ISP SERVER CONFIGURATION AND MAINTENANCE ON LINUX AND MIKROTIK PLATFORM

SUBMITTED

BY

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

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APPROVAL

This Internship titled **"ISP Server Configuration and Maintenance on Linux and MikroTik Platform**", submitted by Shikut Ahammed 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 August 2018.

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DECLARATION

I hereby declare that, this internship report is prepared by me, Shikut Ahammed, ID No: 161-15-6836to the department of Computer Science and Engineering, Daffodil International University. Under the supervision of Most. Hasna Hena, Senior Lecturer, Department of CSE, Daffodil International University.

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

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ABSTRACT

The purpose of this internship is to gain proper knowledge about the computer network, Linux operating system and MikroTik routers. Because proper knowledge in these subjects is important to build a career in a challenging and competitive job environment. Every organization is becoming digitalized day by day. And they largely depend on networking infrastructure. There are various types of computer network. One is client-server network. Servers are computers that provides the services. There are huge job opportunities in these organization as network engineers. But to get a better position in such a competitive sector one must need proper knowledge about the networking devices and software.

That is why I choose my intern as "ISP Server Configuration and Maintenance on Linux and MikroTik Platform". This report discusses about the purpose of the specific server using on ISP, hardware requirement for the server, choosing software and installation process of the software, server configuration process step by step and simple troubleshooting of the server.

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CHAPTER 1 Introduction

1.1 Introduction

This is the era of information technology. No industry can live up without using information technology infrastructure now a day. Technology made life easier and hassle free. The most important invention of the late 20th century is probably the internet. In 21st century we can't imagine a day without the internet. We depend on internet in every sector of our life likely in shopping, communication, education, medical, banking etc.

In the back of the internet lies something called server, which serves the services we tend to use via internet. Servers are powerful computers which provides the infrastructure of our favorite services. I found it's very important to know about maintaining and managing these powerful computers. There are many types of servers. Like DNS (Domain Name System) server, MikroTik server, Mail Server, Web Server etc.

These servers usually powered by the Open Source and free operating system called Linux. It's a very popular Unix based operating system software which powers more than half of the world's servers and routers. Developed by a Finish university student, it's possibly the best invention of system software. Linux is found everywhere. From super computers to handheld devices like our lovely smartphones. I also found that I need the proper skill of Linux in order to survive on the competitive job market.

1.2 Motivation

I am at present seeking after my Bachelors in Computer Science and Engineering at Daffodil International University; I comprehend the significance of increasing viable learning which will supplement the course reading information and help an understudy gain a more extensive point of view of the subjects.

In the Internship time frame I am hoping to end up splendidly talented in the subtle elements of Linux system and server administration and MikroTik. I am additionally hoping to get the best possible abilities of speaking with individuals, understanding their requirements and giving them better administration. My aptitudes lie in my capacity to completely peruse and comprehend the circumstance and act rapidly but insightfully.

1.3 Internship Objectives

Extreme goal of my internship program is to set myself up as a qualified one in the focused activity advertises. So this is exceptionally viable of ability advancement. I might want to accumulate some uncommon quality to give myself as gifted one.

The internship in computer science engineering is intended to give work understanding while understudies is still in school, to organize work involvement with scholastic preparing, and to assist understudy with making the change from classroom to work.

1.4 Introduction to the Company

Daffodil Online Ltd. prides itself as one of the main across the country Internet Service Provider (ISP) in Bangladesh. They are the most experienced and most established organization in the ICT field where they are fundamental business morals is Long Term Relationship with their clients. As we take a gander at the development throughout the decade since their origin, they are to a great degree pleased with what they have accomplished and much more amped up for their standpoint for a similarly encouraging future.

It might satisfy you to realize that they began their activity in the year 2002. Amid the previous years, they expanded their task and administration portfolio as indicated by the client's suggestion and thinking about requests of time. They worked with numerous national tasks and universal associations and accomplished the notoriety. They are utilizing the most recent advancements and updating the administrations wherever it is required. Their Corporate Network Solution office is proficient to give condition of-craftsmanship system and media transmission arrangements with an exceedingly productive specialized ability gathering.

1.5 Report Layout

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

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

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

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

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

CHAPTER 2 Internship Enterprise

2.1 About the Company

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

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

2.2 Product and Market Situation

Daffodil Online Ltd. prides itself as one of the main across the nation Internet Service Provider (ISP) in Bangladesh. They are the most experienced and most seasoned organization in the ICT field where they are fundamental business morals is Long Term Relationship with their clients. As they take a gander at the development throughout the decade since our origin, they are to a great degree glad for what we have accomplished and considerably more amped up for our viewpoint for a similarly encouraging future. Daffodil Online Ltd likewise gives distinctive IT Services and Professional Training administrations. These are given underneath.

> IT Service

- Security Arrangement.
- Area enrollment and web facilitating.
- Site Improvement.
- Open source application arrangement.
- Network access Provider

Professional Training Services

- ISP Setup and administration using Linux.
- Training Course on Certified Ethical Hacking (CEH).
- ISP Setup and Administration using MikroTik.
- PHP and MYSQL for Website Development.

2.3 Target Group

The organization's client base incorporates all purchasers and all little to mediumsized organizations, including new businesses. The organization intends to focus on SOHO customers, as these are ideal focuses for our new fast contributions, and hold the best development potential for the organization. Web Solutions feels that these market sections have unique evaluating and administration needs, and make more committed, solid clients.

2.4 SWOT Analysis

SWOT analysis is an effective strategy to understand your strengths and weaknesses and to understand both open opportunities and threats for you.

> Strengths:

- ✓ Between communication isolated individuals by separation (at home and inside the working environment)
- ✓ Always work from home.
- ✓ Create an online business
- ✓ Data collection (profitable resources in the business world)

> Weaknesses:

- ✓ New participants, I think we will be able to survive the market.
- ✓ Large Creating big money hole is necessary to create institutions.
- ✓ Competition for small approved.
- ✓ Many guess levies and administration choices.

> **Opportunities:**

- ✓ Population change age formation.
- ✓ The number of UK households is increasing.
- ✓ Review of the administrative system.

> Threats:

✓ Economic Crisis – families are less likely to increase their Broadband subscriptions. The lack of confidence in the digital communication market. ✓ It remains to be seen to what extent consumers can be persuaded to embrace access to the internet.

2.5 Organizational Structure



Figure 2.5: Shows Organizational Structure of Daffodil Online Limited.

CHAPTER 3

Tasks, Projects and Activities

3.1 Daily Task and Activities

- Month 1: In the first month of internship on daffodil online limited I have learned and played out the accompanying errands:
 - Basic Networking Concepts.
 - Basic Network Addressing(IPv4 Addressing)
 - Basic Concepts of VLAN and Configuration.
 - Learning UTP Cabling and Optical Fiber.
- Month 2: In the second month of internship on daffodil online limited I have learned and performed the following tasks:
 - MikroTik RouterOS configuration
 - Installation
 - Static Configuration.
 - Bridge Configuration.
 - DHCP Configuration.
 - PCQ Bandwidth Management.
- Month 3: The last month of internship on daffodil online limited I have learned and performed the following tasks:
 - Basic CentOS command.
 - Password created using by Linux.
 - File directory & accessing by Linux
 - Single user mode password break.

3.3 Project Task and Activities

3.3.1 MikroTik Router

MikroTik is a Latvian organization which was established in 1996 to create switches and remote ISP frameworks. MikroTik currently gives equipment and programming to Internet availability in a large portion of the nations around the globe. Our involvement in utilizing industry standard PC equipment and finish steering frameworks enabled us in 1997 to make the RouterOS programming framework that gives broad steadiness, controls, and adaptability for a wide range of information interfaces and directing. In 2002 we chose to make our very own equipment, and the Router BOARD mark was conceived. We have affiliates in many parts of the world, and clients in most likely every nation on earth. [2]

3.3.2 RouterOS

RouterOS is the working arrangement of Router BOARD. It can likewise be introduced on a PC and will transform it into a switch with all the important highlights-steering, firewall, transmission capacity administration, remote passage, backhaul connect, and hotspot entryway, VPN server and the sky is the limit from there. [3]

Features

- It provide DHCP server service
- Can be used as e router
- It can be used as a switch or bridge
- Provides PPPoE Client-Server
- Provides VPN-Virtual Private Network.
- Provides Firewall rules
- Provide DHCP Server service
- Provides BGP, OSPF, Mu
- Easy management of bandwidth

Release History

MikroTik has released different version of RouterOS at different times. Some of them are given below.

- RouterOS Edition 6-05-2013
- RouterOS Edition 5-03-2010
- RouterOS Edition 4-10-2009
- RouterOS Edition 03-01-2008

3.3.3 Router Board

MikroTik RouterOS is the working arrangement of MikroTik Router BOARD equipment. It can likewise be introduced on a PC and will transform it into a switch with all the important highlights - steering, firewall, data transmission administration, remote passageway, backhaul connect, hotspot portal, VPN server and the sky is the limit from there. [5]



Figure 3.1: 450G Series MikroTik Router

3.3.4 Cloud Core Router

Cloud Core Router is a transporter review switch with a bleeding edge multicore Tilera CPU! Phenomenal power and great execution - this is our new lead gadget. More than 20 times quicker than our past best model, the Cloud Core underpins throughput of up to 41.5 million parcels for each second, or up to 28 gigabits - full wire speed. [6]

Highest performance

- 8 mbps standard forwarding
- 24 mbps fast path forwarding (wire speed for all ports)
- Up to16Gbit/s throughput



Figure 3.2: A MikroTik Cloud Core Router 1036 Series

3.3.5 Proposed Network Model (MikroTik Configuration)

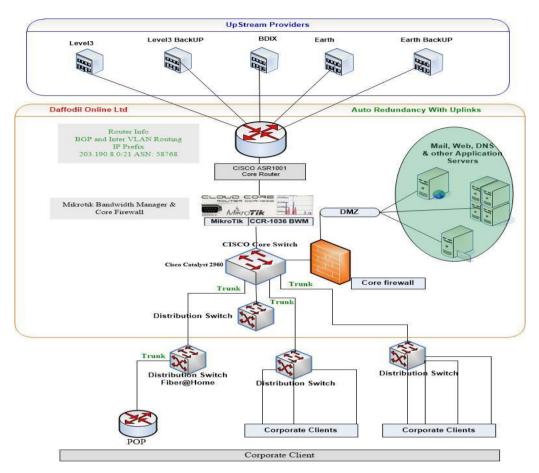


Figure 3.3: Shows Network Diagram

Initial Step

ISP provides for internet three ways.

- 1. Static Configuration
- 2. Dynamic Configuration
- 3. PPPoE Configuration

3.3.6 Static MikroTik Router Configuration:

Static routing refers to routing in which IP address cannot be automatically updated. One must manually configure static routers when network changes occur. It is used to access the internet.

Firstly, the ISP Company must give us things for static configuration, these are-

- 1. IP Address
- 2. Subnet mask / CIDR Notation
- 3. Gateway.
- 4. DNS.

Step 1:

First of all I've included LAN & WAN Configuration.

<u>Process:</u> Interface> Ethernet 1>Ethernet 1 WAN> Apply Ok. N.B: In the same way I did LAN work Interface> Ethernet 2>Ethernet 2 LAN> Apply Ok.

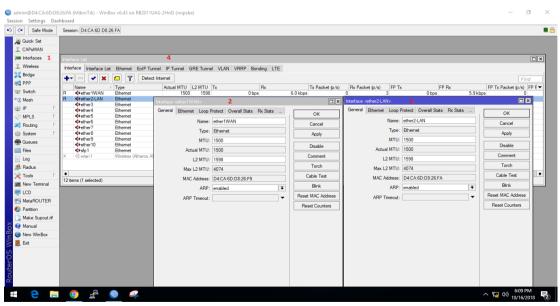


Figure 3.4: : Shows Screen Print Static MikroTik Router Setup.

Step 2:

Here I've selected IP Address & Network Address.

Process:

IP>Address>(+)>

N.B: When it opens the address list dialogue box I've clicked the plus button to open the add IP address window.

Here I gave the IP address in the address place. The same way I've given the Network IP in the Network place. And the LAN & WAN are selected in the Interface. Apply>Ok.

Address /	3 Network 172.16.0.0 192.168.50.20	E Find Interface ether2-LAN ether1WAN						
2 items (1 selected)	Network: 192	.168.50.20/24	OK	» nt	Address:	72.16.0.1/16> 172.16.0.1/16 172.16.0.0 ether2-LAN	2	OK Cancel Apply Disable Comment Copy Remove

Figure 3.5: Shows Screen Print WAN & LAN IP address.

Step 3:

Process:

IP>Routes>(+)>Gateway

N.B: Here I gave the Gateway IP in the Gateway place.

Apply>Ok

Set in Gateway IP address in MikroTik router show in Figure 3.22

Route List	
Routes Nexthops Rules VRF	
	Find all 🔻
Dst. Address 🕢 Gateway	🛆 Distance Routing Mark Pref. Source 💌
DAC 192.168.50.20 ether1WAN reachable DAC 172.16.0.0/16 ether2-LAN reachable	0 192.168.50.20 0 172.16.0.1
DAC P172.16.0.0/16 ether2-LAN reachable	0 1/2.16.0.1
New Route 2	
General Attributes	ОК
Dst. Address: 0.0.0/0	Cancel
Gateway: 192.168.50.1 💌	♦ Apply
Check Gateway:	✓ Disable
Type: unicast	∓ Comment
2 ite Distance:	Сору
Scope: 30	Remove
Target Scope: 10	
Routing Mark:	▼
Pref. Source:	

Figure 3.6: Show screen print Gateway IP address configuration in MikroTik router.

Step 4: <u>Process:</u> IP>DNS> N.B: Here I will give IP to DNS Server. Apply > Ok.

DNS Settings			
Servers:	203.190.10.252	\$	ОК
	203.190.10.253	•	Cancel
	8.8.8.8	•	Apply
Dynamic Servers:			Static
	Allow Remote Requests		Cache
Max UDP Packet Size:	4096		
Query Server Timeout:	2.000	s	
Query Total Timeout:	10.000	s	
Max. Concurrent Queries:	100		
Max. Concurrent TCP Sessions:	20		
Cache Size:	2048	KiB	
Cache Max TTL:	7d 00:00:00		
Cache Used:	17 KiB		

Figure 3.7: Shows Screen Print DNS Server

Step 5:

<u>Process:</u> IP > Firewall > NAT > "+'> Action > Masquerade N.B: Here the Action is displayed by Masquerade Apply>Ok.

					1										
	Filter Rules	NAT	Mangle	Raw	Service P	orts	Connec	tions A	ddre	ess Lists	Layer7 Pro	tocols			
ſ	+	</th <th></th> <th>7</th> <th>00 Rese</th> <th>t Cou</th> <th>unters</th> <th>00 Rese</th> <th>et All</th> <th>Counter</th> <th>s</th> <th></th> <th></th> <th></th> <th>F</th>		7	00 Rese	t Cou	unters	00 Rese	et All	Counter	s				F
			Chain	Src.	Address	Dst.	Address	Proto	Src	: Port	Dst. Port	In. Int	er	Out. Int	By
	0 =	mas	srcnat												
			NAT Rule	e 🔿								×			
			Advanc	ed Ex	tra Actio	n :	Statistics		_ [ОК				
				Action:	masquer	ade		₹		C	ancel				
					Log				[Apply				
			Log	Prefix:				•		D	lisable				
			То	Ports:				•		Co	omment				
									[Сору				
										R	emove				
	1 item								[Reset	t Counters		_		_
										Reset /	All Counters				

Figure 3.8: Show Screen Print Firewall.

Step 6:

Process:

In order to get Net in pc, you have to place the IP manually.

Networking	Internet Protocol Version 4 (TCP/IPv4) Properties2
Connect usina:	General
Realtek PCIe FE Family Controller	You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
This connection uses the following items:	Obtain an IP address automatically
Client for Microsoft Networks	Use the following IP address:
 VMware Bridge Protocol File and Printer Sharing for Microsoft Networks 	IP address: 172 . 16 . 0 . 2
QoS Packet Scheduler	Subnet mask: 255 . 255 . 0 . 0
Internet Protocol Version 4 (TCP/IPv4) Internet Protocol Version 4 (TCP/IPv4) Internet Protocol Internet Protocol	Default gateway: 172 . 16 . 0 . 1
Microsoft LLDP Protocol Driver	Obtain DNS server address automatically
Install Uninstall Pro	Use the following DNS server addresses:
Description	Preferred DNS server: 203 . 190 . 10 . 252
Transmission Control Protocol/Internet Protocol. The wide area network protocol that provides communical across diverse interconnected networks.	
across diverse interconnected networks.	Validate settings upon exit Advanced

Figure 3.9: Shows Screen Print Internet protocol version.

Step 7:

Process:

- 4. Open Command Prompt
- 5. Then type: ping 8.8.8.8 –t
- 6. Enter

NB: The ping command used to test if the network works or not.

C:\Windov	vs\system32\a	cmd.exe - ping	g 8.8.8.8 -t	
Microsoft W	Mindows []	Version 10	0.0.16299.2	251]
(c) 2017 Mi	crosoft (Corporatio	on. All rig	ghts reserved.
C:\Users\DO) >ning 8	.8.8.8 -t		
Pinging 8.8	3.8.8 with	h 32 bytes	s of data:	
Reply from	8.8.8.8:	bytes=32	time=52ms	TTL=118
Reply from				
Reply from			time=52ms	
Reply from			time=51ms	
Reply from			time=52ms	
Reply from			time=52ms	
Reply from			time=51ms	TTL=118
Reply from			time=52ms	TTL=118
Reply from			time=51ms	
Reply from			time=51ms	TTL=118
Reply from			time=51ms	
Reply from				TTL=118
Reply from			time=51ms	
Reply from			time=51ms	TTL=118
Reply from			time=52ms	
Reply from			time=51ms	
Reply from			time=52ms	
Reply from			time=52ms	
Reply from			time=51ms	
Reply from			time=52ms	
Reply from	8.8.8.8:	bytes=32	time=51ms	TTL=118

Figure 3.10: Show Screen Print Command promote.

3.3.7 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 advantage. Thusly,

structure chairman can without a lot of a stretch change MikroTik Router into a DHCP server and can without a doubt diminish his framework association assignment. The setup of DHCP in MikroTik switch is given below with both GUI and command line interface.

3.3.8 DHCP setup

Step 1:

<u>Process:</u> IP> DHCP > (+) > N.B: IP to DHCP Server Interface IP

Then in the same way I will use "Gateway for DHCP" "Address to Give Out" "DNS Server" "Least Time" In the Step. And finally DHCP Setup will be done. Apply >Ok.

	es Optons Opton Sets Alets T DHCP Config DHCP Setup terface Relay Lease Time	1 / Address Pool A	Find dd ARP	DHCP Setup Select network	2 (for DHCP add	dresses		3 ay for given netwo	ork	
	DHCP Setup Select Interface to run DHCP server on DHCP Server Interface: Judiws/24.04			DHCP Addres	s Space: 172	.16.0.0/16	Gateway for D	OHCP Network:	172.16.0.1	
0 žens	Back Nest C	ancel			Back	Next Cancel		Back	Next Cancel	
DHCP Setup	4		DHCP Setup	5					-	
Select DNS se	ervers		Select lease tim	e		Select pool of ip addresse	s given out by DHCP s	erver DHCP	Setup 7	
DNS Servers:	203.190.10.252 203.190.10.253	\$ \$	Lease Time: [0:10:00		Addresses to Give Out:	16.0.2-172.16.255.254	-	p has completed succe	essfully

Figure 3.11: Show Screen print shot for DHCP setup.

3.3.9 Bridge Configuration:

The Interface supports different Network, if we want the same Network in two or more Interface, then the Bridge will be created.

Step 1:

Process:

Bridge > (+) >

N.B: There will be dialog box, from there to the name of the Total LAN will be selected.

Apply > Ok.

Bridge		1		
Bridge	Ports	VLANs MSTIs Port MST Overrides Filters NAT	Hosts MDB	
-		Settings		Find
Na	ame	∠ Type L2 MTU Tx	Rx	Tx Pac 🔻
		New Interface	2 🗆 🗵	
		General STP VLAN Status Traffic	ок	
		Name: bridge1 -Total LAN	Cancel	
		Type: Bridge	Apply	
		MTU:	Disable	
		Actual MTU:	Comment	
		L2 MTU:	Сору	
		MAC Address:	Remove	
Oitems		ARP: enabled		•
Uttems		ARP Timeout:	▼ └────	
		Admin. MAC Address:	→	
		Ageing Time: 00:05:00		

Figure 3.12: Show Screen print for Bridge Configuration.

Step 2:

Process:

Bridge> Port > (+) >

N.B: There will be a dialog box, In the Interface, we will be able to select from several Ethernet step by step.

Apply > Ok.

Bridge									1							
Bridge	Ports V	LANs	MST	ls P	ort MS	то	verric	des F	ilters	NAT	Hosts	MDB				
+ -	~	×	-	T											Find	
#	Interfac	e	1	Bridg	e			Horizo	n T	rusted	Priority (h P	ath Cost	Role		R
3 H	1=1ethe		1		e1 -To				ye	es		80		designated p		
2 IH	1 tethe				e1-To					es		80		disabled por		
1 IH	1=1 othe				e1 -To					88		80		disabled por		
0 IH	11 ethe				e1 -To					BS		80		disabled por		
4 1	11 wlar	77		bridg	e1-To	tal L	AN.		ye	es		80	10	disabled por	t	
				в	ridge F	ort -	<ethe< td=""><td>r2-LAN</td><td><</td><td></td><td></td><td>2</td><td>2</td><td></td><td></td><td></td></ethe<>	r2-LAN	<			2	2			
				•	Genera	al S	STP	VLAN	I St	atus				OK		
					Interfac	ce:	ethe	r2-LAN	1				Ŧ	Cance	el	
					Bridg	ge:	bridg	ge 1 - To	tal L	AN			₹	Apply	·	
					Horizo	on:							-	Disabl	e	
•	selected				Lea	m:	auto						Ŧ	Comme	mt	+

Figure 3.13: Shows Screen Print Port Configuration.

Step 3:

Process:

IP > Address List >

N.B: There will be a dialog box, from there LAN & WAN IP will have to be selected Total LAN in the Interface.

Apply > Ok.

Bridge				1							
Bridge	Ports VLANs MST	Is Port MST Overrid	les	Filter	s NAT	Hosts	MD	в			
	- 🛩 🗙 🗖	7								Find	
#	Interface /	Bridge	Hor	izon	Trusted	Priority ((h	Path Cost	Role		R-
3 H	4=tether2-LAN	bridge1 -Total LAN			vea		80		designate		_
2 IH	1=1ether3	bridge1 -Total LAN		Addre				2			
1 IH	1=1-ether4	bridge1 -Total LAN									
0 IH	1=1-ether5	bridge1 -Total LAN		-		🛩 🔀	<u> </u>	1 7		Find	
4 1	1=1 wlan 1-Willi	bridge1 -Total LAN			Address		A N	etwork	Interf	ace	-
					++++++++++++++++++++++++++++++++++++	6.0.1/16	5 10	72.16.0.0	bridg	e1 -Total L	
						68.50.20	0 1	92.168.50.0	ether	1WAN	
					Ade	dress <17	72.16	.0.1/16>	3		×
					A	ddress:	172.1	16.0.1/16		ок	
					N	etwork:	172.1	16.0.0	-	Cancel	
•	A A A B				Int	erface:	bridg	e1 -Total L/	AN Ŧ	Apply	
jo πems ((1 selected)		_							Disable	

Figure 3.14: Shows Screen Print for Address List.

3.3.10 Bandwidth Configuration:

We will take limited Bandwidth from ISP companies, and we will make a Bandwidth configuration for the distribution to everyone.

Step 1:

Process:

IP > DHCP Server > Leases >

N.B: There will be a dialog box, from there Address & MAC Address IP will have to select DHCP Leases.

Apply > Ok.

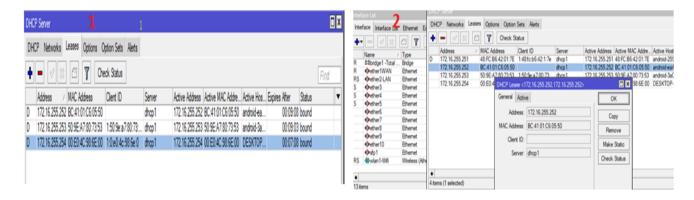


Figure 3.15: Shows Screen Print for DHCP Lease IP.

Step 2:

Process:

1. Queue > Queue List > Simple Queue > (+) >

N.B: There will be a dialog box, from their Name, Target & maximum limit will have to be selected.

Apply > Ok.

2. Queue > Queue List > Simple Queue > (+) >

N.B: We will do the same things in the same way.

In this way we can have a user or all users Queue for different names.

Apply > Ok.

lueue List	1		Queve List 2
Simple Queues Interfac	e Queues Queue Tree Queue Types		Simple Queues Interface Queues Queue Tree Queue Types
+ - v x (00 Reset Counters 00 Reset All Counters	Find	💠 🗕 🗸 🗶 🔽 🖉 00 Reset Courters 00 Reset Al Courters
	arget Upload Max Limit Download Max Limit Packet Marks 🗸 Upload 72.16255.254 1M 1M 3.3 kbps	Download 438 bps	# Name Target Upload Max lunt Download Tark Marks Upload Download Total M 0 @ Shiut 172.16.252.554 1M 5M 4.21.bps 672.bps 1 @ Tark JAN 172.16.001/s unimited 0.0bps 0.0bps
	Simple Queue (Shikut)		Simple Queue <total lni=""></total>
	General Advanced Statistics Traffic Total Total Statistics	ОК	General Advanced Statistics Traffic Total Statistics OK
	Name: Stikul	Cancel	Name: Total LAN
	Target: 172.16.255.254	Apply	Target: 172.16.00/16
	Dat.:	Disable	Dat: Date
	Target Upload Target Download	Comment	Target Upload Target Download Comment
	Max Limit: 1M F 1M F bits/s	Сору	Max Limit: unlimited ¥ unlimited Copy
•	> Burst	Remove	-▲ Bunt Remove
l item (1 selected)	Burst Limit: unlimited ¥ unlimited ¥ bits/s	Reset Counters	Burst Limit: unlimited ¥ unlimited ¥ bits/s
	Burst Threshold: unlimited T unlimited T bits/s	Reset All Counters	Bunt Threshold: unlimited T unlimited T bits/s
	Burst Time: 0 0 s		Bunt Time: 0 0 s
	-•- Time	Torch	2 tens (1 selected) Torch

Figure 3.16: Shows Screen Print for Queue List.

Step 3:

Process:

IP > Queue > Queue Type >

N.B: There will be a dialog box, here we have selected Name, Limit & Classifier in the same way for Upload & download.

Apply > Ok.

Queue List						1				
Simple Queues Interface Que	ues Queue Tr	ee Queue Types								
4 - 7								Find		
Type Name	Kind							-		
Download	pcq									
Upload	pcq									
* default	pfifo			2 UPLOAI	n			2.0	ownload	
* default-small	pino	Queue Type <upload< td=""><td>></td><td>2 OPLOAI</td><td>0</td><td></td><td>Queue Type <downlo< td=""><td>ad> 5 D</td><td>ownioad</td><td></td></downlo<></td></upload<>	>	2 OPLOAI	0		Queue Type <downlo< td=""><td>ad> 5 D</td><td>ownioad</td><td></td></downlo<>	ad> 5 D	ownioad	
* ethemet-default	pfifo	Type Name:	Upload			ОК	Type Name:	Download		OK
* hotspot-default	sfq									UN
* multi-queue-ethemet-default	mq pfifo	Kind:	pcq		Ŧ	Cancel	Kind:	pcq	Ŧ	Cancel
* only-hardware-queue	none									
* pcq-download-default	pcq	Rate:	2M	bit	s/s	Apply	Rate:	2M	bits/s	Apply
* pcq-upload-default	pcq									
* synchronous-default * wireless-default	red sfa	Limit:	5k		КiВ	Сору	Limit:	5k	KiB	Сору
wireless-derault	siq	Total Limit:	200000		КiВ	Remove	Total Limit:	200000	KiB	Remove
		Burst Rate:		▼ bit	e/e		Burst Rate:		▼ bits/s	
12 items (1 selected)		buist nate.		Dic			Durat Hate.		Dicara	
		Burst Threshold:			•		Burst Threshold:		•	
		Burst Time:	00:00:10				Burst Time:	00:00:10		
		Classifier:	Src. Address	s 🗌 Dst. Addre	ess		Classifier:	Src. Addres	s 🕑 Dst. Address	
			Src. Port	Dst. Port				Src. Port	Dst. Port	
		Src. Address Mask:	22				Src. Address Mask:	22		
		SIC. Aduless Mask.	32		_		Sic. Audress Mask.	32		
		Dst. Address Mask:	32				Dst. Address Mask:	32		
		Src. Address6 Mask:	64				Src. Address6 Mask:	64		
		Dst. Address6 Mask:	64				Dst. Address6 Mask:	64		

Figure 3.17: Shows Screen Print Upload & Download for Queue List.

3.3.11 YouTube / Facebook Separation:

Our minimum requirement for YouTube 7 MBPS &Facebook 3MBPS. If we want to use YouTube or Facebook without buffering, we need to separate YouTube or Facebook.

Step 1:

Process:

IP > Firewall > Address List >

N.B: There will be a dialog box, from there Name & Address have to be selected. Apply > Ok.

irewall			1		
Filter Rules NAT	Mangle Raw	Service Ports	Connections	Address Lists	Layer7 Protocols
+ - • ;	K 🗖 🍸				
Name 🛆	Address	Timeou	t	Creation Time	
Youtube-IP	8.8.8.8			Oct/16/2018 19:	
Youtube-IP	74.125.0.0/16	Firewall Address	List Zoutube	-IP> 2	
Youtube-IP	173.194.0.0/1	Thewait Audress	List < l'outube	~11 2 2	
Youtube-IP	182.48.85.0/24	Name:	Youtube-IP	∓	ок
Youtube-IP	182.48.85.192				
Youtube-IP	216.58.196.0/2	Address:	74.125.0.0/1	6	Cancel
Youtube-IP	59.152.110.12	Timeout:			
Youtube-IP	103.21.42.192	nmeout.		•	Apply
Youtube-IP	74.125.24.136	Creation Time:	Oct/16/2018	19:00:22	
facebook	31.13.24.0/21				Disable
facebook	31.13.64.0/18				Comment
facebook	31.13.64.0/19				Comment
facebook	31.13.64.0/24				Copy
facebook	31.13.65.0/24				
facebook	31.13.66.0/24				Remove
facebook	31.13.68.0/24				
facebook	01.10.00.0724	enabled			
facebook	31.13.70.0/24			Oct/16/2018 19:	

Figure 3.18: Shows Screen Print for Firewall Address List.

Step 2:

Process: All Process step by step-

- IP > Firewall > Mangle > General > N.B: There will be a dialog box, from here to Chain, we need to select the prerouting in the box. Apply > Ok.
- IP > Firewall > Mangle > Advance > N.B: There will be a dialog box, from here to Dst. Address List, we need to select the YouTube or Facebook in the box. Apply > Ok.
- IP > Firewall > Mangle > Action > N.B: There will be a dialog box, from there to Action, we need to select the mark connection in the box. Apply > Ok.

nd <u>1</u> 1.1			Mangle Rule <> 🔰	
ter Rules NAT Mangle Raw Service Ports Connections Address List	s Layer7 Protocols		General Advanced Extra Action Statistics	ок
🕨 🗕 🖌 🗶 🙆 🍸 00 Reset Counters 🛛 00 Reset Al Count			Src. Address List:	Cancel
	ers Find a	(<u>•</u>	Dst. Address List: Voutube-IP	Ten Apply
Action Chain Src. Address Dat. Address Proto Src. Port	Dat Port In Inter Out Int Butes Packets	T		
special dummy rule to show fasttrack counters	Mangle Rule O 2.2		Layer7 Protocol:	
0 D 🗅 pas prerouting	No		Mangle Rule 🗢 📲	
:: special dummy rule to show fasttrack counters	General Advanced Extra Action Statistics	OK		
1 D 🗅 pas forward	Chain: prenuting	Cancel	General Advanced Extra Action Statistics	OK
;; special dummy rule to show fasttrack counters	unan. <u>Kewung</u>	Lance	Action: mark connection	Cancel
2 D 🗅 pas postrouting	Src. Address:	Apply		
3 ∥mar prerouting			🗌 Log	Apply
4 I mar prerouting	Dat. Address:	Disable	Log Prefix:	Disable
				Lisquie
			New Connection Mark: Youtube_con	Comment
			✓ Passthrough	Сору

Figure 3.19: Shows all Screen Print Firewall, Mangle rules for YouTube separation

Step 3:

Process:

IP > Mangle Rule > General >

N.B: There will be dialog box, from there to Chain, we need to select the prerouting in the box. Again from there to connection mark, we need to select YouTube or Facebook.

Apply > Ok.

Mangle Rule <>				
General Advanced	Extra Action	Statistics		ОК
Chain	: prerouting		₹	Cancel
Src. Address	c		□ -	Apply
Dst. Address	:		□ -	Disable
Protocol	:		-	Comment
Src. Port	:		-	Сору
Dst. Port	:		-	Remove
Any. Port	:		-	Reset Counters
In. Interface	:		□ -	Reset All Counters
Out. Interface	:			
In. Interface List	:		-	
Out. Interface List	:		-	
Packet Mark	:		-	
Connection Mark	: Youtube_	con	F 🔺	
Routing Mark	:		-	

Figure 3.20: Shows Screen Print Mangle rules.

Step 3:

Process:

Queue >Queue List > Queue Types >

N.B: There will be a dialog box, since we are working with YouTube or Facebook, so we will select the choice of Upload & Download speed.

Apply > Ok.

Queue List			1	L					
Simple Queues Interface Que	eues Queue Tre	e Queue Typ	bes						
+ - 7									Find
Type Name /	Kind								-
Download	pcq								
Upload	pcq								
Youtube DW	pcq								
Youtube UP	pcq								
* default * default-small	pfifo		_						
* ethemet-default	pfifo Queue	Type <youtube< td=""><td>• UP> 2</td><td></td><td></td><td>Queue Type <youtub< td=""><td>e DW> 3</td><td></td><td></td></youtub<></td></youtube<>	• UP> 2			Queue Type <youtub< td=""><td>e DW> 3</td><td></td><td></td></youtub<>	e DW> 3		
* hotspot-default	sfq	Type Name:	Youtube UP		ОК	Type Name:	Youtube DW		ОК
* multi-gueue-ethemet-default	mq pfi								
* only-hardware-queue	none	Kind:	pcq	∓	Cancel	Kind:	pcq	∓	Cancel
* pcq-download-default	pcq				Arabi				Apply
* pcq-upload-default	pcq	Rate:	5M	bits/s	Apply	Rate:	5M	bits/s	Афріу
* synchronous-default	red	Limit:	750	KiB	Сору	Limit:	750	KiB	Сору
* wireless-default	sfq								
		Total Limit:	2000000	KiB	Remove	Total Limit:	2000000	KiB	Remove
		Burst Rate:		 bits/s 		Burst Rate:		▼ bits/s	
	в	rst Threshold:		•		Burst Threshold:		•	
143 (1		Burst Time:	00:00:10			Burst Time:	00:00:10		
14 items (1 selected)		Classifier	Src. Address	Ost. Address		Classifier	Src. Address 💌	Dst Address	
		Classifer.		Ost. Address Ost. Port		Ciussilier.		Dst. Port	
				250.1000				Datiroit	

Figure 3.21: Shows Screen Print Screen Shot Queues List

Step 4:

Process:

1. Queue > Queue List > Simple Queue > General >

N.B: There will be a dialog box, from here to Name, we need to select YouTube in the box. Again here to Target, we need to select IP Address.

Apply > Ok

2. Queue > Queue List > Simple Queue > Advance >

N.B: There will be a dialog box, since we are working with YouTube or Facebook, so

we will select the choice of YouTube or Facebook

Apply > Ok

Queue List		1	1.1					Simple Queue <	(outube)				
Simple Queues Interface		Queue Tree Queue Typ	es					General Adva	nced Statistics Tri	affic Total	Total Statistics		ОК
+ - • * =	7	00 Reset Counters 0	D Reset Al Counters					Packet Marks:	voutube pk			* \$	Cancel
# Name / Ta	arget	Upload Max Limit	Download Max Limit	Packet Marks	T Upload	Download	Total Max		And Contractor			SHARE	
	72 16.0.0/1		unimted 1M	youtube_pk	480 bps 0 bos	0 bps 0 bos	- Alexandre		T	arget Upload	Targ	et Download	Apply
2 🔒 Total LAN 17.		5 unimted	unimted		42.5 kbps	1016.7 kbps	-	Limit At:	unlimited	Ŧ	unlimited	₩ bits/s	Disable
		Simple Queue «Youtube	> Statistics Traffic Tot	1 Tallara				Priority:	8		8		Comment
		Name: You		ai Totai Statist	109		Ж	Bucket Size:	0.100		0.100	ratio	Сору
		Target: 172	Sec. 1		1		ncel	Queue Type:	Youtube UP	Ŧ	Youtube DW	Ŧ	Remove
		Det :						Parent:	[none	0.0103	93 93	Ŧ	Reset Counters
						Lis	able	raicis.	(INFIC				Dent Al Country
			Target Upl	bad	Target Download	Con	ment						Reset Al Counters
		Max Limit: unlin	ited	¥ unlimited	Ŧ	bits/s C	ору						Torch

Figure 3.22: Shows Screen Print Queues List & Simple Queue

3.3.12 Network Security:

Without the permission of the network system admin, anyone else may not be able to access the Internet. For this we have Network security in MikroTik Router.

Step 1:

Process:

IP >Firewall >

N.B: There will be a dialog box, first we need to click on General and give Chain & Src. Address, then click on Action and select Drop & Accept.

Apply > Ok.

Firewall 1	1.1	Firewall Rule <172.16.0.0/16> 2
Filter Rules NAT Mangle	e Raw Service Ports Connections Address Lists Layer7 Protocols	General Advanced Extra Action Statistics OK
+ × -	V 00 Reset Counters 00 Reset All Counters	
# Action Chain	Src. Address Dst. Address Proto Src. Port Dst. Port In. Inter Ou	Action: drop Cancel
;;; special dummy rule to s		
0 D D pas forward 1 vacc input	172.16.255	Log Apply
2 Xdrop input	172.16.0.0/	Log Prefix:
	Firewall Rule <172.16.0.0/16>	Disable
	General Advanced Extra Action Statistics OK	Firewall Rule <172.16.255.254> 3
	Chain: input T Cancel	General Advanced Extra Action Statistics OK
	Src. Address: 172.16.0.0/16 Apply	
	Dst. Address:	Action: accept Cancel
	Disable	
	Protocol: Comment	Log Apply
	Src. Port: Copy	Log Prefix: Disable

Figure 3.23: Shows all Screen Print for Network Security.

Step 2:

Process:

DHCP > Least > Make static.

N.B: We only need to reply from ARP to the Interface. You must add ARP to IP & MAC Address.

Apply > Ok.

			DHC	P Server				3			
ARP List	1		DH	CP Networks L	eases	Options Option	Sets Alerts	-			
+ - < × 🖻	T	Find	÷	- 🗸 🗙		Check St	atus			1	ind
IP Address	✓ MAC Address Int	erface 🔻		Address	_∧ M	AC Address	Client ID	Server		Active MAC Addre	
DC 9192.168.50.1	D4:CA:6D:81:6D:56 etl	ner1WAN		172.16.255.251			1:48fc:b6:42:1:7e	dhcp1		48:FC:B6:42:01:7E	
				172.16.255.252	B	C:41:01:C6:05:50		dhcp1		BC:41:01:C6:05:50	
				172.16.255.253	50	D:9E:A7:80:73:53	1:50:9e:a7:80:73:	dhcp1	172.16.255.253	50:9E:A7:80:73:53	android-
				172.16.255.254	00	D:E0:4C:98:6E:00	1:0:e0:4c:98:6e:0	dhcp1	172.16.255.254	00:E0:4C:98:6E:00	DESKT
New ARP	ress: 172.16.255.254	ОК				DHCP Lease <17 General Active	2.16.255.254,172.16	.255.254> 4		×	
MAC Add	ress: 00:E0:4C:98:6E:00 -	Cancel				ACTIVE			ОК		
	face: bridge1 -Total LAN F	Apply				Add	ress: 172.16.255.25	4 ₹	Cancel		
						MAC Add	ress: 00:E0:4C:98:6		Apply		
	Published	Disable					Use Src. M/		Disable		
		Comment				Clien	t ID: 1:0:e0:4c:98:6	e:0 🔺		╡╽	
1 item		Сору	4 ite	ms (1 selected)		Se	rver: dhcp1	Ŧ ▲	Comment	_	٠

Figure 3.24: Shows Screen Print for Network Security Arp List.

3.3.13 Website Block:

We need to block some websites to specify how much website can be used, as per the specific requirement of the corporate house.

Step 1:

Process:

1. IP > Firewall > Layer 7 Protocol >
N.B: There will be a dialog box, since we want to block facebook.com we have given Facebook code [^.+(facebook.com).*\$]
Apply > Ok.
2. IP > Firewall >Filter Rules >
N.B: There will be a dialog box, first we need to click on General and give Chain & Protocol.
Apply > Ok.
3.IP > Firewall >Advance >
N.B: Since we want to block Facebook, we will select Facebook on Layer & Protocol.
Apply > Ok.

Frend <u>1</u> 1.1		Frewal 2	2.1	
Filter Rules NAT Mangle Raw Service Ports Connections Addre	ss Lists Layer7 Protocols	Filter Rules NAT Mangle Raw	Service Ports Connections Address Lists La	syer7 Protocols
Name / Regexp 9 Facebook*facebook.com)."S		+ - • × 🗂 🍸	00 Reset Counters 00 Reset All Counters	
Frewall L7 Protocol «Far Name: Facebook, Bio		special dummy rule to show fast 0 D 🗅 pas forward 1 💥 drop forward		Statistics OK
fecebook.com) 'S	Regexp: Cancel Apply Comment		In ELSO Chain: Forward 16.0.0 Src. Address:	▼ Cancel ▼ Apply ▼ Disable
Firewall Rule ⇔	Copy Remove		Protocol: 5 (tcp)	Comment Copy
General Advanced Extra Action Statistics	ОК	Firewall Rule <> 4 General Advanced Extr	a Action Statistics	ОК
Src. Address List:	Cancel	General Advanced Extr		UK
Dst. Address List:	Apply	Action: drop	₹	Cancel
Layer7 Protocol: Facebook_Block				Apply
	Comment	Log Prefix:	•	Disable
	Remove			Comment
connection nate.	Reset Counters		0	
	Reset All Counters			

Figure 3.25: Shows all Screen Print for Website Block.

Step 2:

Process:

Establishing secure connection...

Open browser and enter facebook.com.

A

N.B: At the end of all work when Facebook is opened, we can see that Facebook is not opened.

	× +	-	ø		2
→ × D https://www.f	acebook.com	×	\$	Θ	
	This site can't be reached				
	The connection was reset.				
	Try:				
	Checking the connection				
	Checking the proxy and the firewall Running Windows Network Diagnostics				
	ERR_CONNECTION_RESET				
	Reland DETAILS				

Figure 3.26: Shows Screen Print for Facebook Block.

∧ 100 7156 PM

3.3.14 PPPoE:

Internet is protected, and PPPoE is used for handling users easily. Here the User Name & Password are provided.

Step 1:

Process: All process step by step-

IP > Pool >

N.B: There will be a dialog box, first we need to click on Pool and give Name & Address.

Apply > Ok.

IP > PPP > PPPoE Servers >

N.B: There will be a dialog box, first we need to click on PPPoE Servers and give Service Name& Interface. Apply > Ok.

IP > PPP > Profile >

N.B: There will be a dialog box, first we need to click on Profile and give Name, Local Address & Remote Address.

Apply > Ok.

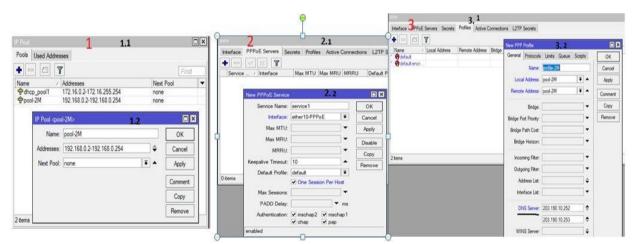


Figure 3.27: Shows all Screen Print Shot for PPPoE.

Step 2:

Process:

1. IP >PPPoE>

N.B: There will be a dialog box, we will set Upload & Download speed in the Rate Limit Box.

Apply > Ok.

2. IP >PPP> Secret >

N.B: There will be a dialog box, first click on Secret and give Name, Password & select Profile.

Apply > Ok.

		PPP	2			2.1		
		Interface	PPPoE Servers	Secrets	Profiles	Active Conne	ctions	L2TP Secrets
		+ - V 🔅 🗂 🍸 PPP Authentication8		entication&Acc	countin	g		
		Name	/ Password	Servic	e Caller	ID Pro	file	Local Add
			New PPP	Secret		2.2		
New PPP Profile				Name:	shikut			ОК
General Protocols Limits Queue Scripts	OK		Pa	assword:	shikut		•	Cancel
Session Timeout:	Cancel			Service:	рррое		Ŧ	Apply
Idle Timeout:	Apply		c	Caller ID:			•	Disable
Rate Limit (nx/tx): 2M/2M	Comment		-	Profile:	profile-2M		Ŧ	Comment
- Only One	Сору		Local /	Address:			•	Сору
Cno Cyes c default	Remove		Remote /	Address:			•	Remove

Figure 3.28: Shows all Screen Print for PPPoE.

Step 3:

Process:

N.B: Finally, internet can be accessed by the User Name and Password and we can login with User Name & Password.

		-		×					
←	🍪 Connect to the Internet								
	Type the information from your Internet service provider (ISP)								
	User name:	shikut							
	Password:	shikut							
		Show characters							
		Remember this password							
	Connection name:	Broadband Connection							
	🌍 🗌 Allow other people to	use this connection							
	* =	one with access to this computer to use this connection.							
	l don't have an ISP								
	I don't have an isp								
		Connect	Cance	el					

Figure 3.29: Shows Screen Print for Internet connection.

3.3.15 Installation Process in Linux Configuration

3.3.16 Installation Centos OS 6.4

Step 1:

Process:

File > New Virtual Machine >

N.B: There will be a dialog box, first click on Virtual Machine Workstation, & Selected Typical dropdown box. >Next.

Step 2:

Process:

N.B: There will be a dialog box, & Selected Store virtual disk a single file dropdown box.

>Next.

Step 3:

N.B: There will be a dialog box, and Centos OS are selected. > Next

Step 4:

N.B: There will be a dialog box, and select typical dropdown box. > Next

Step 5:

N.B: There will be a dialog box, this name Virtual Machine Setting, click Hardware & select Specific Virtual Machine.

> Next

Step 6:

N.B: There will be a dialog box, this name Virtual Machine Setting, click CD/DVD (IDE) & select Use ISO image file.

> Ok.

Step 7: We will show two file are created in browser.

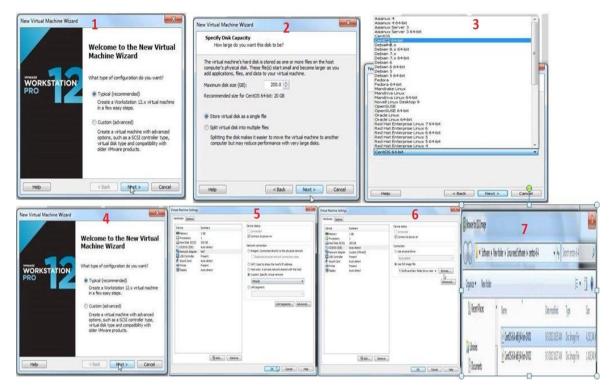


Figure 3.30: Shows all Screen Print for Centos OS Install.

Step 1:

Process:

N.B: There will be a dialog box, first click Power on Virtual Machine. >Next.

Step 2:

Process:

N.B: There will be a Black Screen, & click Ok.

Step 3:

N.B: There will be a dialog box, and US English Language selected. > Next

Step 4: N.B: There will be a dialog box, and select Use all space dropdown box. > Next

Step 5: N.B: There will be a dialog box, here Disk Configuration. > Next

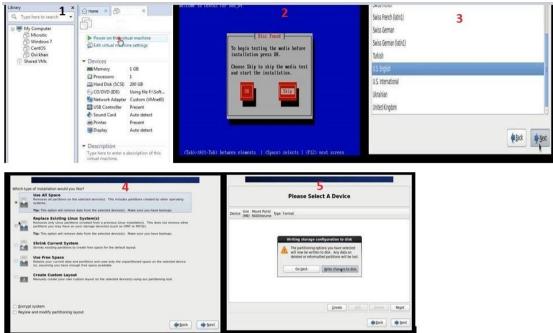


Figure 3.31: Shows all Screen Print for Centos OS Install.

Step

Process

N.B: There will be a dialog box,

> Next.

		Please	Select A Devic	e		
Device	Size (MB)	Mount Point/ RAID/Volume	Туре	Format		
* LVM Volume Groups						
	204296					
LogVol01	100000	1	ext4	\checkmark		
LogVol00	2048		swap	\checkmark		
LogVol02	102248	/home	ext4	\checkmark		
Hard Drives						
sdal	500	/boot	ext4	\checkmark		
sda2	204299	VolGroup-DoLL	. physical volume (LVM)	\checkmark		
			Greate	Edit	Delete	Reset

Figure 3.32: Shows Screen Print for a Device.

Step

Process

N.B: There will be a dialog box, and Finally Install CentOS 6



Figure 3.33: Show Screen Print for centOS Install.

3.3.17 Linux Run-Level Used by Centos

Command	Description
init 0	Shut Down
init 1	Single Mode User
init 2	Multi User Mode
init 3	Full Multi User Mode
init 4	Unused
init 5	X-Windows (GUI Mode)
who -r	See current run-level

3.3.18 The Basic Command of Linux Centos

Command	Description
pwd	Present Working Directory
Power off, init 0, shutdown –h now	Shutdown
cd /root/Desktop(directory path)	Chang Working Directory
ls	List information about file
Cal, cal 2014, cal 10 1989	Display a calendar
touch shikut(File name).	Create a clear document
mkdir shikut(name of directory).	Create a index

3.3.19 Initial Step

User Create and Password Management

Command	Description	
addusershikut(username).	Adding a user	
passwdshikut(username).	Set a Password to New User	
passwd-d shikut(username).	Password Disable/Remove	
fingershikut(username).	Verify user information	
passwd–l shikut(username).	Locking an account	
passwd –u shikut(usemame).	Unlock an account	
userdelshikut(username).	Delete a user	
userdel –r shikut(username).	Delete a user with home directory	

To Know About the Logged In User

W		
who		
who	am	i

To Copy or Move a File

Copy = cp filename goal precedent: cp file1 /home/shikut/ahammed Move = mv filename goal precedent: cp file1 /home/shikut/ahammed

Network Configuration

After providing Internet connection to server, static IP will be displayed in phases.

Process 1:

If i want to type in the (ifconfig) Command, you can connection to the cable connection and get an <etho0>

Process 2:

Than we will edit the (vim /etc/sysconfig/network –scripts) command by typing. Then save command < wq >

Process 3:

In the same way, I want to type in the (vim /etc/resolv.com) command Than here I will place the DNS.

Process 4:

I will check with google ping.

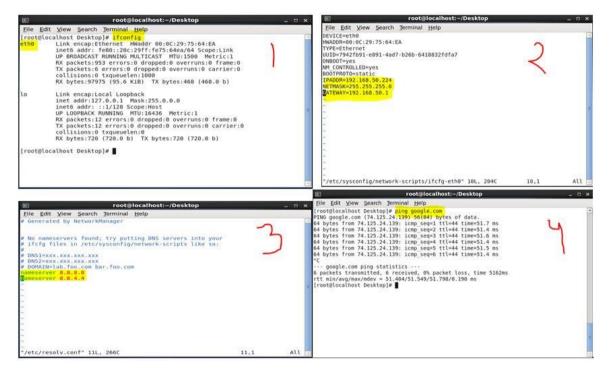


Figure 3.34: Shows all Screen Print Shot for Network Configuration on Linux.

File Permission

Define how much authentication it receives.

Number	Permission Type	Symbol
0	No permission	
1	Execute	X
2	Write	-W-
3	Execute + Write	-WX
4	Read	r
5	Read + Execute	r-x
6	Read + Write	rw-
7	Read + Write + Exectute	Rwx

Let's see the chmood command in action.

Process 1:

(touch shikut) create the file in the desktop.

With this command (ls) I can see the location file.

Process 2:

To see the permissions of the file, type (ls –la) command.

Process 3:

To check the file has been read, write & execute types this command (ls –ls I grep shikut)

```
[root@localhost Desktop]# touch shikut
[root@localhost Desktop]# ls
                                       1
dol frouts shikut
[root@localhost Desktop]# ls -la
total 16
                                                2
drwxr-xr-x. 3 root root 4096 Oct 29 23:02 .
dr-xr-x---. 26 root root 4096 Oct 29 22:39 ...
drwxr-xr-x. 2 root root 4096 Oct 29 20:56 dol
            1 root root 159 Oct 29 21:11 frouts
rw-r--r-.
rw-r--r-.
            1 root root
                           0 Oct 29 23:02 shikut
[root@localhost Desktop]# chmod 764 shikut
                                                 3
[root@localhost Desktop]# ls -la | grep shikut
-rwxrw-r--. 1 root root
                           0 Oct 29 23:02 shikut
```



User Management

Process 1:

(useradd shikut) create the user in the desktop.

I will create a new password.

Process 2:

(cat /etc/passwd I grep shikut) type the command, user id & group id(500:500)

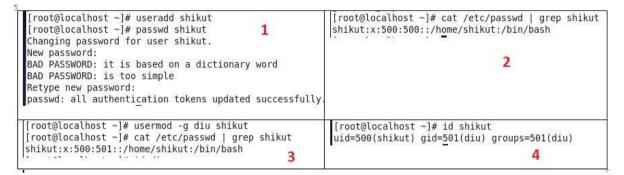


Figure 3.36: Shows all Screen Print Shot for User Management.

3.4 Challenges

There don't have any work which has no difficulties, however four months of my temporary job understanding and to share companions in the wake of finding out about the party time, I've discovered that there is some regular difficulties in entry level position. I think it is that assistants can be unpaid, impermanent and they are in a race to pick up involvement.

Lacking work: Sometimes is happened that there's insufficient work allocated to me. I was get exhausted, underutilized, strumming my fingers at my work area and enticed to sit idle.

At times excessively work: Because of assistants are only happy to get a foot in the entryway, some work spots may exploit from youthful laborers by giving them extend periods of time dull work.

Dread to make inquiries: abruptly there's a deluge of work, and I at long last have the opportunity to substantiate myself! Be that as it may, I don't know about x, y, z... I may feel the strain to be an autonomous and independent laborer; however it's such a great amount of better to illuminate vulnerabilities!

Contend with other Intern: Luckily I was an assistant; we make inquiries of one another and can without much of a stretch collaborates with undertakings that have worked in groups where there was such a community oriented relationship. Understudies in a future employment opportunity, or a proposal for a decent letter will contend in other office conditions, may not be so inviting.

A New Lifestyle: As an ongoing alumnus, I might become acclimated to another way of life that can be very jostling. Rather than awakening at eight and heading off to a couple of class's multi day, I'm sitting at a work area 9-5. I may inhabit my folks to set aside extra cash. The hours and the new living circumstance unmistakably make mingling more troublesome than previously.

CHAPTER 4

4.1 Competencies Earned

Abilities earned or learning result is an announcement of what a student is required 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 job in cutting edge Linux programming executions, for instance LDAP HA, adjusted to program learning results, field and temporary position assessments. The Student Association office finances numerous understudy Intern Learning Outcomes: Gathering and arranging data into an Internship Project Description: Participate in the upgrade 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 hierarchical strategies and methods.

4.3 Smart Plan

Each organization ought to have a keen intend to pick up the achievement. Essentially some regular things of mix make a savvy plan.

4.3 Reflections

Daffodil Online Ltd. begun they are activity in the year 2002. Amid the previous years, they broadened they are activity and administration portfolio as per the client's proposal and thinking about requests of time. They worked with numerous national ventures and worldwide associations and accomplished the notoriety. They are utilizing the most recent advancements and overhauling the administrations wherever it is required. They are Corporate Network Solution office is skilled to give condition of-craftsmanship system and media transmission arrangements with an exceptionally proficient specialized aptitude gathering.

CHAPTER 5 Conclusion and Future Career

5.1 Discussion and Conclusion

Audit this entry level position has been a magnificent and compensating background. I have seen the future and I will have the capacity to assist me with the chance to connect with many individuals have possessed the capacity to affirm that. Through this temporary job, I have discovered that one of the primary issues and time administration abilities and additionally self-inspiration. When I began first I was going eight hours per day, six days seven days to have the capacity to sit in an office and did not feel that. When I understood what I need to do my long periods of covering isn't broken, so I sort out my normal everyday employment. Composed and it was the perfect time, when I get a reaction to arranged for inquiries that should be scholarly. This temporary job and time administration of the workplace for a long time, I needed to figure out how to rouse thy self through. Despite everything I'm searching for utilizing the organization thought of the different proposition and thoughts. Despite everything I'm keeping my alternatives open to new chances, nonetheless, are proceeding to work for the University of Bangladesh on the planet. I'm getting a charge out of this profession. I keep on buckling down for my position and would like to keep on finding out about the business and meet new individuals will. It was a superb affair, and I trust the other assistant received a great deal in return.

5.2 Scope for Further Career

Profession openings are accessible in various territories under Linux. The profession openings in Linux's making reference to not just the Linux stage, it covers parcel of various territories like: Desktop Application Development, Kernel and Device Drivers Development Today their enormous interest open source programming's and open source programming's designers and system engineers. There many organizations today relocated 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 talented experts in LINUX, MICROTIK and so forth.

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Appendices

> Appendix : Company Detail



	Head Office
Name	Daffodil Online Limited
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Telephone	02-9143258-60
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E-mail	info@daffodilnet.com
Website	www.daffodilnet.com
Type of Organization	Nation wide Internet Service Provider (ISP)
Employees	12