

FINAL YEAR INTERNSHIP REPORT ON BASIC LINUX SYSTEM AND MIKROTIK

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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DAFFODIL INTERNATIONAL UNIVERSITY

DHAKA, BANGLADESH

MAY, 2018

APPROVAL

This Internship titled “**Basic Linux System and Mikrotik**”, submitted by Md. Ripon Hossain, ID No: 152-15-6188 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 Bachelor of Science in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on May 2018.

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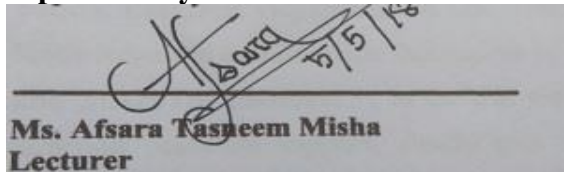
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DECLARATION

I, therefore pronounce that, this temporary position report is finished by me **Md.Ripon Hossain**, **ID No: 152-15-6188** to the division of Computer Science and Engineering, under the supervision of **Ms.Afsara Tasneem Misha** ,Lecturer, Department of CSE Daffodil . International University.

I like wise proclaim neither this temporary job report not any part of this entry level position report has been submitted somewhere else for honor of any Degree or Diploma. I additionally pronounce that, I gather data from daffodil online Limited (DOL),data focus and web access provider(ISP) Based organization.

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I am grateful to **Kazi Mahbubul Alam**, Manager of Daffodil Online Limited. I am also thankful to **Mohammad Abul Basher, System Admin (Network & Training) of Daffodil Online Limited**. Without their consistent help I can't proceed with my temporary job in the organization. Other individuals from the organization helped me hugely to do my entry level position.

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I might want to thank my whole course mate in Daffodil International University, who participated in this examine while finishing the course work. At long last, I should recognize with due regard the consistent help and patients of guardians.

ABSTRACT

In the event that two and more PCs are interconnected and ready to trade information or data then we call network. We want to increase the number of PC's and exchange data or information from one to another that time we need some special PC's are called Server. There is different kind of work in the system that is the reason likewise unique sorts of server have. For Example- FTP Server, Mikrotik ,Firewall, Interfaces, Router, DNS, DHCP, NAT,ARP, and Bridge. Each of them works differently and without them it is difficult to keep up a system. In the event that system is associated with the Internet and we need to secure your data they should setup server utilizing Linux Operating System. That is the reason I pick this subject of my report is "Server Installation and Configuration on ISP (Linux Platform)". The report talked about the reason for the particular server utilizing on ISP, , hardware requirement for the server, choosing software and installation process of the software, step by step server configuration process and simple troubleshooting of the server.

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

This is the time of Information Technology. Presently a day's an extensive number of individuals everywhere throughout the world utilize web innovation and server is an integral part. Linux is conceivably the most imperative free programming accomplishment since the first Space War, or, all the more as of late. We can't do anything identifying with web correspondence without server. So DNS server is imperative for web innovation. Temporary position is an old practice to influence understudies to comprehend the genuine working, condition and difficulties of employments. Therapeutic Science, Engineering and Accounts all branches have their own particular significance of entry level position before degree grant. Today every business and trade is particularly identified with programming based correspondence and web innovation. This is called E-Commerce.

Web Banking, SMS Alert Banking, Mobile Banking, EFT(Electronic Fund Transfer) and so on are impractical without server. DNS (space name framework) is likewise exceptionally helpful server and we can work distinctive sorts of administrations by utilizing this framework. Web innovation, E-mail, E-Business, Telecommunication, Mobile innovation and so forth are unrealistic without server and DNS is one of them. Today, Banking industry and different business association absolutely relies on various kinds of Software and Online Technology and Server is extremely fundamental. ATM Technology(Switching Software), Banking Software, Debit Card, Credit Card, Online Transaction and so on are particularly relies on Software and diverse sorts of Server and Linux is one of them. It has formed into a working framework for business, instruction, and individual profitability.

1.2 Objectives

Extreme target of my entry level position program is to set myself up as a qualified one in the aggressive activity showcase. So this is extremely viable of aptitude advancement. I might want to accumulate some unprecedented quality to give myself as gifted one. The temporary position

in software engineering is intended to give work understanding while understudies is still in school, to organize work involvement with scholastic preparing, and to help understudy to make the progress from classroom to work .

1.3 Motivation

I am right now seeking after my Bachelors in Computer Science Engineering at Daffodil International University, I comprehend the significance of increasing pragmatic information which will supplement the course book learning and enable an understudy to pick up a more extensive point of view of the subjects. Amid the temporary job I have discovered that I am flawlessly gifted in the subtle elements of Linux system and server administration and mikroTik. As a web access provider I've expressing what is on my mind extremely well, speaking with individuals, understanding their needs and giving them better administration. My aptitudes lie in my capacity to extensively read and comprehend the circumstance and act rapidly but then shrewdly.

1.4 Internship Goals

I will likely guarantee each assistant has an astounding objectives are to give a protected work condition, proficient advancement. Commonality with UNIX shell and a Linux server condition. The objective was to connect with understudies in open source ventures. My objectives are to give a protected workplace. Know everything about Linux organization, from servers to establish we'll talk about the correct learning objectives of the temporary job, and make an arrangement. Today, most association utilizes Linux activity framework .Linux working framework is one open source working framework. As a matter of fact Linux working framework utilized for server design. Theoretically, Linux is viewed as the world most capable, adaptable what's more, strong server based working framework

1.5 Report Layout

Chapter-1 described objective of internship, motivation of internship and internship goal.

Chapter-2 covered the methodology of my internship and company enterprise. In

Chapter-3 shown training attended, assigned responsibilities, Linux basic command and described about different type of routing setup (DHCP, DNS, BRIDGE, NAT)

Chapter-4 described internship outcomes.

Chapter-5 describe about my report conclusion and future scope of Linux and mikrotik.

CHAPTER 2

Internship Enterprise

2.1 About the Company

The temporary job undertaking where I have taken my Training is Daffodil Online Ltd. Daffodil Online Ltd. prides itself as one of the main ISP Service Provider in Bangladesh. It is the most experienced and most established organization in the ICT field where its fundamental business morals is Long Tern Relationship with the clients. As it take a gander at the development throughout the decade since its commencement, they are greatly glad for what they have accomplished, and significantly more amped up for their standpoint for a similarly encouraging future. It might satisfy you to realize that they began their activity in the year 2002. Amid the previous years, they expanded their task and administration portfolio as indicated by the customer's suggestion and thinking about requests of time. They worked with numerous national undertakings and universal associations and accomplished the notoriety. They are utilizing the most recent advancements and redesigning the administrations wherever it is required. Their Corporate Network Solution division is proficient to give state- of-workmanship system and media transmission arrangements with an exceedingly productive specialized mastery gathering [3]

2.2 IT Services Offered

Daffodil Online Ltd provides different It Services and Professional Training Services. These are given below:

- a) Corporate Internet Solution.
- b) Security Solution
- c) Domain Registration & web Hosting
- d) Web site Development
- e) Professional Courses & Training
- f) Open Source application solution
- g) Internet service provider.

2.3 Roles in Job Market

Bangladesh is an appropriately populated creating nation and defining its Goals to be Digital inside 2021. So every segment and each association of our nation should be digitalized. So an enormous number of IT master and IT experts are required amid the following couple of years. So Daffodil Online Ltd. Assuming an imperative part in the activity showcase by giving different administrations like:

- Internet Solution
- Security assurance
- Web Site Development
- Creating IT master by giving proficient Training
- Marketing and Communications.
- Providing Different Technological Support to the Nations.
- Providing Different Online Services for the Users
- Providing Support for server Installation System Development.

So eventually I can state that Daffodil Online Ltd. Assuming a key part in the IT based work advertise.

CHAPTER 3

Internship Roles and Responsibilities

3.1 Training Attended

The temporary job undertaking where I have taken my Training is Daffodil Online Ltd. Daffodil Online Ltd. prides itself as one of the main ISP Service Provider in Bangladesh. It is the most experienced and most established organization in the ICT field where its fundamental business morals is Long Tern Relationship with the clients. As it takes a gander at the development throughout the decade since its commencement, they are greatly glad for what they have accomplished and significantly more amped up for their standpoint for a similarly encouraging future. It might satisfy you to realize that they began their activity in the year 2002. Amid the previous years, they expanded their task and administration portfolio as indicated by the customer's suggestion and thinking about requests of time. They worked with numerous national undertakings and universal associations and accomplished the notoriety. They are utilizing the most recent advancements and redesigning the administrations wherever it is required. Their Corporate Network Solution division is proficient to give state- of-workmanship system and media transmission arrangements with an exceedingly productive specialized

Mastery gathering Month - 1 In the first month of internship on daffodil online limited I have learned and performed the following tasks:

- Learning & understanding About Network Components.
- Learning & understanding Basics of Linux.
- Understanding Linux HDD Partitions.
- Learning & understanding Linux Run Level.
- Linux Installation.
- Basic Centos Commands.

- Linux User and Password Management.

- Know About logged in users.

Month - 2 In the second month of internship on daffodil online limited I have learned and performed the following tasks:

- File and Directory Accessing.

- To Copy and Move File and Directories.

- File and Directory Permissions.

- Concept of IP Addressing.

- Configuring IP Address in CentOS.

Month – 3 The last month of internship on daffodil online limited I have learned and performed the following tasks:

- IP addressing

- subnetting

- configuring FTP Server.

- Cisco

- VLAN

- Switching configure

Month – 4 The last month of internship on daffodil online limited I have learned and performed the following tasks:

- MikroTik

- Firewall

- ARP

- Backup and Monitoring

3.2 Assigned Responsibilities

In an education sector, skilled & experienced teachers are the most important issues to provide quality education. DOL never compromise in this regard. In order to have the best teachers, DOL

maintains a systematic approach. First, the candidates have to sit for a written test, then an interview is taken. At last, the candidate has to give 2/3- demonstration class from which we take the feedback from the students. And finally, the candidate is selected or rejected. We always give emphasis on the candidate.

3.3 Performed Tasks

For ensuring sustainable development in society we must think to develop the human capital to address the challenges of 21st Century and education is one of the best weapons to fight poverty and inequality. Since its inception, Daffodil Online Ltd. Is working for developing and transmitting new skills and knowledge in Technical and vocational education and providing the competences and tools necessary for 21st Century job market. So, at last Daffodil Online Ltd. are producing technical expert for IT sector for home and abroad.

3.4 LINUX

Linux is a working framework that advanced from a piece made by Linux Torvalds when he was an understudy at the University of Helsinki. For the most part, it is evident to most individuals what Linux is. Be that as it may, both for political and functional reasons, it should be clarified further. To state that Linux is a working framework implies that it's intended to be utilized as a contrasting option to other working frameworks, Windows, Mac OS, MS-DOS, Solaris and others. Linux isn't a program like a word processor and isn't an arrangement of programs like an office suite. Linux is an interface between PC/server equipment, and the projects which keep running on it . The Linux open source working framework, or Linux OS, is an unreservedly distributable, cross-stage working framework in view of Unix that can be introduced on PCs, PCs, netbooks, versatile and tablet gadgets, computer game consoles, servers, supercomputers and the sky is the limit from there. The Linux OS is every now and again bundled as a Linux conveyance for both work area and server utilize, and incorporates the Linux part (the center of the working framework) and also supporting apparatuses and libraries. Well known Linux OS appropriations incorporate Centos, Debian, Ubuntu, Fedora, Red Hat and opens USE [1]

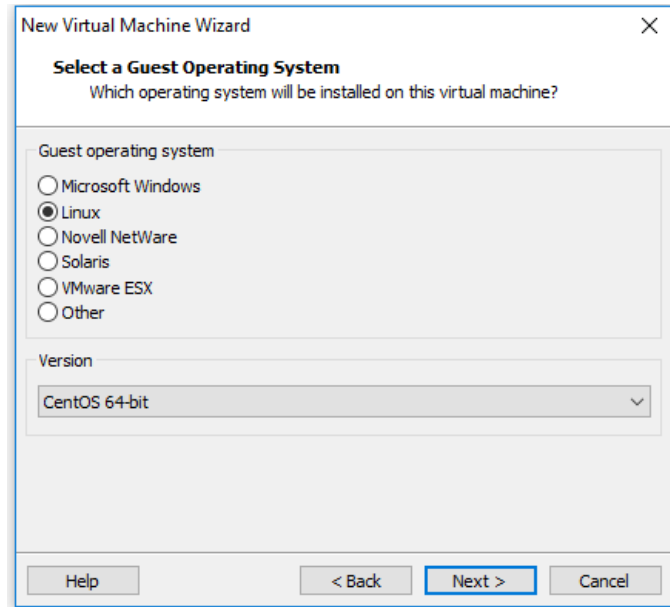


Figure 3.1: Shows in Linux installation process

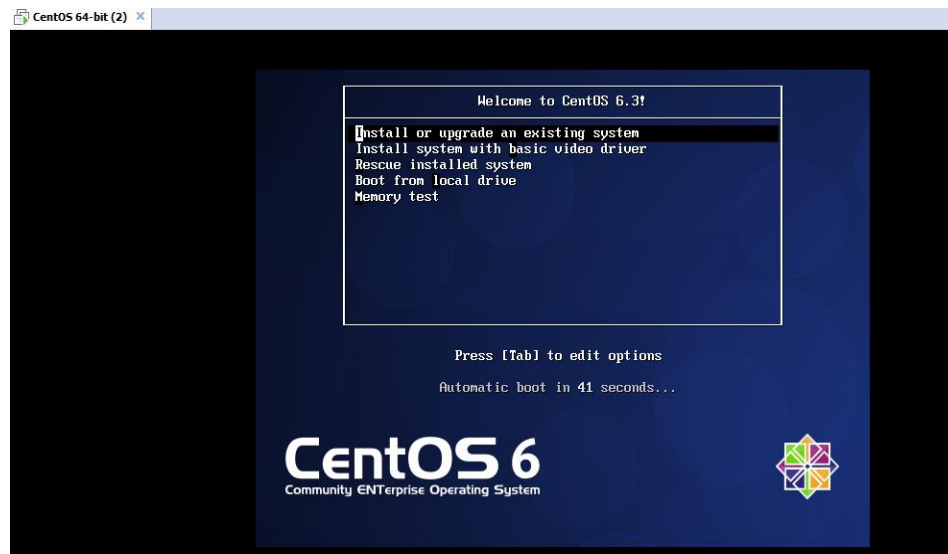
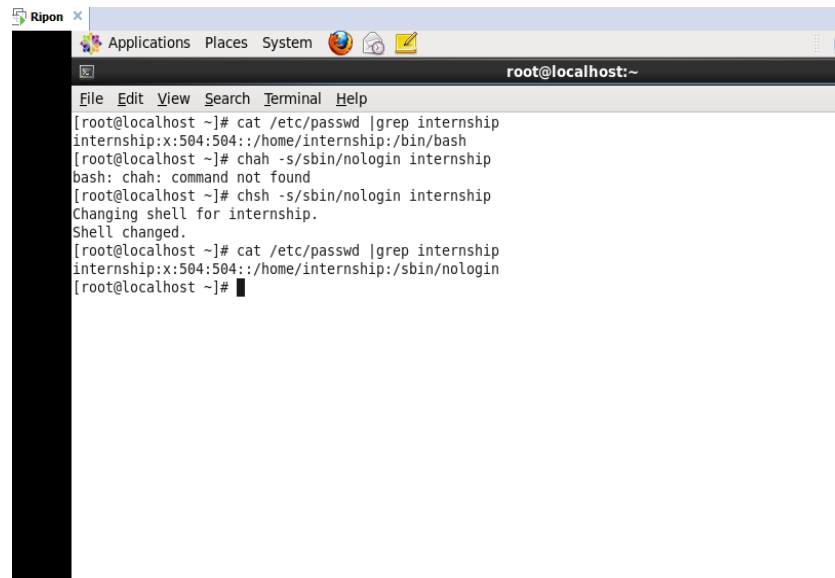


Figure 3.2: Shows in centos install process

3.4.1 Linux Kernel, Shell & Shell Script

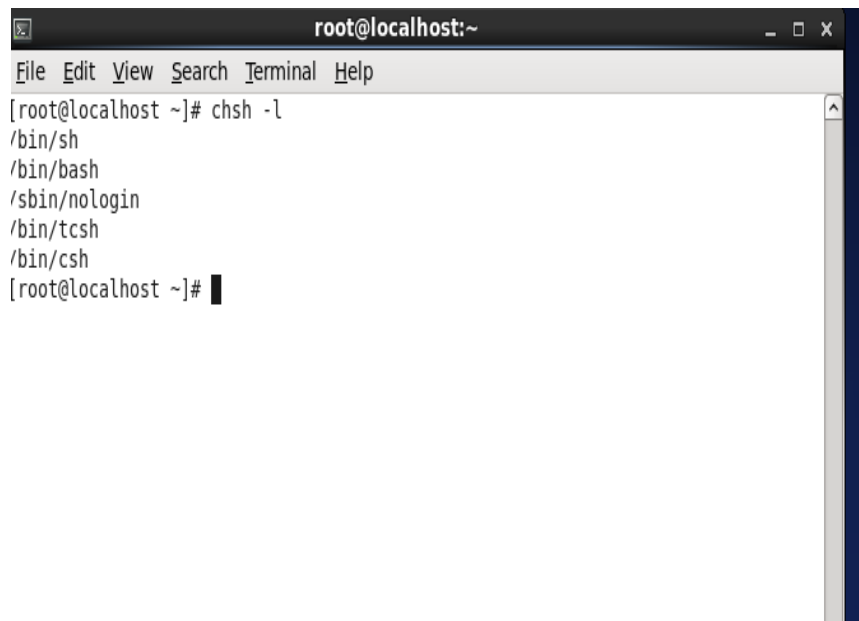
Piece is utilized as a part of UNIX like frameworks and is thought to be the core of the working framework. It is in charge of correspondence amongst equipment and programming parts. It is basically utilized for dealing with the frameworks assets also .Linux shell is a UI utilized for executing the orders. Shell is a program the client utilizes for executing the summons. In UNIX,

any program can be the clients shell. A shell content, as the name recommends, is a content composed for the shell. Content here means a programming dialect used to control the application. The shell content permits distinctive orders entered in the shell to be execute[2]



```
File Edit View Search Terminal Help
[root@localhost ~]# cat /etc/passwd |grep internship
internship:x:504:504:./home/internship:/bin/bash
[root@localhost ~]# chah -s/sbin/nologin internship
bash: chah: command not found
[root@localhost ~]# chsh -s/sbin/nologin internship
Changing shell for internship.
Shell changed.
[root@localhost ~]# cat /etc/passwd |grep internship
internship:x:504:504:./home/internship:/sbin/nologin
[root@localhost ~]#
```

Figure 3.3: Shows Screen Print shell changes



```
File Edit View Search Terminal Help
[root@localhost ~]# chsh -l
/bin/sh
/bin/bash
/sbin/nologin
/bin/tcsh
/bin/csh
[root@localhost ~]#
```

Figure 3.4: Shows Screen Print another shell

3.4.2 Files and Directories

A directory is a collection of files and/or other directories. Because a directory can contain other directories, we get a directory hierarchy. The top level of the hierarchy is the root directory. Files and directories can be named by a path. The root directory is referred to as /. Other directories are referred to by the path. The path consists of names separated by /. A file can also be referred to by the path. If it is directory, then the path may end with a /. An absolute path starts at the root of the directory hierarchy and names directories or files under it. For example: /etc/hostname The above refers to a file hostname which is in the etc directory under the root (/) directory[4]

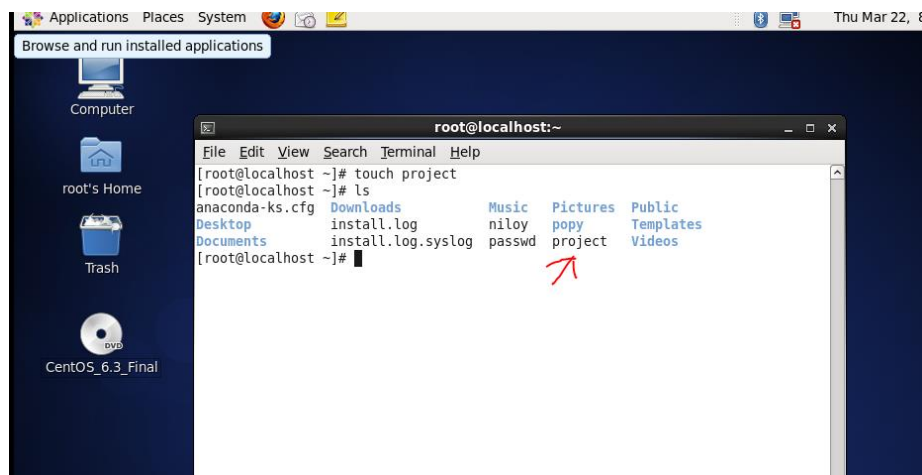


Figure 3.5: Shows Screen Print create of file

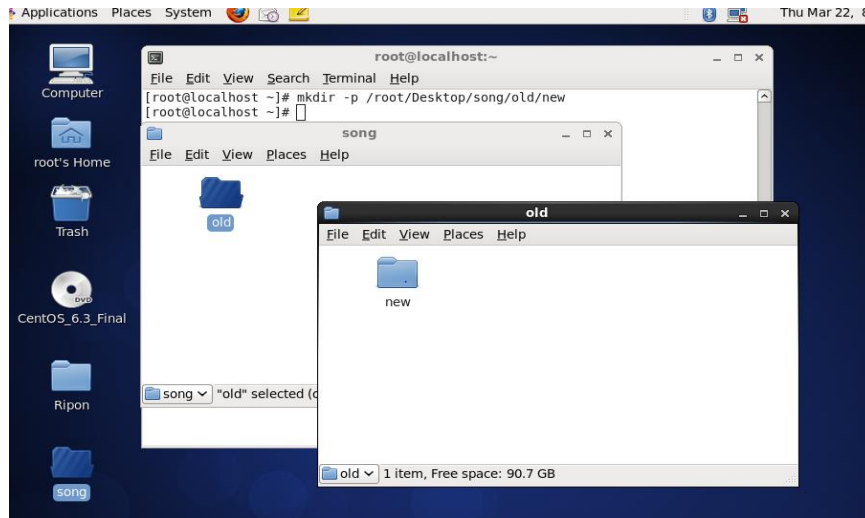


figure 3.6: Shows Screen Print create of many file

3.4.3 Creating Linux Partition

Creating Linux in Partition

For Installation of Linux we have to create at least 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.

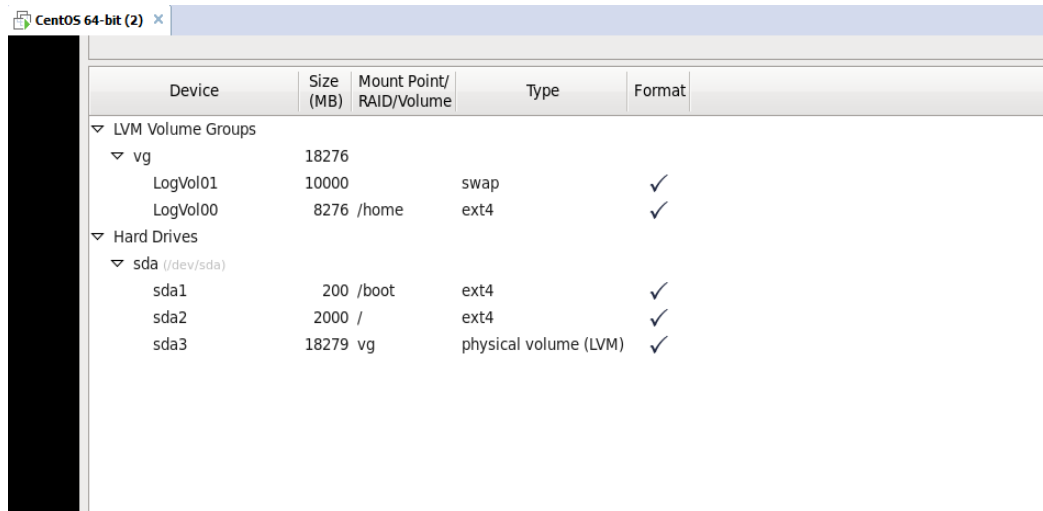
Boot Partition: /boot

The partition boot (200 MB): the partition mounted on /boot/ contains the operating system kernel (which allows your system to boot Linux), 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

The partitions swap is used to support virtual memory. In other words, 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 be less than 32 MB [5]



Device	Size (MB)	Mount Point/RAID/Volume	Type	Format
LVM Volume Groups				
vg	18276			
LogVol01	10000		swap	✓
LogVol00	8276	/home	ext4	✓
Hard Drives				
sda (/dev/sda)				
sda1	200	/boot	ext4	✓
sda2	2000	/	ext4	✓
sda3	18279	vg	physical volume (LVM)	✓

Figure 3.7: Shows Screen Print partition of Linux

3.4.4 User Create and Password Management

Adding a user = `useradd internship(username)`.

Set a Password to New User = `passwd internship(username)`.

Password Disable/Remove = `passwd -d internship(username)`.

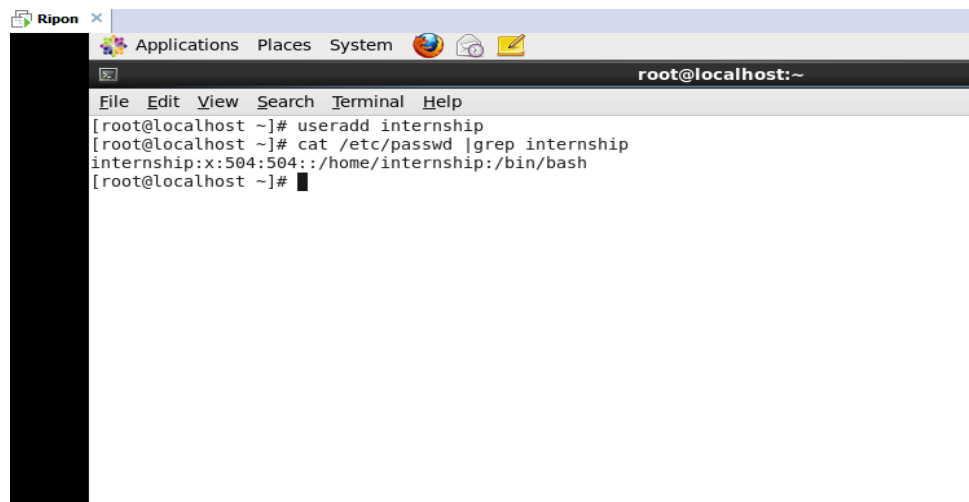
Verify user information = `finger internship (username)`.

Locking an account = `passwd -l internship(username)`.

Unlock an account = `passwd -u internship(username)`.

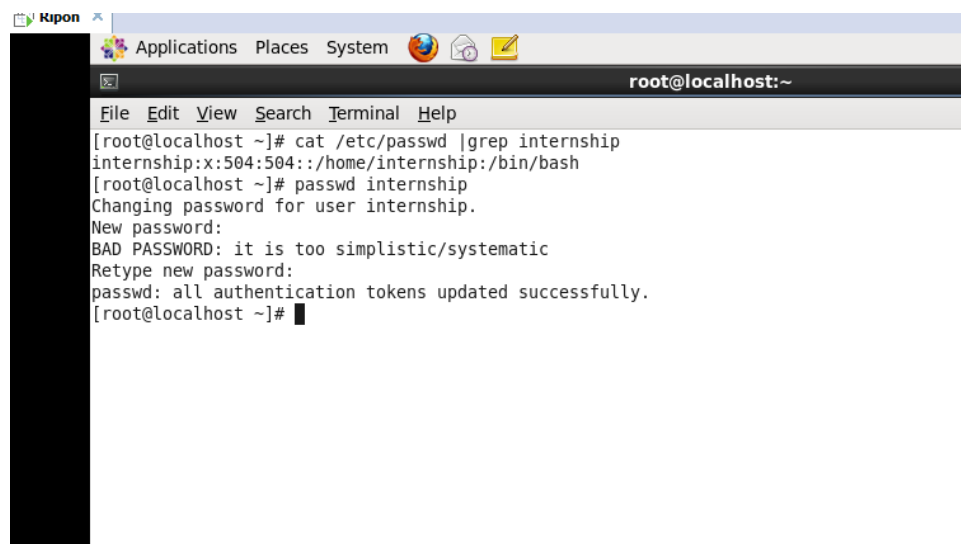
Delete a user = `userdelinternship(username)`.

Delete a user with home directory = `userdel -r internship(username)`.



```
Ripon x
Applications Places System
root@localhost:~
File Edit View Search Terminal Help
[root@localhost ~]# useradd internship
[root@localhost ~]# cat /etc/passwd |grep internship
internship:x:504:504:./home/internship:/bin/bash
[root@localhost ~]#
```

Figure 3.8: Shows Screen Print create of user



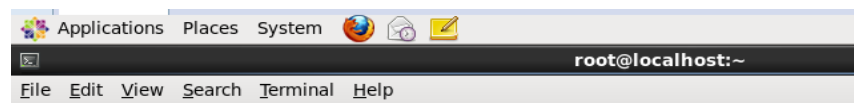
```
Ripon x
Applications Places System
root@localhost:~
File Edit View Search Terminal Help
[root@localhost ~]# cat /etc/passwd |grep internship
internship:x:504:504:./home/internship:/bin/bash
[root@localhost ~]# passwd internship
Changing password for user internship.
New password:
BAD PASSWORD: it is too simplistic/systematic
Retype new password:
passwd: all authentication tokens updated successfully.
[root@localhost ~]#
```

Figure 3.9: Shows Screen Print set of password

3.4.5 File Edit Tools (Vi and vim Editor)

- Adding a user : `useradd project`
- Set a password to new user : `passwd project`
- Change root password : `passwd`

- Password Disable/Remove : `passwd- d project`
 - Verify user information : `finger project`
 - Locking an account : `passwd- l project`
 - Unlock an account : `passwd- u project`
 - Create a user under a directory : `adduser -d /var -m tayab`
 - Give a comments to a new user : `adduser -c "student of DIU" student1`
 - Modify user comments : `usermod -c "Linux Student" student1`
 - Read a file : `cat filename cat /etc/passwd`
 - Delete a user : `userdel student1`
 - Delete a user with home directory : `userdel -r student`
- To know status of the password: `passwd -s project`



```
[root@localhost ~]# project vim
bash: project: command not found
[root@localhost ~]# vim project
[root@localhost ~]# █
```

Figure 3.10: Shows Screen Print edit of file



```
[root@localhost ~]# project vim
bash: project: command not found
[root@localhost ~]# vim project
[root@localhost ~]# cat project
i am Ripon hossain
My id is 152-15-6188
My departmen of cse
daffodil international unversity
[root@localhost ~]#
```

Figure 3.11: Shows Screen Print writes of file.

3.4.6 Install/Update/Remove Packages in Centos

- Install a package using yum install

Yum install (package name)

e.g. yum insallmysql

- Uninstall a package using yum

yum remove (package name)

e.g yum remove mysql

- Update a package using yum

yum update (package name)

e.g yum update firefox

- Search a package using yum

yum search (package name)

e.g yum search firefox

- Display Additional Information about a Package

yum info (package name)

e.g yum info firefox

- View All Available Package

yum list | less

- View Already Installed Package

yum list installed

- List of all available software group

yum grouplist

- Install a specific soft group

yum groupinstalldnserver

3.4.7 FTP Server (File Transfer Protocol)

The File Transfer Protocol (FTP) is a standard system convention used to exchange PC documents starting with one host then onto the next host over a TCP-based system, for example, the Web. A Simple Network with FTP Server appeared in Figure 3.12. FTP is based on a customer server engineering and uses isolate control and information associations between the customer and the server. FTP clients may verify themselves utilizing an unmistakable content sign-in convention, ordinarily as a username and secret word, yet can interface namelessly if the server is designed to permit it. For secure transmission that ensures the username and secret key, and encodes the substance, FTP is frequently secured with SSL/TLS (FTPS). SSH File Transfer Protocol (SFTP) is now and again likewise utilized rather, yet is innovatively unique[6]

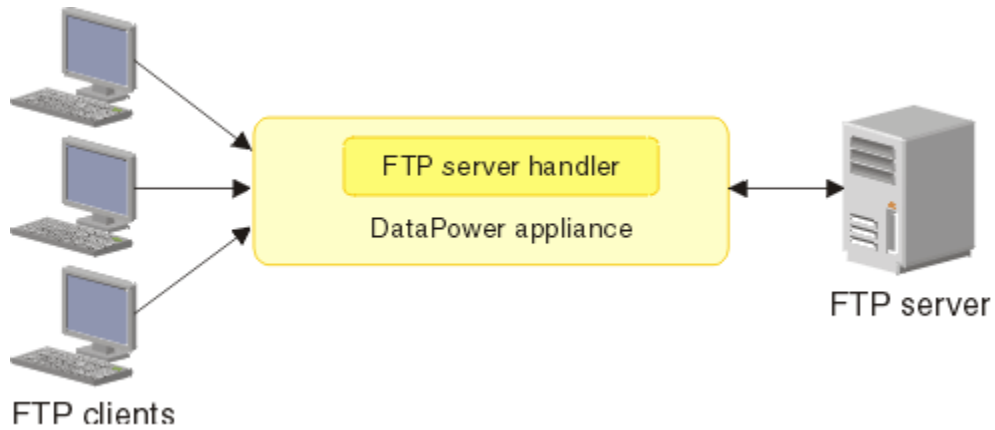


Figure 3.12: Simple Network with FTP Server

Step 1 At first I have to install yum and the command is given below: yum install vsftpd

```
[root@localhost Desktop]# yum install vsftpd*
Loaded plugins: fastestmirror, refresh-packagekit, security
Loading mirror speeds from cached hostfile
 * base: mirror.dhakacom.com
 * extras: mirror.dhakacom.com
 * updates: mirror.dhakacom.com
base | 3.7 kB | 00:00
extras | 3.4 kB | 00:00
updates | 3.4 kB | 00:00
Setting up Install Process
Package vsftpd-2.2.2-24.el6.x86_64 already installed and latest version
Nothing to do
[root@localhost Desktop]#
```

Figure 3.13: Screen print of a Yum installation

Step 2 Now I write vi editor and the command is vi /etc/vsftpd/vsftpd.conf Then press Enter key.

```
root@localhost:~/Desktop
File Edit View Search Terminal Help
DEVICE=eth0
HWADDR=00:0c:29:8e:82:95
TYPE=Ethernet
UUID=1914e4d8-7fb0-49cb-bb3e-f80de4d5db8a
ONBOOT=yes
NM_CONTROLLED=yes
IPADDR=192.168.50.235
NETMASK=255.255.255.0
GATEWAY=192.168.50.1
BOOTPROTO=static
~
~
~
```

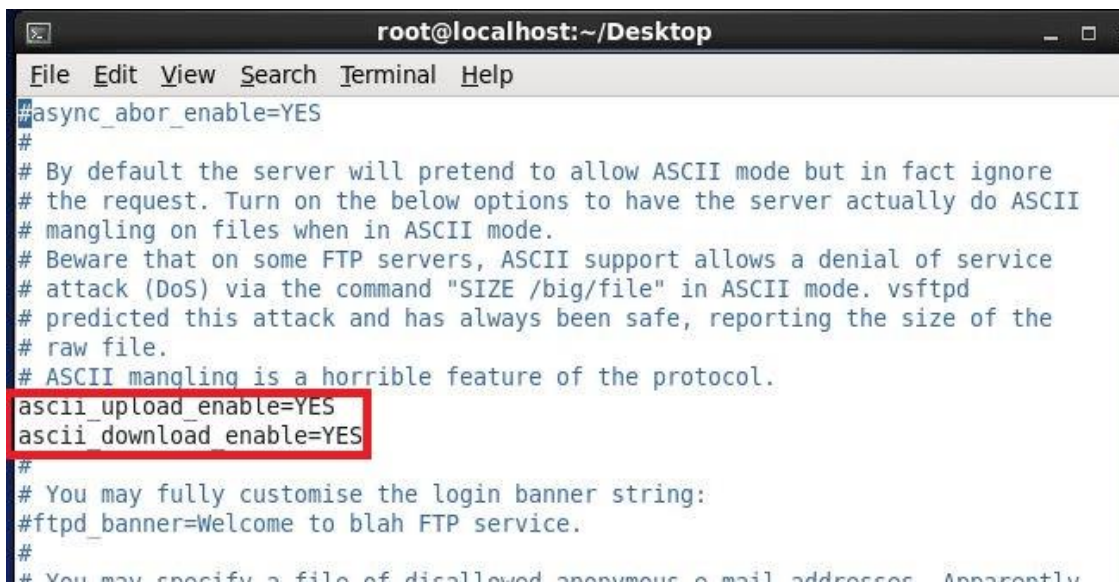
Figure 3.14: Screen print of a Vi Configuration

Step 3 I have to press on Esc button and write the command Then show this page .When change the line .Here I have to remove YES and write NO and save the pag

```
Example config file /etc/vsftpd/vsftpd.conf
#
# The default compiled in settings are fairly paranoid. This sample file
# loosens things up a bit, to make the ftp daemon more usable.
# Please see vsftpd.conf.5 for all compiled in defaults.
#
# READ THIS: This example file is NOT an exhaustive list of vsftpd options.
# Please read the vsftpd.conf.5 manual page to get a full idea of vsftpd's
# capabilities.
#
# Allow anonymous FTP? (Beware - allowed by default if you comment this out).
anonymous_enable=NO
#
# Uncomment this to allow local users to log in.
local_enable=YES
#
# Uncomment this to enable any form of FTP write command.
write_enable=YES
#
# Default umask for local users is 077. You may wish to change this to 022,
# if your users expect that (022 is used by most other ftpd's)
local_umask=022
#
```

Figure 3.15: Screen print 12 line of a anonymous enable No

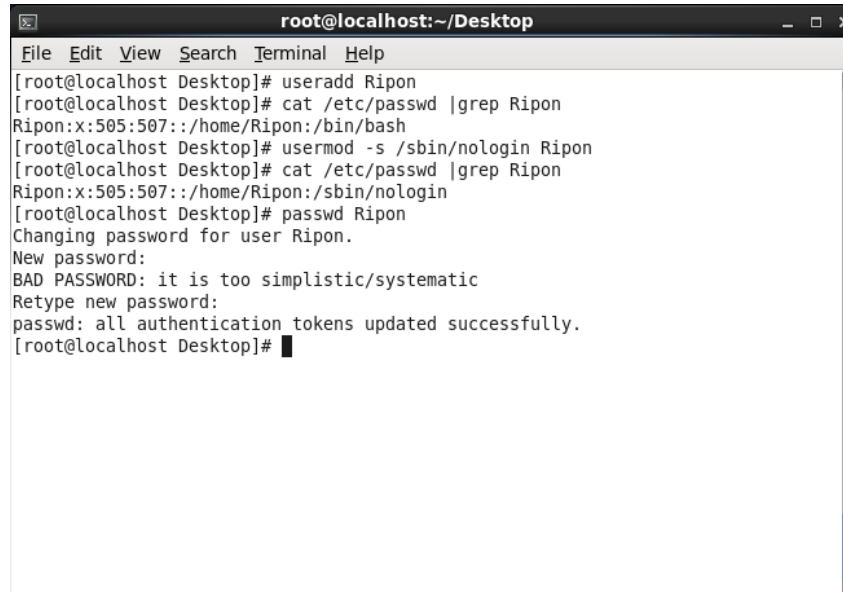
Step 4 I have to press on Esc button and write the command ascii upload and download enable=yes Then show this page. Press Enter key. Save this page.



```
root@localhost:~/Desktop
File Edit View Search Terminal Help
# async_abor_enable=YES
#
# By default the server will pretend to allow ASCII mode but in fact ignore
# the request. Turn on the below options to have the server actually do ASCII
# mangling on files when in ASCII mode.
# Beware that on some FTP servers, ASCII support allows a denial of service
# attack (DoS) via the command "SIZE /big/file" in ASCII mode. vsftpd
# predicted this attack and has always been safe, reporting the size of the
# raw file.
# ASCII mangling is a horrible feature of the protocol.
ascii_upload_enable=YES
ascii_download_enable=YES
#
# You may fully customise the login banner string:
#ftpd_banner=Welcome to blah FTP service.
#
# You may specify a file of disallowed anonymous e-mail addresses. Apparently
```

Figure 3.16: Screen print of ascii upload and download enable

Step 5 Then user create and password set



```
root@localhost:~/Desktop
File Edit View Search Terminal Help
[root@localhost Desktop]# useradd Ripon
[root@localhost Desktop]# cat /etc/passwd |grep Ripon
Ripon:x:505:507:./home/Ripon:/bin/bash
[root@localhost Desktop]# usermod -s /sbin/nologin Ripon
[root@localhost Desktop]# cat /etc/passwd |grep Ripon
Ripon:x:505:507:./home/Ripon:/sbin/nologin
[root@localhost Desktop]# passwd Ripon
Changing password for user Ripon.
New password:
BAD PASSWORD: it is too simplistic/systematic
Retype new password:
passwd: all authentication tokens updated successfully.
[root@localhost Desktop]#
```

Figure 3.17: Screen print create user and password set

Step 6 Now I restart service and the command is service network restart then press Enter key

```
[root@localhost ~]# service NetworkManager status [ OK ]
NetworkManager (pid 1405) is running...
[root@localhost ~]# service NetworkManager stop [ OK ]
Stopping NetworkManager daemon:
[root@localhost ~]# check NetworkManager off
bash: check: command not found
[root@localhost ~]# check NetworkManager off
bash: check: command not found
[root@localhost ~]# chack NetworkManager off
bash: chack: command not found
[root@localhost ~]# check Networkmanager off
bash: check: command not found
[root@localhost ~]# chkconfig NetworkManager off
[root@localhost ~]# service NetworkManager status
NetworkManager is stopped
[root@localhost ~]# service network restart [ OK ]
Shutting down interface eth0: [ OK ]
Shutting down loopback interface: [ OK ]
Bringing up loopback interface: [ OK ]
Bringing up interface eth0: [ OK ]
[root@localhost ~]#
```

Figure 3.18: Screen print of a service network restart

Step 7 Then I have to open browser and given ftp://192.168.50.235 and show this page. Here I have to write user name and password.

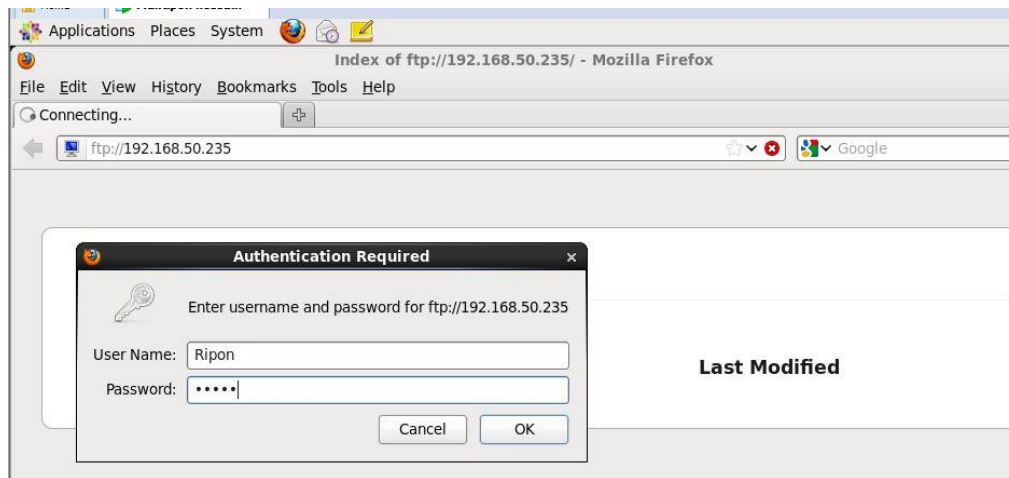


Figure 3.19: Screen print of a User Name and Password

3.4.8 DHCP Configuration

DHCP or Dynamic Host Control Protocol is also featured by MikroTik RouterOS. DHCP is used for the easy distribution of IP address in a local area network. The DHCP server includes both server and client parts. DHCP relay, DHCP client, multiple DHCP networks, static and dynamic DHCP leases, RADIUS support.

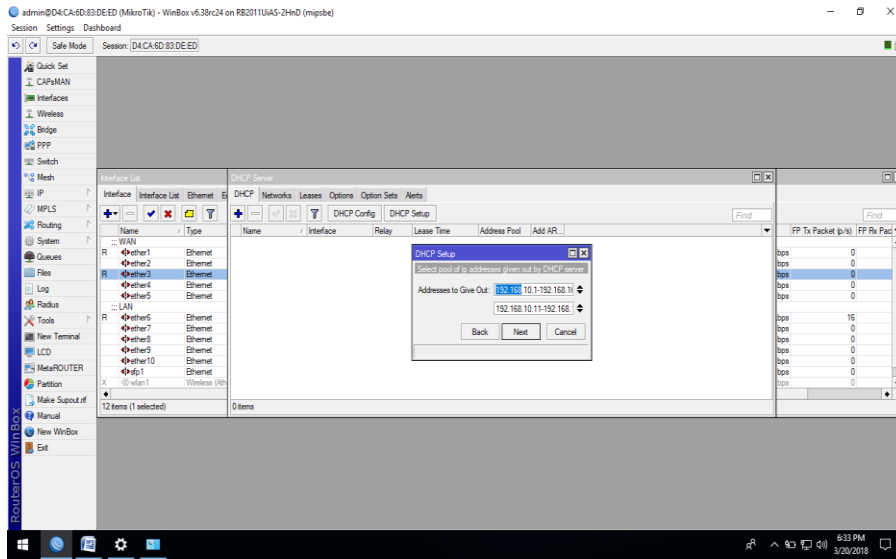


Figure 3.20: Shows Screen Print setup of DHCP

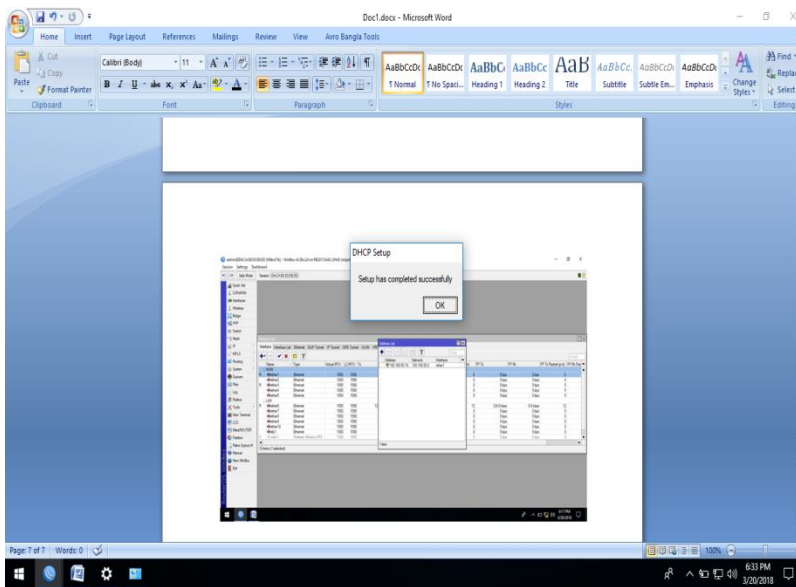


Figure 3.21: Shows Screen Print successfully of DHCP setup

3.4.9 Interface Configuration

After complete installation of MikroTik RouterOS, the next thing we need to do is configure interface. For this power on the virtual machine and provide password (if password configured

otherwise keep blank the password field). Then type the following command "ip address add address=192.168.50.10/24 interface=ether1". So the interface ether1 will have IP address 192.168.50.1 for router connectivity. We can configure ether1 IP from winbox but makes trouble in connection between winbox and MikroTik Router. In real ether1 is configuring with public IP address. Figure will give a clear view. Now it's ready to access router via "winbox". To connect with MikroTik Router use ether1 IP address in 'Connect To' field and Login as admin. Then provide password in

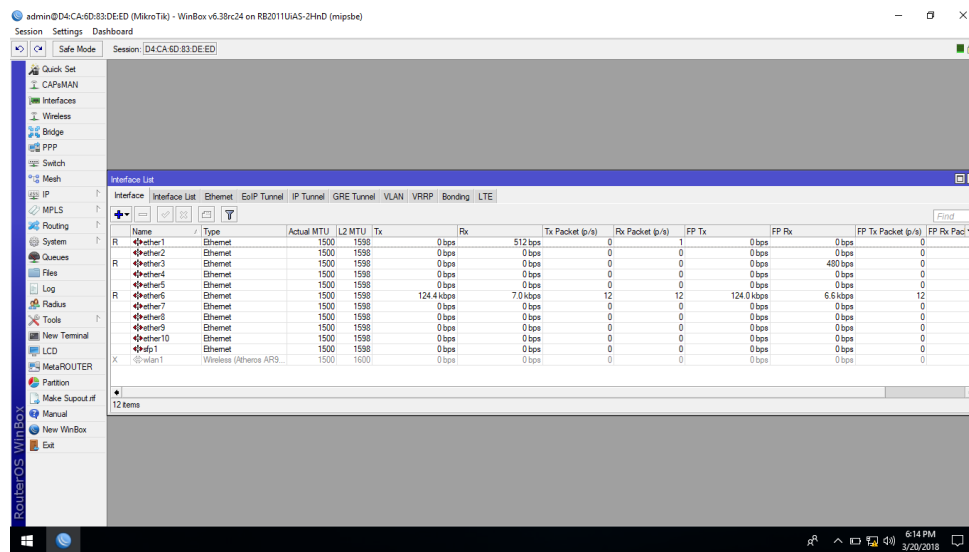


Figure 3.22: Shows Screen Print port of WAN and LAN

3.4.10 Winbox Interface Menu

We do not have much work to with interface menu. Basically Interface Menu is used to rename or comment on interfaces to recognize interface later. Here in our project we rename ether1 to ether1-WAN that will give a better understanding that ether1 is using for WAN connectivity. We can also leave comment with ether1 that it is being used for WAN connectivity.

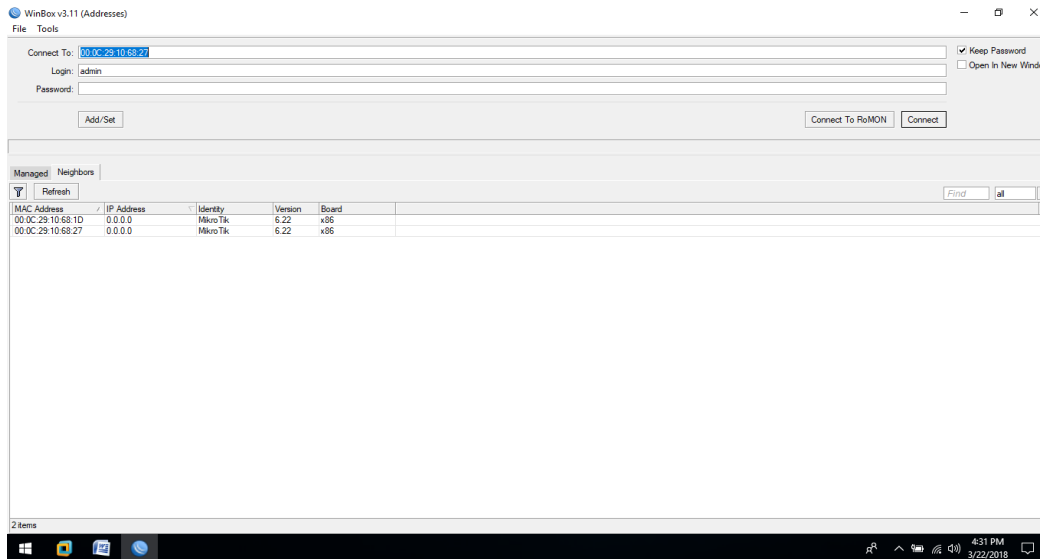


Figure 3.23: Shows Screen Print address of winbox

3.4.11 ARP Bonding

MikroTik RouterOS included ARP (MAC) Bonding where a system executive can bond customers IP address with MAC address. Thus one may not utilize one PC IP deliver to another PC. In this way, to put it plainly, to secure one client transmission capacity and other setting from other client in LAN we can apply ARP holding. To do this goes to IP-> ARP and Figure4.2.1: Firewall L7 Protocol tap on it. Another window will open name "ARP list" where we can see all IP address associated with the switch with their MAC addresses. In any case, close to each IP address we see "D" that implies IP addresses are dynamic state. We have to change over it to static. To influence this static, appropriate to snap of the mouse on IP locations and snap "Make static" choice. Presently there will be no "D" close to IP address. Following this procedure we can make holding between other IP locations and MAC addresses. After total ARP holding with IP delivers we need to tap on interface menu. Presently double tap on that LAN interface where we apply ARP. Presently transform it to ARP: Reply-just and hit alright. Macintosh holding design is finished. Presently if anyone needs to utilize one PC's IP to another PC client won't ready. On the off chance that its need to MAC free of some IP address we can do it contrarily. Go to interface menu what's more, make ARP: Enable for the LAN interface. At that point go to IP>ARP and select that IP address and Disable(x) it. In the event that the IP

address associated with the switch we can see "D" next to the IP address. Along these lines, the IP address is sans Mac now. Following the above process we can utilize ARP attaching to give greater security to our Local zone arrange.

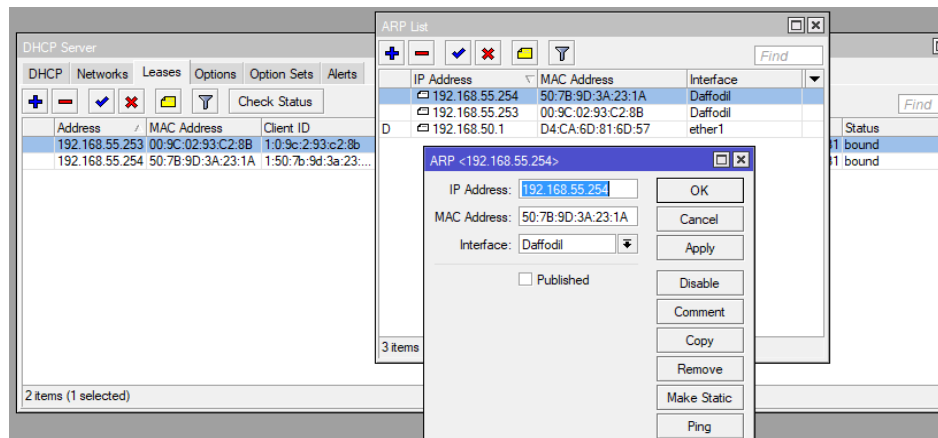


Figure 3.24: Shows Screen Print of ARP set

3.4.12 MikroTik Router

MikroTik Is Ltd. Known internationally as MikroTik is a Latvian manufacturer of computer networking equipment. It sells wireless products and routers. The company was founded in 1995, with the intent to sell in the emerging wireless technology market. As of 2014, the company has more than 100 employees. The company's products are known for being low-priced alternatives to expensive routers and Ethernet radio relay lines

```

Welcome to MikroTik Router Software installation

Move around menu using 'p' and 'n' or arrow keys, select with 'spacebar'.
Select all with 'a', minimum with 'm'. Press 'i' to install locally or 'q' to
cancel and reboot.

[X] system          [X] ipv6           [X] routing
[X] ppp             [X] isdn          [X] security
[X] dhcp           [X] kum           [X] ups
[X] advanced-tools [X] lcd           [X] user-manager
[X] calea          [X] mpls          [X] wireless
[X] gps            [X] multicast     [X] wireless-fp
[X] hotspot        [X] ntp

system (depends on nothing):
Main package with basic services and drivers

```

Figure 3.25: Shows Screen Print install of mikrotic router

3.4.13 RouterOS

The main product of MikroTik is an operating system based on the Linux kernel, known as the MikroTik RouterOS. Installed on the company's proprietary hardware (Router board series), or on standard x86-based computers, it turns a computer into a network router and implements various additional features, such as firewalling, virtual private network (VPN) service and client, bandwidth shaping and quality of service, wireless access point functions and other commonly used features when interconnecting networks. The system is also able to serve as a captive-portal-based hotspot system [7]

3.4.14 Propose Network Diagram (MikroTik Configuration):

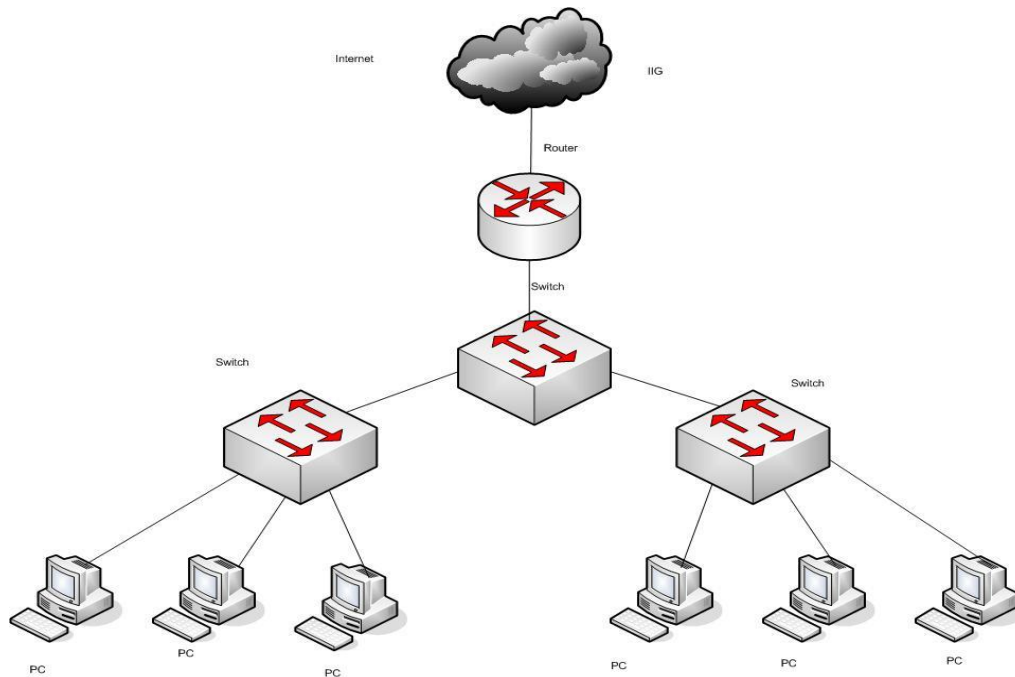


Figure:3.26: Shows Network Diagram

Winbox is the graphical configuration utility for MikroTik router OS. At first we should download winbox. After download the winbox it can be run straight away as no installation is required network diagram.

3.4.15 Bridge

Bridge allows creating logical interface. This bridge interface enables to combine two or more physical interfaces or combine between physical and logical interfaces. To create bridge connection click on "Bridge". Then on bridge tab click on "+" a new window will open. Give a name for the new interface and click ok. So this will create a new interface with the given name. Following figure 3.18 will give a clear understanding

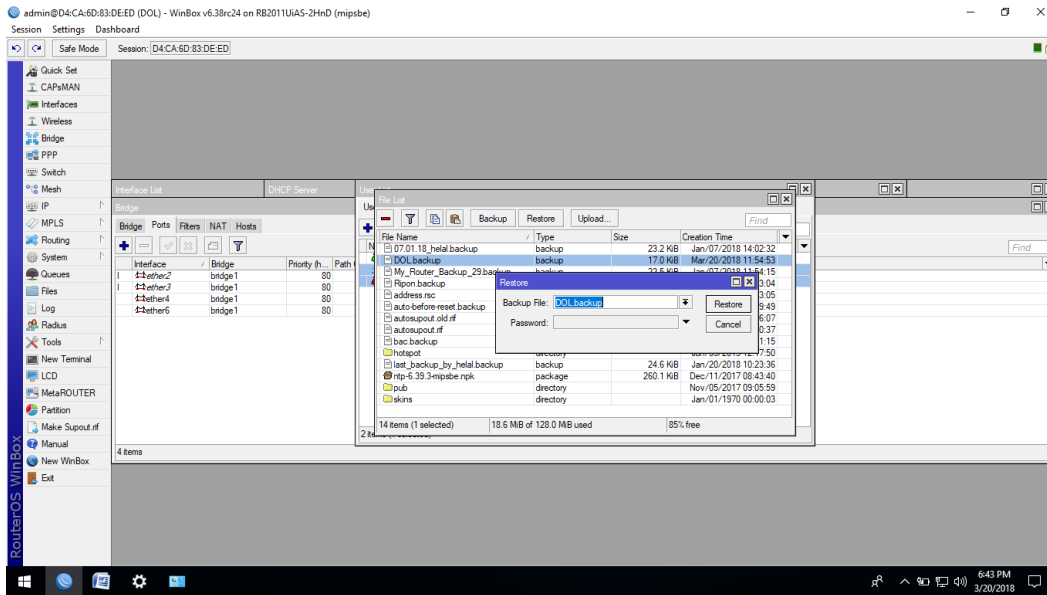


Figure 3.27: Shows Screen Print create of BRIGE

3.4.16 DNS Server Setting

DNS Server Setting Our subsequent stage is to set up DNS Server. MikroTik switch settle DNS as well as give the DNS determination to have that in our system utilizing the switch by utilizing reserving DNS. Storing DNS accelerate the system in light of the fact that MikroTik RouterOS permit connecting the specific space names with separate IP address and this connections publicize to the DNS customer utilizing the switch as their DNS server. To set up DNS server we have to go IP-> DNS-> Click on 'Setting' thus a DNS setting window will open. The following Figure indicates DNS Setup process

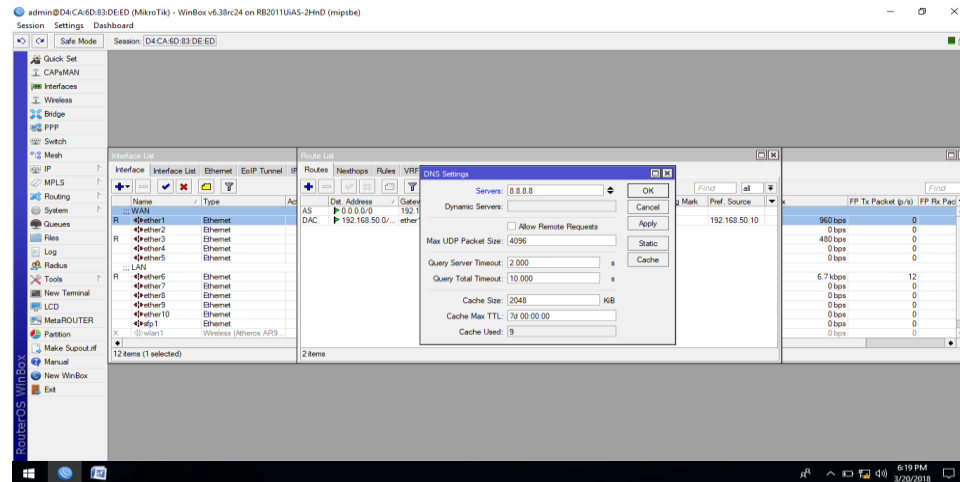


Figure 3.28: Shows Screen Print setup of DNS

After opening DNS Setting window add server. Here, we add Google public DNS server 8.8.8.8 and 198.168.1.1. Click on check mark of 'Allow Remote Requests'. This will allow TCP and UDP requests on port 53.

CHAPTER 4

Internship Outcomes

4.1 Problems and Solution

Issue Determination for Linux on System particular items or arrangements, while getting hands-on involvement with driving edge. Because of issues concerning condition show we could just present some new blunders. I trust that giving Linux working framework models will prompt an answer that takes after or even broadens other than accommodating talks. A maker of premium carbide end plants and exceptional application rotational cutting devices. ... Portrayal: Designs cutting edge, high quality Linux groups, servers, and RAID stockpiling answers for colleges, life sciences, Laboratory applies science, by methods for cutting edge innovation, to basic issues of national security

4.2 Learning Outcomes

A learning result is an announcement of what a student is relied upon to know, get it or on the other hand have the capacity to do because of a learning procedure. Introduce and decommission of both system and server machines at two datacenters. Lead part in cutting edge Linux programming executions, for instance LDAP HA, adjusted to program learning results, field and temporary position assessments. The Student Association office reserves numerous understudy Intern Learning Outcomes: Gathering and sorting out data into an Internship Project Description: Participate in the overhaul of the Linux Lab web site. Learning Outcomes. Introduce and Configure programming and overhauls; Install, arrange and test organize Employer Services • Furthermore, steady with the learning results, the Internship On-Site Supervisor will give an introduction concerning hierarchical strategies and methodology.

4.3 Challenges

As remunerating your temporary position can be, there are difficulties to know about when joining an advertising firm as an assistant. Temporary jobs are chances to pick up significant involvement in the work environment yet now and then they can be testing and you'll need to figure out how to explore the procedure. Temporary positions are not without their own hindrances! I'm going to cover a few worries that numerous assistant's battle with.

However, keep in mind that all. An Intern can face different challenges these are

Given below:

- a) To receive with the workplace.
- b) Achieve some arranging capacity.
- c) Adjust with the official decency and standards.
- d) Established relational relations with the authorities.
- e) Make himself proficient with the aggressive activity showcase.
- f) Achieve some reward from the association
- g) Use straightforward dialect with the authorities for correspondence.
- h) Develop Corresponding limit with various level of clients.
- I) Be useful and keep quiet at the season of client benefit
- j) At last an understudy needs to confront numerous different difficulties including all above.

At last, we can state that if there is no test, there is no achievement. Along these lines, we have to
take each test emphatically in the method for your prosperity.

CHAPTER 5

CONCLUSION AND FUTURE SCOPE

5.1 Conclusion

The objective of this temporary job is to pick up the information and aptitudes need to create ISP Setup and Administration in Linux Platform. The entry level position centers around Fundamental of Data Communication, Linux Essentials, Linux System Administrations, and Arranging Network Security and Services and some more. Linux is a full-included, strong UNIX working framework with an abundance of related free programming, equipped for supporting elite system administrations. The quality of Linux programming makes it a minimal effort, solid, bolstered processing stage suitable for the corporate server condition. This complete hands-on course gives the learning and aptitudes you have to introduce, arrange and manage a Linux server for mission-basic system administrations. You figure out how to introduce what's more, update key programming parts with the most recent forms and improve server security. Linux is the working framework which offers such a wide verity of solid, stable and successful administration. We decision this working framework not due to its administrations but rather it is thoroughly free. It has pretty much every sort of system benefit is there, including web servers A FTP, DNS, MAIL and significantly more. Linux offers a one of a kind chance to learn frameworks programming with hand on involvement. Since we have the source code accessible and an overall system of guides and teammates, we can investigate any subject we want to. Different parts of Linux have been examined or created as a feature of scholastic work, for example, graduate postulations.

5.2 Future Scope

Amid the brief time of this temporary job venture, I executed a SoC Linux utilizing Peta Linux on the FPGA itself giving future extension to creating autopilot. Degree allotted venture/undertakings and give precise time gauges. Linux is an awesome and huge working framework that you can just learn it by training, it appears that your new with Linux and for a rookie I propose you to begin working . I can settle this and possibly there could be something done later on, to make this less difficult. There's nothing amiss with represent considerable

authority in one specific programming dialect, yet don't let it characterize you. What is the profession extent of a Linux piece programmer/engineer? What are the most ideal approaches to get a temporary job at a startup? Linux is being introduced on the framework BIOS of PC and note pad PCs, which will empower clients to turn their gadgets on in a matter of seconds, raising a streamlined Linux condition. This condition will have Internet availability devices, for example, a web program and an email customer, enabling clients to take a shot at the Web without booting the distance into their gadget's essential working framework - regardless of whether that working framework is Windows. In the meantime, Linux is appearing on versatile Internet gadgets (MIDs). This incorporates implanted gadgets, for example, cell phones and PDAs, and additionally netbook gadgets - little workstation write machines that component the center usefulness of their bigger partners in a littler, more vitality productive bundle.

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