

**INTERNSHIP REPORT ON
NETWORK ADMINISTRATION & LINUX SYSTEM**

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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APPROVAL

This Report titled “**Network Administration & Linux System,**” submitted by Jannatul Noori, ID: 152-15-6270 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 (BSc) and approved as to its style and contents. The presentation has been held on 6th May 2018.

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DECLARATION

I hereby declare that, this project has been done by me Jannatul Noori, ID-152-15-6270 under the supervision of **Md. Tarek Habib, Assistant Professor, Department of CSE** Daffodil International University. I also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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ABSTRACT

When two or more computers are interconnected and able to exchange data or information then we call network. We need some special PC's are called Server to exchange data or information from one to another. There is a various types of server For Example-Web server, DNS server, Proxy server, Mail server, Firewall, FTP server. It is not possible to maintain a network because each of them works differently. If network is connected to the internet and we want to secure our information we must need to know about Network system. Thats why I choose this subject of my report.

TABLE OF CONTENTS

CONTENTS	PAGE
Approval	I
Declaration	II
Acknowledgement	III
Abstract	IV
CHAPTER 1: INTRODUCTION	
1.1 Introduction	1
1.2 Motivations	1
1.3 Internship objectives	2
1.4 Introduction to the company	2
1.5 Report Layout	2
CHAPTER 2: ORGANIZATION	
2.1 Introduction	4
2.2 Product and Market Situation	4
2.3 Target Group	5
2.4 SWOT Analysis	5
2.5 Organizational Structure	6
CHAPTER 3: INTERNSHIP ROLES AND RESPONSIBILITES	
3.1 Daily Task and Activities	7
3.2 Events and Activities	8
3.3 Project Task and activities	8
3.4 MikroTik RouterOS	8
3.4.1 RouterOS	8
3.4.2 Configuration	8
3.4.3 Features	8
3.5 Cloude Core Router	9
3.6 MikroTik Configuration	10
3.7 Propose Network Diagram	10
3.7.1 Initial Setup	10
3.8 Configuration a Router	10
3.9 Static Configuration	11
3.10 Bridge Configuration	15
3.11 DHCP configuration in mikroTik router	17
3.11.1 DHCP setup	17

3.12 Pcq Bandwidth Management	20
3.13 Cisco	25
3.13.1 Models of Networking	25
3.14 IP address	26
3.14.1 IP address classes	26
3.15 Assign IP address to a computer	27
3.15.1 Dynamic IP address	27
3.15.2 Static IP address	27
3.16 MAC addressing	27
3.16.1 Identify the MAC address in computer	27
3.17 Fiber Optical Cable	28
3.18 Twisted Pair Cable	28
3.19 Color Coding for crossover cable	28
3.20 Linux	28
3.20.1 Linux Distribution Packages	29
3.21 Kernel System	29
3.22 Centos Installation	29
3.23 Linux Runlevel used by centos	29
3.24 Basic Command of linux	30
3.25 User create and password management	30
3.26 Root password Break	31
3.27 Server Configuration	33-43
3.28 Challenges	43
CHAPTER 4: COMPETITENCIES AND SMART PLAN	
4.1 Competencies Earned	44
4.2 Smart Plan	44
4.3 Reflections	44
CHAPTER 5: CONCLUSION AND FUTURE CAREER	
5.1 Discussion and Conclusion	45
5.2 Scope for the future career	45-46

REFERENCES

47

APPENDICES

48- 49

LIST OF FIGURES

FIGURES	PAGE NO
Figure 2.5: Organogram of Daffodil Online Limited	6
Figure 3.1: MikroTik Cloud Core Router 1036 series	9
Figure 3.2: Network Diagram	10
Figure 3.3: Shows assign IP address	11
Figure 3.4: Enter the address details	11
Figure 3.5: MikroTik reset configuration	12
Figure3.6: Gateway setup	13
Figure3.7: DNS setting	14
Figure 3.8: NAT Rule	15
Figure 3.9: Bridge port assign	16
Figure 3.10: IP address assign of bridge configuration	17
Figure 3.11: DHCP server interface	17
Figure 3.12: IP address assigning in DHCP Setup	18
Figure 3.13: Gateway for DHCP Network	19
Figure 3.14: DNS setup	20
Figure 3.15: DHCP Setup	21
Figure 3.16: import address.rsc	22
Figure 3.17: Mangle Rule	23
Figure 3.18: Mangle Advanced Setting	24
Figure 3.19: Creating Queue	25
Figure 3.20: Queue types	26
Figure 3.21: Fiber optic cable	29
Figure 3.22: Yum install bind	35
Figure 3.23: Shows Screen Print Edit using vi editor named, conf file.	36
Figure 3.24: Shows Screen Print Edit Enter a web address of forward zone	36
Figure 3.25: Shows Screen Print Enter a IP address For Reverse Zone	37
Figure 3.26: Shows Screen Print edit Forward Zone File for abc.com	37
Figure 3.27: Shows Screen Print edit Forward Zone File for abc.com	38
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Figure 3.28: Shows Screen Print edit Reverse Zone File	38
Figure 3.29: Shows Screen Print edit Reverse Zone File	39
Figure 3.30: Shows Screen Print service named restart	39
Figure 3.31: Shows Screen Print service named status	40
Figure 3.32: Shows Screen Print abc.com open in browser	43

CHAPTER 1

Introduction

1.1 Introduction

When two or more computers are interconnected and able to exchange data and information then we call it network. A network connects computers, peripherals, even IoT devices. Switches, routers and wireless access points are the essential networking basics. Through them device connected to network can communicate with one another and with other networks, like the internet. Now a days large number of people all over the world use internet technology. So network is quite possibly the most important. By doing internship it is great practice to make students understand the real working, medical science, environment and challenges, Engineering and accounts all branches have their own importance of internship before degree award. Today every single people, business and e-commerce, every work station is fully depend on software based communication and internet technology. That's why it's very important to secure the network. From an administrator's point of view, a network can be private which cannot be accessed outside its physical or logical domain. A network can be public, which can be accessed by all users. Computer system and peripheral are connected to form a network. They provide various advantages, for example-Instant messaging, parallel computing, video conference, interaction with other users using dynamic web pages, sharing information by using internet or web.

1.2 Motivation

At present I am pursuing my Bachelors in Computer Science Engineering at Daffodil International University, It is very important to gaining practical knowledge. It helps a student to make better understand about the subject in real world. I observe that I am quite skilled in the details of MikroTik, and linux network during my internship. Because of an internet service provider I've getting my point across too much well, communicating with people, understanding their necessity and provide them strong service.

1.3 Internship Objectives

The internship program is make myself as an compatible one in the competitive job market. It is too much efficient of skill improvement. To provide myself as skilled one I would like to collect some extra ordinary quality.

Internship in computer science is a way to provide better work experience when a student is still in school, to commensurate job expertise with academic training, and to help student to prepare the transition from school to job.

1.4 Introduction to the company

Daffodil Online Ltd is one of the leading nationwide Internet Service Provider (ISP) in Bangladesh and also the most experienced and oldest company in the ICT field where they are basic business ethics is Long Term Relationship with their customers. They are highly proud of what they have gained, and also more eager about their outlook for an equally hopeful future.

In the year of **2002** they are started their operation. Since the past years, they elaborated their activities and service office following to the customers recommendation and considering need of time. They operate with numerous national project and international organization and gained the reputation. They use the latest technology and modernize the service wherever it is required. Their corporate network solution department is susceptible to provide state of art technology network and telecommunication solutions with a extremely skilled 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 about the company where the internship has been attached to undertake this program, and also about the IT service they offered and the roles of in jobs market of mikroTik and Linux

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

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

In chapter (5) I have described Conclusion and Future Scope, and also discussed Future Scope of mikroTik and Linux.

CHEPTER 2

Organization

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 WAN infrastructure to serve corporate, SME and individual clients. As they look at the growth over the decade since we began, they are extremely proud of what we have achieved. They are even more excited about their outlook for an equally promising future. They have worked with many national projects and international organizations with high appreciation from all concerned. They are using the latest technologies and upgrading the services wherever it is required.

Their 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. Their Corporate Social Responsibility ethos strengthens the sense of their 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 our programs and services [1].

2.2 Product and Market Situation

Daffodil Online Ltd is one of the leading nationwide Internet Service Provider (ISP) in Bangladesh and also the most experienced and oldest company in the ICT field where they are basic business ethics is Long Term Relationship with their customers. They are highly proud of what they have gained, and also more eager about their outlook for an equally hopeful future.

They provides many IT services and Professional Training services. These are given below:

➤ **IT Services**

- Corporate Internet Solution

- Security Solution
- Website Development
- Web hosting and Domain registration
- Open source application Solution
- State of the art data centers
- Internet service provider
- Data connectivity, Data center and CoLocation
- DNS server solution and mail server solution
- Professional course and trainings

➤ **Professional Training Services**

- ISP setup and administration using Linux.
- ISP setup and administration using MikroTik
- Training course on Certified Ethical Hacking (CEH)
- Web site Development with Joomla
- E-commerce and open source Joomla Virtue Mart
- PHP and MYSQL for website Development
- Red Hat Certified Security Specialist(RHCSS)
- Red Hat Certified Engineer(RHCE)

2.3 Target Group

The company's main intention to concentrate on SOHO clients, as for their new special offerings, for their better services they make more dedicated, reliable customers.

2.4 SWOT Analysis

SWOT Analysis is a planning technique for understanding a person and organization's strengths, weakness, opportunities and threats they face at business or any project planning.

➤ **Strengths:**

- ✓ Communication Skill

- ✓ Good reputation in marketplace
- ✓ Build up online business
- ✓ Collecting information
- **Weakness:**
 - ✓ Capital problem to set up a business
 - ✓ Lack of experience
 - ✓ Lack of consultants at operating level rather than partner level
- **Opportunities:**
 - ✓ When competitors are slow to adopt new technologies.
 - ✓ Expanding the business sector with various future opportunities.
 - ✓ Encouraging of local business
- **Threats:**
 - ✓ The Economic Crisis Householders less as increase their broadband subscriptions
stock markets lack of confidence in digital communication market.

2.5 Organizational Structure



Figure2.5: Organogram of Daffodil Online Limited

CHAPTER 3

Tasks, Project and Activities

3.1 Daily Task and Activities

- **Month 1:** In the 1st month I have learned and performed the following tasks
 - Learning about basic Network components
 - Learning basic of Linux
 - Learning & understanding Linux HDD Partitions
 - Learning Linux Run Level
 - Learning Linux Installation

- **Month 2:** In the 2nd month I have learned the following tasks
 - Basic centos commands
 - Linux User create and Password management
 - File directory and accessing
 - Root password break-single user mode
 - Compressed and Decompressed File and Directories

- **Month 3:** In the 3rd month I have learned about the following tasks
 - Basic Networking Concepts
 - Basic Network Addressing(IPv4 Addressing)
 - Basic Concepts of VLAN and configuration
 - UTP cabling and Optical Fiber

- **Month 4:** In the 4th month I have learned about following tasks
 - MikroTik RouterOS configuration
 - Installation
 - Static Configuration
 - Bridge Configuration
 - DHCP configuration

- Pcq bandwidth management

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

3.4 MikroTik Router

MikroTik is a Latvian company which was founded in 1996 to develop routers and wireless ISP systems. Now it provides software and hardware for internet connectivity around the world. The products of the companys are known for being lowpriced alternatives to expensive routers and Ethernet radio relay line [6].

3.4.1 RouterOS

MikroTik routerOS is the operating system of mikroTik routerBOARD hardware.It is a stand-alone operating system based on the linux v2.6 kernel. It can also be installed on a pc will turn it into a router with all the necessary features-firewall, routing, wireless access point, bandwidth management, VPN server and more [7].

3.4.2 Configuration

Router supports various methods of configuration- serial console with terminal application, local access with monitor and keyboard, custom GUI configuration tool called winbox, Telnet and secure SSH access over networks, a simple web based configuration interface and an API

programming interface for building own control application. RouterOS supports a Mac-Telnet and winbox tools but there is a problem with IP level communications.

3.4.3 Features

The feature of RouterOS supports are-

- RouterOS can be used as a switch or bridge
- It provide DHCP server service
- Can be used as e router
- Provides BGP, OSPF, Multiprotocol Label switching, etc
- It provides firewall rules
- Easy management of bandwidth
- It supports both IPv4 and IPv6
- It also provides VPN virtual private Network
- RouterOS provides PPPoE client server
- It provides captive portal based Hotspot system and WiFi

3.5 Cloud Core Router

MikroTik released the cloud core router in November 2012. It is an industrial grade router with cutting edge 36 core cpu with Unprecedented power and unbeatable performance .Cloud Core Router with 36 cores is the best choice if we need many millions of packets per second. It has up to four SFP ports, twelve Gigabit ethernet ports, a serial console cable and a USB port. It also has two DDR3 SODIMM slots, by default it is shipped with 4GB of RAM, but has no memory limit in RouterOS (will accept and utilize 16GB or more). CPU Tiler Tile-Gx36 CPU (36-cores, 1.2Ghz per core) Memory [9].

Highest performance

- 8 mpps standard forwarding
- 24 mpps fastpath forwarding (wire speed for all ports)
- Up to 16Gbit/s throughput

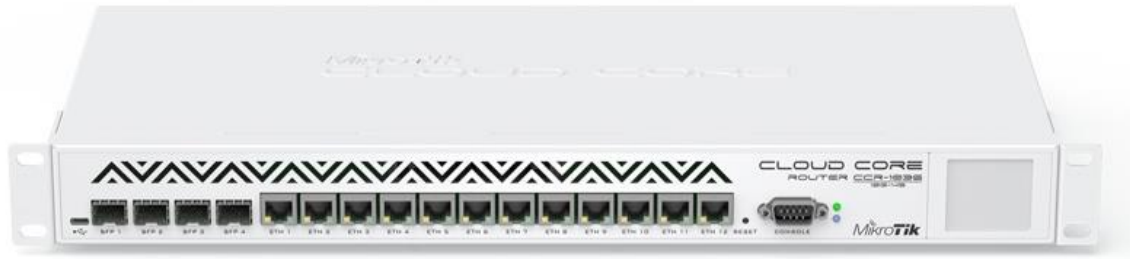


Figure 3.1: MikroTik Cloud Core Router 1036 series

3.6 MikroTik Configuration

To configure mikroTik at first we have to download the Winbox. It is the graphical figure use for mikroTik routerOS. After download Winbox installation is not required it can be run straight away.

3.7 Propose Network Diagram (MikroTik Configuration)

Network Diagram shows in fig 3.2:

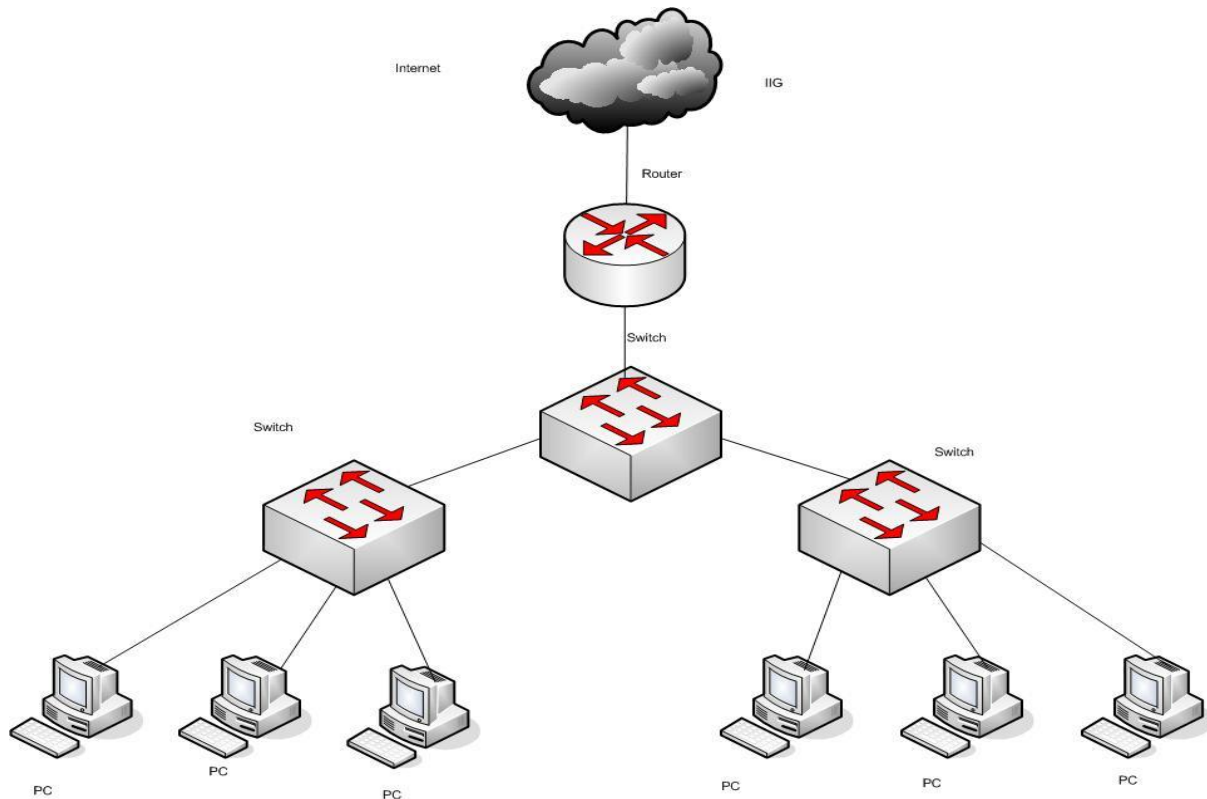


Figure 3.2: Network Diagram

➤ 3.7.1 Initial setup

- At first we should give Power to the MikroTik Router.
- Then plug in a UTP cable in MikroTik LAN port and the other port to the PC.
- Open the winbox
- When it shows an IP and MAC address we have to click MAC address then we should write 'Admin' in login box and there is no need to give password.

3.8 Configure a Router

- ✓ **Step 1:** Click IP>>Address
- ✓ **Step 2:** When it open the address list dialogue box click the plus button to open the add IP address window

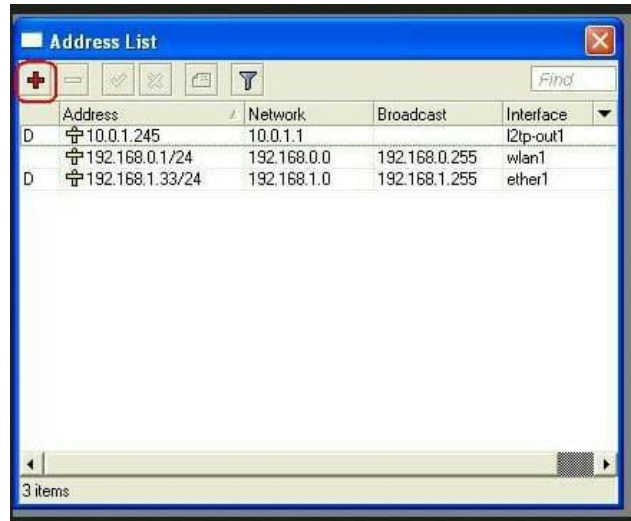


Figure 3.3: Shows assign IP address

- ✓ **Step 3:** After the New IP address dialog opens enter the address details select an interface to set the address on and press apply and OK button



Figure 3.4: Enter the address details

3.9 Static Configuration

- ✓ **Step 1:** MikroTik reset command

MikroTik reset command show in figure 3.5:

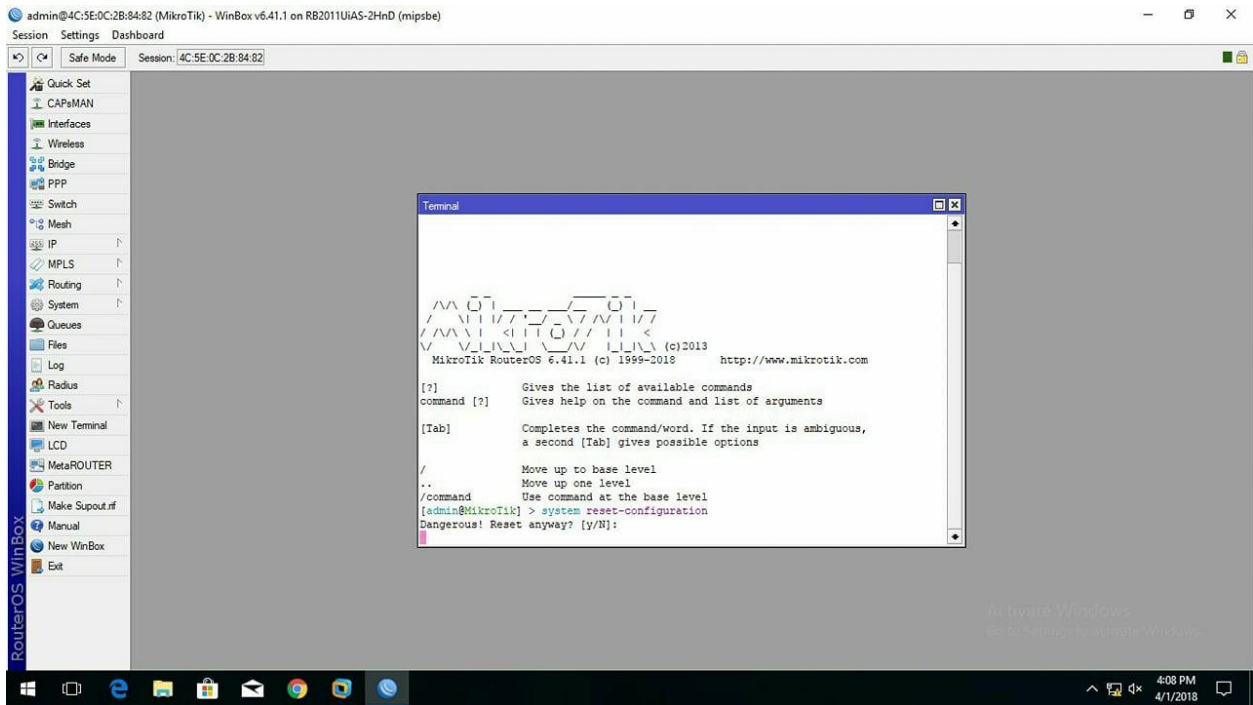


Figure 3.5: MikroTik reset configuration

✓ **Step 2:**

Process:

Go to IP > Route > "+" > Gateway

Apply > Ok

Setup Gateway show in figure 3.6:

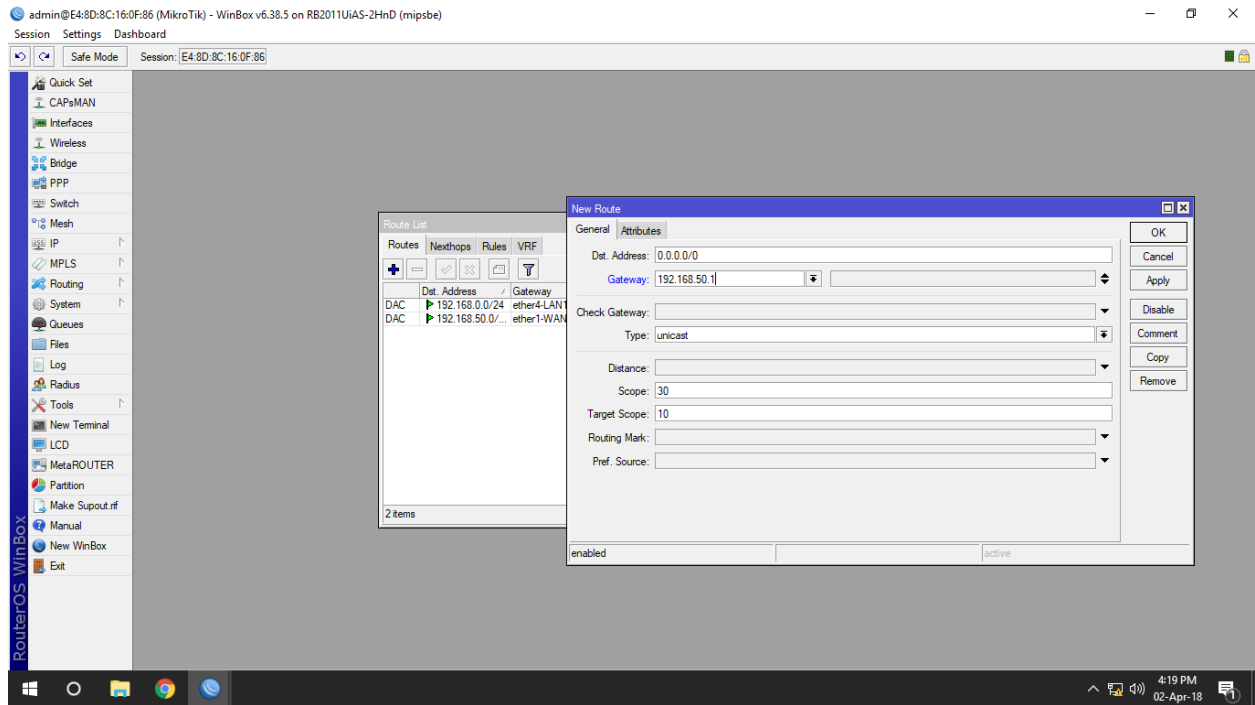


Figure3.6: Gateway setup

✓ **Step 3:**

Process:

Go to IP > DNS

Apply > OK

Setup DNS show in figure 3.7:

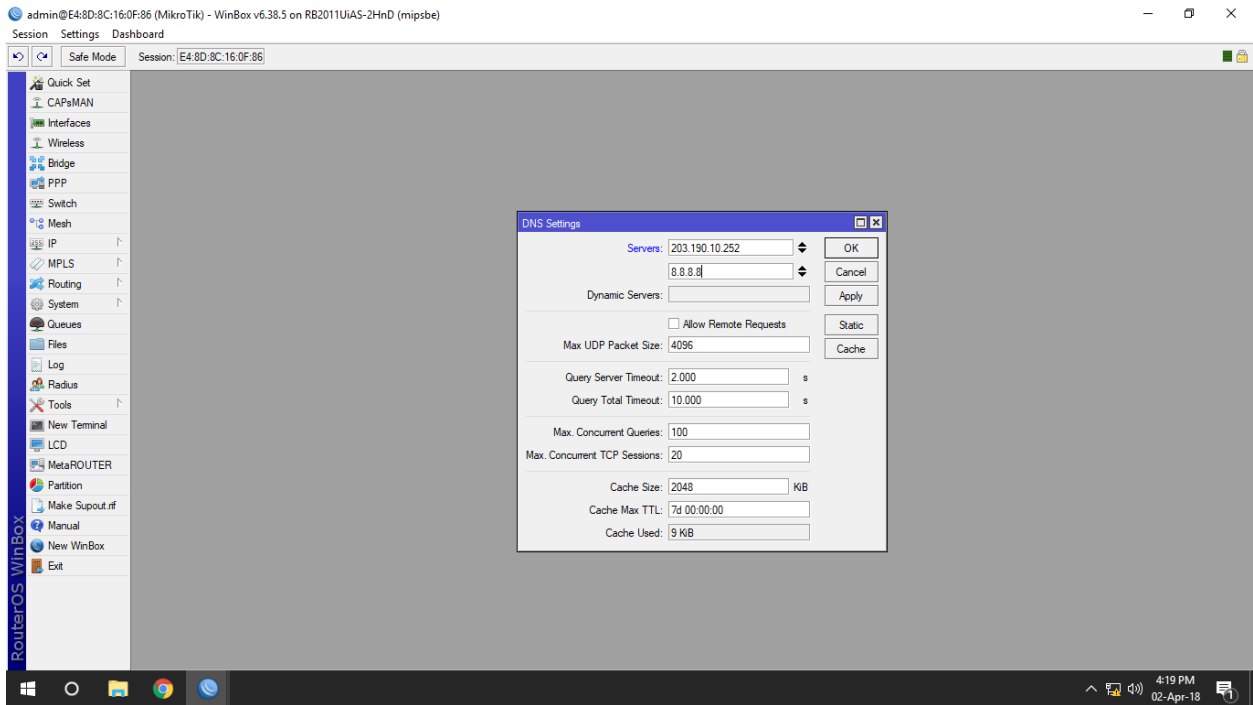


Figure3.7: DNS setting

✓ **Step 4:**

Process:

Go to IP > Firewall > NAT > "+"

Action:

Masquerade

Apply > OK

NAT rule setting show in figure 3.8:

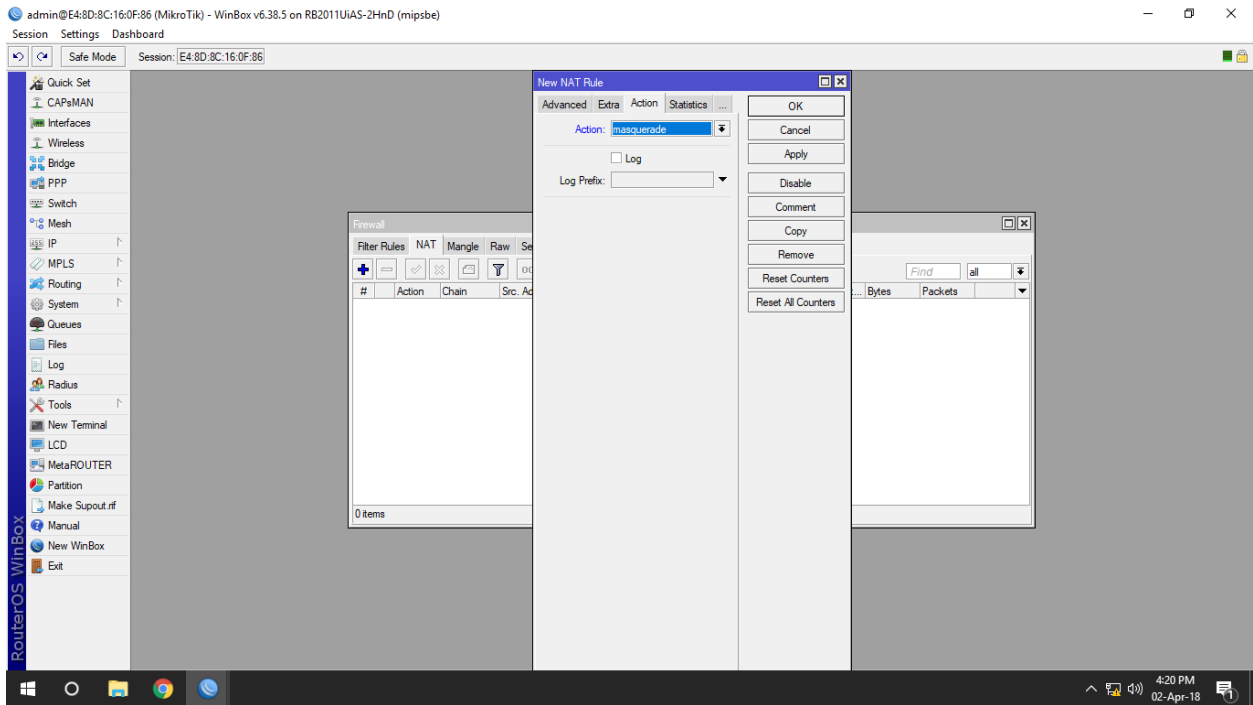


Figure 3.8: NAT Rule

3.10 Bridge Configuration

✓ Step 1:

Process:

Go to Bridge >”+”

Write the name of bridge

Action:

Apply > Ok

Bridge port assigning show in figure 3.9:

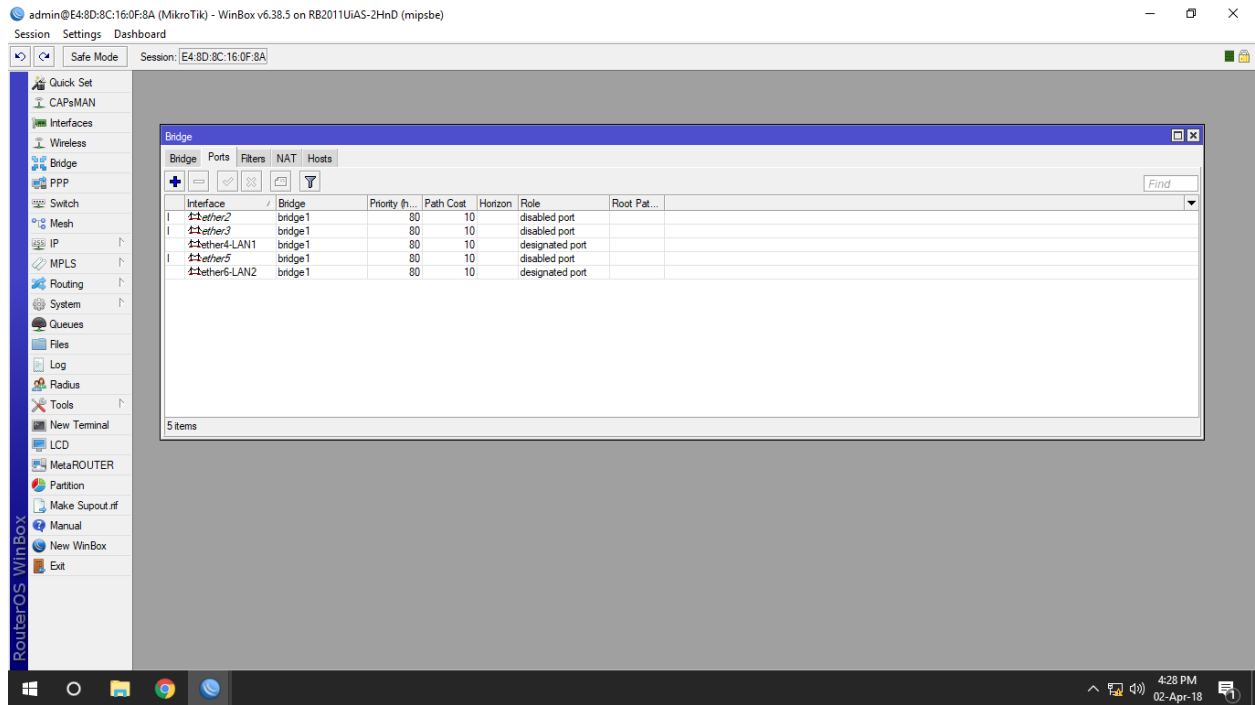


Figure 3.9: Bridge port assign

IP address assign of bridge configuration show in figure 3.10:

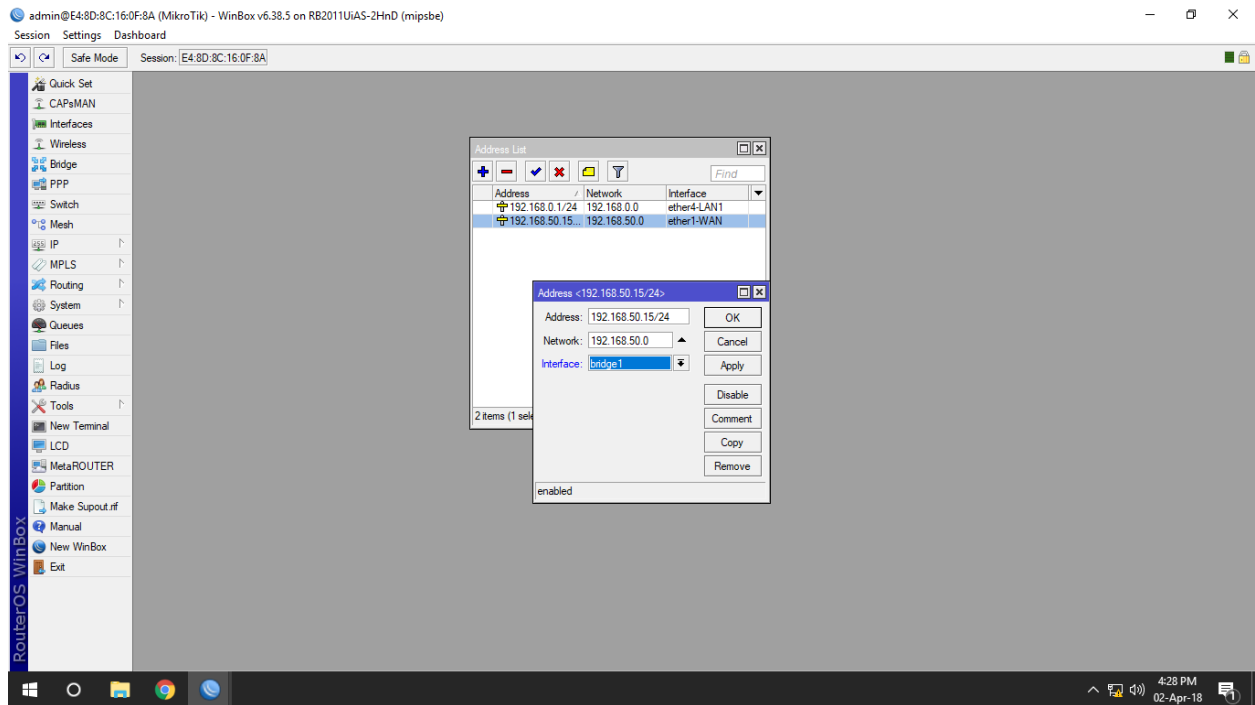


Figure 3.10: IP address assign of bridge configuration

3.11 DHCP Configuration in MikroTik Router

Dynamic Host Configuration Protocol (DHCP) is a client/server protocol. It gives IP address and other related data, for example, subnet cover, default entryway and DNS to DHCP client. Each MikroTik Router has a worked in DHCP benefit. Along these lines, framework administrator can without much of a stretch transform MikroTik Router into a DHCP server and can undoubtedly decrease his system organization task. The setup of DHCP in MikroTik switch is given below with both GUI and command line interface.

➤ 3.11.1 DHCP setup

✓ Step 1:

Process:

Go to IP > DHCP > "+" >

Action:

Next

Selecting DHCP Server Interface show in figure 3.11:

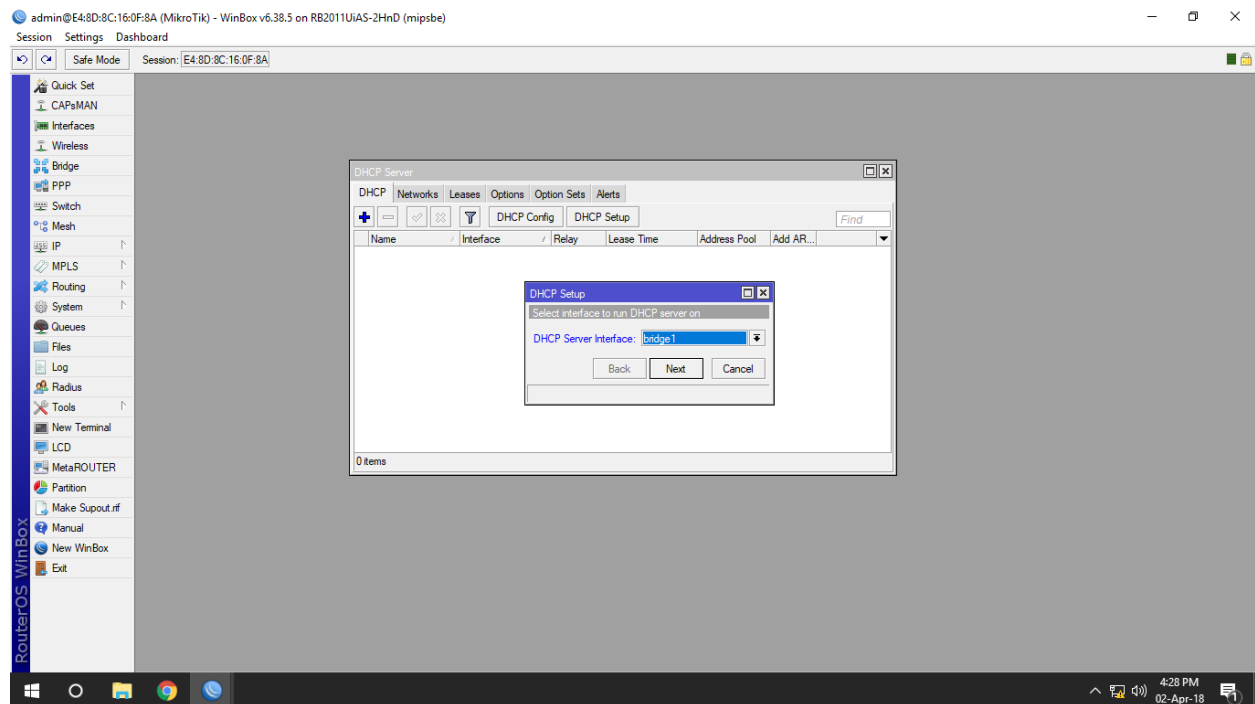


Figure 3.11: DHCP server interface

✓ **Step 2:**

Process:

Go to IP > DHCP

IP address assigning in DHCP setup show in figure 3.12:

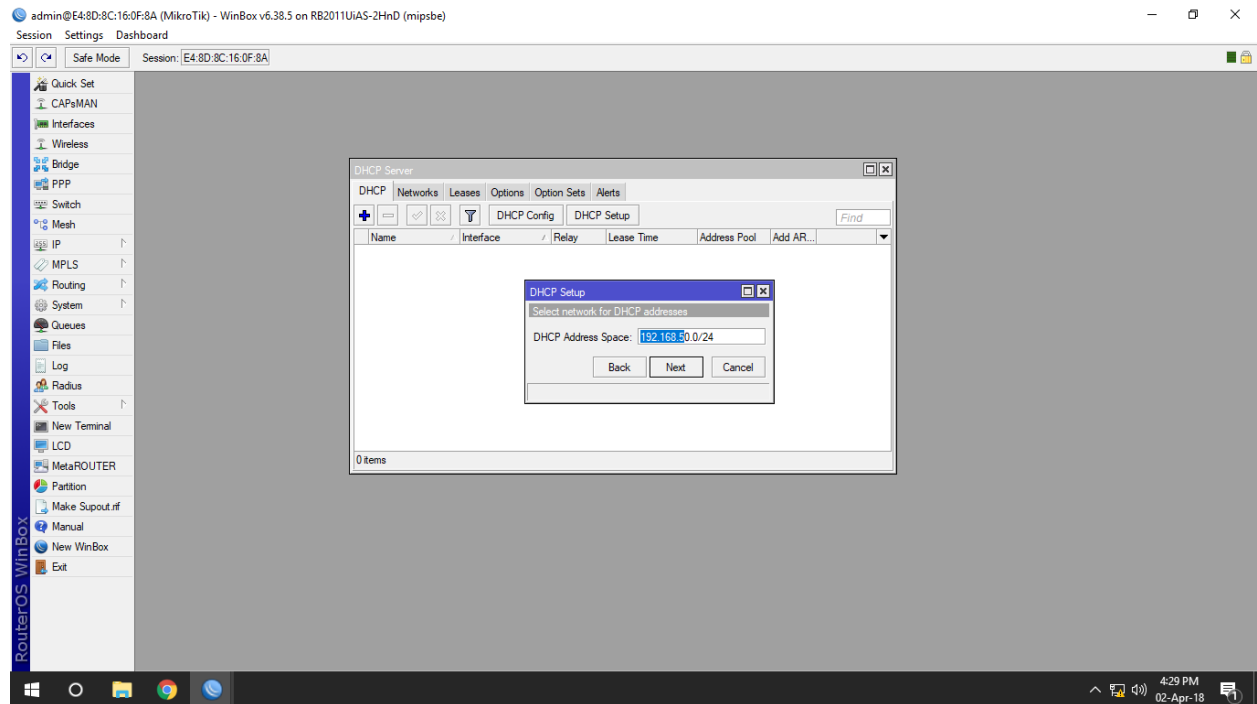


Figure 3.12: IP address assigning in DHCP Setup

✓ **Step 3:**

Process:

IP > DHCP

General:

Gateway For DHCP Network: 198.168.50.1

Action:

Next

Gateway setting for DHCP network show in figure 3.13:

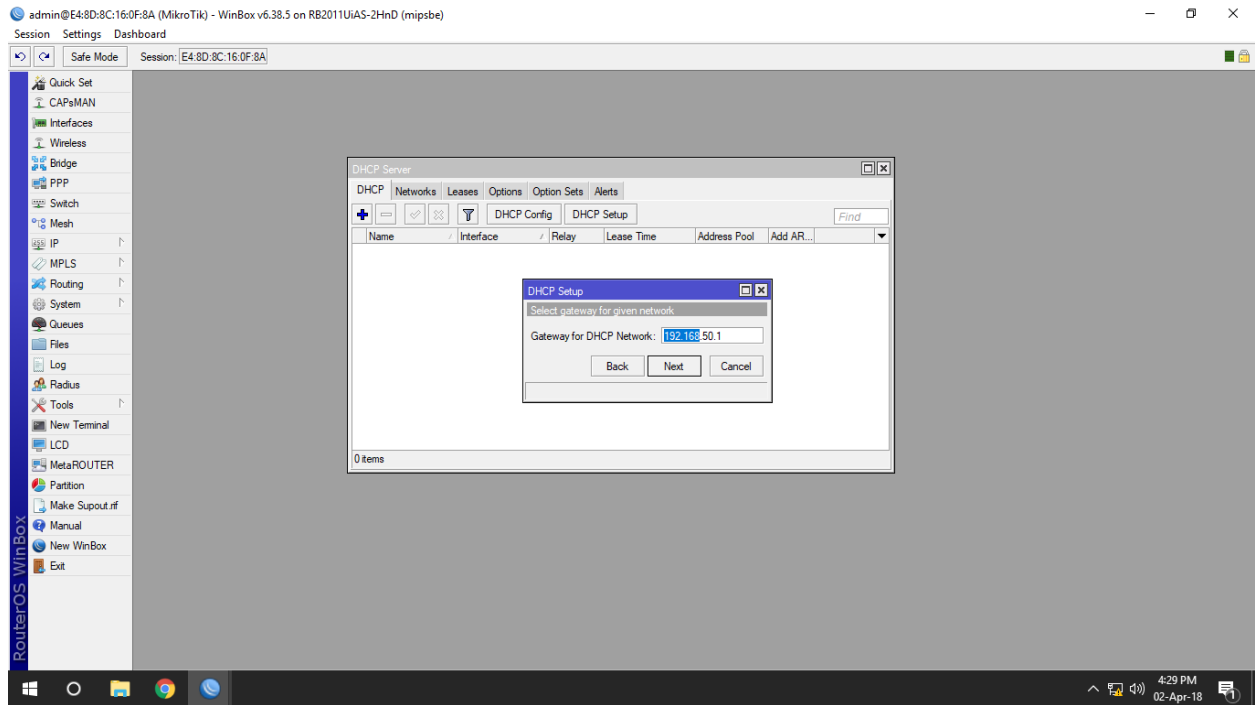


Figure 3.13: Gateway for DHCP Network

✓ **Step 4:**

Process:

IP > DHCP

DNS setup show in figure 3.14:

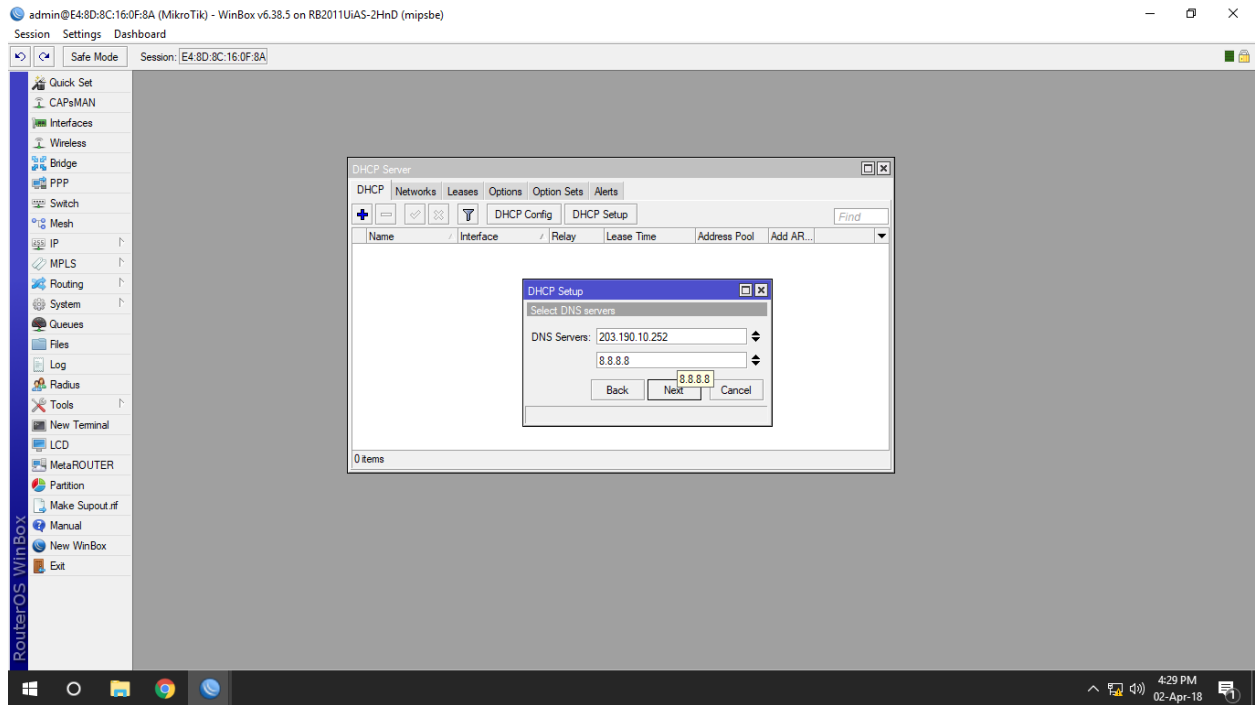


Figure 3.14: DNS setup

DHCP setup completed show in figure 3.15:

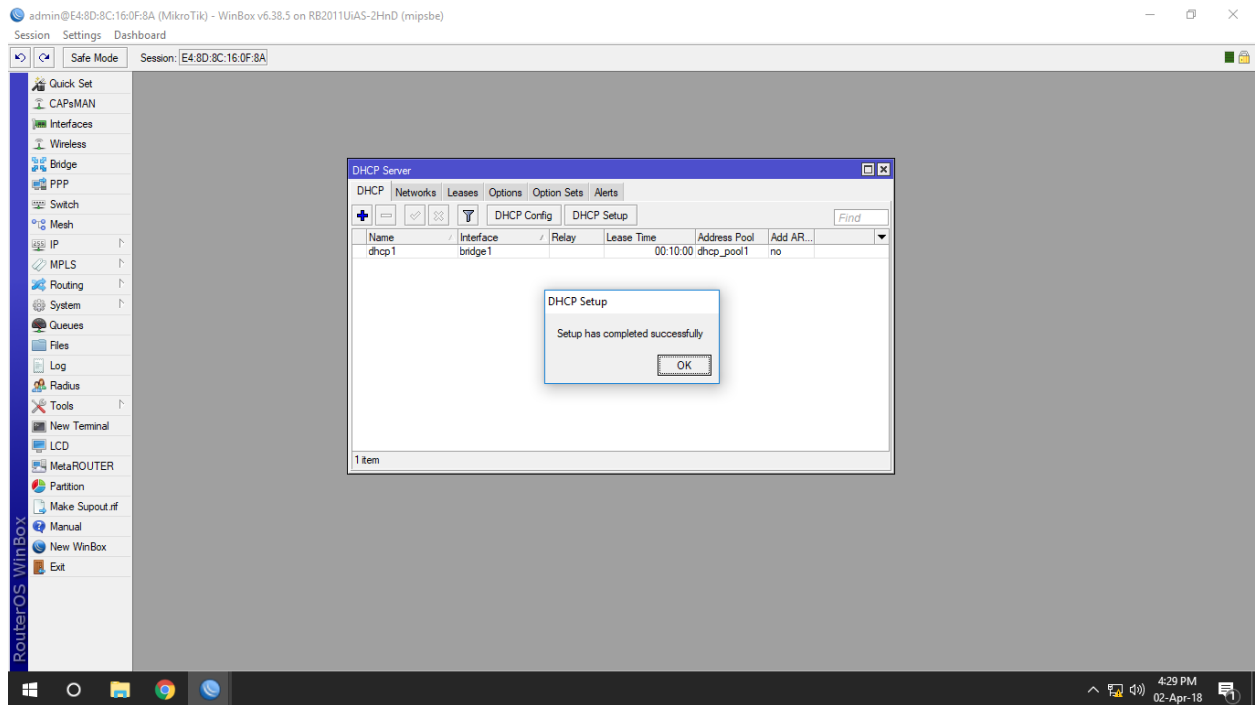


Figure 3.15: DHCP Setup

3.12 PCQ Bandwidth Management

✓ Step 1:

Process:

Go to New terminal > Type import address.src

Action:

Enter

Import address.src show in figure 3.16:

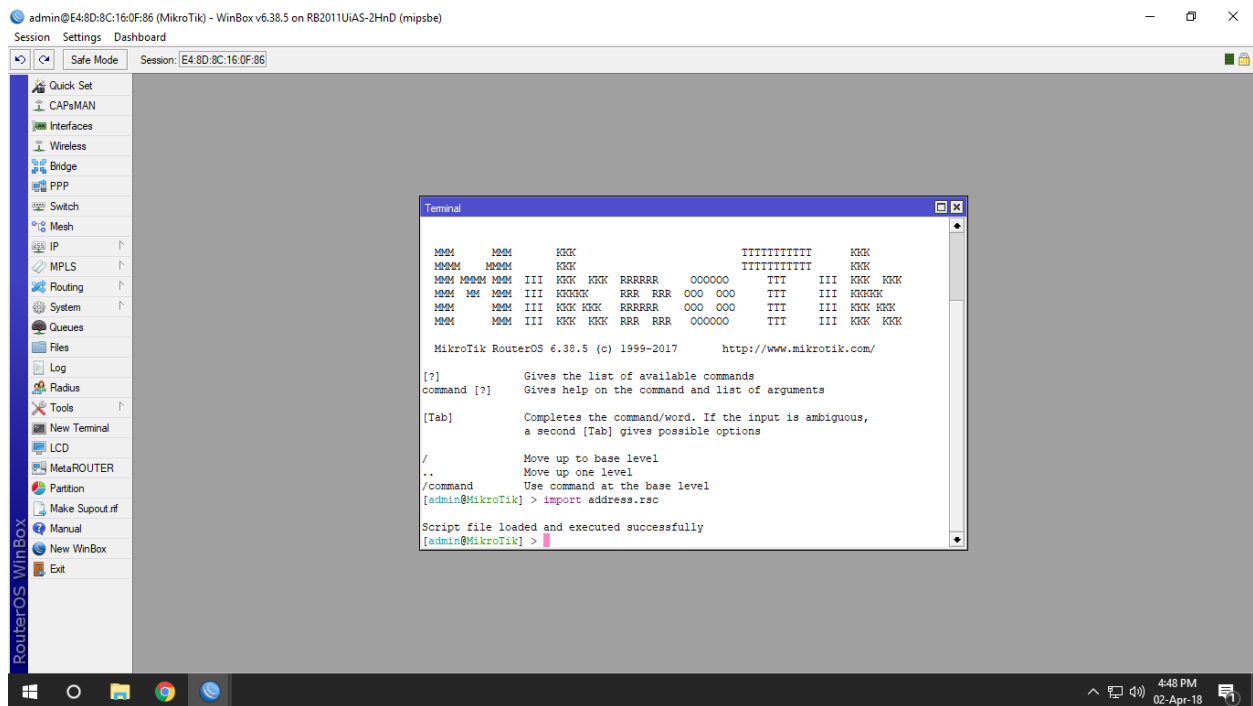


Figure 3.16: import address.src

✓ Step 2:

Process:

Go to IP > Firewall > Mangle > ""+"" >

General:

Chain: Prerouting

Action:

Apply > Ok

Firewall Mangle Rule show in figure 3.17:

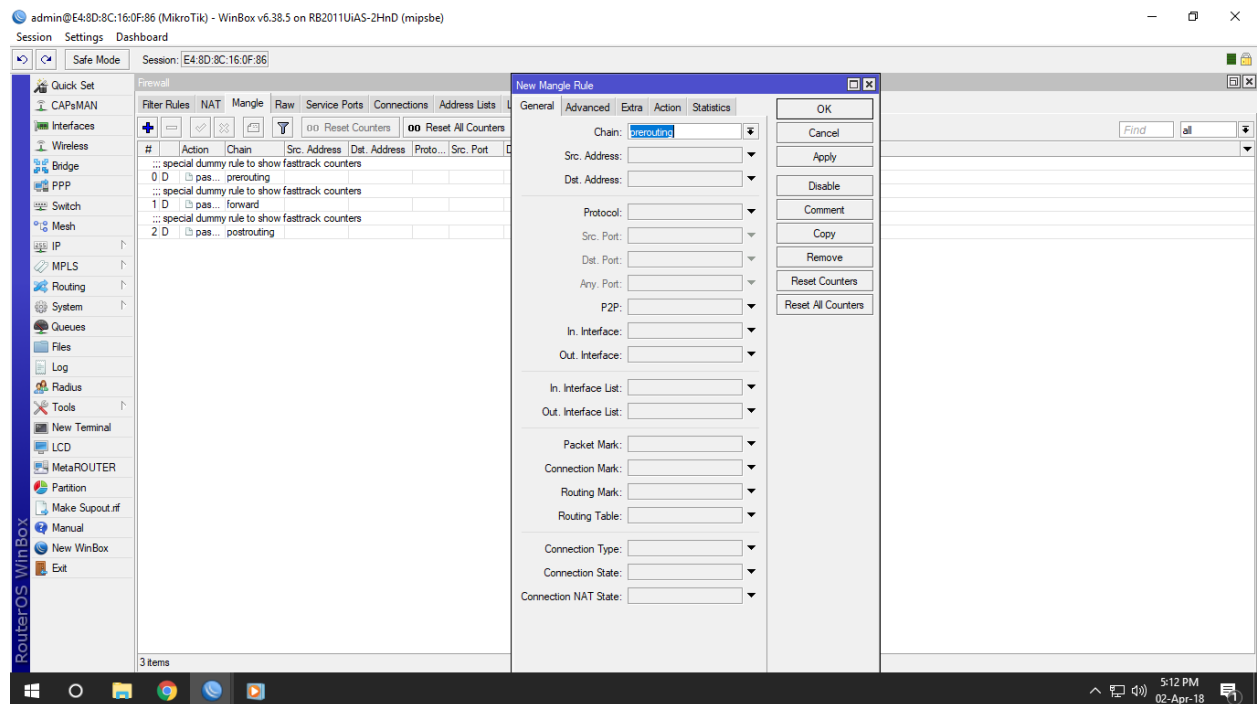


Figure 3.17: Mangle Rule

✓ **Step 3:**

Process:

Go to IP > Firewall > Mangle > "+" > Advanced

General:

Src.Address List: YouTube

Action:

Apply > Ok

Mangle setting show in figure 3.18:

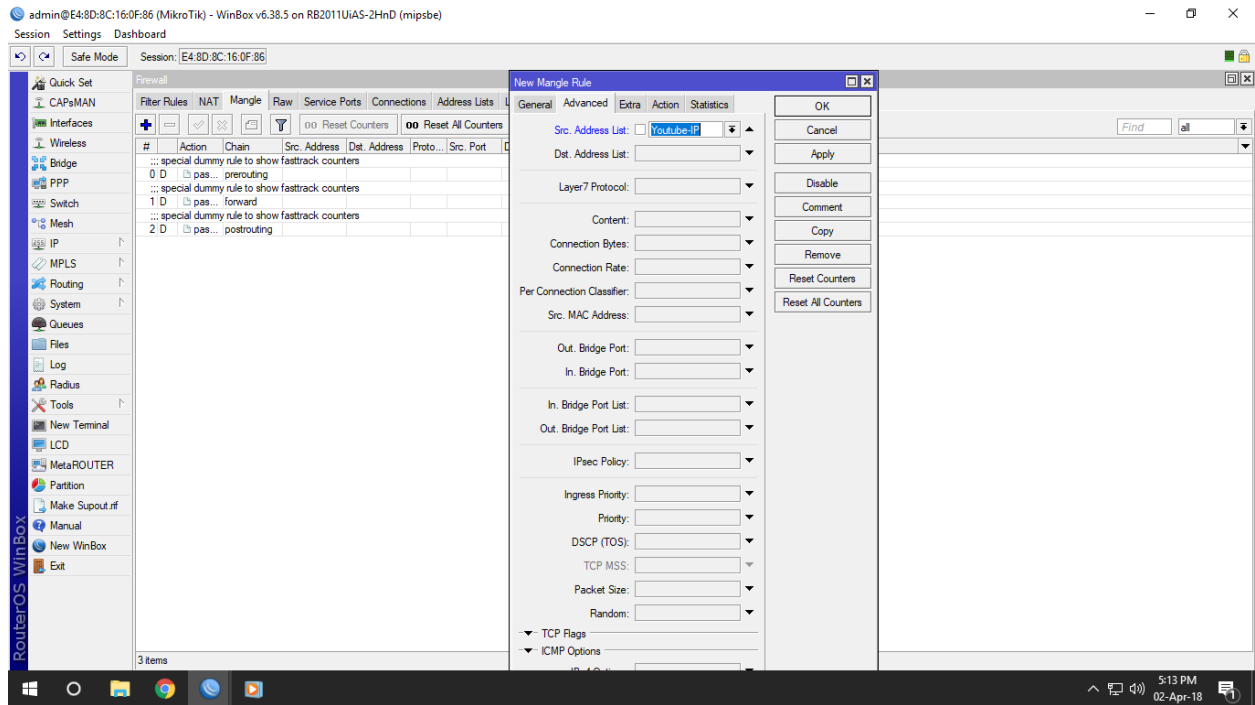


Figure 3.18: Mangle Advanced Setting

✓ **Step 4:**

Process:

Go to Queues > "+"

General:

Name: Queue1

Action:

Apply > Ok

Creating Queue show in figure 3.19:

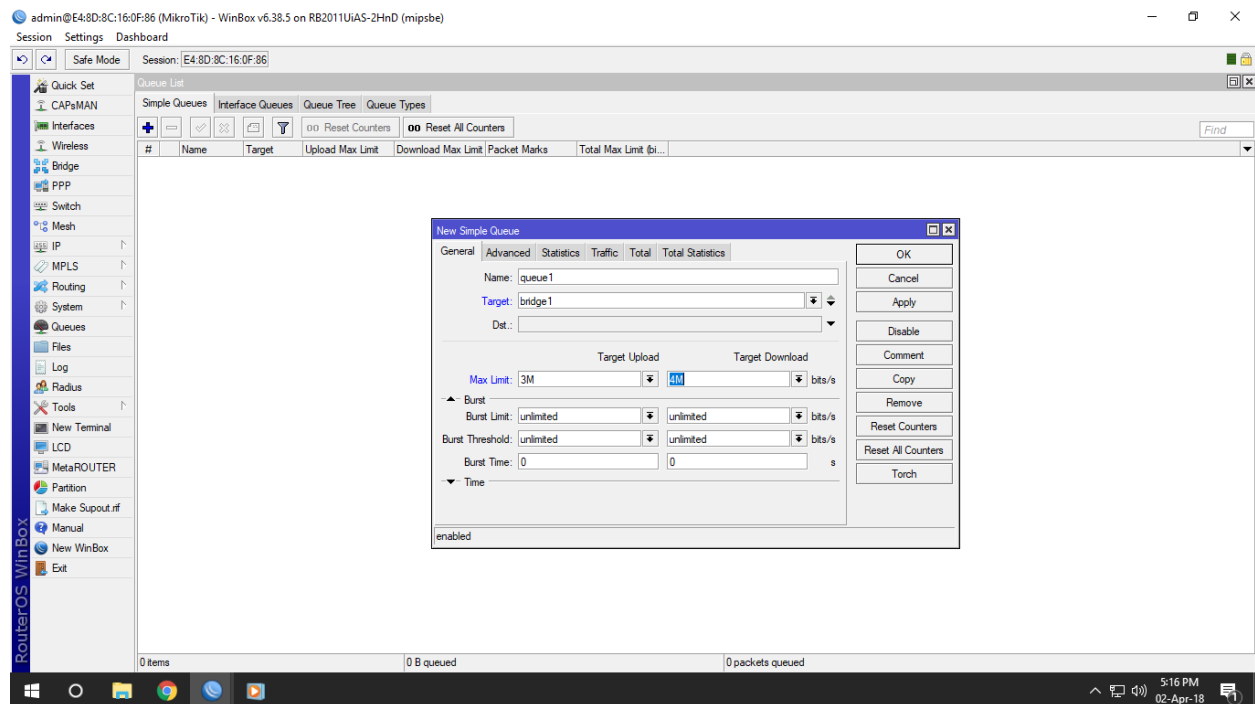


Figure 3.19: Creating Queue

✓ Step 5:

Process:

Go to Queues > Queue Type

General:

Kind: Pcq

Setting:

Tick mark to dst.address

Action:

Apply > Ok

Queue Types show in figure 3.20:

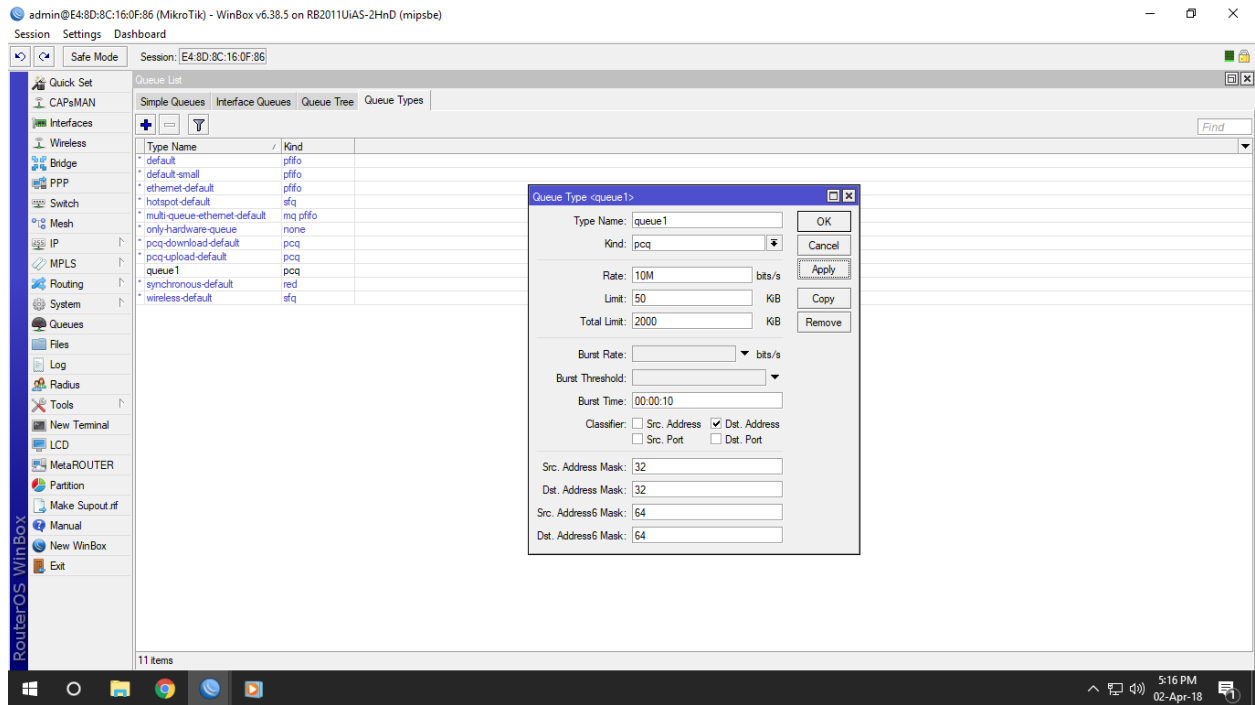


Figure 3.20: Queue types

3.13 Cisco

Networking is a connecting of two or more devices. The connection through physical and logical media, it made with both software and hardware.

➤ **3.13.1 Models of Networking:**

There are many kind of models in networking

- ✓ Client-Server model
- ✓ Peer to peer model
- ✓ Domain model

➤ **Client-Server model**

It has one server and many clients in client server model. The server cannot share resources to the client where client can share resources to server.

➤ **Peer to Peer model**

All computers are equal status in peer to peer networking mode.

➤ **Domain model**

Domain model is a mixer of both client-server and peer to peer model.

3.14 IP addresses

There are two version of IP address IPv4 and IPv6.

➤ **Features of IPv4:**

- ✓ IPv4 is 32 bit long
- ✓ It parted into 4 octets
- ✓ It can makes broadcasting, multicasting and unicasting
- ✓ It is in decimal form.
- ✓ It parted into 5 classes A to E.

➤ **3.14.1 IP address classes**

It has numerous classes such as Class A,B,C,D and class E.

Class A consists 8 bit network ID and 24 bit host ID

Class B consists 16 bit network ID and 64 bit host ID

Class C consists 24 bit network ID and 8 bit host ID

Table1: Address Classes

Class	1 st Octet Decimal Range	1 st Octet High Order Bits	Network/Host ID (N=Network, H=Host)	Default Subnet Mask	Number of Networks	Hosts per Network (Usable Addresses)
A	1 – 126*	0	N.H.H.H	255.0.0.0	126 ($2^7 - 2$)	16,777,214 ($2^{24} - 2$)
B	128 – 191	10	N.N.H.H	255.255.0.0	16,382 ($2^{14} - 2$)	65,534 ($2^{16} - 2$)
C	192 – 223	110	N.N.N.H	255.255.255.0	2,097,150 ($2^{21} - 2$)	254 ($2^8 - 2$)

D	224 – 239	1110	It reserved for Multicasting
E	240 – 254	1111	used for research

3.15 Assign IP address to a computer

An assign a IP address can be permanent address or for temporary basis. It divided by dynamic and static address.

➤ 3.15.1 Dynamic IP address

Dynamic IP address are assign when there is need to a temporary connection in a computer. It also called Dynamic Host Configuration Protocol (DHCP).

➤ 3.15.2 Static IP address

Static IP address assign are assign when it require a long duration connection. It is semi-permanent.

3.16 MAC addressing

MAC address is known as hardware or physical address that is embedded in the NIC. NIC has a unique MAC address which is assigned by IEEE. MAC address is 48 bit address and 12digit hexadecimal number. It is made up of letter from A to F and numbers from 0-9. It can be written both of them formats.

➤ 3.16.1 Identify the MAC address in computer

- Click windows>Run
- Write cmd
- Write ipconfig/all
- Click enter

MAC address of 12 digit will be shown like this 00:11:11:EA:8D:F6

3.17 Fiber optical cable

Fiber optic is made from two types of glass, one for inner and another for outer layer. In fiber optic cable it transmitted signal in the form of light. The use of this cable depending the size of the network. It is more secure transmission media than any other cable and also very costly cable.

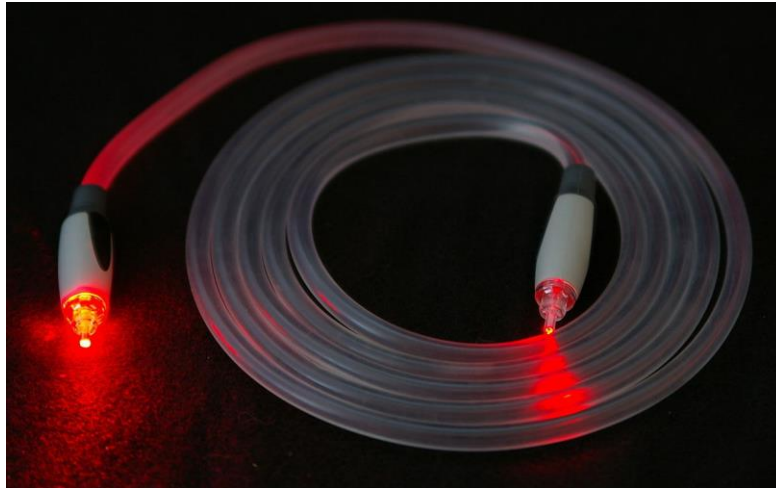


Figure 3.21: Fiber optic cable

3.18 Twisted Pair cable

In twisted pair cable two wires are twisted each other and avoid Electro Magnetic Induction (EMI).It has limited distance covering capacity. Cable RJ-45 and RJ-11 connector used for twisted pair. There are two types of cable

- STP(Shielded Twisted Pair)
- UTP(Unshielded Twisted Pair)

3.19 Color coding for crossover cable

Orange/White

Orange

Green/White

Blue

Blue/White

Green

Brown/White

Brown

3.20 Linux

Linux is an operating system like windows xp windows 7, windows 8. It is freely distributed operating system and also cross-platform operating system based on unix that can be installed many device as desktop, laptop, mobile, supercomputer and more.

➤ 3.20.1 Linux Distribution Packages

There are numerous Linux distribution package for server and desktops. Such as DEBIAN, RED HAT, Ubuntu.

3.21 Kernel System

In most computer operating system the kernel is the main element. It handle computer hardware and software resources and provides common services for computer programs.

3.22 Centos Install

➤ Linux Partition Creating

We have to create at least 3 partitions root (/), boot, and swap.

- **Root Partition: /**

A root partition there is the place "/" the root registry is found all files (except in/boot) are on the root partition.

- **Boot Partition: /boot**

The partition on/boot/contains the working framework piece (it enables our framework to boot Linux), and alongside record use amid the bootstrap process. Creating a local ext3 segment to hold this document is required because of limitation. A 200 MB boot segment is adequate for the greater part of the client.

- **SWAP Partition: Swap**

When there is not enough RAM to store the data system is processing then it is written to a swap partition. 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 can not be less than 32 MB [3].

➤ 3.23 Linux RunLevel Used by Centos

- 0 — Shut Down
- 1 — Single-user text mode
- 2 — Multi User Mode
- 3 — Full multi-user text mode
- 4 — Unused (user-definable)
- 5 — Full multi-user graphical mode (with an X-based login screen)
- 6 — Reboot

➤ 3.24 The Basic Command of Linux Centos

cat [filename]	Read Name
cd /directorypath	Change to directory.
chmod [options] mode filename	Change a file's permissions.
chown [options] filename	Change who owns a file.
Clear	Clear a command line screen/window for a fresh start.
cp [options] source destination	Copy files and directories.
date [options]	Display or set the system date and time.
df [options]	Display used and available disk space.
du [options]	Show how much space each file takes up.
file [options] filename	Determine what type of data is within a file.
find [pathname] [expression]	Search for files matching a provided pattern.
grep [options] pattern [filename]	Search files or output for a particular pattern.
kill [options] pid	Stop a process. If the process refuses to stop, use kill -9 pid.
less [options] [filename]	View the contents of a file one page at a time.
ln [options] source [destination]	Create a shortcut.
locate filename	Search a copy of your filesystem for the specified filename.
lpr [options]	Send a print job.
ls [options]	List directory contents.

man [command]	Display the help information for the specified command.
mkdir [options] directory	Create a new directory.
mv [options] source destination	Rename or move file(s) or directories.
passwd [name [password]]	Change the password or allow (for the system administrator) to change any password.
ps [options]	Display a snapshot of the currently running processes.
Pwd	Display the pathname for the current directory.
rm [options] directory	Remove (delete) file(s) and/or directories.
rmdir [options] directory	Delete empty directories.
ssh [options] user@machine	Remotely log in to another Linux machine, over the network. Leave an ssh session by typing exit .
su [options] [user [arguments]]	Switch to another user account.
tail [options] [filename]	Display the last <i>n</i> lines of a file (the default is 10).
tar [options] filename	Store and extract files from a tarfile (.tar) or tarball (.tar.gz or .tgz).
Top	Displays the resources being used on your system. Press q to exit.
touch filename	Create an empty file with the specified name.
who [options]	Display who is logged on.

➤ 3.25 User Create and Password Management

To add user=Jannatul Noori(username).

To Set a password=Passwd Jannatul(username).

Verify user information=finger Jannatul(username).

Password Disable/Remove=passwd Jannatul(username).

Locking an account=passwdl Jannatul(username).

Unlocking an account=passwd -u Jannatul(username).

Delete a user=userdel Jannatul(username).

➤ **3.26 Root Password Break-single user mode**

- ✓ Reboot
- ✓ Press Esc to boot
- ✓ See the instruction under there and press e
- ✓ Select Kernel
- ✓ Edit ro into wr & at last edit quite into single then press Enter.

3.27 Server Configuration

In Internet Service Provider [ISP] the Server Configuration is very important purpose. Server Selection is important for each server services. Numerous servers contains in Linux Operating System. Inside Those Servers DNS server, DHCP server, FTP server, NFS server, PROXY server, MAIL server, WEB server, SAMBA server Internet Service Provider [ISP] can be arranged.

➤ **Web Server**

Web servers are computers that deliver Web pages. Each Web server has an IP address and perhaps a space name. For instance, on the off chance that you enter the URL <http://facebook.com> in your program, this sends a demand to the Web server whose area name is facebook.com. The server at that point brings the page named index.html and sends it to your browser.[7]

Centos 6.3 Web Server Configuration Requirements

To set up your own site is a PC, a working framework, a web server, an area name, an IP address of a name server is required.

The PC is equipped for running Linux can be utilized on any framework. The dialect of the working framework, we, obviously, you would accept utilizing Centos 6.3. Centos working framework up and running once the already specified can be effortlessly introduced the Apache Web server bolsters. A space name can be enlisted with an area name enrollment administrations.

Your ISP gives static IP address, and afterward you should include your space with static IP addresses. This is accomplished by utilizing a name server. Most space enlistment administrations will give this administration to you. On the off chance that you design your area name and your name server, the subsequent stage is to introduce and arrange your web server.

➤ **Domain Name System (DNS)**

Host indicated by the IP address of the PC that is advantageous for them, however it's not generally simple for individuals working with the name. Along these lines, the IP address of the host name does not have to change over to an interpretation table. Consistently a great many new machines flying up on the Internet, it is difficult to keep everybody on the table this kind of a la mode. This is the place it comes in will DNS.DNS-of the Domain Name System. DNS-IP address of the machine on the net for all machines that have changed the name. This deciphers [or language as the "map"] to address the name and address, and some different elements.

As a mapping ftp.linux.org, for this situation, is a relationship between two things is just the name of a machine, and the machine's IP number [or address] 199.249.150.4. The machine name, IP number DNS-mapping contains the other way; this is a "switch mapping" is called.

DNS-the uninitiated, the more misty territories of system organization, either. This is a piece of venture, we have a storing just server and an essential DNS server for an area that will set up, beginning with a straightforward DNS-depicts how to set up the name of the server tries to tidy up.

An all inclusive database of DNS-. Deal with what we have done. We are junk, at that point we, and others, it will escape the refuse. Clean and reliable in DNS-place and we will get great administration from it. Troubleshoot it, learn it, and we have administrator shielding the net from tumbling to its knees by bungle will be another great administrator.

Filling in as a program called the Unix. This is facilitated by the Internet Software Consortium, the "authoritative" on the bundle, a piece of. Most Linux circulations are incorporated into the names and typically is introduced,/usr/sbin/, normally from a bundle called the authoritative, the best or base of the bundle relies upon the impulse of the case. Most DNS usage, including that of Red Hat Linux utilize BIND, BIND is an acronym for the "Berkeley Internet Name Domain" venture which keeps up the DNS related programming suite that keeps running under Linux. The most surely understood program stuck Tough situation is "named", the daemon that reacts to DNS questions from remote machines. Right now BIND 8/9 is being utilized for DNS purposes. To get to the database, one needs a DNS server for his/her site. A DNS server is otherwise called a name server [NS]. These servers come in three assortments; [3]

- Master [also called primary]
- Slave [also called secondary]
- Caching

DNS SERVER CONFIGURATION

WORKS OF DNS:

It converts name to IP address.

© Daffodil International University

And IP Address to Name.

ZONE FILES:

Forward Zone File: name to IP address.

Reverse Zone File: IP Address to Name

PACKAGE NAME: bind

DEFAULT PORT: 53

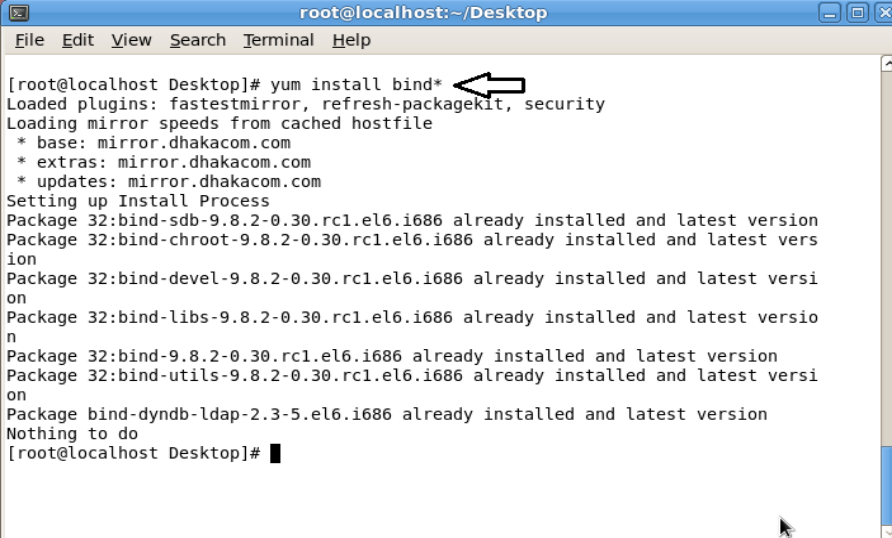
CONFIGURATIONS FILE NAME: named.config

➤ **STEP: 1**

At first we have to install package of dns name bind : yum install bind*

There Show Already install because of its already installed in my pc.

Show 3.6 in install DNS in command yum install bind*



```
root@localhost:~/Desktop
File Edit View Search Terminal Help

[root@localhost Desktop]# yum install bind*
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 32:bind-sdb-9.8.2-0.30.rc1.el6.i686 already installed and latest version
Package 32:bind-chroot-9.8.2-0.30.rc1.el6.i686 already installed and latest version
Package 32:bind-devel-9.8.2-0.30.rc1.el6.i686 already installed and latest version
Package 32:bind-libs-9.8.2-0.30.rc1.el6.i686 already installed and latest version
Package 32:bind-9.8.2-0.30.rc1.el6.i686 already installed and latest version
Package 32:bind-utils-9.8.2-0.30.rc1.el6.i686 already installed and latest version
Package bind-dynb-ldap-2.3-5.el6.i686 already installed and latest version
Nothing to do
[root@localhost Desktop]#
```

Figure 3.22: Shows Screen Print yum install bind.

➤ **STEP: 2**

Edit the configuration file using vi editor : vi /var/named/chroot/etc/named.conf

And go to line no 7 enter local host IP address.

Show figure 3.7 My pc IP address is 192.168.50.19

```
1 // Sample DNS server
2 // Only For training
3 //@Tayab Khan
4 // dns name ns1.khan.com
5 // Config Starts from Here
6 options {
7     listen-on port 53 { localhost;192.168.50.19;}; ←
8     listen-on-v6 port 53 { ::1; };
9     directory      "/var/named/";
10    dump-file       "/var/named/data/cache_dump.db";
11    statistics-file "/var/named/data/named_stats.txt";
12    memstatistics-file "/var/named/data/named_mem_stats.txt";
13
14    allow-query     { 0.0.0.0/0;};
15    allow-transfer  { 192.168.50.3/32;};
16    recursion yes;
17    dnssec-enable yes;
18    allow-recursion { localhost;192.168.50.0/24;};
19    recursive-clients 155000;
20
21 };
22 logging {
23     channel default_debug {
24         file "data/named.run";
25     };
26 };
-- INSERT --
```

Figure 3.23: Shows Screen Print Edit using vi editor named, conf file.

➤ **STEP: 3**

Enter a web address of forward zone. I used abc.com for testing. Shows in figure 3.24

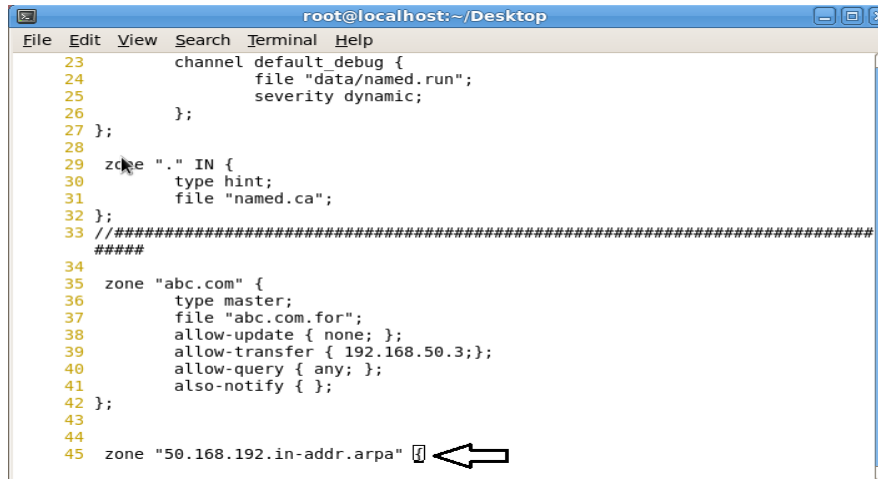
```
13
14     allow-query     { 0.0.0.0/0;};
15     allow-transfer  { 192.168.50.3/32;};
16     recursion yes;
17     dnssec-enable yes;
18     allow-recursion { localhost;192.168.50.0/24;};
19     recursive-clients 155000;
20
21 };
22 logging {
23     channel default_debug {
24         file "data/named.run";
25         severity dynamic;
26     };
27 };
28
29 zone "." IN {
30     type hint;
31     file "named.ca";
32 };
33 //#####
34
35 zone "abc.com" [r] ←
```

Figure 3.24: Shows Screen Print Edit Enter a web address of forward zone

➤ **STEP: 4**

Enter AN IP Address For Reverse Zone. Figure 3.25

We Have To Write IP Address In Backward Method:
192.168.50.19 as 50.168.192 without Network Portion



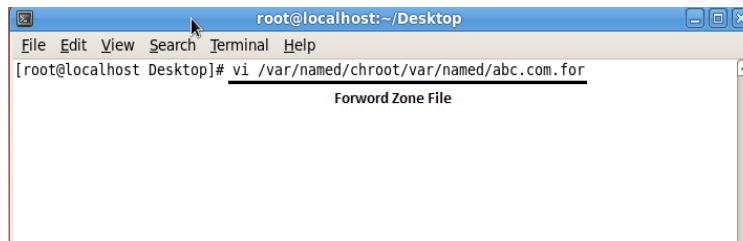
```
root@localhost:~/Desktop
File Edit View Search Terminal Help
23 channel default debug {
24     file "data/named.run";
25     severity dynamic;
26 };
27 };
28
29 zone "." IN {
30     type hint;
31     file "named.ca";
32 };
33 #####
34
35 zone "abc.com" {
36     type master;
37     file "abc.com.for";
38     allow-update { none; };
39     allow-transfer { 192.168.50.3; };
40     allow-query { any; };
41     also-notify { };
42 };
43
44
45 zone "50.168.192.in-addr.arpa" ↵ ←
```

Figure 3.25: Shows Screen Print Enter an IP Address For Reverse Zone.

➤ **STEP: 5**

Show figure 3.26 forward zone file command in command

vi /var/named/chroot/var/named/abc.com



```
root@localhost:~/Desktop
File Edit View Search Terminal Help
[root@localhost Desktop]# vi /var/named/chroot/var/named/abc.com.for
                                Forward Zone File
```

Figure 3.26 : Shows Screen Print edit Forward Zone File for abc.com

Forward zone file create Shows in figure 3.27

```

root@localhost:~/Desktop
File Edit View Search Terminal Help
$ORIGIN .
$TTL 3600;

abc.com      IN      SOA      ns1.khan.com. root.khan.com. (
                2808033004 ; serial
                1H         ; refresh
                15M        ; retry
                1W         ; expiry
                1D         ; minimum

                IN      NS       ns1.khan.com.
                IN      NS       ns2.khan.com.
                IN      MX       10  mail.abc.com.

$ORIGIN abc.com.
mail         IN      A        192.168.50.5
www          IN      A        192.168.50.19
database     CNAME   www

~
~
~
~
~
"/var/named/chroot/var/named/abc.com.for" 18L, 726C

```

Figure 3.27: Shows Screen Print edit Forward Zone File for abc.com

➤ **STEP: 6**

Show 3.28 figure reverse zone file command

```

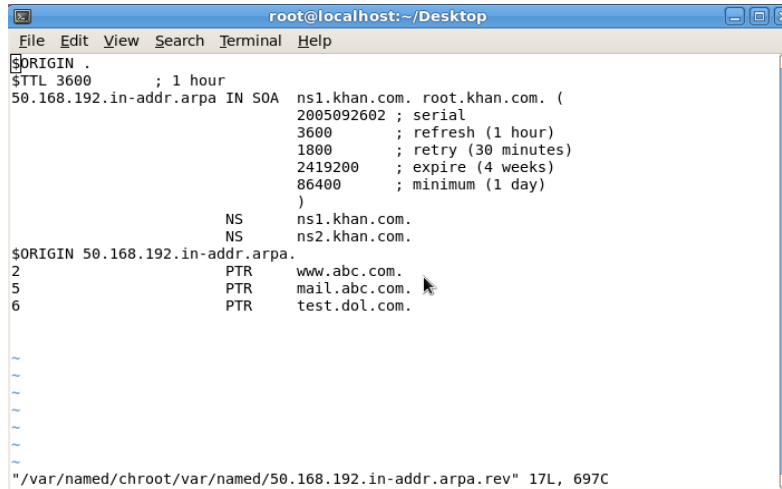
root@localhost:~/Desktop
File Edit View Search Terminal Help
[root@localhost Desktop]# vi /var/named/chroot/var/named/abc.com.for
[root@localhost Desktop]# vi /var/named/chroot/var/named/50.168.192.in-addr.arpa.rev

```

REVERSE ZONE FILE

Figure 3.28: Shows Screen Print edit Reverse Zone File

Show 3.29 figure edit reverses zone file full configuration file



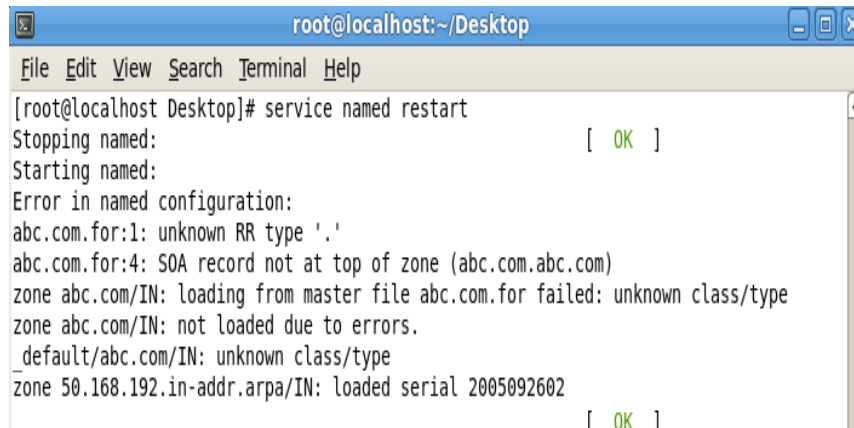
```
root@localhost:~/Desktop
File Edit View Search Terminal Help
$ORIGIN .
$TTL 3600      ; 1 hour
50.168.192.in-addr.arpa IN SOA ns1.khan.com. root.khan.com. (
                           2005092602 ; serial
                           3600      ; refresh (1 hour)
                           1800      ; retry (30 minutes)
                           2419200   ; expire (4 weeks)
                           86400     ; minimum (1 day)
                           )
                           NS      ns1.khan.com.
                           NS      ns2.khan.com.
$ORIGIN 50.168.192.in-addr.arpa.
2 PTR www.abc.com.
5 PTR mail.abc.com.
6 PTR test.dol.com.

~/var/named/chroot/var/named/50.168.192.in-addr.arpa.rev" 17L, 697C
```

Figure 3.29: Shows Screen Print edit Reverse Zone File

➤ **STEP: 7**

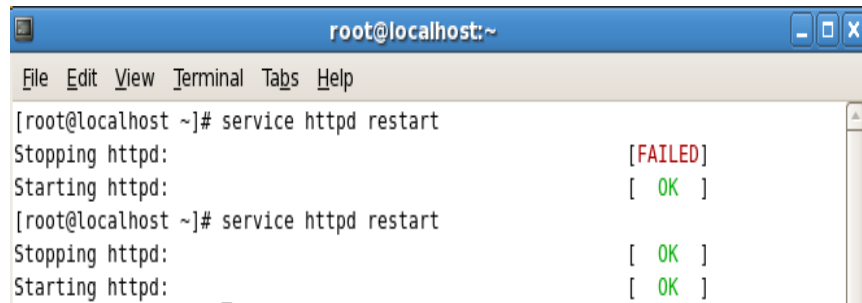
Restart the Service show 3.30 figure



```
root@localhost:~/Desktop
File Edit View Search Terminal Help
[root@localhost Desktop]# service named restart
Stopping named: [ OK ]
Starting named:
Error in named configuration:
abc.com.for:1: unknown RR type '.'
abc.com.for:4: SOA record not at top of zone (abc.com.abc.com)
zone abc.com/IN: loading from master file abc.com.for failed: unknown class/type
zone abc.com/IN: not loaded due to errors.
default/abc.com/IN: unknown class/type
zone 50.168.192.in-addr.arpa/IN: loaded serial 2005092602
[ OK ]
```

Figure 3.30: Shows Screen Print service named restart

Show 3.31 Restart Web Server Service



```
root@localhost:~  
File Edit View Terminal Tabs Help  
[root@localhost ~]# service httpd restart  
Stopping httpd: [FAILED]  
Starting httpd: [ OK ]  
[root@localhost ~]# service httpd restart  
Stopping httpd: [ OK ]  
Starting httpd: [ OK ]
```

Figure 3.31: Shows Screen Print service named status

➤ **STEP: 8**

Go to Browser and type abc.com in figure 3.32

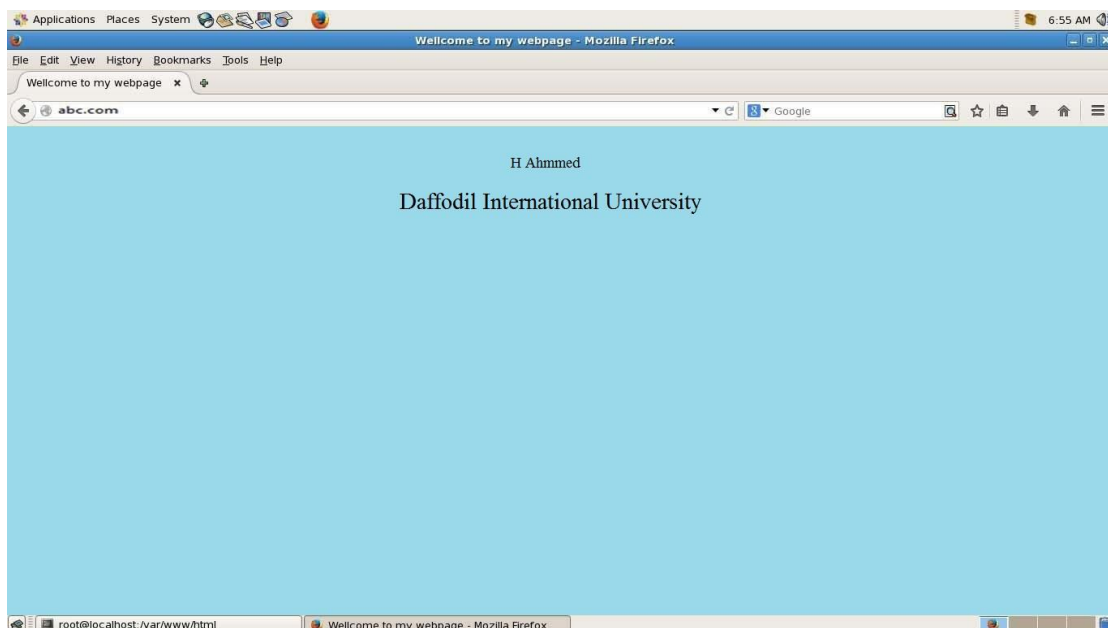


Figure 3.32: Shows Screen Print abc.com open in browser

Mail Server

Regularly as the "Mail Server", as per an email server that goes about as your virtual mail station, a PC in your system. Email to a mail server for neighborhood clients is put away in a capacity zone where the mail server, you should choose how to react to a particular message goal, which comprises of an arrangement of standards determined by the client, the client's

record on the mail server perceives a database locally and with the will be managed, and the other to deal with the exchange of messages from the mail server and email customer, which is the component of correspondence module.

Postmaster is normally alluded to as the individual in charge of the upkeep of the email server (s) (framework movement observing, altering clients). Most mail servers amid ordinary activity to work with no manual intercession [9].

➤ **Mail Server Configuration**

MUA = Mail user agent. Ex: Outlook, Eudora, Ms Outlook, Pine.

MTA= Mail Transfer Agent. Ex: Gmail, Exim, Sendmail, Post mail.

MDA= Mail Delivery Agent. Ex: Pros mail, Mail drop.

SMTP= Simple Mail Transfer Protocol. Used for sending, default port: 25.

POP3= Post Office Protocol 3.used for receiving, Default Port: 110.

IMAP= Internet Message Access Protocol. Used for receiving, Default Port: 143.

Here i have used their popular packages which are very easy to configure.

- Send Mail (for sending)
- Dovecot (for receiving)

➤ **Setup mail server in centos 6**

- Installing and configuring send mail
- Installing and configuring dovecot
- Creating users and testing

✓ **Step 1:** Before installation assign a static IP and add a host entry for your domain to

That IP in the /etc/hosts file like: 192.168.0.15 daffodil.com

✓ **Step 2:** Install sendmail by using: yum -y install sendmail.

✓ **Step 3:** Install dovecot by using: yum -y install dovecot.

✓ **Step 4:** Install telnet by using: yum -y install telnet.

✓ **Step 5:** Now Edit the Sendmail Configuration File by Using: vi /etc/mail/sendmail.mc

Now Search the line: /masquerade and edit the line as:

dnl(MASQUERADE_AS(`daffodil.com`)dnl) and then Save the file.

✓ **Step 6:** service send mail restart.

✓ **Step 7:** telnet localhost 25.

Trying ::1...

Connected to localhost.

Escape character is '^['.

220 mail.daffodil.com ESMTP Postfix

ehlolocalhost {type this command}

250-mail.daffodil.com

250-PIPELINING

250-SIZE 10240000

250-VERFY

250-ETRN

250-STARTTLS

250-AUTH PLAIN LOGIN

250-AUTH=PLAIN LOGIN

250-ENHANCEDSTATUSCODES

250-8BITMIME

250 DSN

quit {type this command}

221 2.0.0 Bye

Connection closed by foreign host.

✓ **Step 8:** Configuring dovecot

✓ **Step 9:** After installation open /etc/dovecot/dovecot.conf file and add the below line at the end of the file. please make sure mail_location and home_mail_box in send mail configuration are using the same name.

protocols = imap pop3

mail_location = maildir:~/mail

pop3_uidl_format = %08Xu%08Xv

✓ **Step 10:** service dovecot start to starts dovecot service:

✓ **Step 11:** Now test pop3 connectivity.

```
telnet localhost 110
```

```
Trying ::1...
```

```
Connected to localhost.
```

```
Escape character is '^['.
```

```
+OK Dovecot ready.
```

```
quit
```

```
+OK Logging out
```

```
Connection closed by foreign host.
```

✓ **Step 12:** Creating users and testing

Now create users to test your configuration.

```
useradd -m helal -s /sbin/nologin
```

and create passwords for the users created

```
passwdhelal
```

✓ **STEP 13:** Now I Can Test 3.33 figure my configuration by using thunderbird.

Configuration details.



Figure 3.33: Shows Screen Print POP3 and SMTP host and Port configuration

✓ **STEP 14:** Now I can send and receive mails using this server. In case of any issues please check the log file /var/log/maillog. now my mail server is ready.

Or Here another Way for testing mail server:

- telnet localhost 25.

- Mail from: adity@daffodilnet.com
- Rept to: mail@yahoo.com or mail@gmail.com
- This is a test mail from mail server testing.
- Enter.

3.28 Challenges

No work has not challenges, but rather four months of my internship involvement and to share companions subsequent to catching wind of the party time, I've discovered that there is some basic difficulties understudy. I think it is that understudies three things: unpaid/under, impermanent, and they are in a race to pick up understanding.

Here and there insufficient work: There's insufficient work appointed to me. I'm exhausted, underutilized, strumming my fingers at my work area and enticed to scrutinize Facebook.

An excessive amount of work: Because understudies are only happy to get a foot in the entryway, some work spots may exploit youthful laborers by giving them extended periods of dull tedious work.

Reluctant to make inquiries: without warning there's a deluge of work, and I at long last have the opportunity to substantiate myself! In any case, I don't know about x, y, z... I may feel the strain to be a free and independent laborer, yet it's such a great amount of better to illuminate vulnerabilities!

Rival other Intern: Luckily I was an assistant; we make inquiries of each other and can without much of a stretch collaborate with ventures that have worked in groups where there was such a communitarian relationship. Assistants in a future employment opportunity, or a suggestion for a decent letter will contend in other office situations, may not be so benevolent.

A New Lifestyle: As a current college alumni, I might get used to another way of life that can be very jolting. Rather than awakening at eight and heading off to a couple of classes a day, I'm sitting at a work area 9-5. I may inhabit my folks to spare cash. The hours and the new living circumstance obviously make mingling more troublesome than previously.

CHAPTER 4

Competencies and Smart Plan

4.1 Competencies Earned

Abilities Earned or learning result is an announcement of what a student is relied upon to know, comprehend or 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 entry level position assessments. The Student Association office reserves numerous understudy Intern Learning Outcomes: Gathering and arranging data into an Internship Project Description: Participate in the update of the Linux Lab site. Learning Outcomes. Introduce and Configure programming and redesigns; Install, design and test arrange Employer Services • Furthermore, steady with the learning results, the Internship On-Site Supervisor will give an introduction concerning authoritative strategies and methods.

4.2 Smart Plan

Every company should have a smart plan to achieve the success. Basically some combination of good planning can make a smart plan.

4.3 Reflections

In the year of **2002** they are started their operation. Since the past years, they elaborated their activities and service office following to the customers recommendation and considering need of time. They operate with numerous national project and international organization and gained the reputation. They use the latest technology and modernize the service wherever it is required. Their corporate network solution department is susceptible to provide state of art technology network and telecommunication solutions with a extremely skilled technical expertise group.

CHAPTER 5

Conclusion and Future Career

5.1 Discussion and Conclusion

Audit this temporary job has been a magnificent and compensating background. I have seen the future and I will have the capacity to enable me with the chance to connect with many individuals to have possessed the capacity to affirm that. Through this temporary job, I have discovered that one of the principle issues and time administration abilities and additionally self-inspiration. When I initially began I was eight hours per day, six days seven days will be ready to sit in an office and did not imagine that. When I understood what I needed to do my hours of covering isn't broken, so I sort out my normal everyday employment. Sorted out and it was the perfect time, when I get a reaction arranged for questions that should be scholarly. This entry level position and time administration of the workplace for a long time, I needed to figure out how to inspire yourself through. Despite everything i'm searching for utilizing the organization thought of the different proposition and thoughts. Regardless i'm keeping my alternatives open to new openings, be that as it may, are proceeding to work for the University of Bangladesh on the planet. I'm getting a charge out of this profession. I keep on working hard for my position and want to keep on learning about the business and meet new individuals will. It was a magnificent ordeal, and I trust the other understudy received a ton in return!

5.2 Scope for Further Career

Vocation openings are accessible in various territories under Linux. The profession openings in Linux's saying not just the Linux stage, it covers parcel of various regions like: Desktop Application Development, Kernel and Device Drivers Development Today their colossal request open source programming's and open source programming's designers and system engineers. There numerous organization today moved to Linux and open source software's. The organization like Google, Yahoo, Boeing, Lufthansa, wiki.org, numerous organizations moved to financially savvy open source arrangement. There is an enormous interest for the gifted experts in LINUX, MICROTIK and so forth.

References

- [1] Get idea about Daffodil online limited (DOL), Available at: http://www.daffodilnet.com/index.php?option=com_content&view=article&id=54&Itemid=112, last accessed on 02April 2018, 11.30pm.
- [2] The career opportunities in Linux, Available at: <https://goinggnu.wordpress.com/2007/07/09/the-career-opportunities-in-linux/>, last access on 02April 2018, 12.00pm
- [3] About Recommended Partitioning Scheme, Available at: www.centos.org/docs/5/html/5.2/Installation_Guide/s2-diskpartrecommen-ppc.html, last accessed on 04April 2018, 4.00pm.
- [4] About internship, Available at: <http://ashleydotson.blogspot.sg/2009/08/in-review-this-internship-has-been.html>, last access on 04April 2018, 10.20am
- [5] Get concept about file directory management <https://www.ibm.com/developerworks/library/l-lpic1-103-3/>
- [6] Get Concept about MikroTik Router,
<https://en.wikipedia.org/wiki/MikroTik> 04 April 2018, 11:00am
- [7] Get Concept about RouterOS,
<http://www.revolvy.com/main/index.php?s=MikroTik> 04April 2018, 11:00am
- [8] Get Concept about Release history,
<http://www.revolvy.com/main/index.php?s=MikroTik> 04April 2018, 11:00am
- [9] Get Concept about Cloud Core Router,
<https://en.wikipedia.org/wiki/MikroTik> 04April 2018, 11:00am

Appendices

➤ **Appendix A: Internship Reflection**

The essential objective of my internship in an expert setting, useful answers for certifiable issues is to apply the learning picked up in the classroom. Also, professionally important capabilities and connections in an expert setting, figuring out how to manage new learning, aptitudes, and the capacity to decide how to hone and create plans. Add to connect with other expert's bosses and expert connections. I am an expert in the field presentation with client and expert manners and expert directors and different representatives to gain from watching a comprehension of the conduct, and also to increase through cooperation. To satisfy the obligations of my entry level position, I'm practicing legitimate business decorum. I am an association's central goal/vision is executed, how to contact partners, how control is shared, how it is organized, how choices are made, how to comprehend the way of life of an expert association, and what level of responsibility and criticism to the association. With an evaluation toward the finish of my entry level position administrator and temporary job encounter going through individual gatherings gives a chance to take an expert conclusion. Entry level position encounters to get ready for life in a worldwide society, initiative and administration, my blessing to have the capacity to put it to utilize.

➤ **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