

**ISP SETUP CONFIGURATION AND ADMINISTRATION USING MIKROTIK
AND BASIC LINUX SYSTEM**

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

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APPROVAL

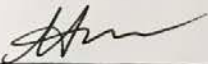
This Project/internship titled **"ISP SETUP AND CONFIGURATION WITH MIKROTIK AND LINUX PLATFORM"**, submitted by **Md. Enamul Hossain, ID No:161-15-7089** to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment 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 04-05-2019.

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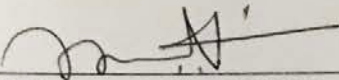


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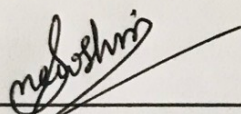
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DECLARATION

I hereby declare that, this internship report has been done by **Enamul Hossain, ID: 161-15-7089** to the department of Computer Science and Engineering, I catchup with somebody 4 months of Industrial Training Program at Daffodil Online Limited (DOL) and this report is written by me to when I complete my course in this company after that also best of the practical knowledge I gained during the course of the training program, Under the supervision of **Ms. Samia nawshin Lecturer, Department of CSE, Daffodil International University.**

I would like to tell you about this report, which was not designed to send this report before an instuation. Just designed to submit to this final internship. Personally i collect data from daffodil online limited (DOL), internet, books and web access provider(ISP) based organization.

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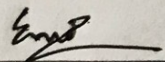
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In the first instance, God Almighty wants to say that I can compete this course of three years. In addition this, honorable sir expressed his appreciation and gratitude.

I'm really grateful and thankful to my supervisor **Ms. Samia Nawshin, lecturer,** Department of CSE Daffodil International University, Dhaka. To complete this report, Madam has always helped me with various suggestions.

I would like to express our heartiest gratitude to **Dr. Syed Akther Hossain, Professor and Head, Department of CSE,** for his kind help to finish my internship and also to other faculty member and the staff of CSE department of Daffodil International University.

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In the end, my parents also want to thank and thank the parents who have been able to complete my course in their supplication after their exhaustive hard work, hope and sacrifice.

ABSTRACT

This internship file is based on “ISP Setup configuration and administration using Mikrotik and basic Linux system”. The use of Mikrotik router is essential in ISP company companies in the current world. This is the Mikrotik routerboard hardware operating system. Anyone can install and install all kind of useful features such as- bandwidth maintenance, routing, wireless, firewall, hotspot, VPN server and more then. There is different kind of work in the system that is the reason likewise unique sorts of server have. For Example- FTP Server, Firewall, Interfaces, Routes, DNS, DHCP, VLAN, NAT, ARP, and Bridge. Each of them works contrastingly 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, equipment prerequisite for the server, picking programming and establishment procedure of the product, well ordered server arrangement process and straightforward investigating of the server.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

We cannot identify anything without the server during this data type. Therefore, the DNS server is required for the web server. Today every business and businesses programming is characterized by specially web-based innovations. Such as web banking, one of these is SMS alert banking as well as an EFT (electronic Fund Transfer) server, so many fictional imagery. It is an information nature area is currently an extensive number of days people around the world are using web discovery and servers an important part is. Linux is the most important free-for-programming program to achieve, the first spacecraft or the delay is all the more.

This report done a lot about computer networking in such a way that the Linux server has setup configuration and network monitoring system.

1.2 Motivation

I am a student of Daffodil International University and a student of computer science and engineering. I have realized that there is a great reputation for Daffodil Online Limited (DOL). To achieve customer satisfaction. Daffodil Online Limited has many well-known and one of the leading ISP services provides in Bangladesh. After completing months of internship, I was able to complete the work of Mikrotik Router and Linux. I was able to communication better with the clients as well as the supplier on the Internet.

1.3 Internship Objectives

This Linux operating system provides a graphical user interface so that all of the users can work very easily. Main goal and purpose is to provide security to network servers. More objects are given bellow:

1. Install Linux interactively and with kick start.
2. Hardware system control.
3. Create and maintain file system in Linux.
4. Perform user and group administration.
5. Maintain the server system.
6. Create a Linux server and workstation with an existing network.

1.4 Introduction to the company

As I am a student and i took my internship from Daffodil Online Limited which take a pride inas a leading statewide Internet Service Provider(ISP) in Bangladesh. They are most experienced in the ICT field as well it is an oldest company in Bangladesh. They have ethics to make relationship longer with customers by giving well services. From their inception, theygot lots of national and international prizes from the domestic and outer platform.Because they worked with many national and international project and organization to achieve reputation. They started their operation in 2002. In this time they have various services to provide customer. in the past years of their inception they extended the operation and service portfolio according to customers demand. They usagethe modern and latest technologies for upgrading the required service. They have a groupof employee who are very co-operative and capable to provide technical and communicationsolutions [1].

1.5 Report Layout

In the chapter (1) I discussed details on objective of internship, Motivation of internship and Introduction to the company.

In the chapter (2) I discussed details on the IT services provide in DOL, swot analysis and organizational stricter.

In the chapter (3) I discussed details on daily task and activities, Events and Activities and challenges.

In the chapter (4) I discussed details on the Competencies Earned, Smart Planand Reflections.

In the chapter (5) I discusseddetails on the Conclusion and Future Scope.

CHAPTER 2

ORGANIZATION

2.1 Introduction

Daffodil Online Limited itself as an unparalleled collection of Bangladesh largest ISP service provider. This is the most experienced and the oldest organization in the field of ICT, where there is a lot if relationships with customers and good relationships. They started their journey since 2002, which has contributed a lot to the present. In the previous years, they were able to expand their work and administration profile, according to customer advice and requests. Their Corporate Network Solution Division has been working with the collection of highly specialized expertise to achieve the expertise of state technical business and media conservation business. [2].

2.2IT Services Provide

➤ IT Services

- Internet Solution in Corporate Level
- Everyday Backups
- 24/7 Supports.
- Internet Service Providing
- Make Hi speed Wi-Fi Zone at any area.
- Data Connectivity, Data center & Co-Location.
- Proxy & DNS Server solution, Mail Server Solution.
- Domain and Web hosting.
- Various vendor certification course
- Professional course and trainings environment.

➤ Professional Training Services

- Providing ISP Setup and administration using Linux.
- Providing Training Course on Certified Ethical Hacking (CEH).
- Providing ISP Setup and Administration using Mikrotik.
- Providing Red Hat Certified Security Specialist (RHCSS).

2.3 SWOT Analysis

SWOT Analysis is an effective strategy to understand your strengths and weaknesses and to keep both opportunities open to you and your threat.

➤ **Strengths:**

- ✓ We are always ready to provide our highest quality service
- ✓ Very easy to work at home
- ✓ Set up online business
- ✓ We promise about the work efficiency

➤ **Weaknesses:**

- ✓ It is a bit difficult to give time to all types of service customers
- ✓ To set up a business, more money is required
- ✓ Competition for small quantities
- ✓ There is a different between different types of prices and services

➤ **Opportunities:**

- ✓ The local government will have to strengthen the surrounding organizations
- ✓ Currently, business areas are expanding a lot
- ✓ Easy Custom Launch
- ✓ Regulatory framework correction

➤ **Threats:**

- ✓ Some of them have reached very high and especially financing
- ✓ Financial crisis their forestry subscription is less likely to increase the confidence of the stock market digital market
- ✓ It is still visible that the customer can embrace internet access [3]

2.4 Organizational Structure

Organ gramconstruct of Daffodil Online Ltd. shows in fig 2.4.1:



Figure 2.4.1: Shows Organogram of Daffodil Online Limited

CHAPTER 3

TASKS, PROJECTS and ACTIVITIES

3.1 Daily Task and Activities

- Month - 1: The first one month I learned about what I have learned is described below:

- About IP Addressing
- About Mikrotik Router
- Installation VMware
- Uses winbox
- Basic command

- Month - 2: The Second month I learned about what I have learned is described below:

- How to configure ISP link: Static Router Configuration,
- Dynamic Router Configuration,
- PPPoEConfiguration user password
- Bridge Mode Configuration
- Bandwidth uses/consumption Interface wise, per client, per group, with restriction/security.
- How to configure Local Area Network (LAN)
- Giving IP/Internet to the client in the way of Static, DHCP, PPPoE,
- Website block using firewall

- Month – 3: The Third month I learned about what I have learned is described below:

- Linux Installation process in VMware
- Managing User Accounts and passwords
- Basic Command
- Driver partition
- Network Configuration
- File and Directory details
- File and Directory Permissions

3.2 Events and Activities

Preparation is a critical issue for temporary positions, when a shortage in the level of entry level facing some problems, at that time it is obligatory to give prepare to deal with the problem.

- Learning and understanding about what the network is about
- Understanding of basic Linux system
- Mikrotik and Linux installation
- Technical support maintenance for people using the network.
- Basic Command of Mikrotik and Linux system
- Day to day admin and monitoring of network use.
- Permissions File and Directory
- Fixing network with error

3.2.1 Basic Concept on IP Addressing

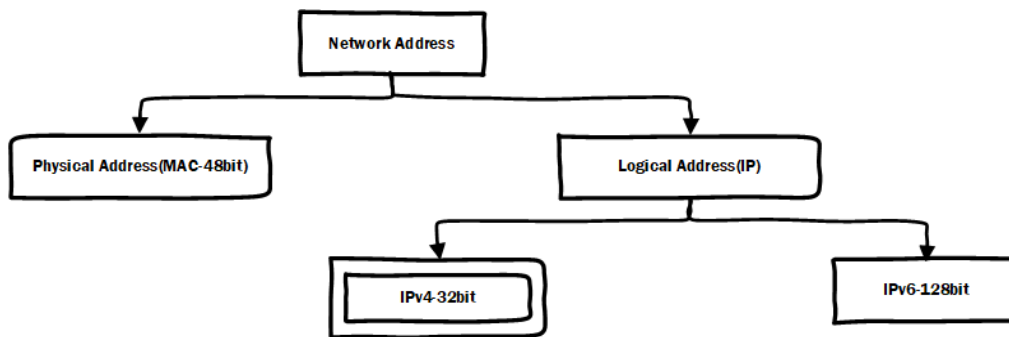


Figure 3.2.1.1: network addressing classification

IPv4:

1. Total bits=32
2. Total portion/octet=4
3. Each portion divided by a single dot (.)
4. Each portion contains 8 bits
5. There are 2 main parts of all IP address
 - (a). Network(N)
 - (b). Host(H)

3.2.2 Classes of IP Address

Class-A: N.H.H.H

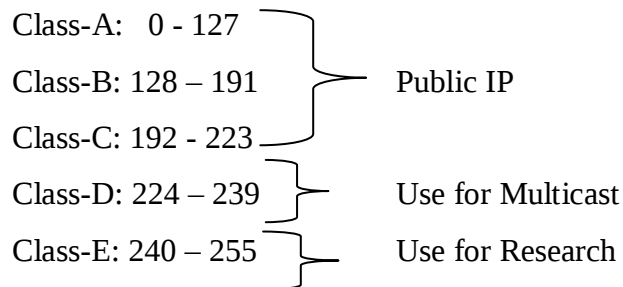
Class-B: N.N.H.H

Class-C: N.N.N.H

Class	1 st Octet Decimal Range	Network/Host ID (N=Network, H=Host)	Default Subnet Mask	Number of Networks	Hosts per Network (Usable Addresses)
A	1 – 126	N.H.H.H	255.0.0. 0	126 ($2^7 - 2$)	16,777,214 ($2^{24} - 2$)
B	128 – 191	N.N.H.H	255.255. 0.0	16,382 ($2^{14} - 2$)	65,534 ($2^{16} - 2$)
C	192 – 223	N.N.N.H	255.255. 255.0	2,097,150 ($2^{21} - 2$)	254 ($2^8 - 2$)
D	224 – 239	Reserved for Multicasting			
E	240 – 254	Experimental; used for research			

Figure 3.2.2.1: IP Address Class

IP class and Range:



Private IP Range:

Class-A: 10.0.0.0-10.255.255.255

Class-B: 172.16.0.0-172.31.255.255

Class-C: 192.168.0.0-192.168.255.255 [4]

3.2.3 Mikrotik Router Concepts

A Mikrotik router was established for the development of a router and ISP system of 1996. These routers are now available for network connections by providing hardware and software to different countries of the world. These routers provide all operating systems and easy installation and maintenance features based on the Linux B 2.6 kernel.

Now I say to something about that hEX Router. These router has five ports Gigabit Ethernet, Dual Core 880MHz CPU, 256MB RAM, USB, microSD, routrOSL4. There is no need of wireless connection here. It is easy to see and available at a very low price in the market. [5]

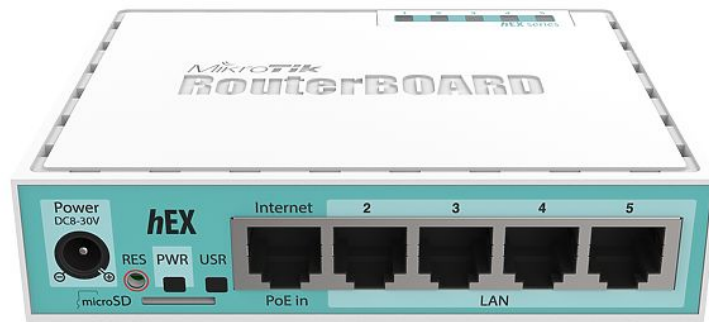


Figure 3.2.3.1: Mikrotik router hEX

3.2.4 Install Mikrotik On VMware

Step to step install:

1. Download ISO image MikroTik-
 - ❖ Select x86, CD image
 - ❖ Mikrotik- 6.22.iso
2. Create new VM on VMware.
3. Setting VM MikroTik.
4. Booting up-
 - ❖ Now booting up your VM
5. Install-
 - ❖ For select, press [space]
 - ❖ For unselect, press [space] too
 - ❖ Now, install, press [i]
 - ❖ Install finished
 - ❖ System reboot....
 - ❖ Wait, until login page....
 - ❖ Now, login
 - ❖ Default login
 - ❖ Username: admin
 - ❖ Password: [none], press Enter...(no password show)
 - ❖ Done

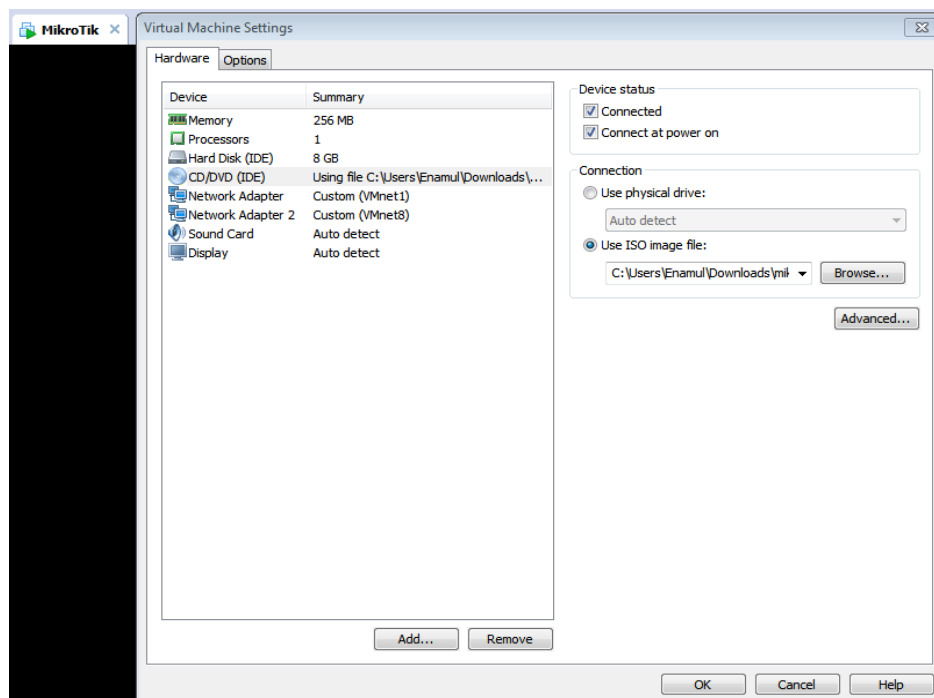


Figure 3.2.4.1: Add ISO file

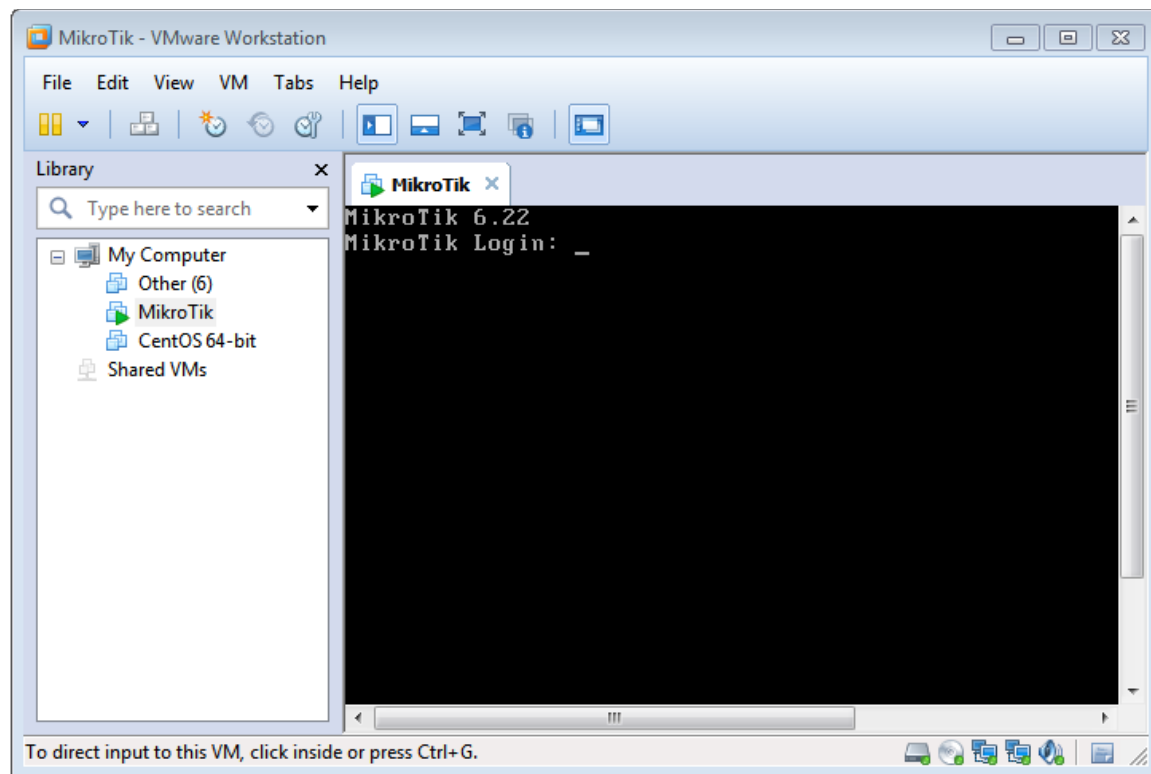


Figure 3.2.4.2: Login in VMware

3.2.5 Router Configuration Steps Using Winbox

Before configuring a mikrotik router, you need to know the following

- ❖ Must have basic concepts about ip address.
- ❖ A MikroTikRouterBoard or MikroTikRouterOS will be setup in a PC.
- ❖ Winbox software.
- ❖ Windows operating system installed and RJ45 cables with PC.
- ❖ Click on power button in MikroTik router.
- ❖ Combine wan cable with router and connect lan cable to router and PC.
- ❖ Open the Winbox in the PC.
- ❖ After opening the Winbox, the IP address and the MAC address will come in then the MAC address will be added.

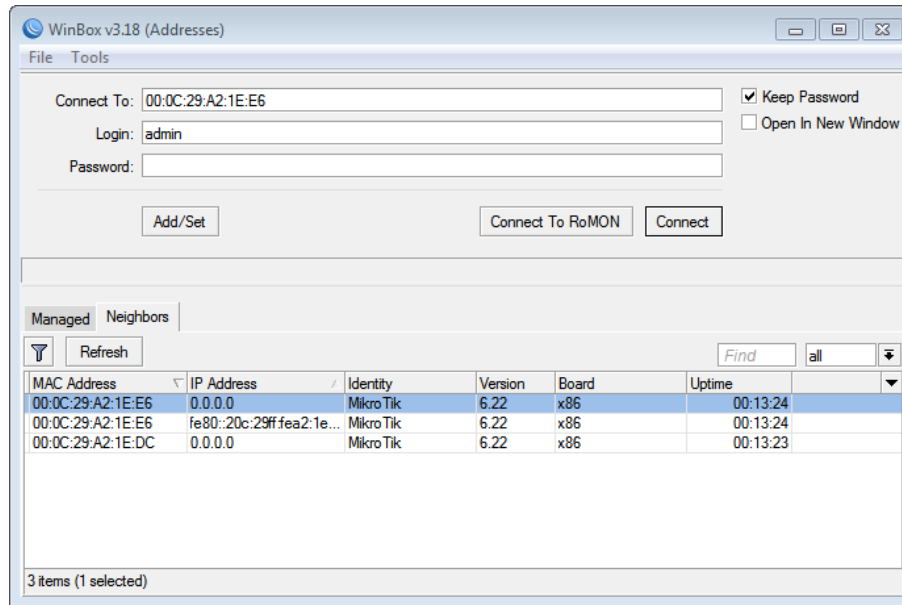


Figure 3.2.5.1: Connect VMware using MAC address

3.2.6 Static Routing Configuration

Static: For static configure complete need five step. now we following this steps:

Step_1: Setting Interface

Interface>">">Ethernet1-WAN

Interface>">">Ethernet1-LAN>Apply>ok

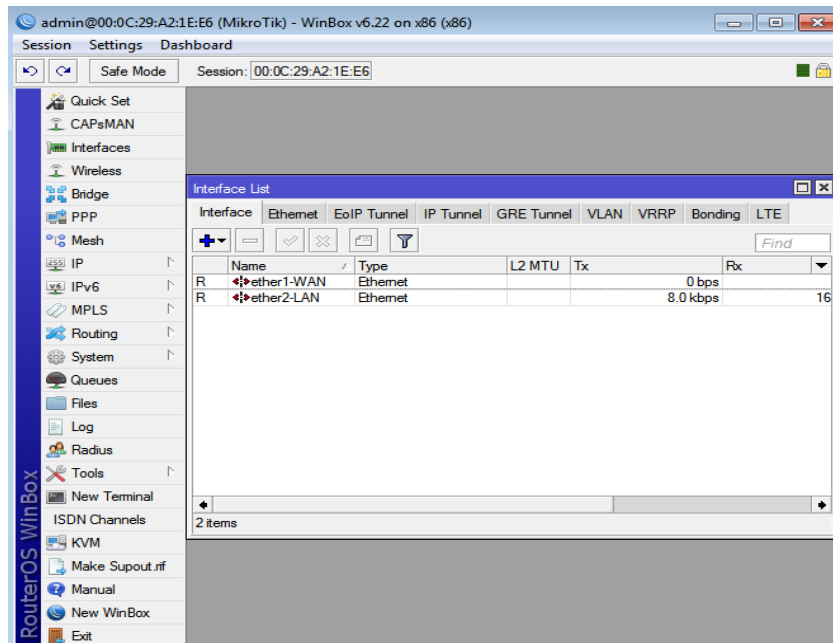


Figure 3.2.6.1: Setting Interface

Step_2: Setting IP Address

IP>Address>”+” Address>192.168.110.10/24>Network>192.168.110.0>Interface>Ether-WAN

IP>Address>”+” Address>172.16.10.1/24>Network>172.16.10.0>Interface>Ether-LAN

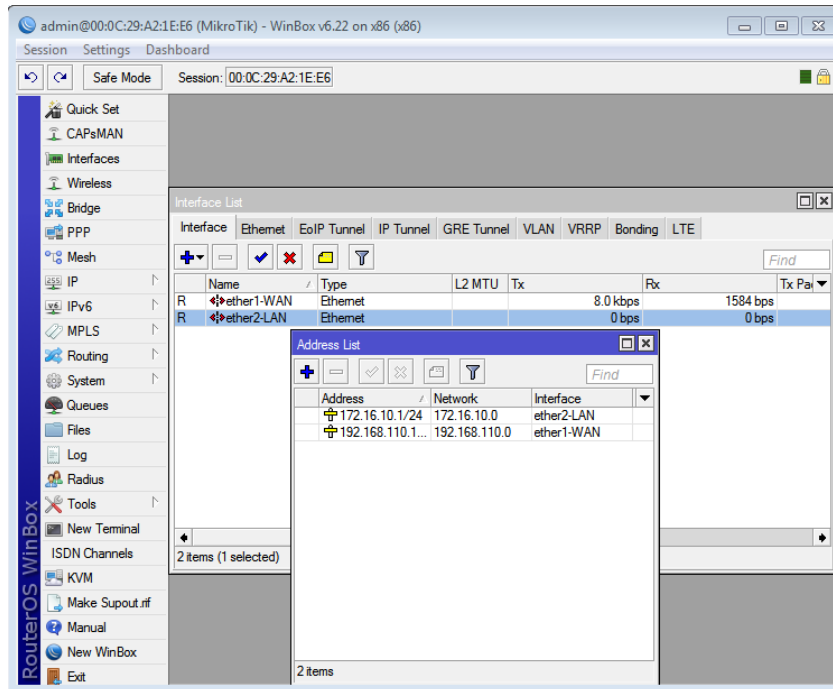


Figure 3.2.6.2: Add Static IP Address

Step_3: Setting DNS

IP>DNS>Servers-8.8.8.8

IP>DNS>Servers-8.8.4.4 >Apply> Ok

[Note: Here we use google public DNS ip, you can use your server DNS ip]

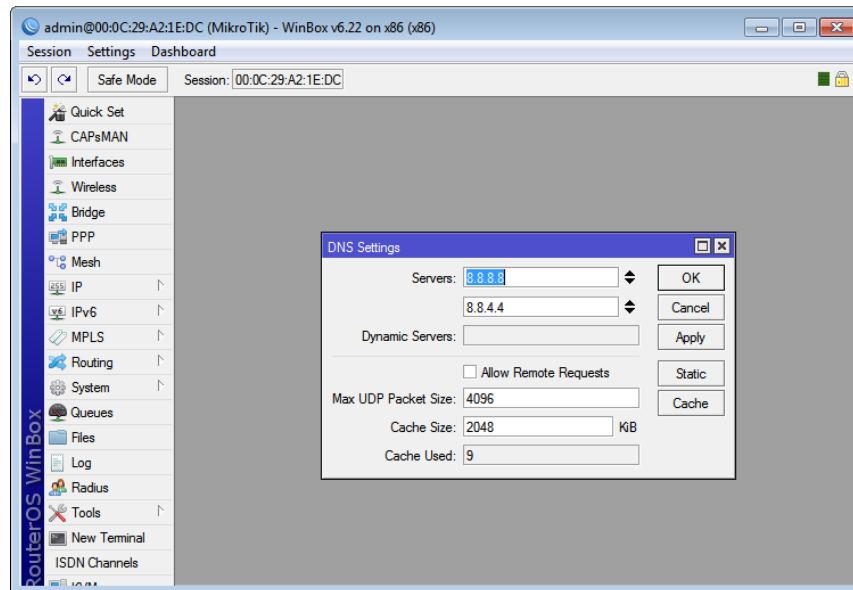


Figure 3.2.6.3: Shows add DNS Server IP

Step_4: Setting Firewall

IP>Firewall>NAT>”+”>Action>Masquerade>Apply>Ok

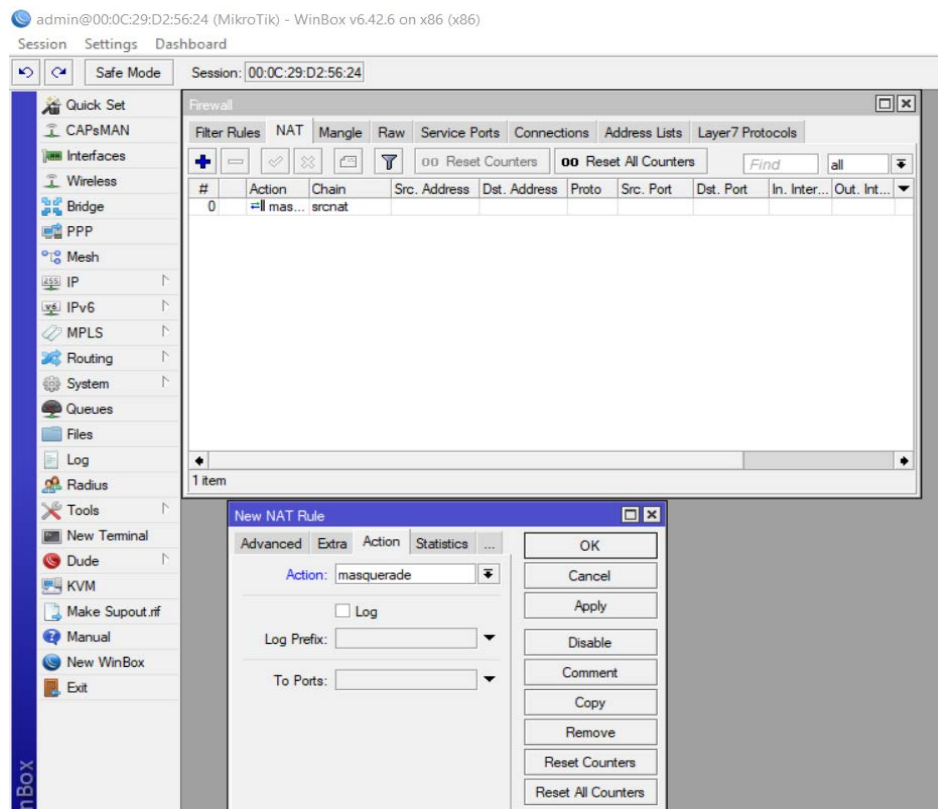


Figure 3.2.6.4: Shows Setting Up Firewall Of Static Configuration

Step_5: Setting Routes

IP>Routes>”+”>Gateway>Dst. Address>0.0.0.0/0

IP>Routes>”+”>Gateway>Gateway>192.168.110.1

Step_6: Implement Static Connection to PC

Go to Open Network and Sharing Center

Option>Ethernet>Properties>IPV4(TCP/IPV4)

>double click> following IP address then use following DNS Server Address>OK

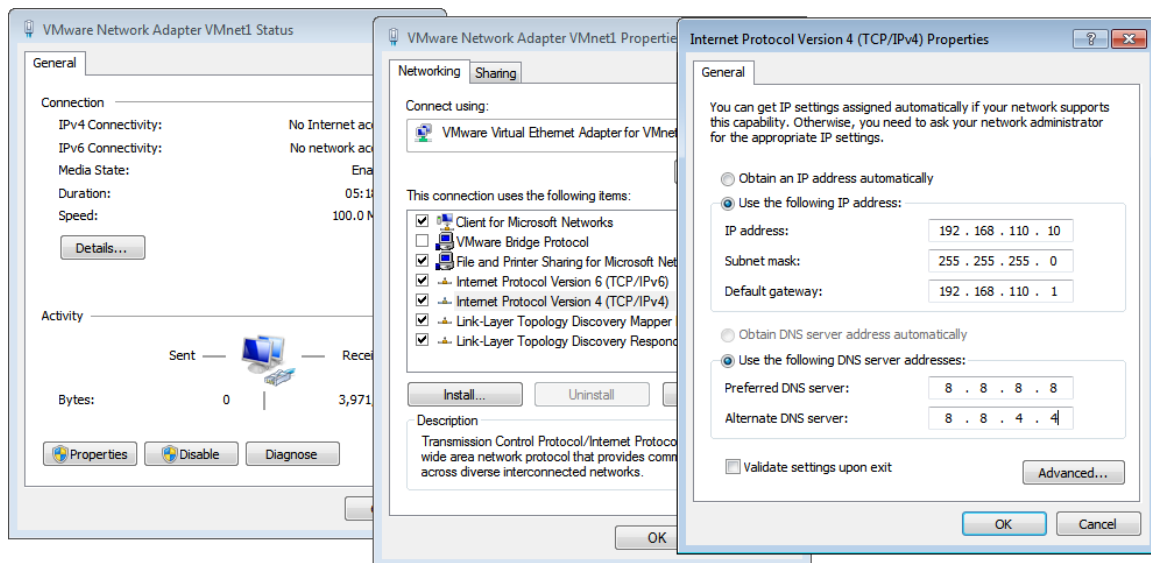


Figure 3.2.6.5: Implement Static Connection to PC

3.2.7 Dynamic Routing Configuration

Dynamic Host Configuration Protocol(DHCP). After static configure you can complete dynamic routing.I have already configure static now I will show Dynamic configure bellow-

```
# IP>DHCP Server>DHCP Setup>DHCP Server Interface>Ether_LAN2>DHCP
Address Space>Next>Gateway for DHCP Network>Next>Address to give
out>DNS Server>Lease Time-24.00.00>Next>Ok
```

```
# To implement the Network to PC we setting up Network & Internet>Change
Adapter>Ethernet>Properties>IPV4(TCP/IPV4)>Obtaining an iPAddress
Automatically and also select Obtaining DNS Server Address Automatically>OK
```

DHCP Server setup:

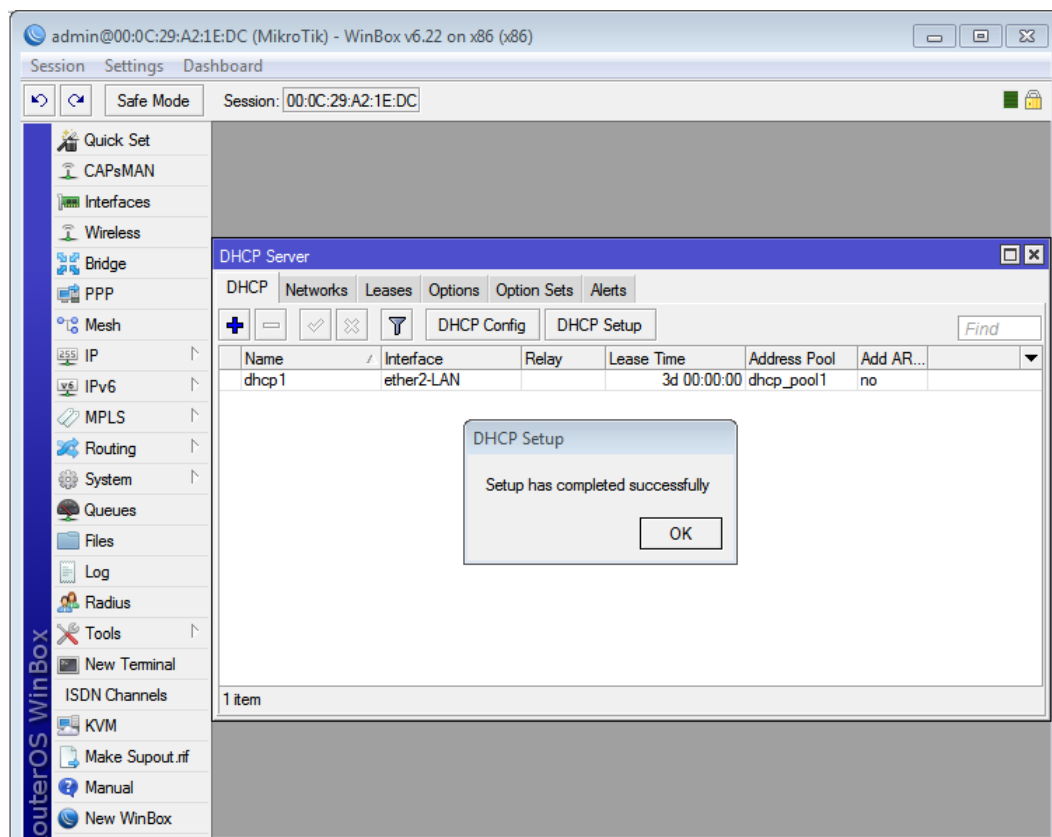


Figure 3.2.7.1:Shows Setting up DHCP setup for Dynamic Configuration

3.2.8 PPPoE Routing Configuration

This is a Dial Up Connection. It gives a User, User Name and Password. It's a secure connection. No one can access internet without user name and password. We at first create a pool, need you're any mbps, kbps or anything.

```
IP>Pool>"+>Name>PPPoE6mbps
```

```
Address>172.16.10.0/24
```

```
Pool>Apply>OK (copy)
```

```
Name>PPPoE-10mbps>Add-172.116.20.0/24>Next
```

```
Pool>Apply>OK
```

```
Name>PPPoE-2mbps>Add-172.16.30.0/24>Apply>Ok
```

```
IP>Pool>"+>Name>PPPoE Gateway>Add-10.10.10..0/24>Apply>OK
```

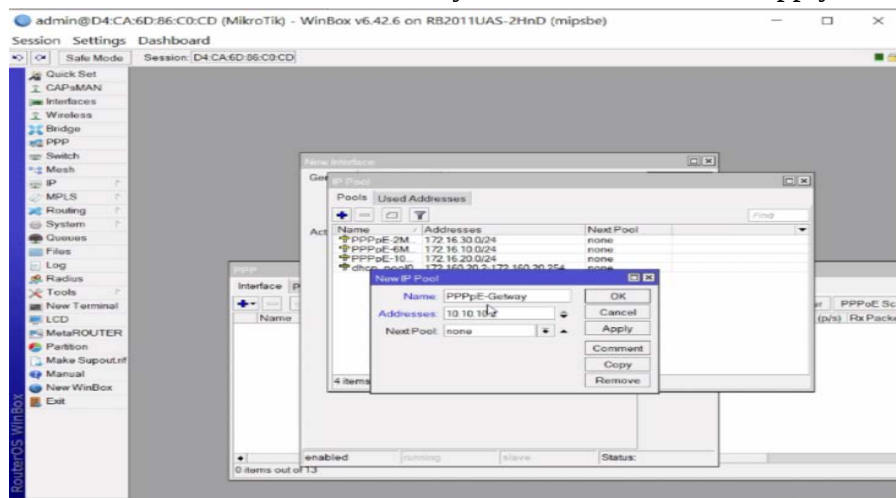


Figure 3.2.8.1: shows Creating IP Pool, Gateway

```
PPP>"+>PPPoE Server Binding>Name>PPPoE-in1
```

```
Type>PPPoE Server Binding>Apply>Ok
```

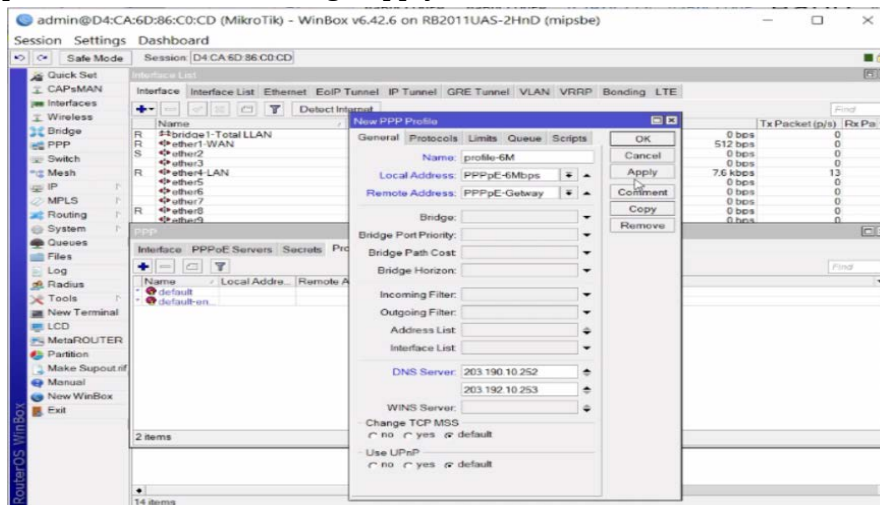


Figure 3.2.8.2: Creating profile for Limit

PPP>PPPoE Server>+ Service Name>Interface ether4-LAN>Apply>Ok

Select (one session per host)>Ok

PPP>Profiles>”+”>Name>Profile-6M

Local Add.>PPPoE-6mbp

Remote Add.>PPPoE Gateway

DNS Server-203.190.10.252

Limits>Rate Limit>6M/6M>Ok

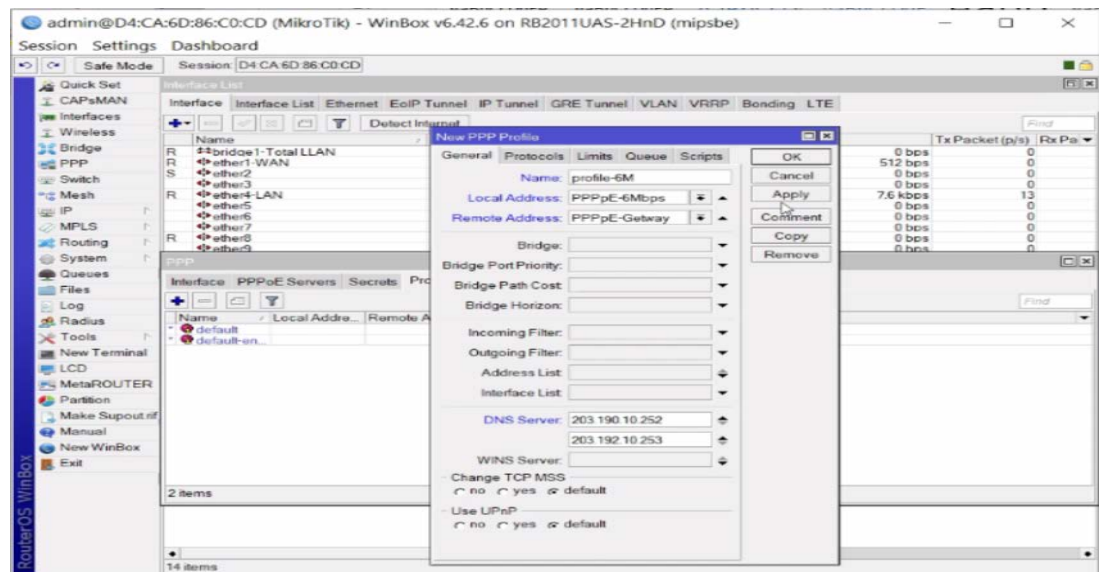


Figure 3.2.8.3: Making Profile & Limit

PPP>”+”>Name and Pass:

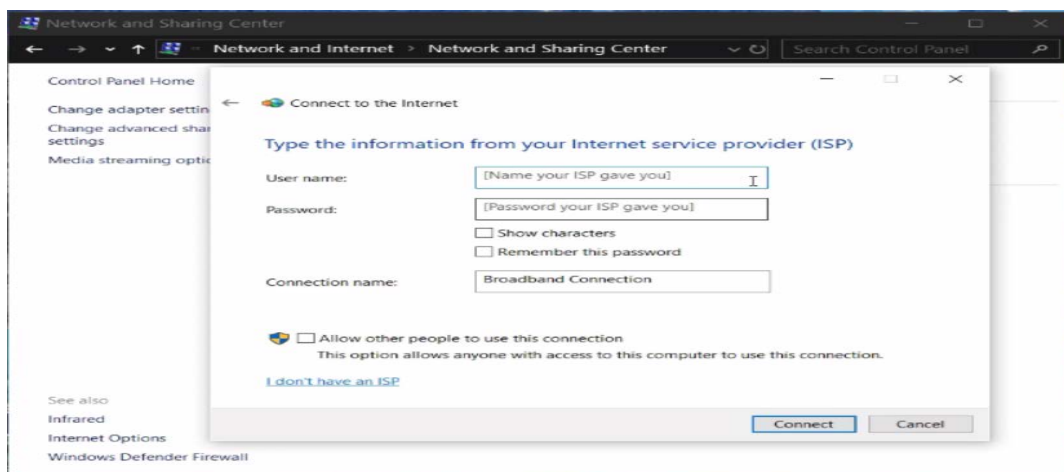


Figure:3.2.8.4: shows make user & password

3.2.9 Bridge Mode configuration

To get more than 1 Interface in same network we configure Bridge connection.
Now we are configuring after static and dynamic routing configuration.

Step_1:

Go to bridge>click add(+)>write your bridge name>apply>ok

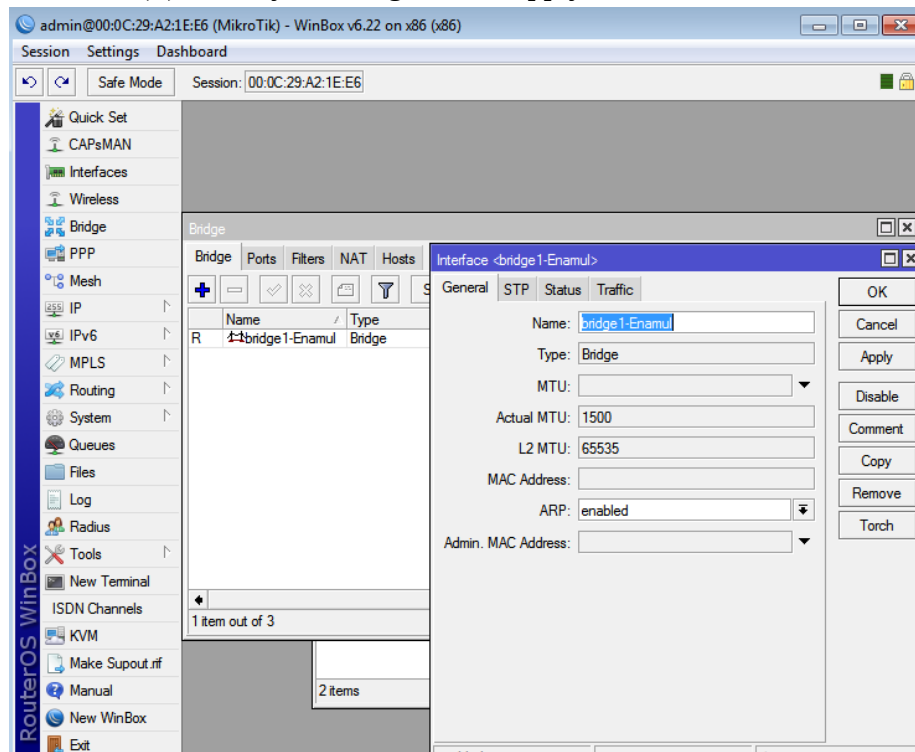


Figure 3.2.9.1: Create Bridge Name

Step_2:

Then go to IP> Addresses> open LAN address> select your bridge name in interface> Apply> ok

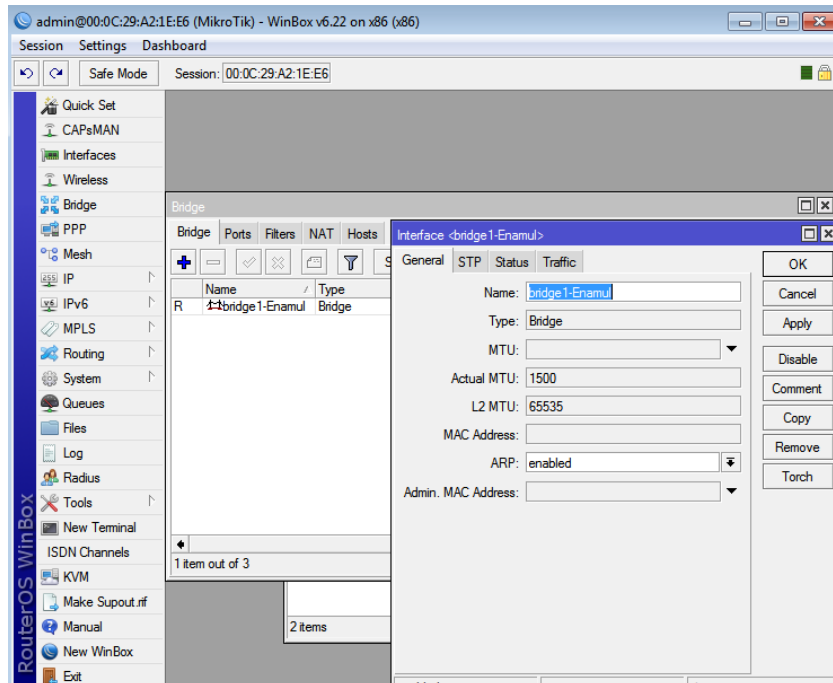


Figure 3.2.9.2: Add interface in bridge

Final step_3:

Bridge> ports> click add(+)> select bridge name in port bridge> apply> ok

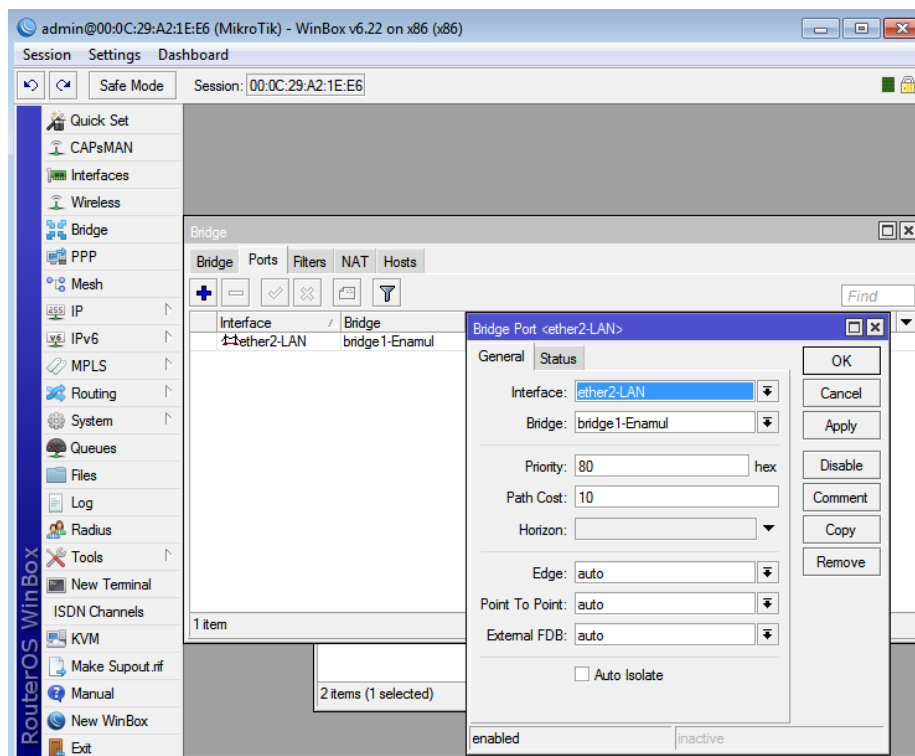


Figure 3.2.9.3: Add port in bridge

3.2.10 Website Block

It use for unnecessary access. Specially use in Office, Company and Organization because they avoid restriction site due to security.

Process:

IP>Firewall>Layer7 Protocols>">Name>Facebook_Block

Regex>.(facebook.com).*\$>Apply>Ok

IP>Firewall>General>Chain>Forward>Protocol>6(tcp)

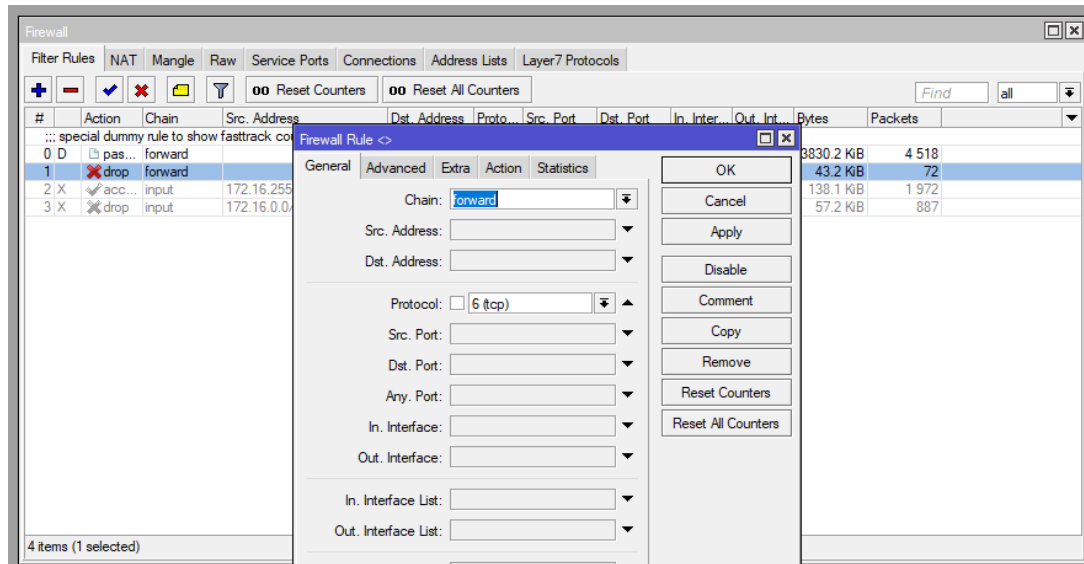


Figure 3.2.10.1: shows Firewall Rule Protocol

IP>Firewall>Advanced>Layer7 Protocol>Facebook_Block

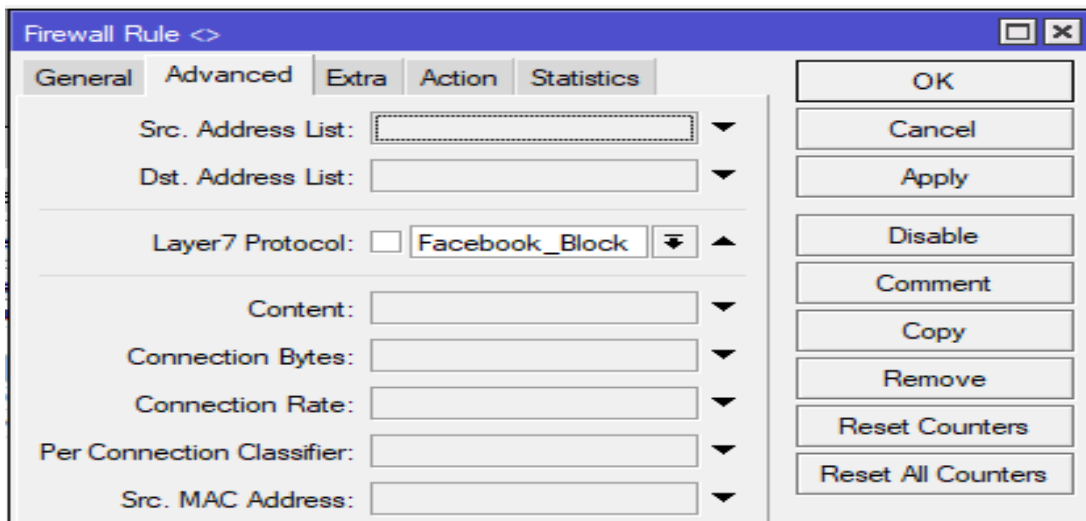


Figure 3.2.10.2: shows Firewall Rule for Layer7 protocol

IP>Firewall>Action>drop>Apply>Ok

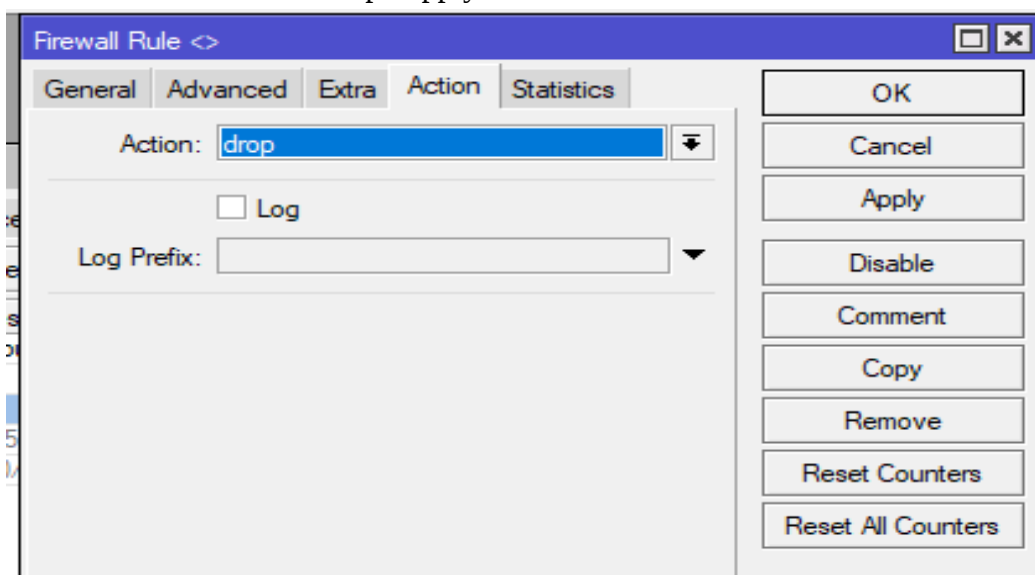


Figure 3.2.10.3: shows Firewall Action for DROP

Blocked site

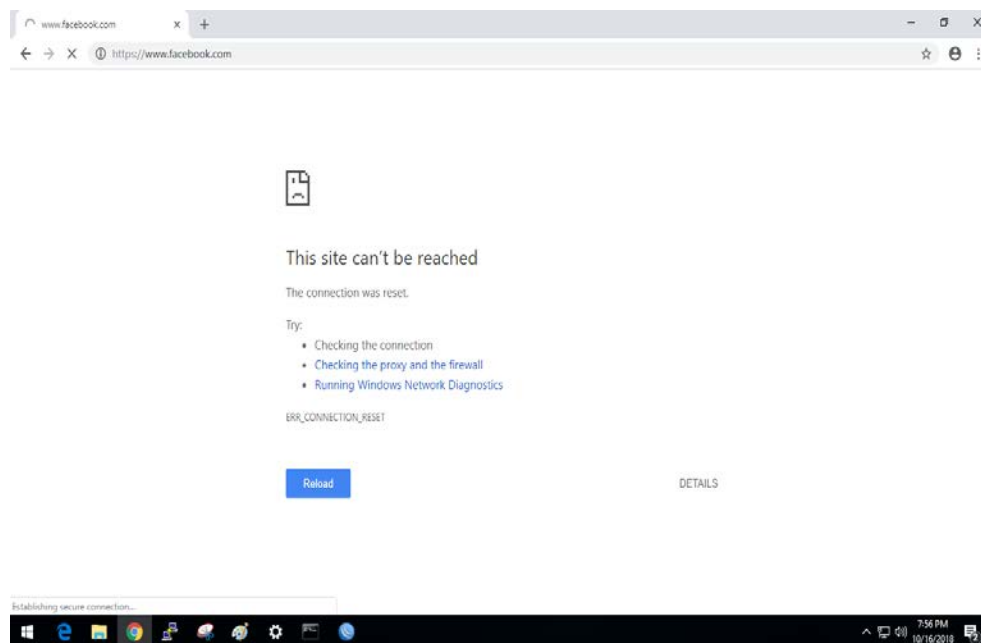


Figure 3.2.10.4: shows Unable to reach Faceboo.com

3.2.11 Centos Install Process

Install Centos 6.4 and select this option “Install or upgrade an existing system”. Then Press [tab] to edit options (Enter).



Figure 3.2.11.1: Linux Centos Install

Then select your country language and I select my choose language English (English). Then click Enter

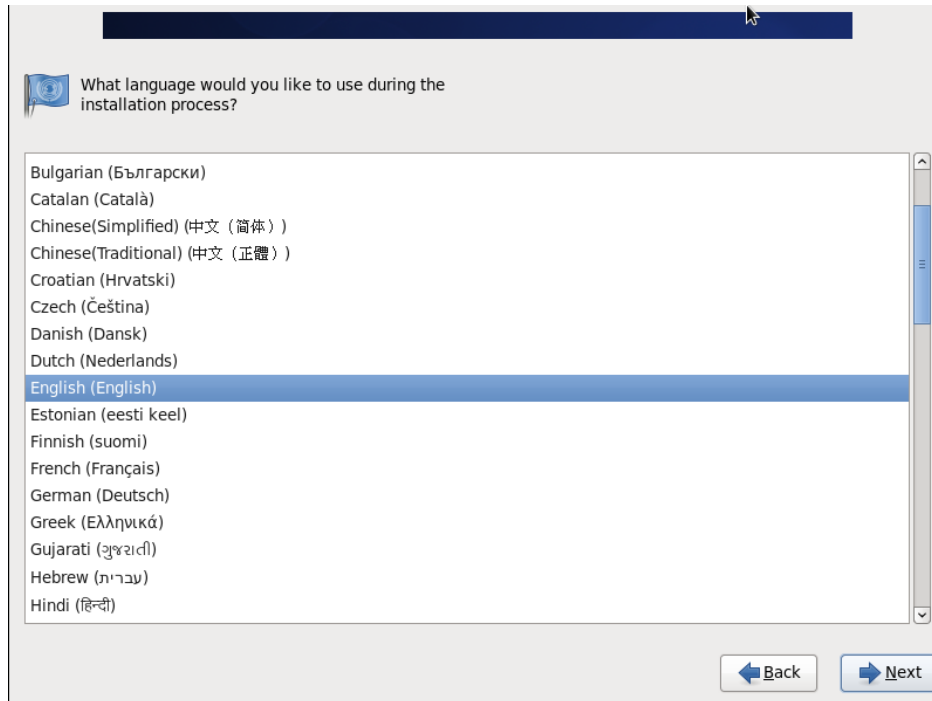


Figure 3.2.11.2: Select Language



Figure 3.2.11.3: Set Time Zone

Now select your country location (Asia/Dhaka) and Time & Date. Then click “Next”.



Figure 3.2.11.4: Set root password

Now set your Root Password of any character of combination and again confirm same password.



Figure 3.2.11.5: Set Create Custom Layout

Now select you which type of installation would you like. I would to like create custom layout.

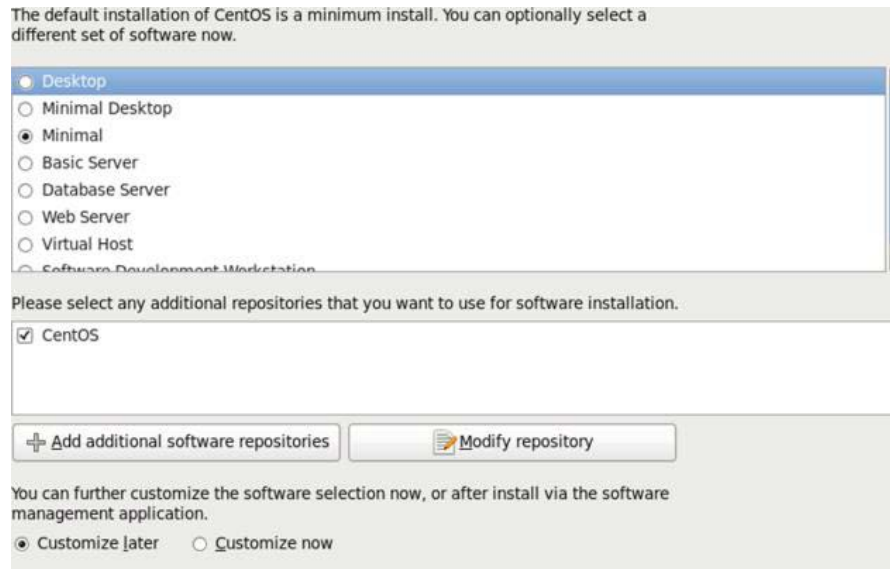


Figure 3.2.11.6: Select desktop mode

Presently, select which mode need on your screen. I choose minimal mode in my desktop.

Now CentOS6.4 operating system start to install packages. In Figure



Figure 3.2.11.7: CentOS 6.4 installing

Now completed install CentOS 6.4. Give user name and root password then you can use this operating system. [6]

3.2.12 Creating Linux Partition

Linux partition are divided into 3 parts partsroot(/), boot, as well swap.

- **Root Partition: /**

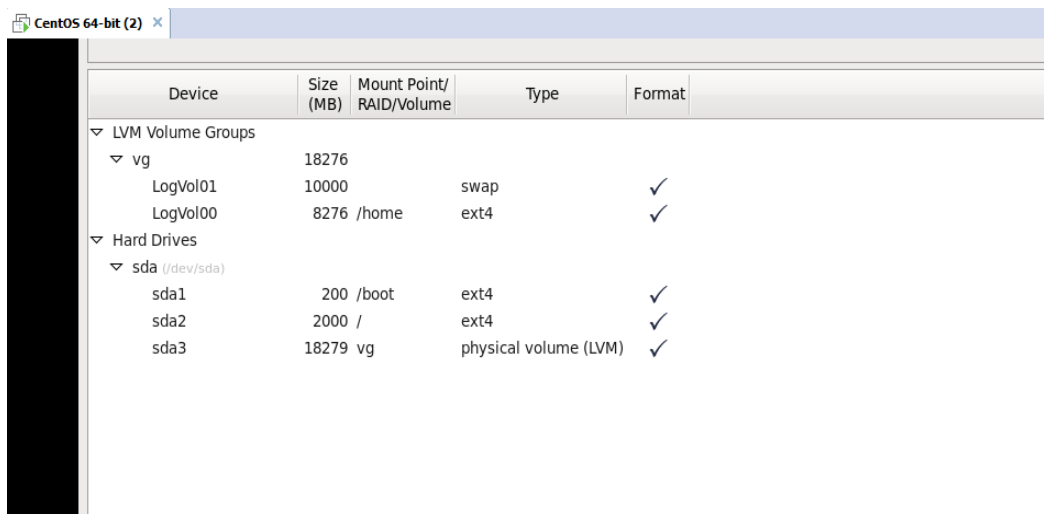
There are a root / partition where all directories contain the original files. Minimum space need 5 GB HDD.

- **Boot Partition: /boot**

This boot partition size 200 MB.

- **SWAP Partition: swap**

Partition swap is used to support virtual memory. In other words, data stored on your system is not enough RAM to store data stored on a swap partition. Partition Swap 2 GB virtual RAM for 2 GB of physical RAM, and then there should be an additional 1x physical RAM for any amount above 2 GB, but it cannot be less than 32 MB [10]



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 3.2.12.1: Create driver partition

3.2.13 The Basic Command of Linux Centos

.Some commands are needed to use the Linux system. Command is required for all types of configurations, without command, these tasks are not possible.

Below are some more commands: [8]

Command	Example	Descriptions
Pwd	Pwd	Present working directory
Cat	Cat file name	Read file.
ls -l	Ls file name	List all files
Cd	Cd/root/Desktop	Change current directory
mkdir	Mkdir directory name	Create new directory
Touch	Touch file name	Create new file
Vim	Vim file name	Edit for file
rm -rf	rm -rf file or folder name	Remove file or folder
Cp	cp source destination	Copy file or folder
Mv	mv source destination	Cut file or folder
History	history1000	Show the history

Figure 3.2.13.1: Shows basic commands

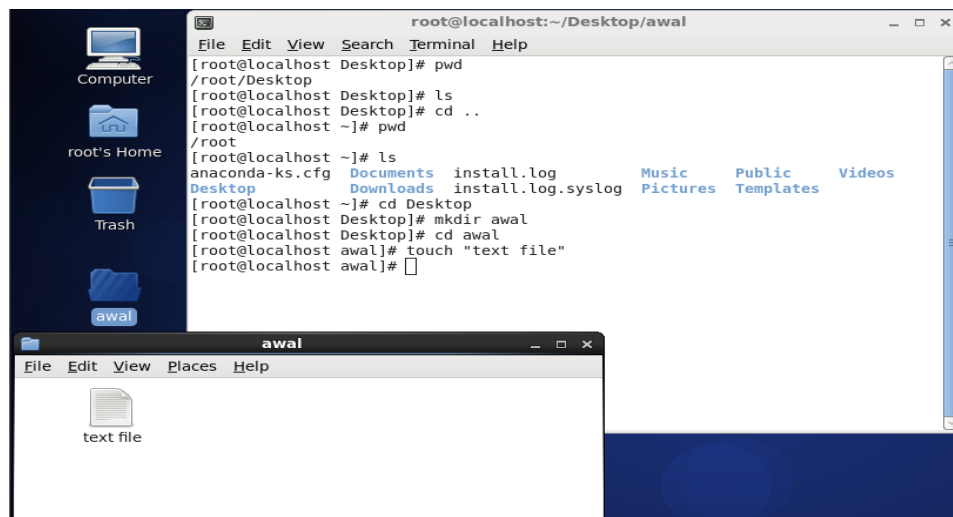
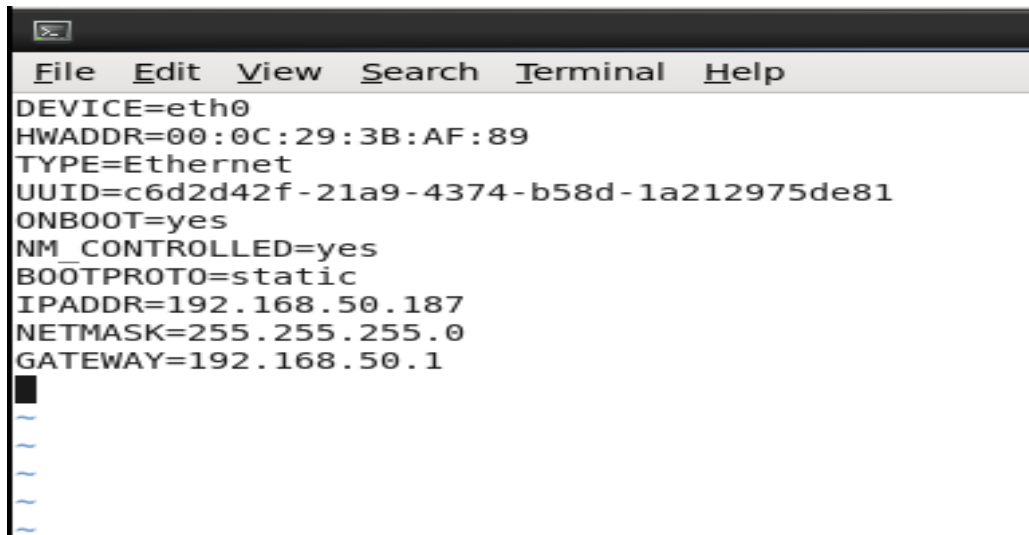


Figure 3.2.13.2: shows current location & changing directory

3.2.14 Network Configuration

Open terminal type this commands:

```
#vim /etc/sysconfig/network-script/fcfg-etho
#service Networkmanager stop
#chkconfigNetworkManager off
Edit:-
ONBOOT=YES
BOOTPROTO=STATIC
IPADDR=192.168.50.187
NETMASK=255.255.255.0
GATEWAY=192.168.50.1 [9]
```

A screenshot of a terminal window with a menu bar containing 'File', 'Edit', 'View', 'Search', 'Terminal', and 'Help'. The terminal displays the following configuration for the 'eth0' interface: DEVICE=eth0, HWADDR=00:0C:29:3B:AF:89, TYPE=Ethernet, UUID=c6d2d42f-21a9-4374-b58d-1a212975de81, ONBOOT=yes, NM_CONTROLLED=yes, BOOTPROTO=static, IPADDR=192.168.50.187, NETMASK=255.255.255.0, and GATEWAY=192.168.50.1. Below the configuration, there is a solid black square followed by four tilde (~) characters.

```
File Edit View Search Terminal Help
DEVICE=eth0
HWADDR=00:0C:29:3B:AF:89
TYPE=Ethernet
UUID=c6d2d42f-21a9-4374-b58d-1a212975de81
ONBOOT=yes
NM_CONTROLLED=yes
BOOTPROTO=static
IPADDR=192.168.50.187
NETMASK=255.255.255.0
GATEWAY=192.168.50.1
■
~
~
~
~
```

Figure 3.2.14.1: Set IP Address

3.2.15 DNS Configuration

```
#vim /etc/resolv.conf
```

```
#service network restart
```

[illegible]

Figure 3.2.15.1: service network restart

ping google.com

```
root@localhost: ~/Desktop
File Edit View Search Terminal Help
[root@localhost Desktop]# service network restart
Shutting down interface eth0: [ OK ]
Shutting down loopback interface: [ OK ]
Bringing up loopback interface: [ OK ]
Bringing up interface eth0: [ OK ]
[root@localhost Desktop]# ping google.com
PING google.com (172.217.194.101) 56(84) bytes of data.
64 bytes from 172.217.194.101: icmp_seq=1 ttl=43 time=57.8 ms
64 bytes from 172.217.194.101: icmp_seq=2 ttl=43 time=51.1 ms
64 bytes from 172.217.194.101: icmp_seq=3 ttl=43 time=51.1 ms
64 bytes from 172.217.194.101: icmp_seq=4 ttl=43 time=51.1 ms
64 bytes from 172.217.194.101: icmp_seq=5 ttl=43 time=51.0 ms
64 bytes from 172.217.194.101: icmp_seq=6 ttl=43 time=51.0 ms
64 bytes from 172.217.194.101: icmp_seq=7 ttl=43 time=52.5 ms
64 bytes from 172.217.194.101: icmp_seq=8 ttl=43 time=51.0 ms
^C
--- google.com ping statistics ---
8 packets transmitted, 8 received, 0% packet loss, time 7642ms
rtt min/avg/max/mdev = 51.038/52.130/57.895/2.249 ms
[root@localhost Desktop]#
```

Figure 3.2.15.2: ping to google.com

Now ping google.com this server is ok.

3.3 PROJECT TASK AND ACTIVITIES

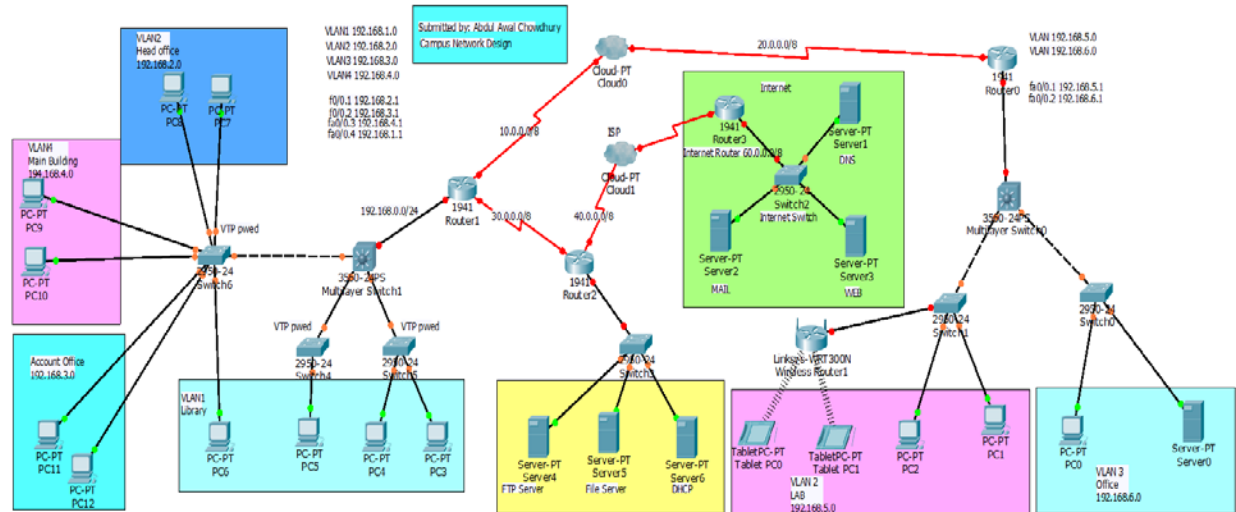


Figure 3.3.1: shows campus network design

Here I have created a campus networking design using networking hardware and some components of the software. I use 4 router to make the design. Multiplayer switch is used in one number router and the last two sub switch serials of multiplayer. The VLAN-3 used for the server and a PC using a switch. Using a switch on a PC, and the Vlan that created the wireless router for the lab. Four routers connected with two Cloud-PT and a cloud-pt works as an ISP switches 1 router 1 switch as well 3 servers. The head office network from switch provide ip 192.168.2.0 and main building network provide vlan-4 with the ip 192.168.4.0. Account office is connected a switch which provide ip 192.168.3.0 and vlan-1 connected these switch and 3 pc also connected in multiplayer switch, router and connected another 3 servers. This how i design above campus network.

3.4 Challenges

No work any challenge, but I can learn about internship experience and share my happiness moments with my batch partner. I discovered some common challenges during the internship time. However I am discuss about some challenges during the internship. Below are the following:

- ❖ Earn some of the necessary takes
- ❖ Prepare yourself with the current time
- ❖ Get some awards from various associations
- ❖ Establish friendly relations with the authorities
- ❖ Government discipline and quality compatibility

CHAPTER 4

COMPETENCIES AND SMART PLAN

4.1 Competencies Earned

A learner can learn a learning outcome for achieving a statement capable of acquiring skills or learning to succeed. Intern study results for many students in the student association's office Outcome: collecting and organizing an internship project information. Description: attend the new look at the Linux lab websites learning outcome: install and configure software and upgrades internship supervisor on the site will provide an orientation to corporate policy an approach.

4.2 Smart Plan

Each company must have a smart plan to gain success. Originally some common things in combination make a smart plan.

4.3 Reflections

In 2002, Daffodil Online Ltd inception their operation. In the past years, they extend operation and service portfolio according to customer's required demand. From their inception, they got lots of national and international prizes from the domestic and outer Platform. Because they worked with many national and international project and organization to achieve reputation. They started their operation in 2002. In this time they have various services to provide customer. in the past years of their inception they extended the operation and service portfolio according to customers demand. They usage the modern and latest technologies for upgrading the required service.

CHAPTER 5

CONCLUSION AND FUTURE CAREER

5.1 Discussion and Conclusion

This internship review has a wonderful and rewarded knowledge and experience. I have seen in the future and I will be able to help with network opportunities that many people have been able to make sure. I discussed above about the MikroTik router and Linux. I configured several connections in MikroTik such as Static, Dynamic, PPPoE, Bridge, Wireless and Bandwidth Management etc. As I learn above mention configuration I think if any one use static, there are several advantages these are simple to configure and maintain, secure operation and it updates manually of routes after changes. Dynamic routing would be best when more topology uses in multiple router. Now I am going to talk about the main advantages of PPPoE routing which builds a point to point tunnel between 2 network devices and makes username as well password authentication. Another one is Bridge which can extend a network by acting as repeater, it also reduces collisions but it has a big disadvantage that is more expensive than repeaters. With this way of learning method I think I will get opportunities to get a job any ISP company or any organization. As we know, every company has a network design which configured above mention connection. So there is opportunity to appoint in job by knowing these routes configure. It would be more priority able who knows well in secure connection.

5.2 Scope for Further Career

Career opportunities are available in various fields under MikroTik and Linux. Linux is career opportunities do not just refer to the Linux platform, it also includes many kinds of applications for kernel and device driver development needs, desktop application development, open source software developers and network engineers. Today many companies have moved to Linux and open source software. Companies such as Google, Yahoo, Being, Wiki.org, many companies have moved to cost effective open source solutions. There are huge demands for skilled professionals such as MikroTik and Linux

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Appendices

Appendix A: Internship Reflection

The basic knowledge of my internship is to apply my professional knowledge and serve the world. Building a suitable job, qualification and professional environment makes it easy for a job. Applying knowledge from internship and deal with professionals Field How to connect with new members, build new relationships with colleagues, Supervisors and new organizations rely on learning ability. Competition Bestthe way to prepare for the global market. Knowledge-making work is the key to successGlobal Market Expert workmanship is a specialist in the field of MikroTik and an expert Linux sector.My internship supervisor and internship provide an Opportunity to take a professional opinion with an evaluation running through personal meeting at the end of the experience. Experience internship ready for life in global society, leadership and service, my gift is able to be able to use it.

Appendix B: Company Detail



Figure 5.3: Daffodil Online logo[7]

Head Office

Name	Daffodil Online Limited (DOL)
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	NationwideInternet Service Provider (ISP)

