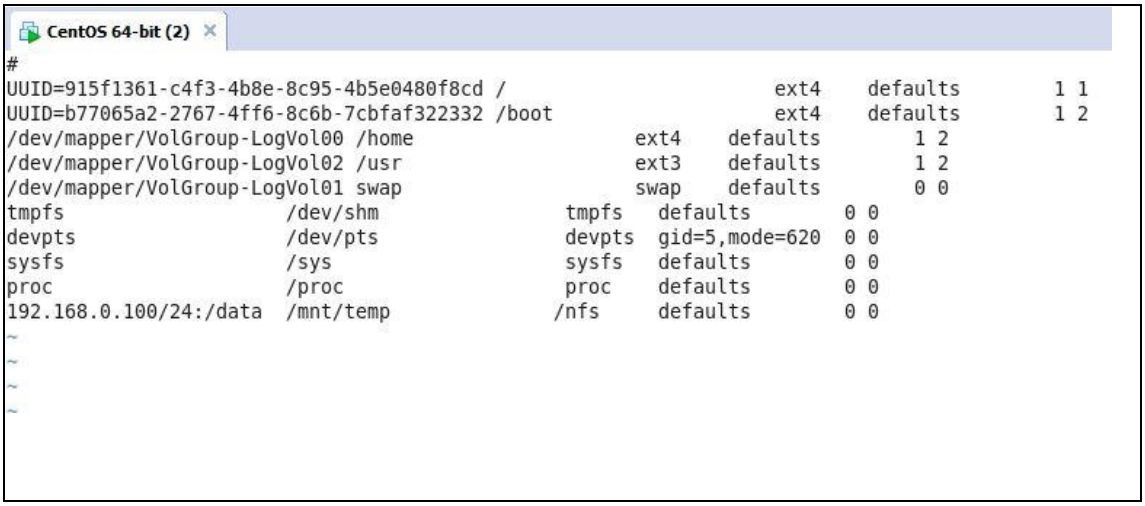

Figure 50: Screenshot of ip assign

➢ 3.22 Introduction of VSFTPD and configure:

Vsftpd, (or very secure FTP daemon), is an FTP server for Unix-like systems, including Linux. It is licensed under the GNU General Public License. It supports IPv6 and SSL.

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How to be a configure VSFTPD:

- Step1: Version check cat /etc/redhat-release + yum install update -y

Figure 51: Screenshot of version update

- Step 2:

Complete update message

Figure 52: Screenshot of complete update

Step3: VSFTPD installed + chkconfig vsftpd on + service vsftpd status.

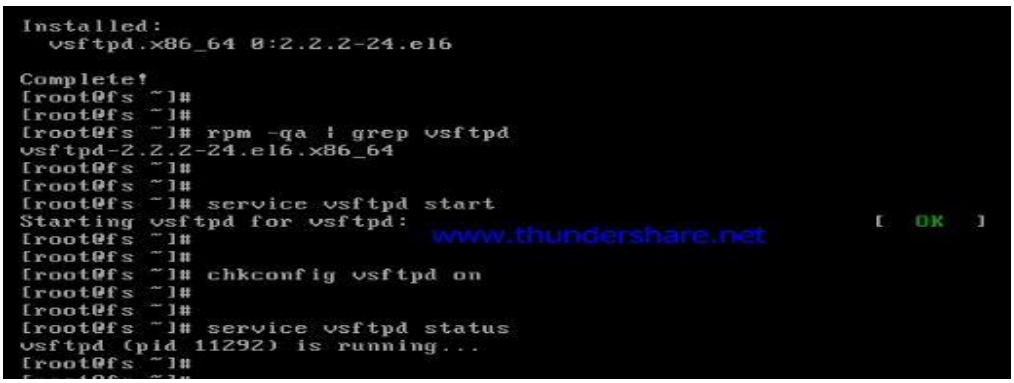

Figure 53: Screenshot of vsftpd install chkconfig vsftpd on

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- Step4:

Location check vsftpd command line cd /etc/vsftpd/ + vim vsftpd.conf

Figure 54: Screenshot of vsftpd location check and vim vsftpd.conf

- Step 5: put out hash symbol +ftpd_banner=welcome to any name assign service.

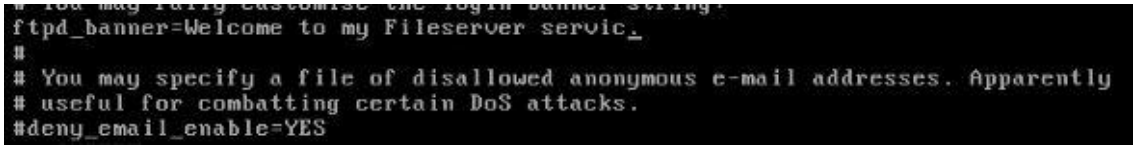

Figure 55: Screenshot of ftpd fileserver name change

- Step 6:

Userlist_wrappers=YES (#) mark out +use_localtime=YES(#) out + service vsftpd restart + vim /etc/sysconfig/iptables.

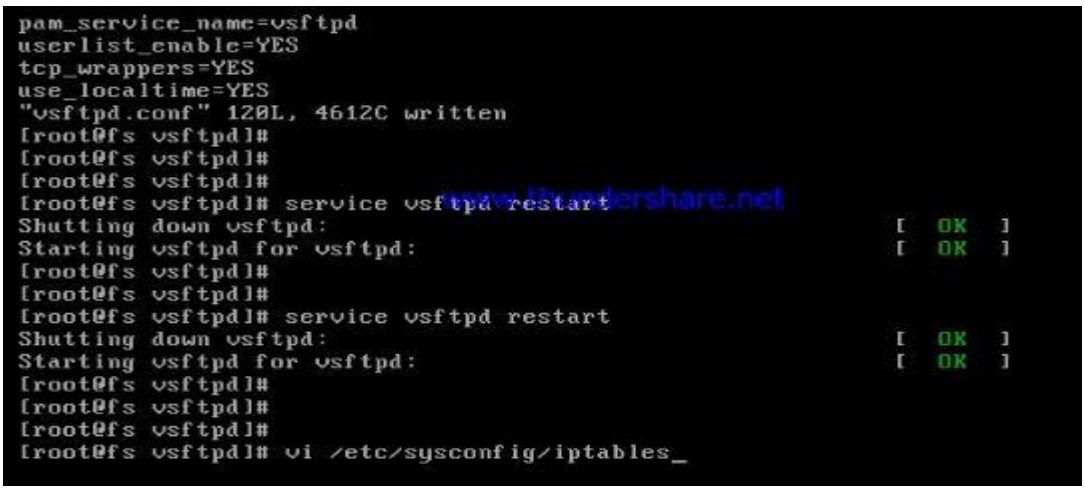

Figure 56: Screenshot of vim iptables and # mark delete

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- Step 7:

Keep the 22 port number copy and paste down line and setup 21 port number + iptables –l + save.

Figure 57: Screenshot of port numbers assign and copy line

- Step 8: show it cat /etc/passwd | grep ftp + cd /var/ftp/pub/ + directory create + ls

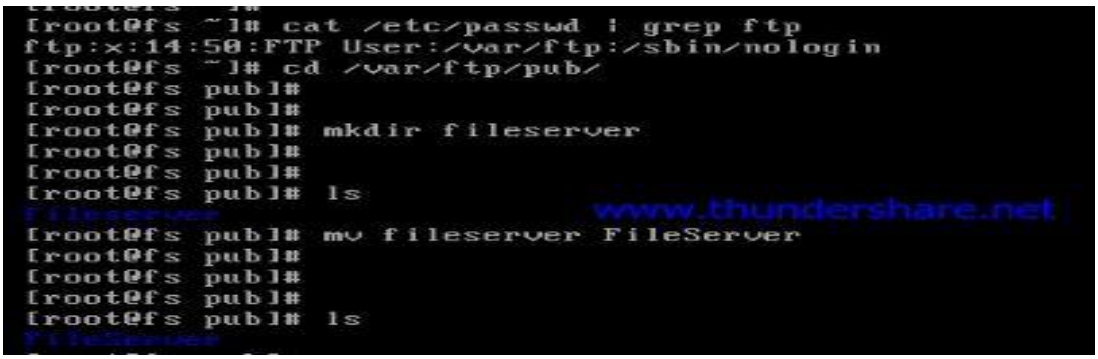

Figure58: Screenshot of directory create and cd/var/pub location

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- Step 9:

  File sharing winscp open + ip number +port number setup + root use +password + login.

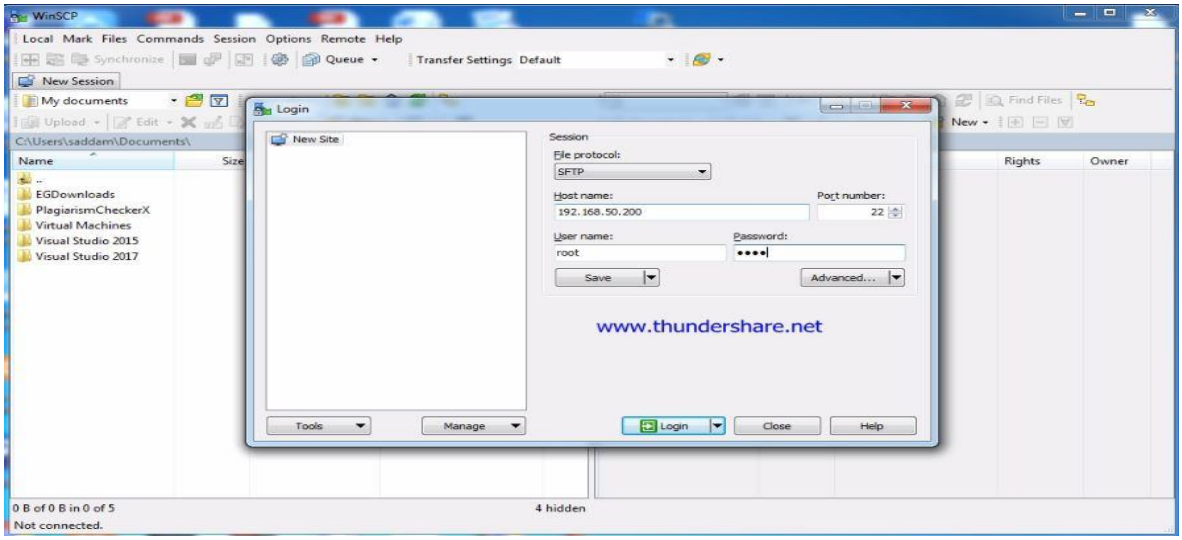

Figure59: Screenshot of open winscp and ip assign login click

- Step 10:

Winscp from file sharing.

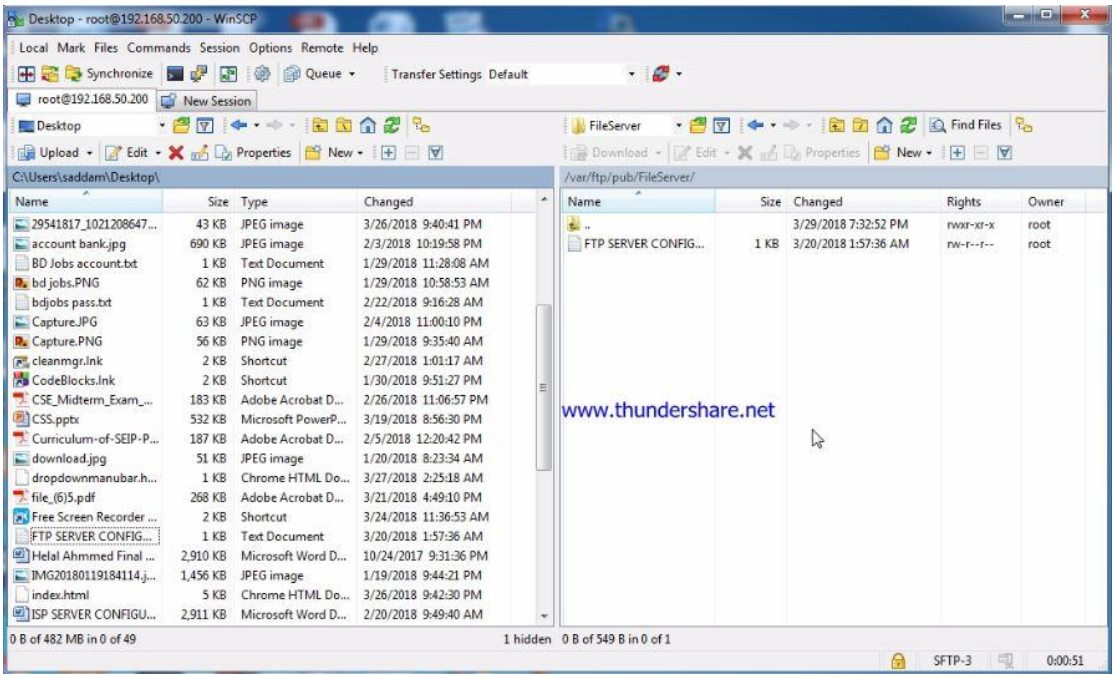

Figure60: Screenshot of soft winscp file sharing

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- Step 11:

File sharing show and service vsftpd restart.

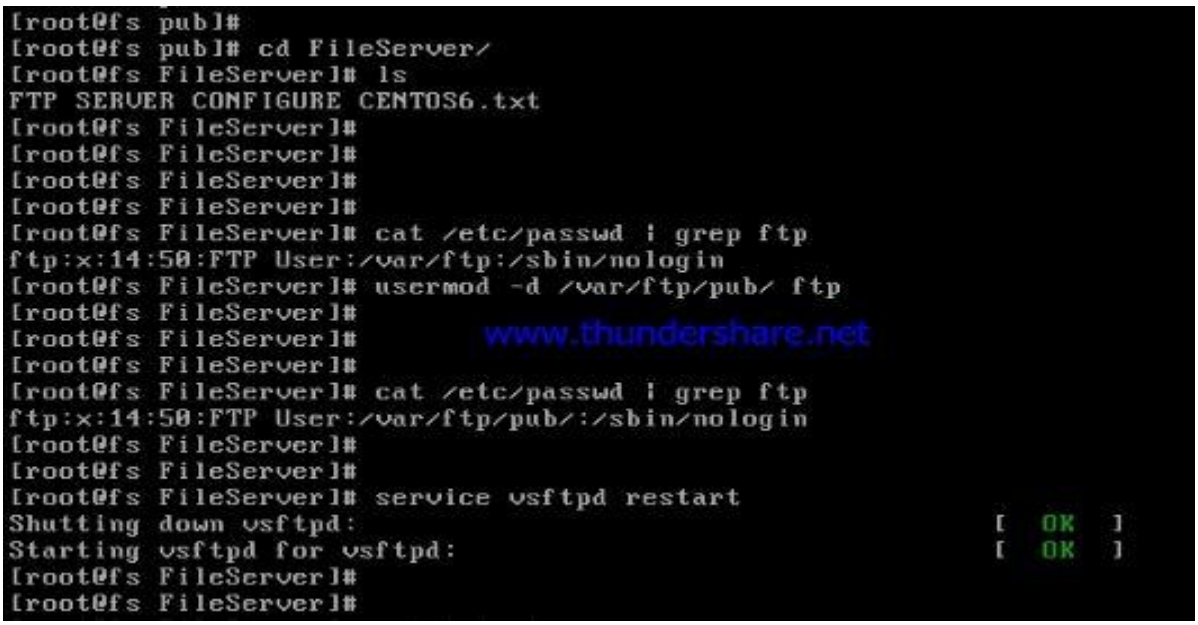

Figure 61: Screenshot of file sharing show command

- Step 12:

At first user create and modify user noc and support + /var/ftp/pub location

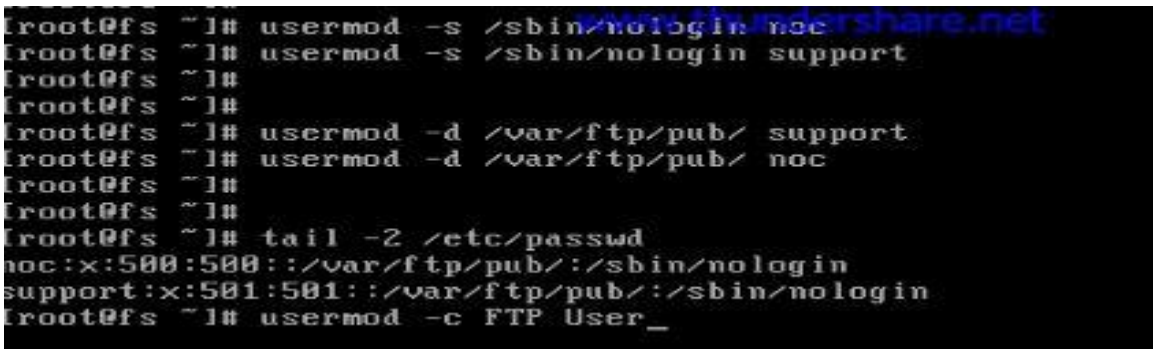

Figure 62: Screenshot of user create and modify

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➢ Step 13:

Fill up noc user name and password then login.

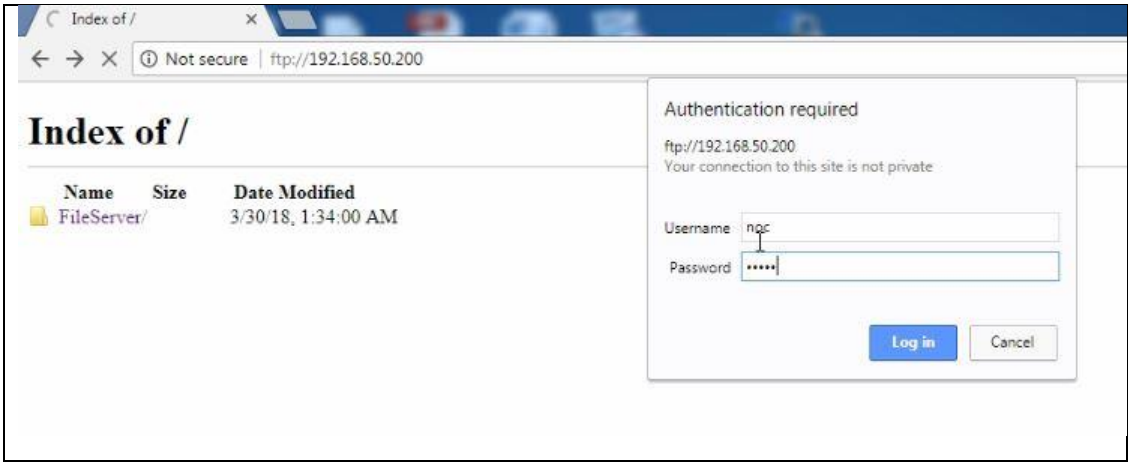

Figure 63: Screenshot of noc user login

➢ Step 14:

Fileserver

Figure 64: Screenshot of noc login share file

3.23 Introduction of MikroTik Router:

MikroTik is a Latvian Company it was founded 1996 to developed for routers and wireless ISP systems. MikroTik provides hardware and software for internet connectivity around the world. In 1997 to create RouterOS Software system that provides extensive stability, controls all kinds of data interface. In 2002 it was born own hardware and Router Board brand. This company is situated Riga it has 140 employees.

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3.24 MikroTik RouterOS:

MikroTik RouterOS is the operating system MikroTikRouter Board Hardware. When we will install RouterOS in the computer it depends only 32bit/64bit operating system. MikroTik is Linux kernel based operating system it is known as the MikroTik RouterOS. It can be installed on a PC and turn it into a **router** with all the necessary features - **routing**, firewall, bandwidth management, wireless access point, backhaul link, hotspot gateway.

3.25 Features of RouterOS:

RouterOS resort many applications: Such as

- ✓ It may be used as a router.
- ✓ It may be used as a switch or bridge.
- ✓ Service PPPoE Client-Server.
- ✓ ServiceVPN-Virtual Private Network.
- ✓ Service Firewall rules.
- ✓ Service DHCP Server.
- ✓ Service Wi-Fi and captive portal based Hotspot System.
- ✓ Bandwidth management is very easy.
- ✓ Easy GUI interface.
- ✓ Easy administration.
- ✓ Supports both IPv4 and IPv6.

3.26 Model of MikroTik Router:

- ✓ MikroTik RB2011UiAS-2HnD-IN wireless router.
- ✓ MikroTik CCR1036-12G-4S-EM router.
- ✓ Mikrotik RB450G Router.

Figure 65: MikroTik Router model

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3.27 How to be a MikroTik Configuration:

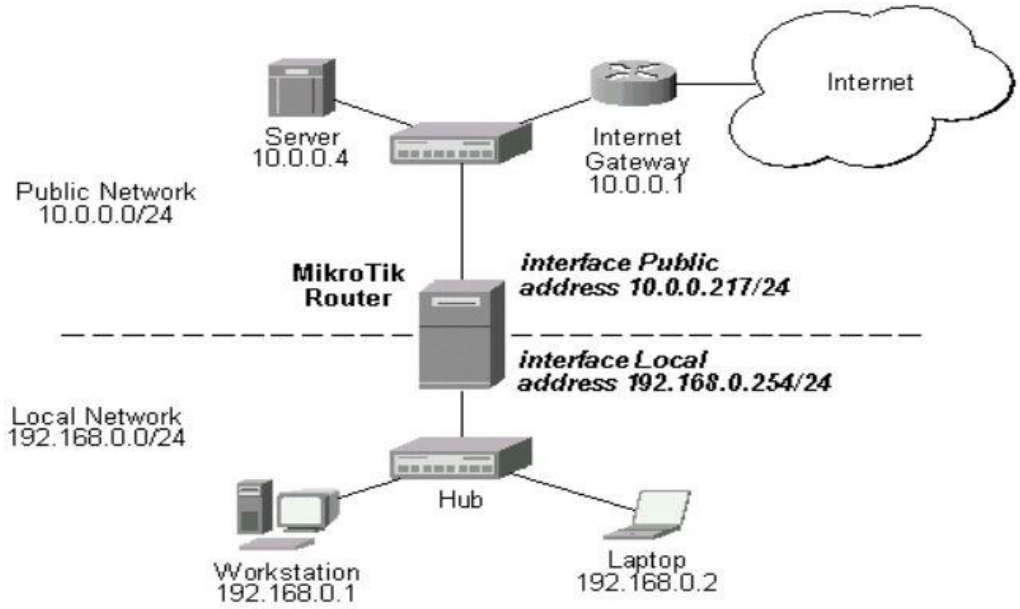

Figure 66: Network Diagram

First of all, we download Win box and RouterOS software. Then run the win box it has no installation is required 3.20 network diagram.

➢ 3.28 Initial Step:

- Mikrotik power adapter give the connection on multiplag.
- UTP cable connection in mikroTik router LAN port and other port connection to the PC.
- Then the Browse to **Winbox**.
- Click to Mac address then write 'admin' in login box and don't need to give Password. .

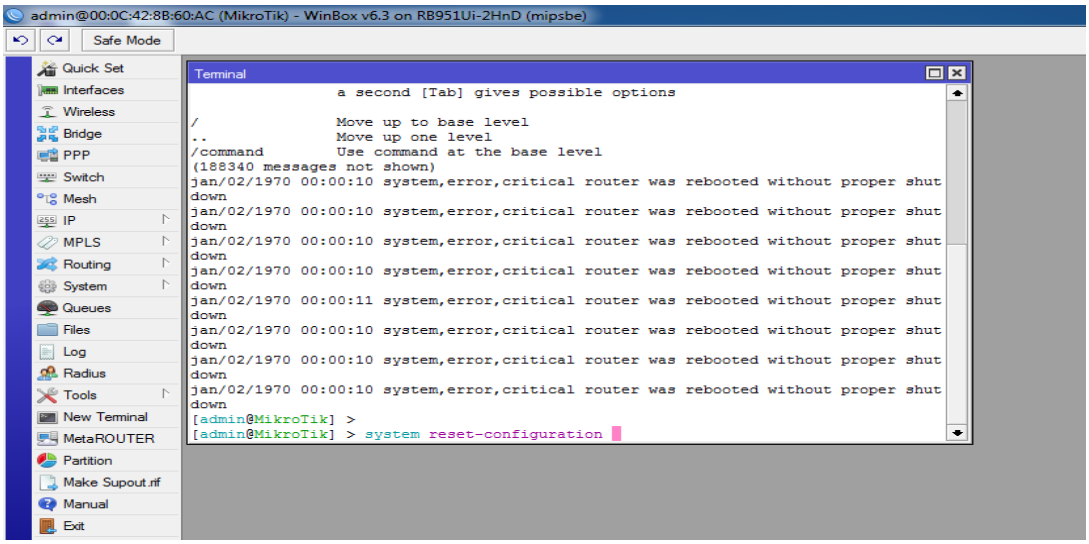

Figure 67: Screen Screenshot of Reset MikroTik Router

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3.29 How to be a static MikroTik Router Configuration:

- **Step 1**:

Defining IP Setting up process.
Process:
IP click + IP address + (plus sign click) + add IP + apply ok.
N.B. At first select WAN port and LAN port but WAN will give IP Addr, Gateway and subnet mask for the purpose of WAN. IP Address Format 0.0.0.0/0 (default route).

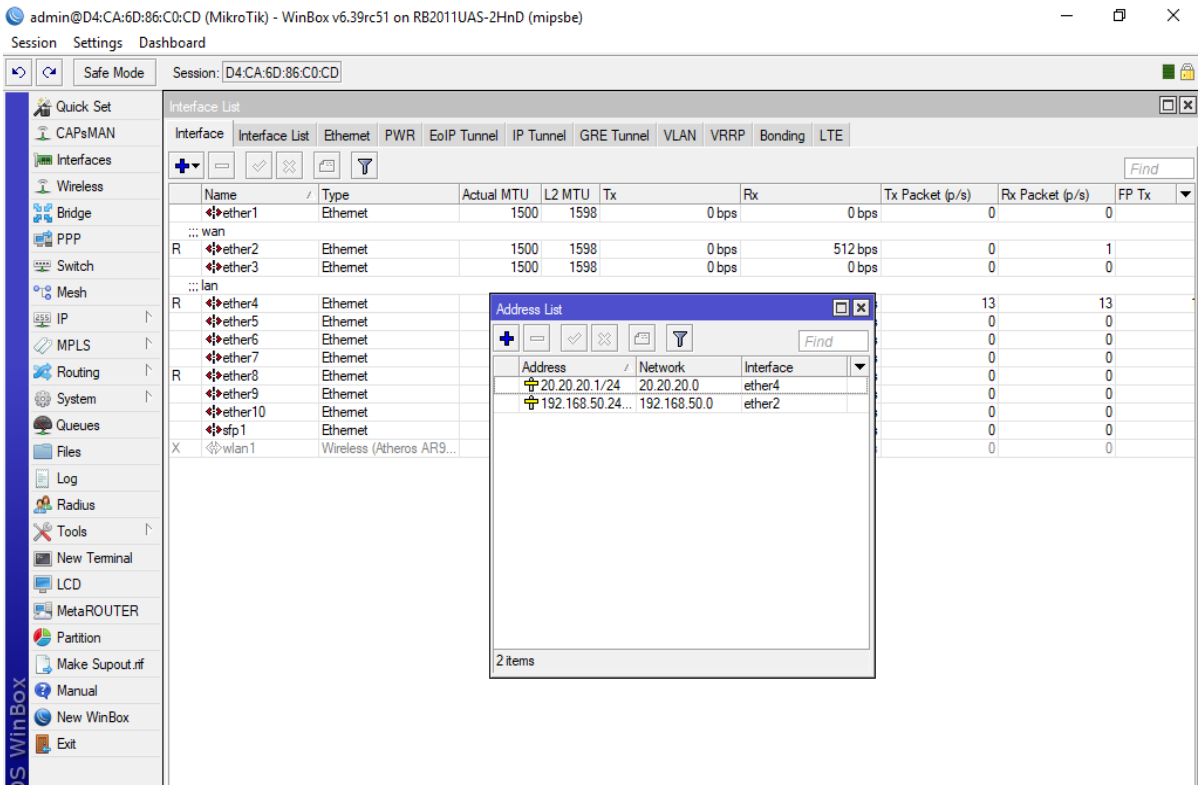

Figure 68: Screen Screenshot of IP Address

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➢ Step 2:

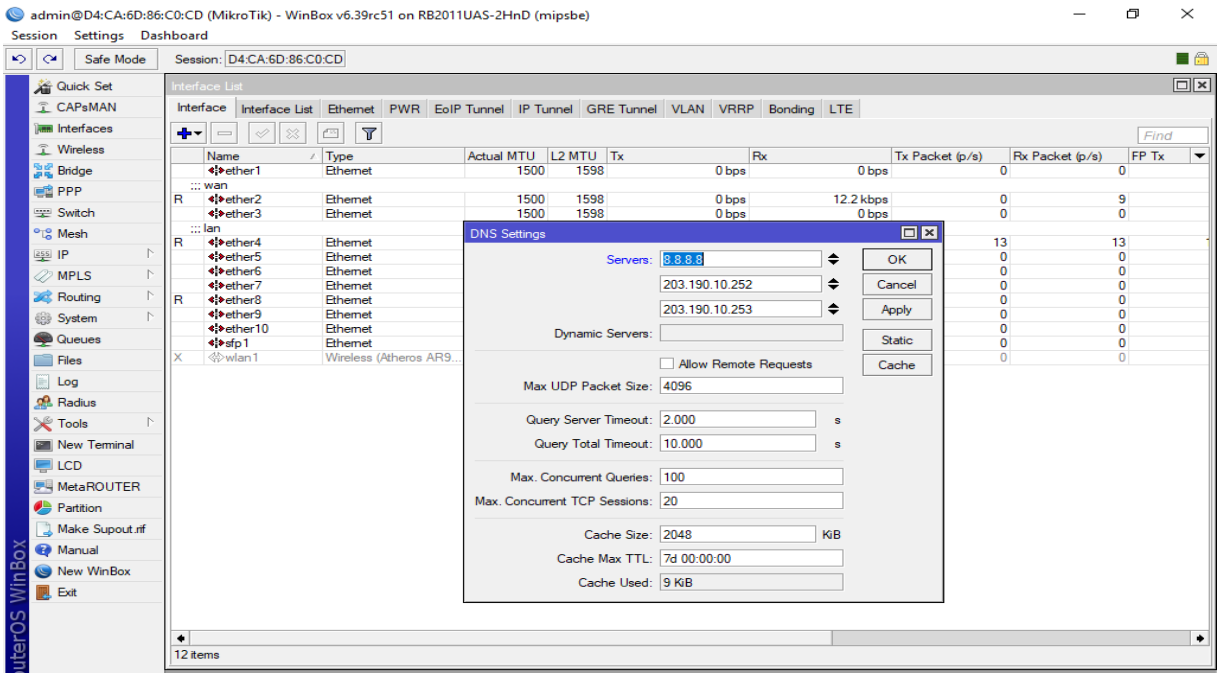

Figure 69: DNS ip Setup

➢ Step 3:

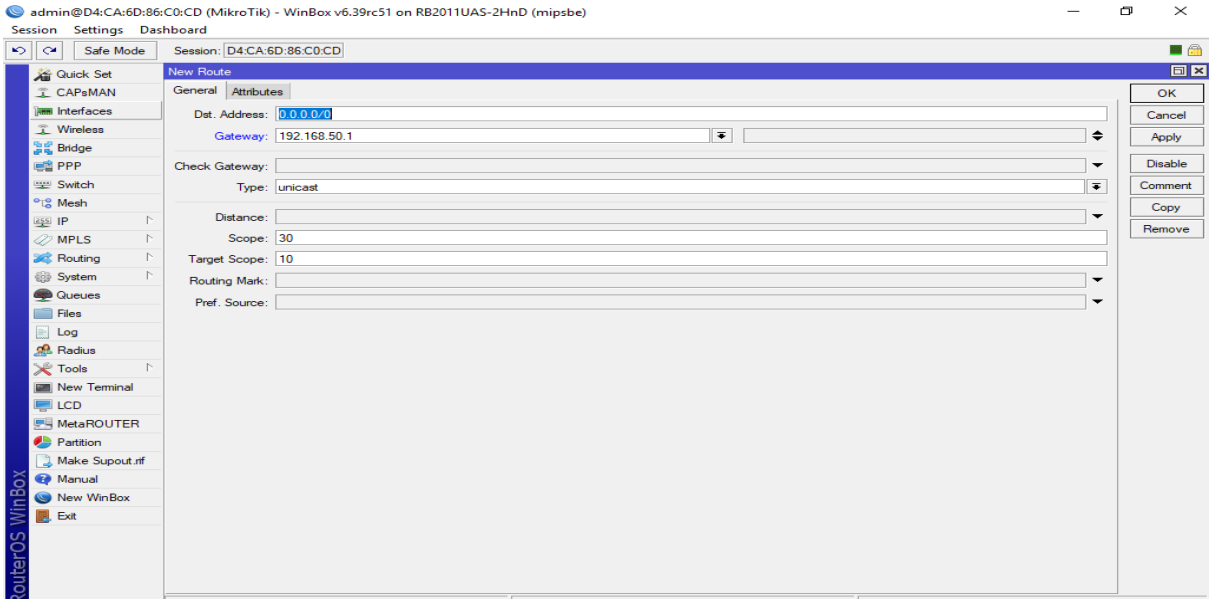

Figure 70: Screen Screenshot of Gateway

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➢ **Step 4:**

Defining DNS IP Setting up process.

Process:

IP click + DNS setting click + DNS Add IP in the form 8.8.8.8 + apply ok.

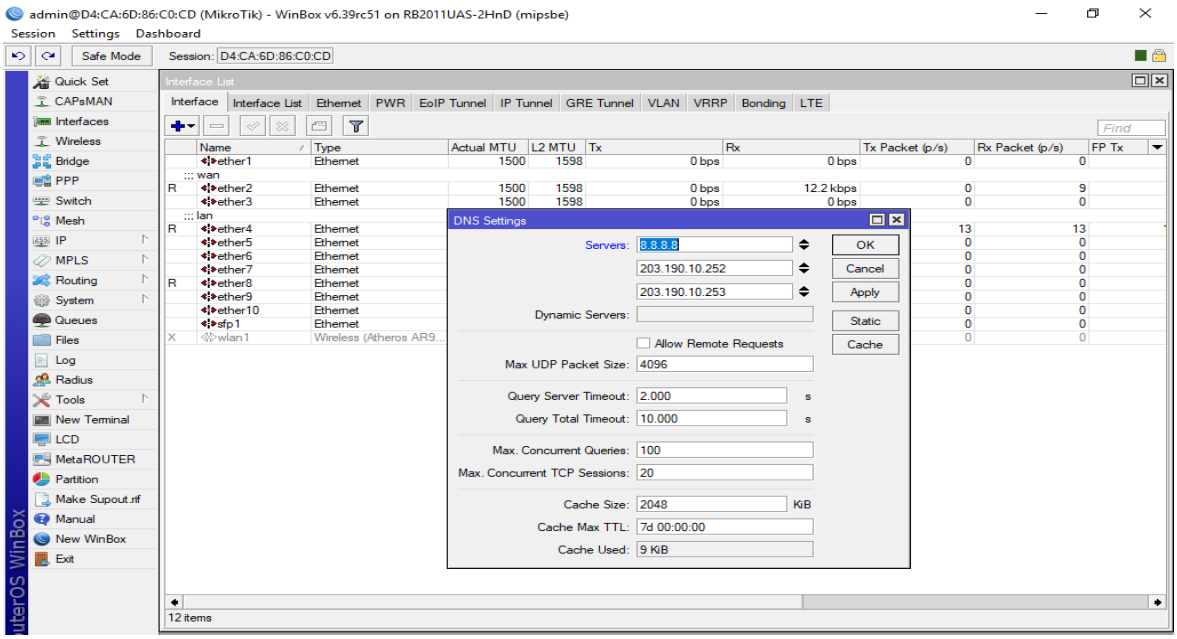

Figure 71: Screen Screenshot of DNS IP Rule

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➢ **Step 5:**

Defining Firewall Setting up process.

Process:

IP click + Firewall click + NAT click + Action click+ masquerade select+ apply ok.

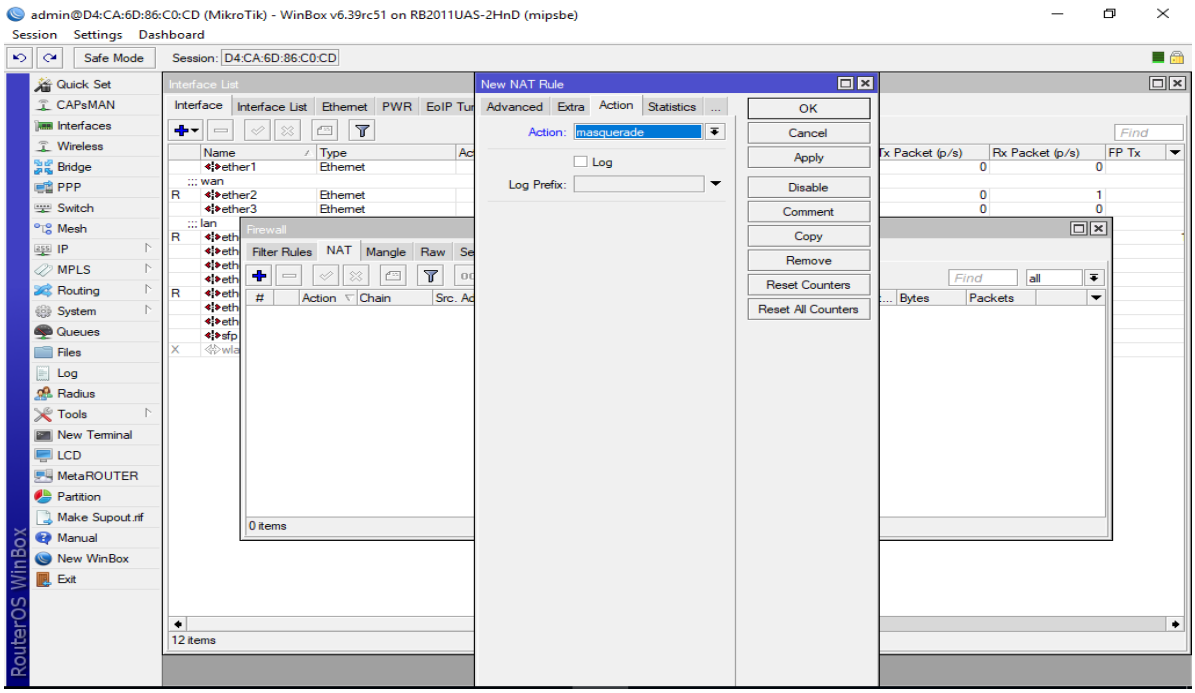

Figure 72: Screen Screenshot of Firewall

➢ **Step 6:**

Defining Gateway Setting up process.

Process:

IP click + Routes click + + Gateway IP assign (192.168.0.1) +apply ok.

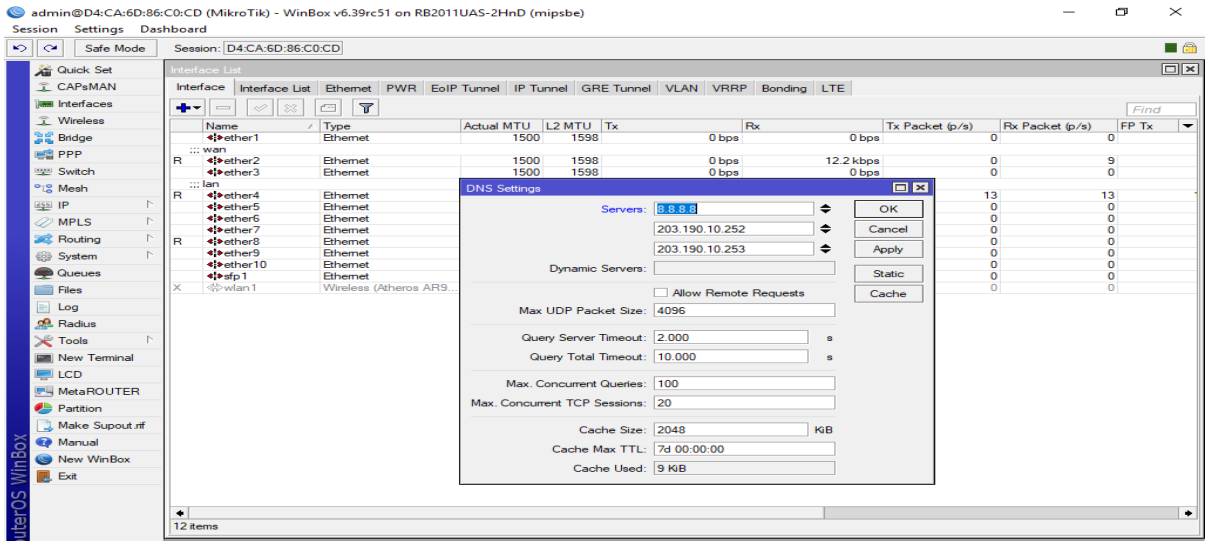

Figure 73: After that we got output Screenshot of gateway result

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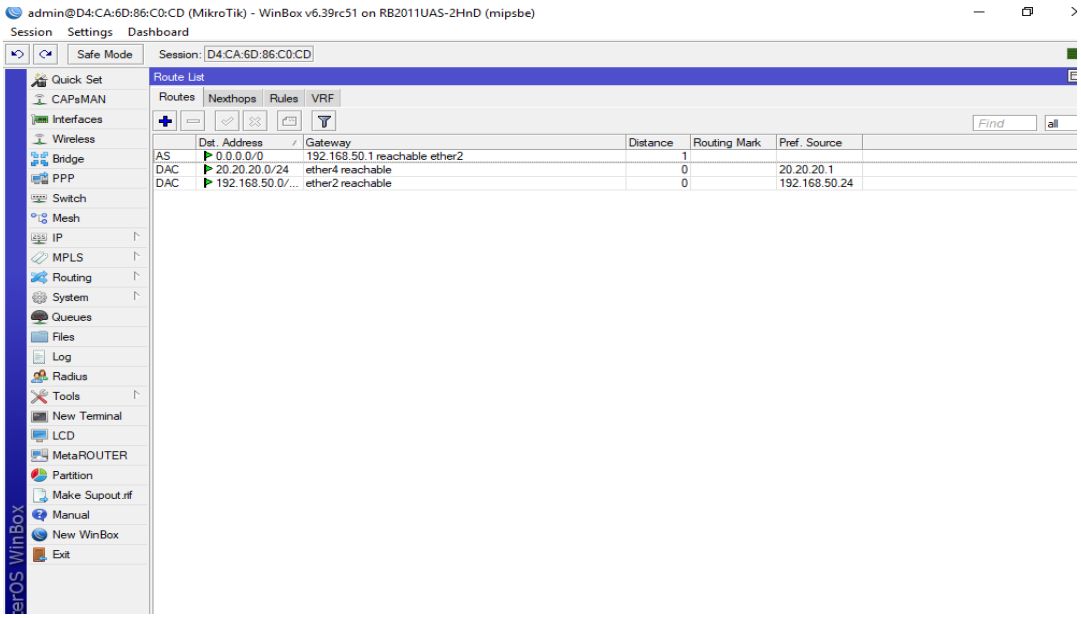

Figure 74: Screen Screenshot of Gateway output

➢ **Step 7:**

Keep the static IP Address on the Ethernet setting process.

Process:

Open network and sharing click + change adapter setting click + Ethernet click property + Ipv4 select property + use the following IP address select + use the following DNS server address select and keep the form fill up + apply ok.

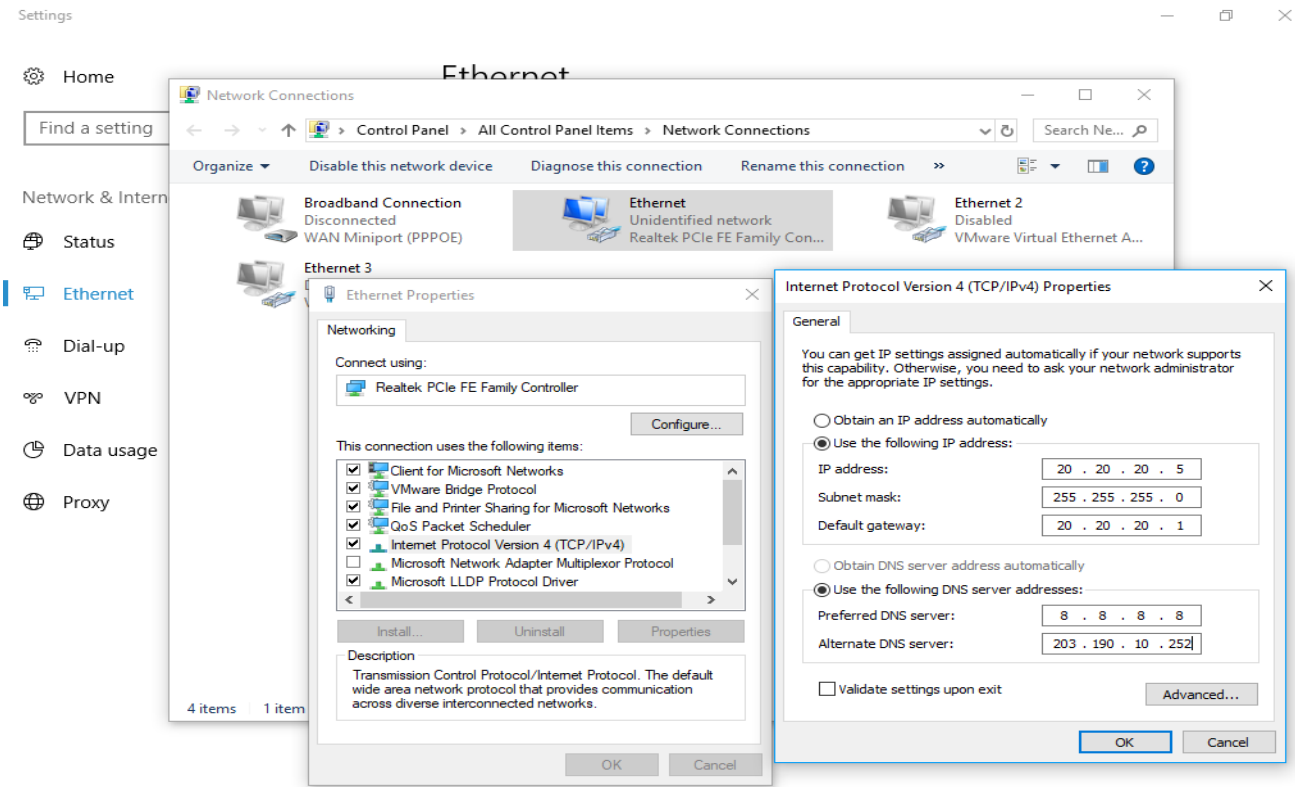

Figure 75: Screen Screenshot of finally static configures output

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3.30 How to be a Dynamic (DHCP) MikroTik Router Configuration:

- Step 1:

Defining DHCP Set up Process:

Process:

IP address click + DHCP server click + DHCP setup + next …+ apply ok.

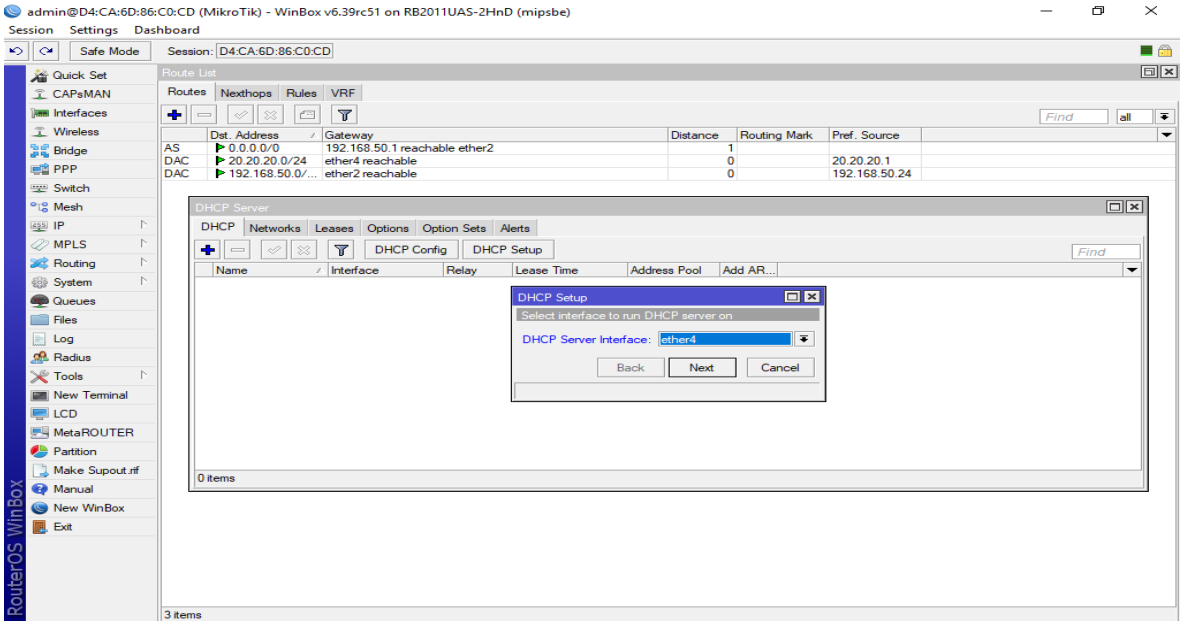

Figure 76: Screen Screenshot of DHCP Configure

- Step 2:

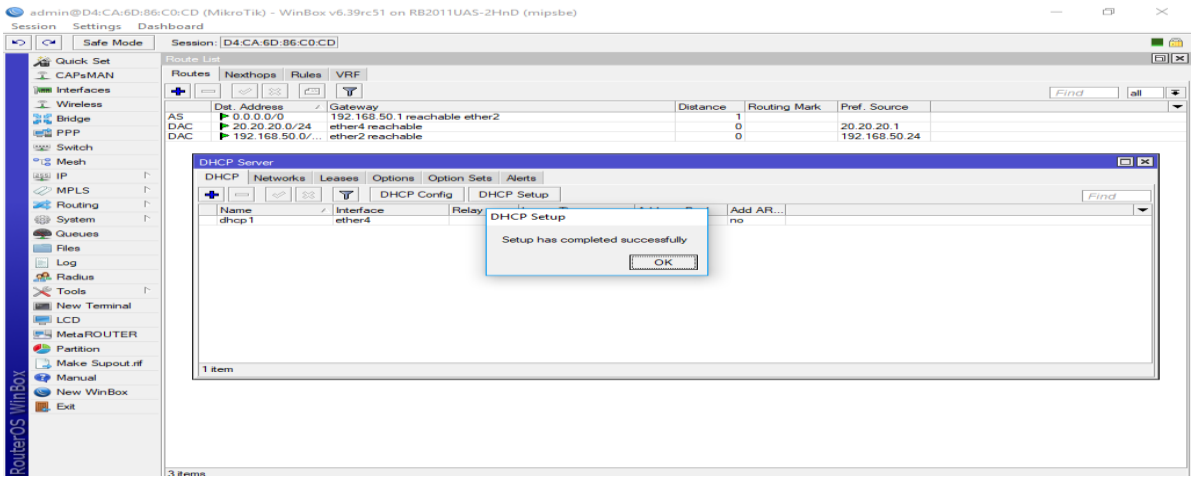

Figure 77: Screen Screenshot of DHCP setup successfully

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➢ Step 3:

When DHCP setup complete after that we open Win box reconnect + change adapter setting click + Ethernet click property + Ipv4 select property + use the IP address automatically + use the DNS server automatically + apply ok.

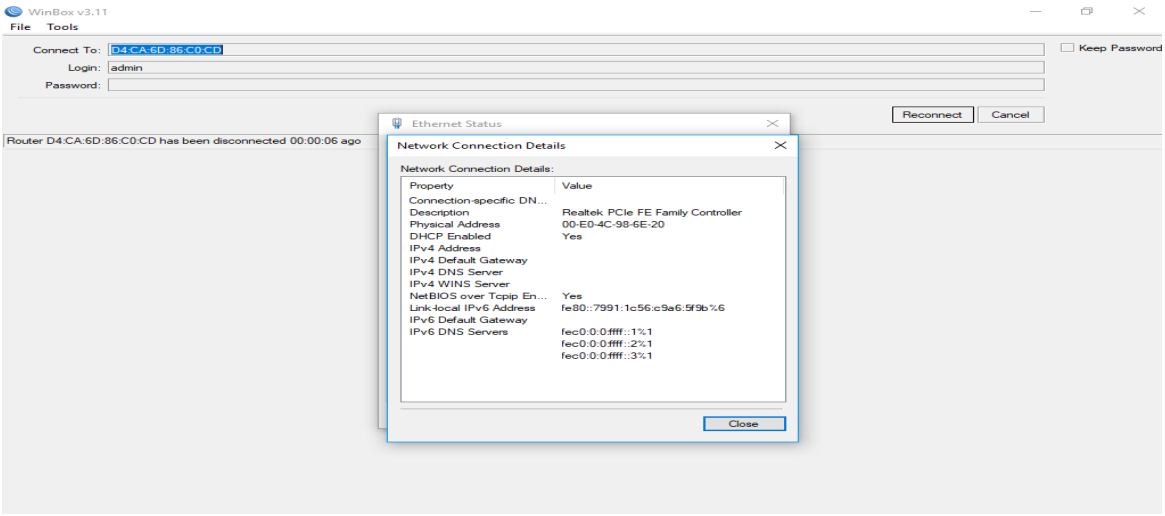

Figure 78: Screen Screenshot of DHCP setup mac address enable

➢ Step 4:

Bandwidth speed managent process:

Process:

Queue click + Queue list + plus click and any name typing for queue list such as mikroTik + apply ok.

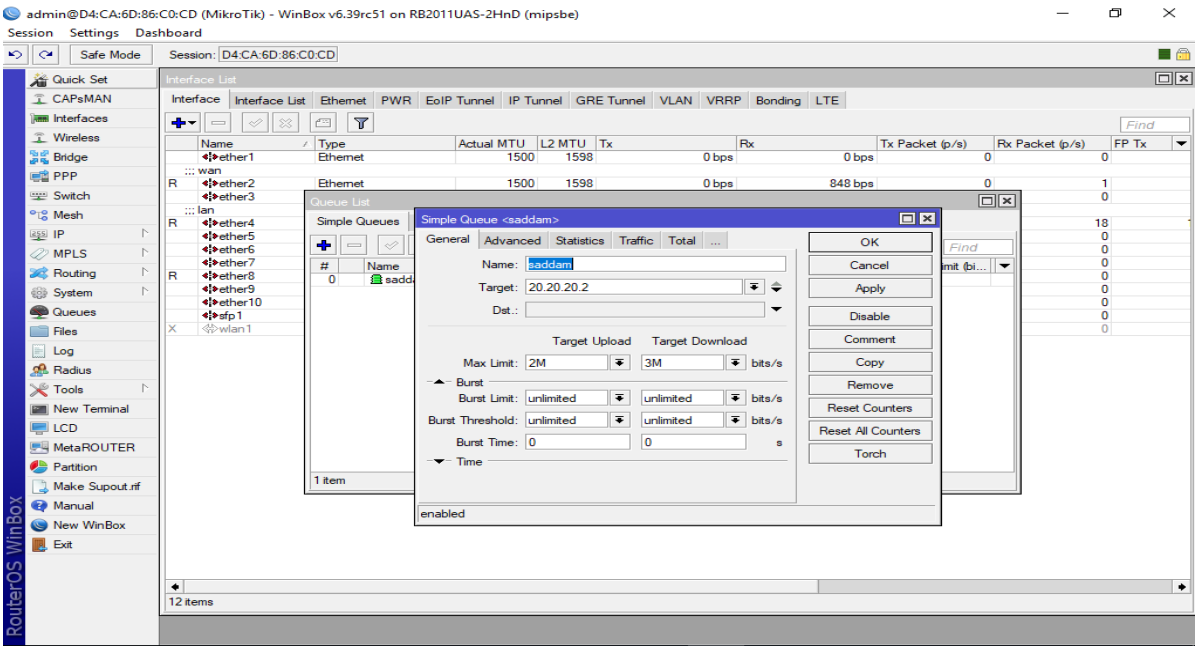

Figure 79: Screen Screenshot of Bandwidth speed managent

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3.31 How to be a Bridge Configuration:

Bridge creating process

Process:

Bridge click + (plus sign click) Bridge n= 1,2,3…. + give the any name fill up + apply ok +
After that take ports
Ports:

Ether4
ether3_LAN
ether6
ether9
wlan1

IP click + DHCP server + DHCP setup + Next…+ apply ok.
N.B. This port connection will be involved with Bridge name otherwise no create Bridge connection.

- Step 1:

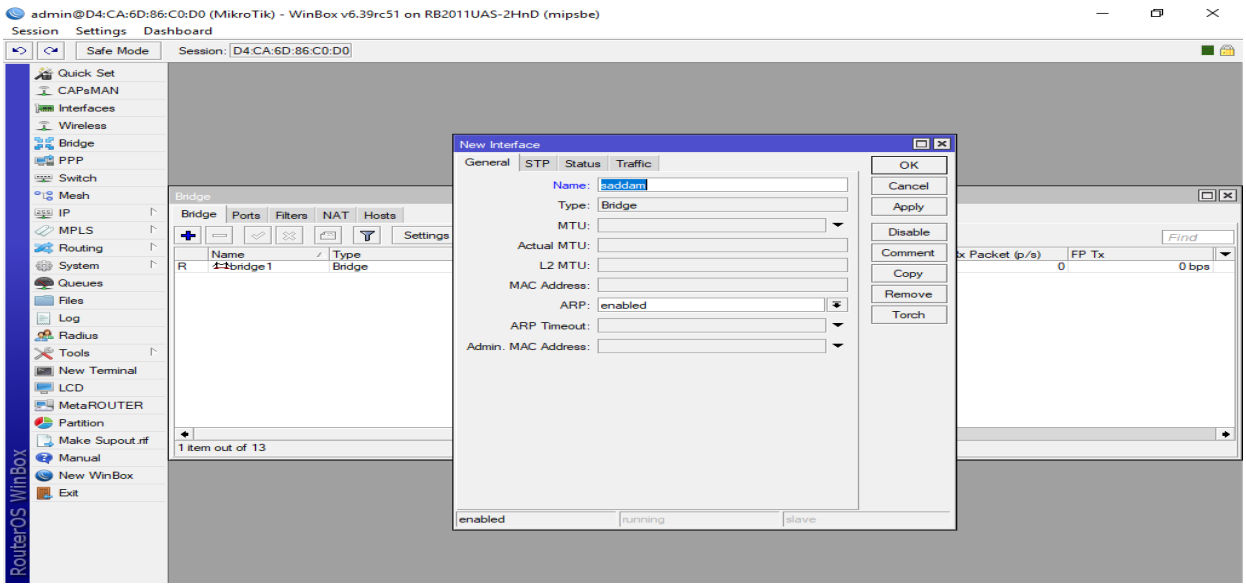

Figure 80: Screen Screenshot of Bridge create name

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➢ Step 2:

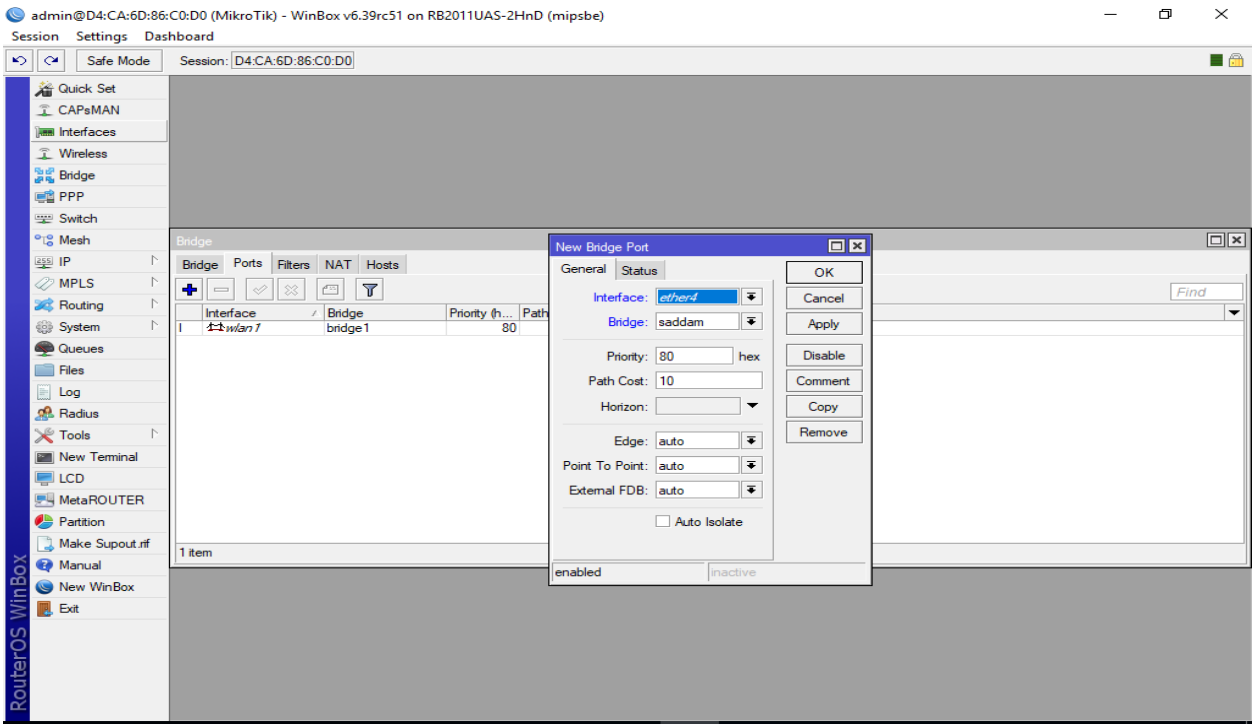

Figure 81: Screen Screenshot of Bridge port WAN assign

➢ Step 3:

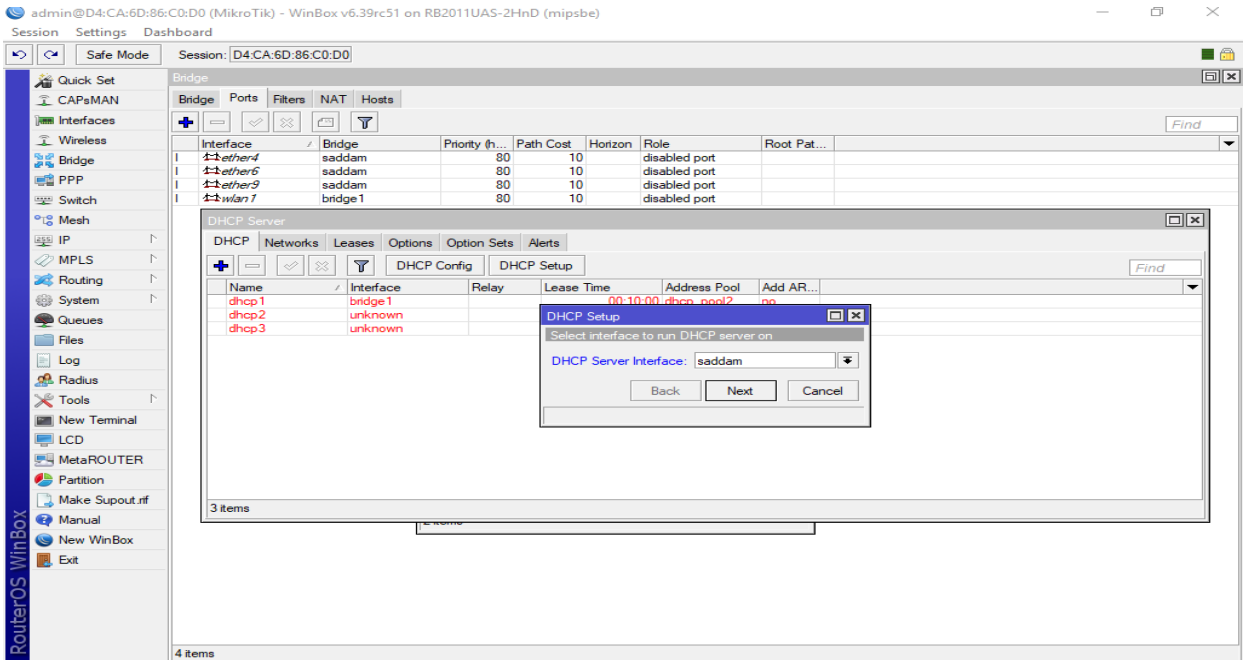

Figure 82: Screen Screenshot of DHCP Setup assign

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➢ Step 4:

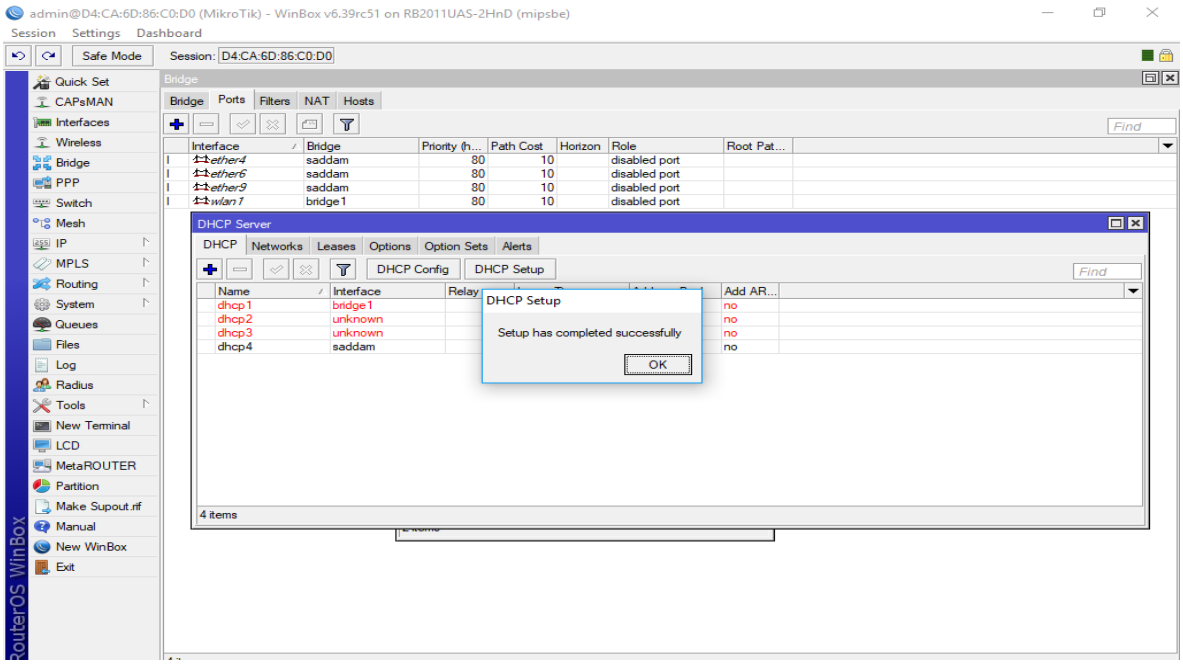

Figure 83: Screen Screenshot of DHCP Setup complete message

3.32 How to be a Site Block Configuration:

➢ Step 1:

Rules of site block:

^. + (facebook.com, youtube.com).*$ this is a rule if we want to block site we have to apply this rules.

Process:

IP click + IP address click + IP assign 172.10.0/24 + Firewall + New firewall 7 Protocol + YouTube name assign + apply ok + New firewall rule + General + source address IP assign 172.10.0/24 + apply ok.

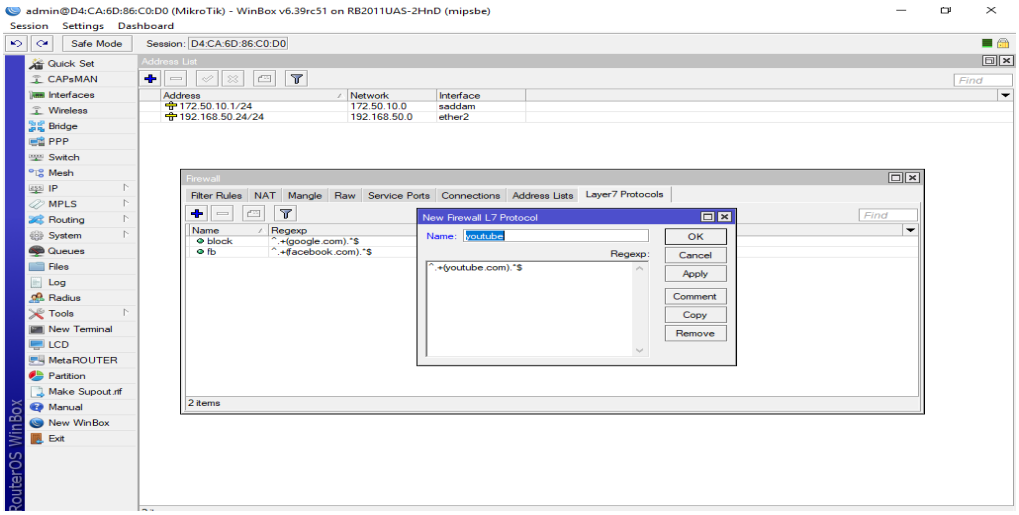

Figure 84: Screen Screenshot of block IP assign and rule create

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➢ Step 2:

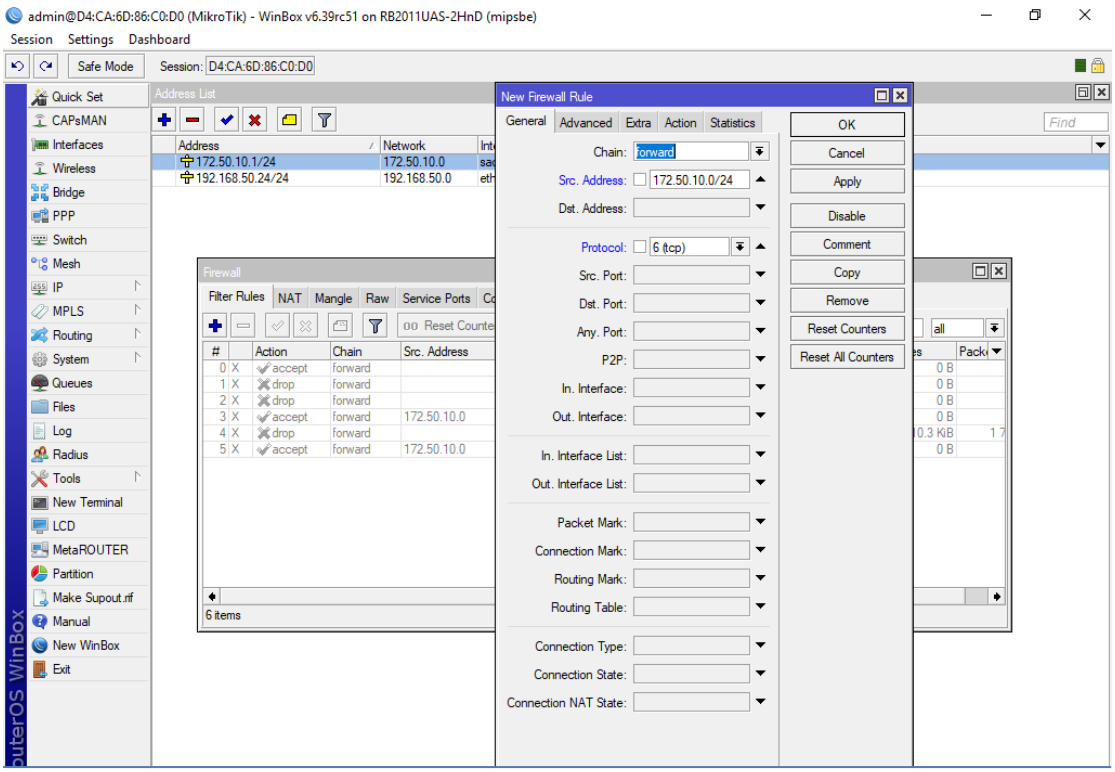

Figure 85: Screen Screenshot of IP Source assign rule create

➢ Step 3:

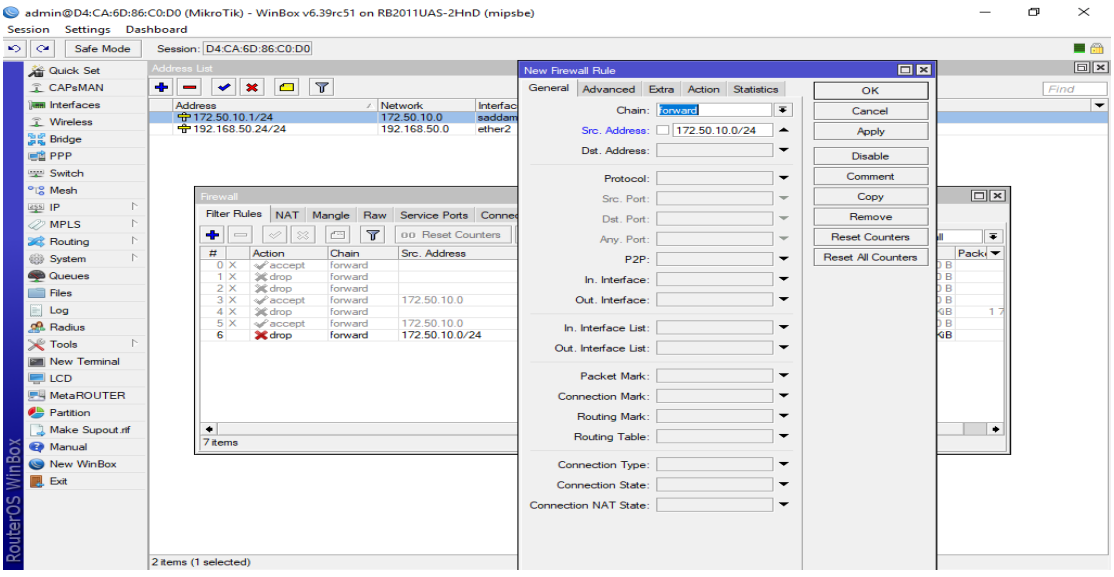

Figure 86: Screen Screenshot of IP drop forward rule create

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➢ Step 4:

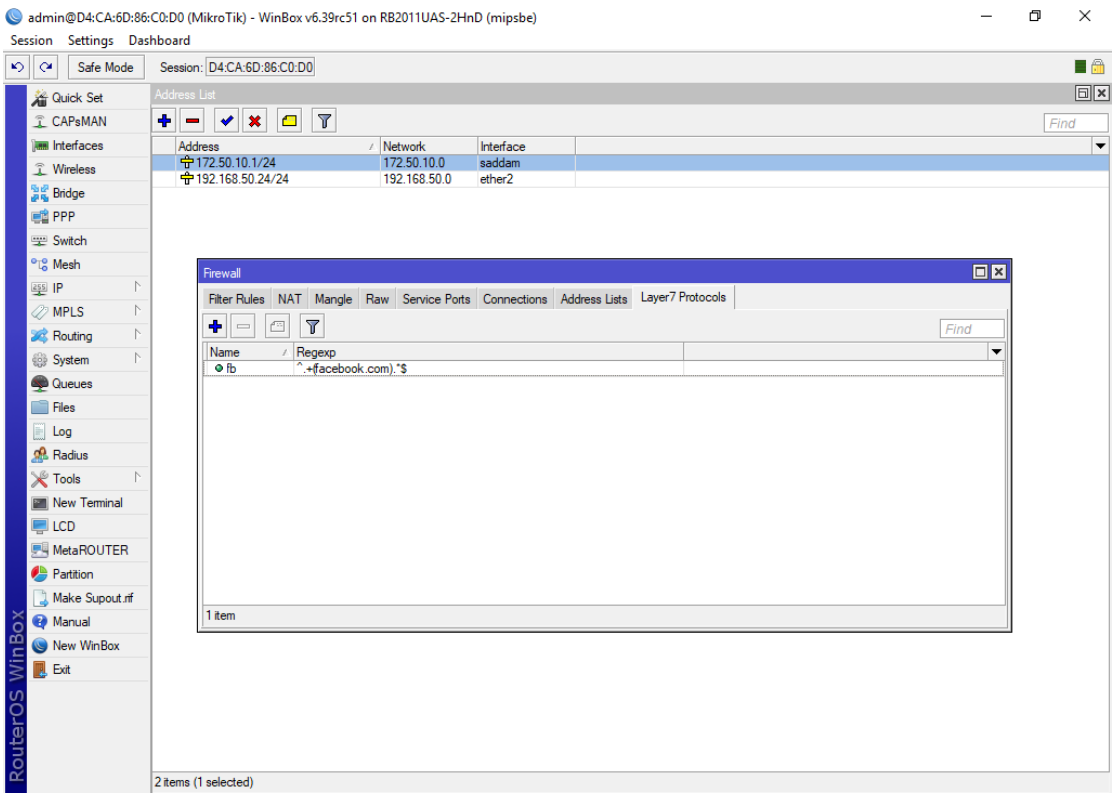

Figure 87: Screen Screenshot of finally output

3.33 Challenges:

Challenges are the best weapon in the engineering sector, If we study an Engineering sector we have to know practical knowledge. After that but four months of my internship experience and to share friends after hearing about the happy hour, I've found that there is some common challenges intern. I think it is that interns three things: unpaid / under, temporary, and they are in a race to gain experience.

Sometimes Not enough work: There's not enough work assigned to me. I'm bored, underutilized, strumming my fingers at my desk and tempted to peruse Facebook.

Too much work: Because interns are just glad to get a foot in the door, some work places may take advantage of young workers by giving them very long hours of dull repetitive work.

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CHAPTER 4:

4.1 Competencies Earned:

Competencies Earned or learning outcome is a statement of what a learner is expected to know, understand or be able to do as a result of a learning process. Install and decommission of both network and server machines at two datacenters. Lead role in advanced Linux software implementations, for example LDAP HA, aligned to program learning outcomes, field and internship evaluations. The Student Association office funds many student Intern Learning Outcomes: Gathering and organizing information into a Internship Project Description: Participate in the redesign of the Linux Lab web site. Learning Outcomes. Install & Configure software and upgrades; Install, configure & test network Employer Services • Furthermore, consistent with the learning outcomes, the Internship On-Site Supervisor will provide an orientation concerning organizational policies and procedures.

4.2 Smart Plan:

Every company should have a smart plan to gain the success. Basically some common things of combination create a smart plan.

4.3 Reflections:

An intern to get the practical experience in the field of engineering. It is help to Increase experience in engineering job. In intern period I learned Linux server. Linux is a popular operating system at Present. I learned hands-on- skill in Linux and security system. This Experience helps me to be a strong applicant in job market.

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CHAPTER 5:
Conclusion and Future Career

5.1 Discussion and Conclusion:

Today is the age of modern science and Information technology, which is critical to the development of more effective operational and management process. To serve customers well, companies need to be proficient in many areas, reduce cycle times, faster development of new business strategies improved customers services, and increase knowledge sharing and learning. IT is a critical but most powerful resource for accomplishing all these goals. Internship is nothing but to go one step ahead is the profession life. Internship is the bridge between theoretical knowledge and practical knowledge. Different kinds of practical experiences were gathered while performing the job during the internship period. During the period of internship there were lots of constrains. That was parts time experience in a job for me. During the last three months that I worked for Variation. I tried my best to get accustomed to the corporate environment and achieve each and every target .

5.2 Scope for Further Career:

Now I am able to maintained a simple Linux server but not easily capable of secure big Linux configure so I wish in future I will capable to service a big Linux server such as data center maintains & I have to learn how a Linux server build securely. I try to my best to learn those for my great future. Career opportunities are available in different areas under Linux. The career opportunities in Linux are mentioning not only the Linux platform.

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References:

[1] About Daffodil online limited (DOL), Available here: http://daffodil.family/business-ventures/ict-ventures/daffodil-online-ltd-dol access on 01 August 2017, 9.00AM.

[2] The career opportunities in Linux, Available here: https://www.techopedia.com/definition/1845/network-file-system-nfs access on 15 August 2017, 1.00PM.

[3] Concepts of Linux network & DNS configure, Available here: https://www.unixmen.com/setting-dns-server-centos-7/, access on 31 August 2017, 2.00PM.

[4] Concepts of LVM Partition, Available here: https://www.routemybrain.com/how-to-setup-logical-volume-manager-lvm-step-by- access on 05 September 2017, 10.00AM.

[5] Understanding about NFS: Available here: https://www.techopedia.com/definition/1845/network-file-system-nfs , access on 25 September 2017, 11.00AM.

[6] Understanding about Root password reset: Available here: https://dzone.com/articles/reset-root-password-centosred, last access on 30 September 2017, 6.00AM.

[7] VSFTPD configures concepts, Available here: https://www.digitalocean.com/community/tutorials/how-to-set-up-vsftpd-on-centos-6--2, access on 05 October 2017, 11.15AM.

[8] Concepts of MikroTik router, Available here: https://mikrotik.com/, last access on 31 October 2017, 6.15AM.

[9] About Static configure, Available here: https://www.youtube.com/watch?v=aee9EJLhJho, last access on 30 November 2017, 8.00AM.

[10] DHCP configure, Available here: https://wiki.mikrotik.com/wiki/Manual:IP/DHCP_Server, last access on 27 December 2017, 12.00PM.

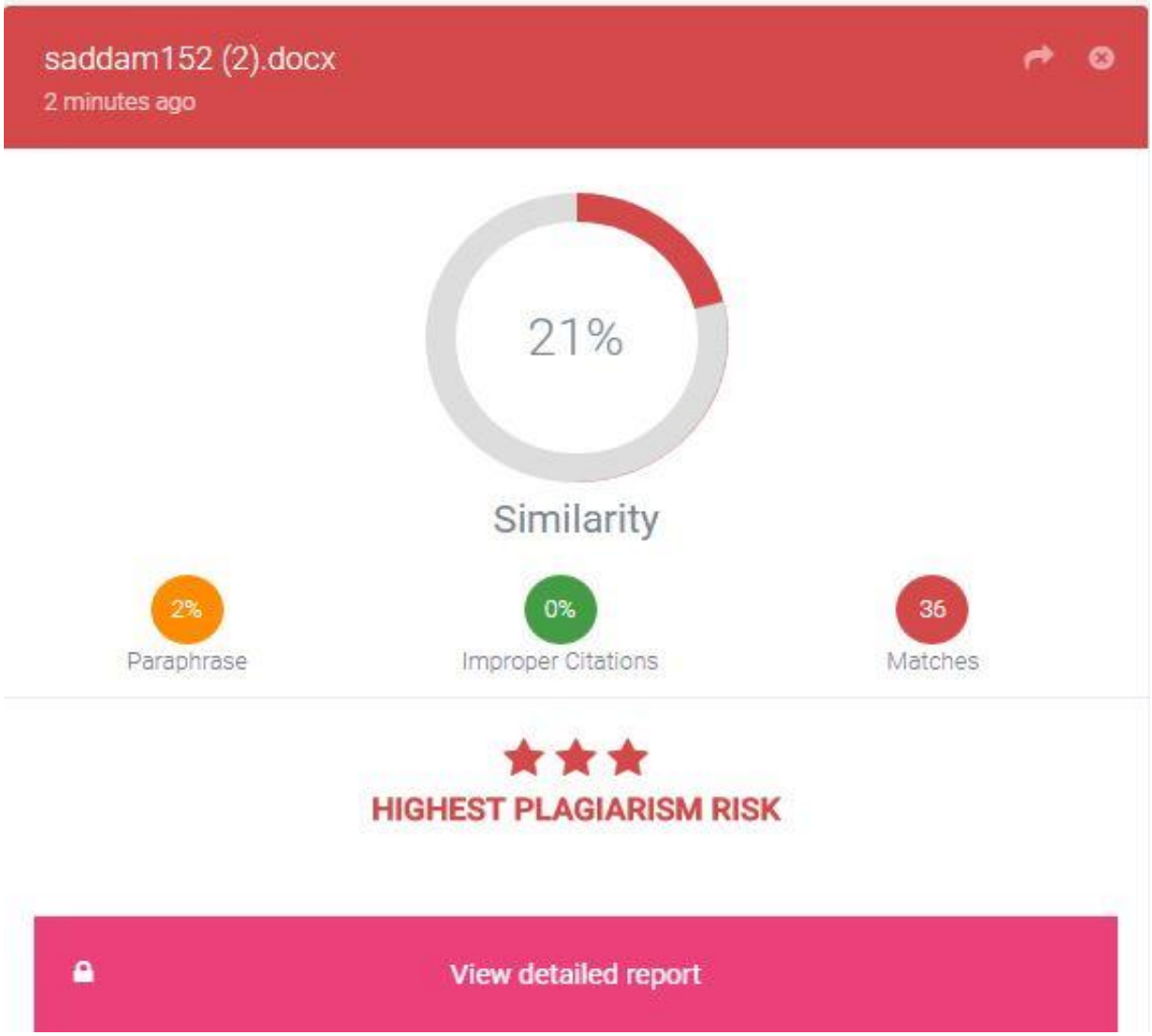
Appendices:

- **Appendix A: Internship Reflection:**

The primary goal of my internship in a professional setting, practical solutions to real-world problems is to apply the knowledge gained in the classroom. And professionally relevant competencies and relationships in a professional setting, learning to deal with new knowledge, skills, and the ability to determine how to sharpen and develop plans. Add to network with other professional's supervisors and professional relationships. I am a professional in the field exposure with clients and professional etiquette and professional supervisors and other employees to learn from watching an understanding of the behavior, as well as to gain through interaction. To fulfill the duties of my internship, I'm exercising proper business etiquette. I am an organization's mission / vision is implemented, how to contact colleagues, how power is shared, how it is structured, how decisions are made, how to understand the culture of a professional organization, and what degree of accountability and feedback to the organization. With an assessment at the end of my internship supervisor and internship experience running through individual meetings provides an opportunity to take a professional opinion. Internship experiences to prepare for life in a global society, leadership and service, my gift to be able to put it to use.

- **Appendix B: Company Detail**

Head Office

Name	Daffodil Online Limited
Address	102, Shukrabad (3rd floor), Mirpur Road, Dhanmondi, Dhaka - 1207, Bangladesh
Telephone	02-9143258-60
Fax	880-2-8116103
E-mail	info@daffodilnet.com
Website	www.daffodilnet.com
Type of Organization	Nationwide Internet Service Provider (ISP)
Employees	12

Plagiarism Test: