### ISP SERVER CONFIGURATION ON LINUX AND MIKROTIK

### **SUBMITTED**

BY

Ujjal Kumar Dev ID: 162-15-8029

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

Supervised By

### Narayan Ranjan Chakraborty

Assistant Professor Department of CSE Daffodil International University



DAFFODIL INTERNATIONAL UNIVERSITY DHAKA, BANGLADESH SEPTEMBER 2019

### APPROVAL

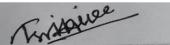
This Internship titled **"ISP Server Configuration on Linux and MikroTik**", submitted by Ujjal Kumar Dev, ID No: 162-15-8029 to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 13 September 2019.

### **BOARD OF EXAMINERS**

**Dr. Syed AkhterHossain Professor and Head** Department of Computer Science and Engineering Faculty of Science & Information Technology Daffodil International University



Abdus Sattar Assistant Professor Department of Computer Science and Engineering Faculty of Science & Information Technology Daffodil International University



Shah Md. Tanvir Siddiquee Assistant Professor Department of Computer Science and Engineering Faculty of Science & Information Technology Daffodil International University

© Daffodil International University

**Dr. Dewan Md. Farid** Associate Professor Department of Computer Science and Engineering United International University **Internal Examiner** 

**Internal Examiner** 

**External Examiner** 

i

Chairman

### DECLARATION

I hereby declare that, this internship report is prepared by me, Ujjal Kumar Dev, ID No: 162-15-8029 to the department of Computer Science and Engineering, Daffodil International University. Under the supervision of **Narayan Ranjan Chakraborty**, **Assistant Professor, Department of CSE,** Daffodil International University. I also declare that neither this internship report nor any part of this internship report has been submitted elsewhere for award of any Degree or Diploma. I also declare that, I collect information from Daffodil Online Limited (DOL), Data Center and Internet Service Provider (ISP) Based Company, Books and Internet.

Supervised by:

18802

Narayan Ranjan Chakraborty Assistant Professor Department of CSE Daffodil International University

Submitted by:

**Ujjal Kumar Dev** ID: 162-15-8029 Department of CSE Daffodil International University

### ACKNOWLEDGEMENT

First I express heartiest thanks and gratefulness to almighty God for His divine blessing makes us possible to complete the final year internship successfully.

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

I really grateful and wish profound indebtedness to **Narayan Ranjan Chakraborty**, **Assistant Professor, Department of CSE** Daffodil International University, Dhaka. Deep Knowledge & keen interest of supervisor in the field of "Linux System and **Network Administration**" to carry out this internship. His endless patience, scholarly guidance, continual encouragement, constant and energetic supervision, constructive criticism, valuable advice, reading many inferior draft and correcting them at all stage have made it possible to complete this internship.

I would like to express heartiest gratitude to **Dr. Syed Akhter 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.

I would like to thank entire course mate in Daffodil International University, who took part in this discuss while completing the course work.

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

### ABSTRACT

If two and more computers are interconnected and able to exchange data or information then we call network. We want to increase the number of PC's and exchange data or information from one to another that time we need some special PC's are called Server. There is various type of work in the network that is why also different types of server have. For Example- FTP Server, DSN Server, Mail Server, Web Server, Proxy Server, Firewall. Each of them works differently and without them it is impossible to maintain a network. If network is connected to the Internet and we want to secure your information they must setup server using Linux Operating System. That's why I choose this subject of my report is "Server Installation and Configuration on ISP (Linux Platform)". The report discussed about the purpose of the specific server using on ISP, hardware requirement for the server, choosing software and installation process of the software, step by step server configuration process and simple troubleshooting of the server.

## **TABLE OF CONTENTS**

CONTENTS	PAGE
Approval	i
Declaration	ii
Acknowledgement	iii
Abstract	iv
Table of contents	v-vi
List of Figure	vii-viii
CHAPTER	
CHAPTER 1: INTRODUCTION	1-2
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: INTERNSHIP ENTERPRISE	3-4
2.1 About the Company	3
2.2 Product and Market Situation	3
2.3 Target Group	4
2.4 SWOT Analysis	4
CHAPTER 3: INTERNSHIP ROLES AND RESPONSIBILITIES	5-21
3.1 Daily Task and Activities	5
3.2 Creating Linux Partition	5
3.3 Server Configuration	5-11
3.4 MikroTik Router	11
3.5 RouterOS	11
3.6 Features	11
3.7 Router Board	12

3.8 Cloud Core Router	12
3.9 MikroTik Configuration	13
3.10 Initial Step	13-18
3.11 OSPF Configuration:	19-21
3.12 Challenges	21
CHAPTER 4: COMPETENCIES AND SMART PLAN	22
4.1 Competencies Earned	22
4.2 Smart Plan	22
4.3 Reflections	22
<b>CHAPTER 5: CONCLUSION AND FUTURE CAREER</b>	23
5.1 Discussion and Conclusion	23
5.2 Scope for Further Career	23
REFERENCES	24

### LIST OF FIGURES

### **FIGURES**

### PAGE NO

Figure 3.1: Shows Screen Print yum install bind	7
Figure 3.2: Shows Screen Print Edit using vi editor named, conf file.	7
Figure 3.3: Shows Screen Print Edit Enter a Web address of forward zone	e 8
Figure 3.4: Shows Screen Print Enter A IP Address For Reverse Zone.	8
Figure 3.5: Shows Screen Print edit Forward Zone File for abc.com	9
Figure 3.6: Shows Screen Print edit Forward Zone File for abc.com	9
Figure 3.7: Shows Screen Print edit Reverse Zone File	9
Figure 3.8: Shows Screen Print edit Reverse Zone File	10
Figure 3.9: Shows Screen Print service named restart	10
Figure 3.10: Shows Screen Print service HTTPD status	10
Figure 3.11: Shows MikroTik Router 750G Series	12
Figure 3.12: MikroTik Cloud Core Router 1036 Series	12
Figure 3.13: Shows Network Diagram	13
Figure 3.14: Shows Screen Print Reset MikroTik Router	13
Figure 3.15: Shows Screen Print IP Address	14
Figure 3.16: Shows Screen Print Gateway	14
Figure 3.17: Shows Screen Print NAT Rule	15
Figure 3.18: Shows Screen Print Firewall	15
Figure 3.19: Shows Screen Print Bridge Settings	16
Figure 3.20: Shows Screen Print Bridge Ports Assign	16
Figure 3.21: Shows Screen Print DHCP Setup	17
Figure 3.22: Shows Screen Print IP address pool of the local LAN	17
Figure 3.23: Shows Screen Print DNS Service	17
Figure 3.24: Shows Screen Print Wireless Setting	18
Figure 3.25: Shows Screen Print Wireless Security Setting	18
Figure 3.26: Shows Screen Print Router Home Page	19
Figure 3.27: Shows Screen Print OSPF Network WAN Configuration	19
Figure 3.28: Shows Screen Print OSPF Network LAN Configuration	20
Figure 3.29: Shows Screen Print OSPF Network Address	20
Figure 3.30: Shows Screen Print OSPF Network Area Selection	20
© Deffe dil Internetica el Universita	

## CHAPTER 1 INTRODUCTION

#### **1.1 Introduction**

This is the IT period. Today, many people around the world have long been an integral part of web innovation and long-term server access. Linux is probably a free programming success after the first place war or most of the late. So a domain name system server is important web innovate. Access level positioning is an ancient practice for understanding the true work, status, and difficulty of employees. Entry level positions have their own significance before being awarded degrees in all disciplines of medical science, engineering and accounting. Currently each business and business is featured. The Area name System is an additional support server and we can use this framework to perform different types of administration. Web innovation, e-business, telecommunications, e-mail, mobile innovation and many more are objectionable and without DNS on the server. Today, the banking industry and various business entities rely on completely different types of software and online technologies and servers. Banking software, credit cards and 40A all depend on this software and is one of several types of server & Linux.

#### **1.2 Motivation**

As I am now looking for my Bachelors in CSE at DIU, I have come to understand the importance of taking information from the world that will complement course study & helps an young students gain an more comprehensive view the subject. At the entry level location I discovered that I was modifying & editing the promoting Executive & Mikrotik servers. As a network access giver. My tendencies are too full to quickly understand & act, but I have the strength.

#### **1.3 Internship Objectives**

The ultimate final of I entry level position event are to identify myself as competent in the exhibition of focused activities. So it is effective in enhancing efficiency. I want to collect some unprecedented qualities to give myself. Entry level positioning in software engineering is to provide workload while studying in the school, to assist the underdog in changing the halls of work.

#### **1.4 Introduction to the Company**

The DOL proud of yourself on being one of the leading ISPs in Bangladesh. There is the most settled organizations the fields of ICT where they have an long haul association with their customers in their business fundamentals. As we look at development over the decades following our introduction, they have been unfathomably happy with what they have accomplished, & significantly they have expressed a vision for a more encouraging future.

#### **1.5 Report Layout**

Chapter "1" I describe the reason of the internship, the inspiration for internship, and the identity of the organization. (2) In the chapter I describe my internship method. This includes the internship do, about company, the IT offered by Daffodil Online Ltd and the role it plays in the Linux job market.(3) The competition I have described in the chapter on competent competition is (1) the conclusion of the chapter and the future opportunity described. I examine Future Scopes in Linux & compose the end.

## CHAPTER 2 INTERNSHIP ENTERPRISE

### 2.1 About the Company

DOL is 1 of the main and most prepared ISPs in Bangladesh and has been giving its very own Fiber Optic One Foundation for serving corporate, SMEs providing stops in ICT administration and management since July 2012. The Foundation worked with high national gratitude to all involved with numerous national initiatives and public associations. It redesigns the space required by the administration, utilizing recent progress. Focus Corporate Network Solutions Division is equipped with exceptional production skills to provide the conditions for artisan and media transmission. DOL is a highly specialized expert designing and supervisor crew verified furthermore, associated with SEN, Microsoft, Linux and effectively connected to Global Driving with ACM. It corporate social obligation policy strengthens mindfulness of the community, workstations, locations and expectations of others in the marketplace. As a team concern, the DOL progresses through its projects and administration in three important stages, namely, guidance, country building and conditions [1].

#### 2.2 Product and Market Situation

The DOL prides itself on being 1 of the lead ISPs in Bangladesh. They are extremely pleased with what we have achieved, and are growing equally in our vision for an exciting future, as they focus on developing decades of observance. DOL likewise manages individual IT service and provides professional trainings. These are given below.

### IT Services

- ISP
- The Art State of the Art Data Center.
- co-location center.
- Mail server solution.

### 2.3 Target Group

The organization clients base includes all customer organization, included new business. The company wants to focused on SOHO customer, as they are the ideal focus our new rapider contribution. Web notes these markets segment have unusually valuable administrative needs and are slowly building on promising, strategic clients.

### 2.4 SWOT Analysis

SWOT analysis's is valuable system for understand your weaknesses, strengths, and to differentiate between the threat your face.

### > Strengths:

- People communicate between people
- Data Collection

### > Weaknesses:

- Participants The new participants feel that there is a small degree of expertise expected to withstand the market
- Set companies need a large amount of cash to set up

### > Threats:

 Economic Crisis - Homeowners Refuse to Build Their Broadband Membership Lack of Confidence in Displaying Improved Stock Market Newspapers.

### **CHAPTER 3**

### **INTERNSHIP ROLES AND RESPONSIBILITIES**

#### **3.1 Daily Task and Activities**

- Learn and understand about network components.
- Installing Linux
- Manage Linux users and passwords.
- File and Directory Permissions.
- Configuring FTP, NFS, WEB, PROXY, MAIL Server.

#### **3.2 Creating Linux Partition**

3 partition routes (/), / boot.

### > Partition: /boot

Segment boot (500 MB): The boot / over / mounted segment contain working frame work part as well as side constraints on the documents used in the bootstrap method, creating a local ext4 parcel to documents. For most clients, a 500 Mb boot parcel is sufficient.

### > Partition: /

The root partition where all files in the original partition have the "/" root directory. Requires a minimum of 4 GB HDD space.

#### **3.3 Server Configuration**

The Linux operating system has many servers. These include DHCP, DNS, NFS, FTP, mail, proxy, Samba server ISP.

#### Web Server

A web server is a PC that accesses a web page. Each server will have an IP address and possibly a region name[4].

#### **Domain Name System**

The host IP address & the PC is helpful, yet in each case the name is difficult to work with. For example, Consistently a large number of machines are popping up on the Internet, making it not easy to put everyone on cutting edge table. The domain name of the machine is the system-ip address on the net of all machines It determines the names and addresses and addresses of some individual variables[2]. For this situation, in the case of Register, the relation in the just name of machine & machine IP is 192.162.50.201 The domain name is the system-machine's other means are the machine name, the IP number; This is called the "turn of mapping". Domain Name System - An intermittent, dark zone of system resources. This is part of an initiative, we only have one server and one server to store the required DNS server, which illustrates how a typical domain name system might try to clear the server name[5]. A program called Unix is ending. This "software" bundle is composed by a section of the Internet Software Consortium. Most Linux extensions are associated with names and depending on the bundle's top or base case, often referred to as / usr / sbin /, depending on the rules of a bundle known as official. Using the domain name system is mostly an overview of the "Berkeley Internet Name Domain" initiative that maintain a programming under Linux. One of the notable programs stuck in the dub is "Bright," a daemon that responds to domain name system searches from remote devices. BIND 8/9 is the domain name currently used for the system. To get the database, it requires a domain name system server for its own site.[2]

### ➤ Step:-1

yum install bind\*

9	root@localhost:~/Desktop	
Eile E	fit <u>V</u> iew <u>S</u> earch <u>Terminal</u> <u>H</u> elp	
Loaded Loading * base * extr * upda Setting Package ion Package on	ocalhost Desktop]# yum install bind* plugins: fastestmirror, refresh-packagekit, security mirror speeds from cached hostfile : mirror.dhakacom.com as: mirror.dhakacom.com tes: mirror.dhakacom.com up Install Process 32:bind-sdb-9.8.2-0.30.rc1.el6.i686 already installed and latest version 32:bind-chroot-9.8.2-0.30.rc1.el6.i686 already installed and latest version 32:bind-devel-9.8.2-0.30.rc1.el6.i686 already installed and latest version 32:bind-devel-9.8.2-0.30.rc1.el6.i686 already installed and latest version 32:bind-libs-9.8.2-0.30.rc1.el6.i686 already installed and latest version	s
Package Package on Package Nothing	32:bind-9.8.2-0.30.rc1.el6.i686 already installed and latest version 32:bind-utils-9.8.2-0.30.rc1.el6.i686 already installed and latest version bind-dyndb-ldap-2.3-5.el6.i686 already installed and latest version to do ocalhost Desktop]#	1

Fig:-3.1 yum install bind.

### ➢ Step:- 2

Configuration using file editor- vi /var/name/chroo/etc/Name, Conf

The IP address of my PC is 192.168.50.19

	root@localhost:-/Desktop	
Eile J	Edit Yiew Search Jerminal Help	
	1 // Sample DNS server	6
	2 // Only For training	
	3 //@Tayab Khan	
	4 // dns name nsl.khan.com	
	5 // Config Starts from Here	
	<pre>options {</pre>	
	7 listen-on port 53 { localhost; 192.168.50.19; ];	
	<pre>8 listen-on-v6 port 53 { ::1; };</pre>	
	<pre>9 directory "/var/named/";</pre>	
	<pre>0 dump-file "/var/named/data/cache_dump.db";</pre>	
	<pre>statistics-file "/var/named/data/named_stats.txt";</pre>	
	<pre>2 memstatistics-file "/var/named/data/named_mem_stats.txt";</pre>	
	3 NORMAN CONTRACTOR OF A CONTR	
	4 allow-query { 0.0.0/0;};	
	5 allow-transfer { 192.168.50.3/32; };	
	o recursion yes;	
	7 dnssec-enable yes;	
	<pre>allow-recursion { localhost;192.168.50.0/24;};</pre>	
	<pre>9 recursive-clients 155000; 0</pre>	
	1 };	
	2 logging { 3 channel default debug {	
-	<pre>3 channel default_debug { 4 file "data/named.run";</pre>	
THE	ERT	
742	ERI	-

Fig:- 3.2 Using VI EditorName, config file.

#### ➢ Step:- 3

Testing I using for ABC.com

```
root@localhost:~/Desktop
File Edit View Search Terminal Help
    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 log
23
24
25
26
27 };
28
            };
      logging {
              channel default_debug {
                     file "data/named.run";
                     severity dynamic;
              };
   29
30
       zone "." IN {
              type hint;
   31
              file "named.ca";
    32 };
    *****
    34
   35 zone "abc.com" {
                       <
```

Fig:-3.3 Web Address & Forward Zone

➤ Step:-4

Enter We need to enter the IP in the previous- 192.168.50.11 as 150.168.192 without part of network

3		root@localhost:~/Desktop	
ile <u>E</u> c	dit ⊻iev	v Search Terminal Help	
2:3		channel default_debug {	
2:4		file "data/named.run";	
2.5		severity dynamic;	
2:6		<pre>};</pre>	
	};		
28			
2:9 3:0		"." IN { type hint;	
31		file "named.ca";	
	};	Take Humoview,	
- 11	110000		
34			
35	zone	"abc.com" {	
3:6		type master;	
3:7		file "abc.com.for";	
3-8		allow-update { none; };	
3:9		allow-transfer { 192.168.50.3;};	
40		allow-query { any; };	
41		also-notify { };	
	};		
43			
45		"50.168.192.in-addr.arpa" 🛛 🛹 📥	
	2.0116		

Fig:-3.4 IP address for the inverse region.

➤ Step:- 5

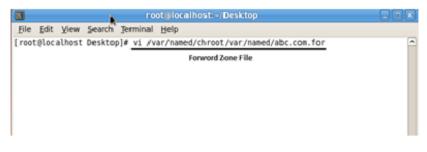


Fig:- 3.5 ABC.com for forward file zone

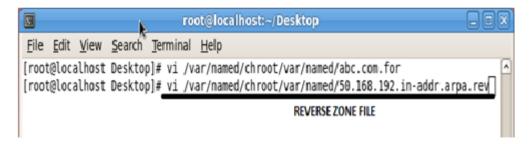
Create for forward file

		re	ot@localhost:-/Desktop	
Eile Edit View	v Search	∃erminal	Help	
ORIGIN . STTL 3600;				
abc.com	IN	50.A	nsl.kham.com. root.kham.com. ( 20000330004 ; serial 1H ; refresh 1SM ; retry 1W ; expiry 1D ) ; minimum	
SORIGIN abc.co	IN IN IN	NS NS MX	nsl.khan.com. nsl.khan.com. 10 mail.abc.com.	
mail WWW database	IN IN CNAME	Â	192.168.50.5 192.168.50.19	
~ ~ */var/named/cl	rcot/var	/named/ab	c.com.for* 18L, 726C	

Fig:- 3.6 ABC.com for Forward File

### ➢ Step:- 6

Reverse file zone commands- vi /var/name/chrot/var/name/ 50.168.192.25





Reverse file zone Edit entire configuration file

3	ro	ot@localhost:-/Desktop	
Eile Edit View Se	earch Jerminal	Help	
DRIGIN . TTL 3600 ; 0.168.192.in-addr	1 hour .arpa IN SOA	nsl.khan.com. root.khan.com. (	
		2005092602 ; serial 3000 ; refresh (1 hour) 1800 ; retry (30 minutes) 2419200 ; expire (4 weeks) 86400 ; minimum (1 day)	
	NS NS	ns1.khan.com. ns2.khan.com.	
ORIGIN 50.168.192	2.in-addr.arpa		
	PTR	www.abc.com.	
	PTR	mail.abc.com. 🕅	
	PTR	test.dol.com.	

Fig:-3.8 Reverse file zone

### ➢ Step:- 7

Restart Service command service 'named' restart

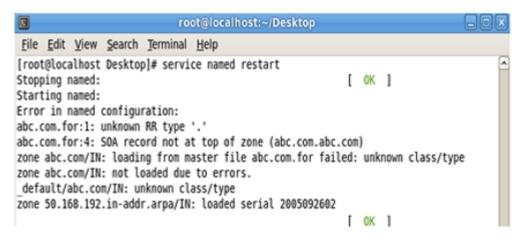


Fig:-3.9 restart service

Restart service command service httpd restart

root@localhost:~	
<u>File E</u> dit <u>V</u> iew <u>T</u> erminal Ta <u>b</u> s <u>H</u> elp	
[root@localhost ~]# service httpd restart	A
Stopping httpd:	[FAILED]
Starting httpd:	[ OK ]
[root@localhost ~]# service httpd restart	
Stopping httpd:	[ OK ]
Starting httpd:	[ 0K ]

Fig:-3.10 service httpd restart

### **Mail Server**

Regularly referred to as leaves your system as you virtual of mail center, for nearby clients, the client is thrown into an email active zone where there is a mail server, how you should respond to your specific message. Should be selected, where client-defined multiplexes include Lee man-mail, client records are locally understood and managed on a mail server, and exchanged which are the components of the correspondence module, usually emailed. Most mail servers usually operate without any manual intervention[6].

#### **3.4 MikroTik Router**

Macro Tickles Limited is a worldwide global of PC organized hard-ware. Its sells remote item & switched. The company was founded with 1995 the goal of developing or selling remotely innovative showcases. Starting in the 21st, the company has 5 employees. The organization's items are known as expensive switches and low cost alternatives to the Ethernet radio transfer line[7].

#### **3.5 RouterOS**

The main result of Mikrotik depends on the parts of Linux operating system, know the Mikrotik routers. Familiar with standard X86-based PCs of the organization's exclusive tools, it transforms a PC into a system switch and applies several additional highlight. H-Energy other regularly used remote locations while highlighting the power structure and nature of the administration. The framework is set to fill the hosts-based hotspot structure in a similar way[8].

#### **3.6 Features**

The item gives Mikrotik a discussion and a wiki, giving different and temporary examples of setup. Routers IPv4 bolsters just as IPv6 The product almost all system interfaces that backup Linux part 2..6, except for the remote where Atherosand Prism chipsets 3.x Variants are the main incentive tool.

#### 3.7 Router Board

By implementing such functional level of total equipment for routers, such as parts arranged under a router board, the company advances advertised circuit sheets. The router board line, which is connected to the routers, is rarely promoted by medium-sized remote Internet expert companies 3.12, providing broadband remote access to remote areas, usually indoor and open, usually providing small office / home office switch for air use. Reconnect with the remote 12.5n Mimo and TDMA gadgets and a custom system PCB type switches that reopen. Additionally, the router board line includes pioneers[8].



Fig:-3.11 MikroTik Router

#### 3.8 Cloud Core Router

The Nov 2012, the Mikrotik Cloud Core Router 1.12 figure out the included unit, which supports 15 to 35 CPU centers, 121000 Base-T Ethernet & 4 SFP interfaces, depending on the "fast way" parcel within the interface. Shipping unit is contrary to a next growing burdens brands. As a well-evaluated options on the effort focuses on medium-sized systems suppliers[10].

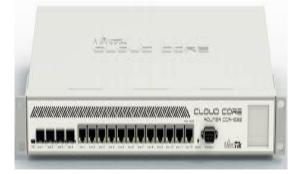


Fig:-3.12 MikroTik Cloud Core Router

### 3.9 MikroTik Configuration

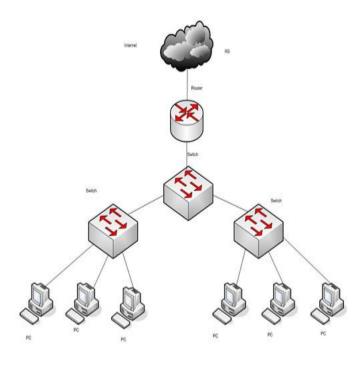


Fig:-3.13 Network Diagram

Winbox MikroTik Router a graphical configuration utility. First we should download the win-box. 3.13 Network Diagram does not require any installation so it can be run directly after downloading win-box.

### **3.10 INITIAL STEP**

#### ➤ Step:-1

Reset MikroTik command:- system reset-configuration

C* Safe Mo	de	
A Quick Set		Terminal
jas interfaces	1	a second [Tab] gives possible options
I. Wreless		/ Move up to base level
Bridge		Move up one level
C PPP		/command Use command at the base level
127 Switch		(100340 messages not shown) San/02/1970 00:00:10 system.error.critical router was rebooted without proper shut
TIS Mesh		down
HAN IP	1	3ah/02/1970 00:00:10 system, error, critical router was rebooted without proper shut down.
@ MPLS	2	jan/02/1970 00:00:10 system, error, critical router was rebooted without proper shut
Routing	1	down jan/02/1970 00:00:10 system.error.critical router was rebooted without proper shut
System	1	Jabouziana obiobilo system, error, critical router was reposted without proper shit
Cueues		jan/02/1970 00:00:11 system,error,critical router was rebooted without proper shut
Fies		down jan/02/1970 00:00:10 system.error.critical router was rebooted without proper shut
E Log		down
d. Radus		jan/02/1970 00:00:10 system.error.critical router was rebooted without proper shut down
Tools	1	jan/02/1970 00:00:10 system.error.critical router was rebooted without proper shut
M New Temna		down [sdmin@MikroTik] >
MetaROUTE	0	[admin#MikroTik] > system reset-configuration
Patton		
A Make Supout	ef.	
Manual		
E Est	_	

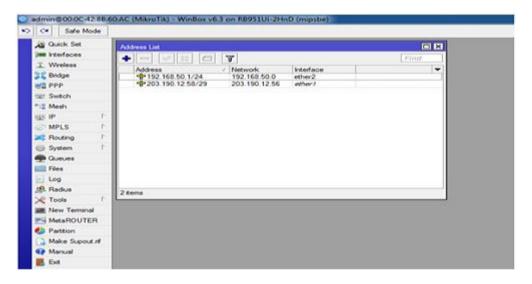


### ➤ Step:- 2

Routes or Gateway Setting

Process:-

IP = > Route = > add "+" => Gateway



#### Fig:-3.15 Address list

C* Safe Mode								
Guick Set	Red	• List						1
m interfaces	Reu	tes Neithops R	ules VRF					1
T Wreless			0 7		De la	ind	al ¥	4
C Bridge	12	Dat. Address	/ Gateway	 Istance	Routing Mark		- A.S.	1
et PPP	DAC		0/ ether2 reachable		houting mark	192,168,9		18
🖅 Switch	DC	203.190.12	56 ether1 unreachable	25	5	203.190.	12.58	8
13 Mesh								Щ
∰ IP P		New Route						
Ø MPLS		General Apribut	05				OK	(
Routing 🗈		Dst. Address:	0.0.0.0/0				Cano	ei
System		Gateway:	203.190.12.57			•	Appl	
Cueves								
Files		Check Gateway:				•	Disab	łe
Log		Type:	unicast				Comm	ent
🕵 Radus	1.1					_	Copy	,
Tools P		Distance:				•	Remo	-
New Terminal	240	Scope:	30					-
MetaROUTER		Target Scope:	10					
Partition		Routing Mark:				-		
Ante Supout nf		Pref. Source:						
Manual								
E Gat								

Fig:-3.16 Gateway Setting

### ➤ Step:- 3

Process:-

action:

masquerades

apply

Ok.

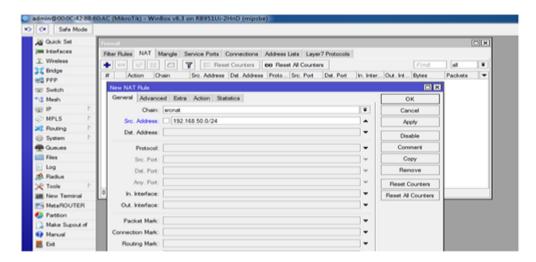


Fig:-3.17 Rule of NAT

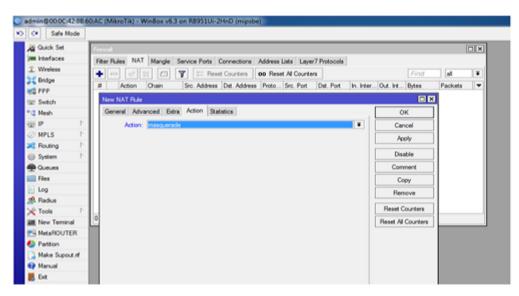


Fig:-3.18 Firewall

### ➢ Step:- 4

process:-

bridge => Add"+"

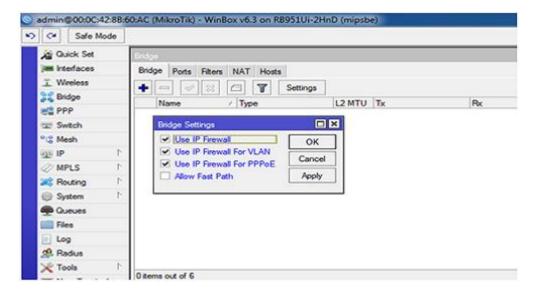


Fig:-3.19 Settings Bridge

Ports:-

ether2\_LAN ether4 ether5

wlan1

Guick Set	Enter							
w interfaces	and the set of the set	iters NAT Hosts						
Wrotess	Construction and and and							
C Bridge	+ 1 - 1 - 1		16 0.0				100000	
PPP	Interface 4:3ether2	/ Bridge bridge 1	Promy th	Path Cost		Role designated port	Boot Pat	
5 Switch	thefter?	bridge 1	80 90 80 80	10	-	designated port		
	i titethere	bridge 1	80	10		fisabled port		
3 Mesh	1 4:betherd	bridge1	80	10		deabled port		
	1 4theory	bridge 1		10		deabled port		
MPLS								
Routing								
2 System								
D Gueues								
Files								
Log								
B. Radus								
Tools								
New Terminal	5 terrs							
					_			
MetaROUTER	-							
Parttion								
Make Supplet of								

Fig:-3.20 Assign Bridge Ports

### ➤ Step:- 5

process:-

IP => DHCP Server => Interfaces:- Bridges

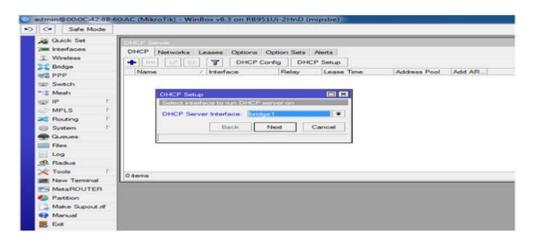


Fig:-3.21 Setup DHCP

Mean     IP     T       IP     T       MPLS     F       Addresses to Give Out     IS TO 2012 ALL SO 202       System     F       Back     Next       Cancel       Fields       Log       Flashs       Tools       New Terminal	C* Safe Mode	
Vireless       Brdge       PPP       Switch       Maria       IP       Switch       Switch       Switch       Switch       IP       Switch       Switch       IP       Routing       IP       Routing       IP       Routing       System       Rest       Ion       Rotaling       Rotaling       Rest       New       Cancel       Back       Next       Cancel       Rest       Rest </th <th></th> <th>DHGP Server</th>		DHGP Server
Brdge     Pro     Pr     Pr     Switch     Name     / Interface     Pelay     Lease Time     Address Pool     Add AR      Interface     Pelay     Lease Time     Address Pool     Add AR      Pelay     Pool		DHCP Networks Leases Options Option Sets Alerts
Bidge PPP Svetch Marine IP MPLS Routing Field Field Field Nove Temmand MetaROUTER Pattorn Marke Support of Market		+ en e H DHCP Centra DHCP Setup
PPP         Switch         Meah         IP         P         MPLS         Roding         P         Switch         Mexa         Back         New Termad         MatsSupout rf         MatsBOUTER         Pattorn         Make Supout rf         Make Supout rf		Training Research Language Languag
S Meah ii p ii p MHLS P MHLS P MHLS P Charge Flashin Log Flashin New Termanal MetaFlOUTER Patton Make Support of P Markal P M M M M M M M M M M M M	PPP	Trans I read to the transition of the contract
ip ip r MPLS P Routing P System P Gausses Fiele Log New Temmad MetaRIOUTER Patton Matual	E Switch	
MPLS / MPLS / MPLS / MPLS / System / System / False Log Flashus Tools / New Terminal MetaRfOUTER Pattorn Make Support // Markal	*12 Mesh	Backback Scheduler of Scheduler
Routing F System F Gurwes Files Log New Terminal New Terminal MataRDUTER Patton MataRDUTER Marked Supout rff Marked	U) IP T	BELIEVED CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR
System   Guardenees Files Log Plasture Tools New Tools New Tools New Tools New Tools MetaROUTER Partition Marks Support of Markan	2 MPLS F	Addresses to Give Out
System P Gureuse Gureuse Files Log New Terminal New Terminal Make Support of Marinal	Routing 1	Back Next Control
Files       Log       Files/Los       Tools       New Termani       Mata/ROUTER       Patton       Make Support of Marvai	🕑 System F	DRUK PROA CONCO
Log Redue Tools 1 New Terminal MetaROUTER Patton Mate Support of Marcal	Cueues	
Redue Tols Tols Demo Demo Demo Demo Demo Demo Demo Demo	Files	
C Tools C Rems O Rems O Rems O Rems MainIOUTER Partition MainIout	Log	
New Terminal Newsal New	19. Fladus	
New Terminal Meta/ROUTER Partition Make Supout of Marcual	Tools 1	
Partition Make Supout of Manual	New Terminal	Oitems
Partition Make Supout of Manual	MetaROUTER	
Make Supout of Manual		
P Manual	and a set of the second set of the second seco	



Quick Set						
	CHCF Server					
Interfaces		ks Leases Options	Ontion Sets	Alerta		
L Wroless			Config DH			
Bridge		hand have been been and		And in the second state of the		10000
C PPP	Name	> Interface	Relay	Lease Time	Address Pool	Add AR
Switch	DHCP Setu	5	1	E 193		
🚦 Mesh	Scient DNS	I servers		and the second		
BIP T	DNE Com	203 190 10 252		•		
MPLS F	Citra Serve					
Routing		203 190 10 253		•		
System F		Back Nex	t Can	cel		
Queues						
Files						
Log						
R Radus						
🐇 Tools 🔰	0 items					
New Terminal	C ROTOR					
MetaROUTER						
Pattion						
Make Supout of						
Manual						



### ➢ Step:- 6

Configuration wireless LAN

Process:-

Wireless =>Wlan1=>Mode:-AP Bridge

A Quick Set	Wreisse Tables					
jim interfaces	Interfaces Natreme Dua	Access List Registre	tion Connect L	at Security Pro	files Channels	
T. Wreless	+ × ×	C T Scanner	Freq Usage	Algoment	Wreless Soffer	Wreless Snooper
C Bridge	Name /	Type	L2 MTU Tx		Rx	Tx Packet (
R PPP	S @wien1	Wireless (Atheros AR9	2290	08	iça .	0 bore
I Swtch	Interface (wian1>					
*@ Mesh	General Wreless H	T HTMCS WDS N	streme	OK		
i P	Mude	ap bridge		Cancel		
MPLS P		2GHz-B/G/N		- WACKER		
Routing 🗈				Apply		
🌒 System 🗈	Channel Width:	20/40MHz HT Above		Disable		
Cueves	Frequency:	2412	WHz	Commer		
Files	SSID:	DOL_Intern Project	*			
Log	Scan List	default	¥ 0	Torch		
Radua	Wreless Protocol:	Tantu		Scen		
🗙 Tools 👘			141	Freq. Usag		
Mit New Terminal	Security Profile:			Algn		
MetaROUTER	Bridge Mode:	enabled		A Service and		
Partition	Default AP Tx Rate:	1	- bos	Sniff		
Alke Supout of	Default Client Tx Rate	2	+ bos	Snooper		
Manual	Denault Client Tx Hate:		+ bps	Reset Config	uration	
E Da		C Default Authenticate	6			
				Address and \$		

Fig:- 3.24 Setting Wireless

C* Safe Mode		
Quick Set	Westess Tables	
jas interfaces	Interfaces Natreme Dual Access List Registration Con-	nect List Security Profiles Channels
T. Wreless	+ - Y	
💦 Bridge	Name / Mode Authenticatio. Unicast O	phere Group Ophere WPA Pre-Shared WPA2 Pre-Share
R PPP	* default dynamic keys WPA PSK W are com	aes.com
121 Switch	New Security Profile	
"IS Mesh	General RADIUS EAP Static Keys	OK
255 IP 7	Name: profile 1	Cancel
MPLS P		and the second design of the s
💐 Routing 🕴	Mode: dynamic keys ¥ Authentication Types	Aboly
System P	WPA2PSK WPA2PSK	Copy
Cueves	WPA EAP WPA2 EAP	Remove
Flos	- Unicest Ophers	
Log	🐼 tkip 🗌 aes com	
Radus	- Group Ophers	
🗶 Tools 👘	🗹 tkip 🗌 aes com	
New Terminal	West Par Channel Kan Jammann	
MetaROUTER	WEATH Stated Key	
Parttion	WPA2 Pre-Shared Key:	
Make Supout rf	Supplicant Identity	
Manual	and best and and a state of the	
📙 Ext	Group Key Update: 00.05-00	

Fig:-3.25 Setting Wireless Security

### **3.11 OSPF Configuration**

To organize the task I designed the OSPF on the Mikrotik switch with the current OSPF system that was fed from the Juniper switch to the data center. So it turned into a relative OSPF the system, and it wasn't easy to design. The design the OSPFT on the Mikrotik switch are offered in both order line interface. Configuration GUI.

➤ Step:-1

Routing => OSPF

C* Safe N	Aode		
Quick Set			
interfaces			
T Wireless			
📲 🗧 Bridge			
eta PPP			
Switch			
"IS Mesh			
ASSI IP	P		
MPLS	P.		
Routing	P	BFD	
System	P	BGP	
Cueues		Filters	
Files		MME	
E Log		OSPF	
🥵 Radius		Prefix Lists	
X Tools	P	RIP	
New Termin			
MetaROUT	ER		
Partition			
Make Supo	ut of		
😭 Manual			

Fig:-3.26 Home Page Router

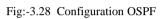
➤ Step:- 2

Configuration Network

advand 200 SW 175	M (MexaTal) Wollow (6.) an FEDTOL (2010) (require)	8. 41. 10 MIL. 10
(* Sale Mode		2 Histowerk
A         Bank Me           B         Bank Me	Ann	
		- N D P

Fig:-3.27 Configuration OSPF

Safe Hode	MikroTik) - Windox v6.3 on 889310-2440 (migsbe)	V Hide Passwork
		x no record
Quik Set	50M - D	
Intefaces	Instances Tedworks Area Area Ranges Vitual Links Neighbons MBRA Neighbons Shan Links LSA Routes AS Border Routes	
There are a second seco		
111	Network / Jona V	
Switch	New OSPF Network 🗰 🗖	
Mesh	Network (2 192 193 0129) OK	
P 7	Ana battore + Carol	
MPLS 7		
Ruding 7	Andr	
System P	Date	
Queues .	Connect	
Fies		
Log	Cev	
Raha	Tencie	
Tesh 7	andied	
	1	
MetaPOUTER		
Pattion		
Make Support of		
Manual		
6e		



	A Main Net Weder Al Las Mittals 2000 impoint	200 <b></b>
(* Seletitude		2 th famel # 2
A Sati Sa A Sati Sa Control Cont 2 Satis 2 Satis 2 Satis 2 Satis 2 Satis 3	Marcola         Asse: Assolution: Insulate: Region: SIGN Region: Descare: U.S. State: Al Book Region:           Insulation:         T           Marcola         State: All Book Region:           Insulation:         T           State:         State: All Book Region:           Insulation:         T	

Fig:-3.29 OSPF Address

➢ Step:- 3

Selection Area

(C+1) Sala Hude	12 Oktoralis / Western A.S. un ABRIZER Devel Lengther)	a dia famini I
N         Sch Hall           Stratt         Sch Hall	Verti         Verti         Note for the set former in the former in the former interformer inter	2 Al fund
E Le		

Fig:-3.30 OSPF Selection Area

#### ➢ Step:- 4

Selection Interface

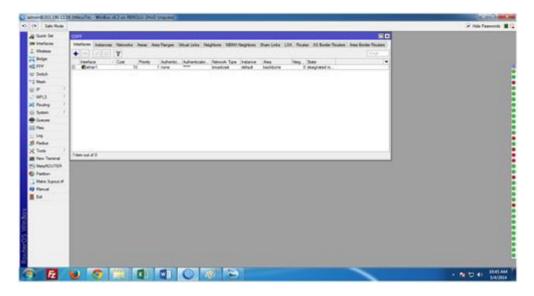


Fig:-3.31 OSPF Selection Interface

#### 3.12 Challenges

None of the tasks faced the challenge, yet for the four months I had been involved in a temporary position and sharing colleagues in the context of during party, discovers that there were some common disadvantages assistant. I think it helps with for thinking : unpaid / underpaid, temporary and they leading the way. A lot of work over time: I have a lot of work to do. I am tired, useless, jerking my fingers in my workplace & am to check out FB. Lots of work: Since the underdogs are only happy with the way they enter the undercarriage, some workplaces can exploit the young workers with extremely dull and relentless work. Reluctant to ask: Suddenly the work has come together and in the end may feel stressed as an autonomous and independent worker, but it is better than such a large amount to explain weaknesses! Rival interns: Fortunately I was an assistant; We can do so without asking too much to each other and much to do with activities that work in groups that had such an activity relationship. Advice for future employment assistants or a decent letter will conflict with the terms of another office, it may be inviting. A New Lifestyle: running college's student. I can probably enjoy life slowly acc Instead of waking up at eight o'clock and commuting to the many days of multiple classes. I'm sitting at 9-5 in a workplace. I can stay with my people to set aside cash.

## CHAPTER 4 COMPETENCIES AND SMART PLAN

#### **4.1 Competencies Earned**

The result of gaining power or learn are a declaration learner needs to know, understand or have the option of doing. Introducing and decommissioning both the system and the server machine on two datacenters. Leadership in executing Edges Linux program, for example, outcomes, alignment with work evaluations. Student Association Office Supports Continuous Intern Education Results: Collect and manage data for an internship: and conduct recruitment services. In addition, the estimable, internship on-site supervisor with instructional results will provide a guide to the hierarchical approach and methodology.

#### 4.2 Smart Plan

Every organization needs to have a good plan in order to achieve success. Basically a good plan can be made by combining some simple things.

#### 4.3 Reflections

The DOL started the task in 2002. In previous years, they expand their work administrative portfolio indicators, thinking about client suggestions time requests. They work in many national enterprises associations and rose to fame. There updating anywhere the administration needs to exploit recent progress. These Corporate Network Solutions departments are skilled at delivering conditional measures and media transmission systems, with exceptional effective specialized skills.

## CHAPTER 5 CONCLUSION AND FUTURE CAREER

#### **5.1 Discussion and Conclusion**

The survey has been a great and remunerative background to this temporary position. I have seen the future and I will almost certainly support the opportunity to coordinate with many people to ensure that through this temporary work, I discover that a fundamental problem and time board is just as appropriate as self-motivation. When I started. When I realize that I need to cover my longevity is not broken, I equip my normal daily employment. Composing and this is the appropriate time, should be taught. This temporary position and time was required for a long time to understand how to operate the workplace board, myself. Regardless I am seeking to utilize the various suggestions and thinking of the organization. In spite of everything, I am keeping my choices open to new possibilities, such as trying. I am get charged with this job. I've been nodding my head for my position and wanting to find a business and meet newcomers. It was a great encounter, and I believe the other young people did a great job in it![3]

#### 5.2 Scope for Further Career

Professional opening are accessible with different zone under Linux. Opening up Linux professions is not just a reference at the Linux level, it also spreads parcels such as. Today many companies have migrated from Linux open sources software. Companies likes Yahoo, Google, Boeing, WKRG, Lufthansa are leading many organizations towards open source management. Experts have unlimited interest in Linux, Mikrotik and many more.

### 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 02July2019, 11.30pm.

 [2] About Configuring DNS, Available at: http://www.linuxhomenetworking.com/wiki/index.php/Quick\_HOWTO\_:\_Ch18\_:\_Configuring\_DNS#
 .VTK2KPA0-1k, last access on 03July2019, 10.00am

[3] About internship, Available at: http://ashleydotson.blogspot.sg/2009/08/in-review-this-internship-has-been.html, last access on 04July2019, 10.20am

[4] Get Concept about Web server, Available at http://www.webopedia.com/TERM/W/Web\_server.html last access on 04July2019, 10.30am

[5] Get Concept about DNS server, Available at http://compnetworking.about.com/od/dns\_domainnamesystem/f/dns\_servers.htm,last access on05July2019, 11:30am

[6] Get Concept about Mail Server, https://www.centos.org/docs/5/html/Deployment\_Guide-en-US/ch-email.html, last access on 06July2019, 08:00am

[7]Get Concept about MikroTik Router, https://en.wikipedia.org/wiki/MikroTik08 July2019, 10:00am

[8]Get Concept about RouterOS, http://www.revolvy.com/main/index.php?s=MikroTik 10July2019, 08:10pm

[9]Get Concept about Router Board, https://en.wikipedia.org/wiki/MikroTik11July2019, 10:00pm

[10]Get Concept about Cloud Core Router, https://en.wikipedia.org/wiki/MikroTik12July2019, 11:00am

# Ujjal V2

ORIGIN	ALITY REPORT			
	<b>3</b> % ARITY INDEX	7%	0% PUBLICATIONS	13% STUDENT PAPERS
PRIMAR	RY SOURCES			
1	Submittee Student Paper	d to Daffodil Inte	rnational Univ	ersity 8%
2	dspace.d	affodilvarsity.edu	u.bd:8080	3%
3	africaspo	rtnews.com		1%
4	elegantwo Internet Source	ebdesigns.blogs	pot.com	< <b>1</b> %
5	www.sair	nttechnologies.ne	et	< <b>1</b> %
6	Submitte Student Paper	d to University of	f Bedfordshire	<1%

Exclude quotes Off Exclude bibliography On Exclude matches Off