ISP NETWORK WITH MIKROTIK ROUTER CONFIGURATION

BY

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

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DAFFODIL INTERNATIONAL UNIVERSITY DHAKA, BANGLADESH OCTOBER 2020

APPROVAL

This Internship report titled is "ISP Network with Mikrotik Router Configuration" submitted by "Md. Fojle Rabbi" & ID is: "172-15-10043" 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 8th October, 2020.

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I hereby declare that, this Internship report paper has been done by me Md. Fojle Rabbi, Id: 172-15-10043 the department of Computer Science and Engineering, Daffodil International University under the supervision of Israt Jahan, Lecturer, Department of CSE Daffodil International University. I also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma. I also declare that, I collect information from the Explore Online ISP, Books & Internet.

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ACKNOWLEDGEMENT

Firstly I express our heartiest thanks and gratefulness to **Almighty Allah** for his divine blessing makes us possible to complete the final year Internship successfully.

I'm obliged to **Kazi Mohammad Shoabe, CEO & Owner** of Explore Online ISP. I am also thankful to **Md. Alhasan Sohag, Network and System Admin** of Explore Online ISP. Without their continuous support I can't continue my Internship in this company. Other members of the company helped me for complete my Internship.

I am really grateful and wish profound indebtedness to **Israt Jahan, Lecturer,** Department of CSE, Daffodil International University, Dhaka. Deep Knowledge & keen interest of supervisor in the field of *"ISP Network with Mikrotik Router Configuration"* to carry out this Internship. Her endless patience, scholarly guidance, continual encouragement, constant and energetic supervision, constructive criticism, valuable advice, reading many inferior drafts and correcting them at all stage have made it possible to complete my 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

The MikroTik router is a more powerful device than other routers, which has many advantages, including Internet sharing and bandwidth control. It is a device like a switch / router, ranging in size from a small box to a large box. Some of these devices also have wireless facilities. For those who do not want to use such devices, there is another method - MikroTik ISO. It is an operating system, with which the computer can be used as a router by installing this operating system on the computer. Before we go into detail about these two methods, we don't know what are the benefits of using a microscopic router.

My internship goal was learning networking with Mikrotik basically I focused on ISP networking. Winbox is designed for implement Mikrotik. Mikrotik is founded in 1996 by Arnis Riekstins and John Tully. Regardless of which router board or operating system you use as a MikroTik router, the sales representative will set the basic configuration for you. Find out before you buy whether the sales representative will give you an advantage in this regard. Mikrotik router is widely used for Its easy bandwidth management. This Router is easily accessible and cost friendly. Mikrotik router is popular because It can managed big and small network system. Explore online (ISP Company) uses this router in this section.

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CHAPTER 1 INTRODUCTION

1.1 Introduction

The Mikrotik router board looks a lot like any other router or switch. This device has one port for internet connection and LAN port for local area network. However, there may be more than one port. In this case you have to configure which port to use for any purpose. This router will act as an internet sharing server and it is possible to use multiple devices on the same network using this device. You need to configure the required features properly. Mikrotik router boards range in price from Tk 4,000 to over Tk 1 lakh. However, the price will depend on the features of the device, the type of license and the size of the router. You can also see the features according to the model on the router board from the internet. There are different types of router boards according to the model. Such as: RB 750, RB 750G, RB 751 (wireless), RB 951 (wireless), RB 450G, RB 1100, RB 1100AH X2 etc. I have managed the network GUI using a Mikrotik command or Winbox.

One is the command prompt, known as the micro terminal, and the other is the graphical mode. Working in graphical mode will require a separate tool called Winbox. At the beginning of the use of Mikrotik, working in text or command mode is difficult for newcomers to understand. For this, the work is shown in a simple way, i.e. through the Winbox, in the Mikrotik router configuration method.

1.2 Motivation

Opportunity to work as a computer networking engineer. There are ISPs in the Internet service provider companies. Besides, there are job opportunities in mobile companies, banks, airlines, travel agencies, stock markets, multinational and national companies, buying houses, i.e. where computer network and internet are used. The job market is getting bigger day by day.

To build a career in computer network engineering, you must have the patience to study the subjects. My opinion is that if you have not studied computer science first, then I will suggest to watch some computer network related video on YouTube.

It will demonstrate about a computer network. And for those who are graduating in computer science, data communication and computer networking courses are two of the best. If you do, you will know something much better. And those are diploma-in-computer Reading this, they have to read e-services and data communication, fundamentals well.

1.3 Objective

The major aim is do the internship to make myself skillful and find a suitable job. So developing my skill in this site is very important to me. I have learned some knowledge to develop me as a human being. I have chosen Mikrotik router networking as internship because it has very good opportunities to build a career in Networking. Currently many organizations are hiring network engineer all over the world. I gather practical skill and my main focus will be represent my practical skill as well as. Bandwidth control is very handy on this router so Mikrotik router play as data center. The main objective is to gather knowledge for higher education. Since, as student of omputer engineering I have preferred ISP networking with Mikrotik router.

- **H** Bandwidth control and distribution,
- Powerful QoS controls,
- 4 Auto system backups,
- IP-MAC address bonding system,
- Filtering and Firewalls,
- ♣ HotSpot and VPN,
- **4** RIP, OSPF, BGP, MPLS Routing,
- Winbox GUI, remote
- Telnet / Mac-Telnet / SSH service
- Various benefits including load balancing.

1.4 Role to the company

Explore Online ISP is one of the most important was the Internet service provider in Mohammadpur-Lalmatia-Dhanmondi. The internship program where I took my Intern in Explore Online ISP. The company provides broadband internet in most of Mohammadpur areas. This company created in 2005 with BTRC licensed. Now they have 6k+ faithful clients. The company arrogances itself leading Internet service providers in Mohammadpur, Dhaka, Bangladesh. It makes the field of ICT where its main business policy is long-term relationships with clients the most experienced and most established associations.

1.5 Report Layout

The report is sorted as follows-

Chapter: 1

In this chapter I defined Introduction, Motivation of my Internship and overview the company.

Chapter: 2

In second chapter I determine about Market situation, service in IT and role of the company.

Chapter: 3

In chapter 3, I defined on Systematic activities, Proceedings, Internship tasks and challenges in real life.

Chapter: 4

In this chapter I defined about what I have learned, My Smart plan and the Reflections.

Chapter: 5

I defined Discussion about my whole Internship program and Summarize it with my future career.

CHAPTER 2

ORGANIZATION

2.1 Introduction

Explore Online ISP is a broadband internet company in Mohammadpur, Dhaka. The company provides broadband internet at home and business or offices. The company provides his internet mainly in Mohammadpur maximum areas, Lalmatia and Dhanmondi. The company has great performance in the internet community. Explore Online was started his journey from 2005 licensed under BTRC providing internet services. This is to ensure a quality service and customer satisfaction, and strive to achieve. Explore Online is connected to BDIX and gives variety services to users. Its unique complementary services are Audio Hub, Tube Server, FTP and many more.

Why choose our company:

- 4 99% Availability and Constant Speed
- **L** Extensive Client Support with 6k+ clients
- Low Latency Video Streaming & Game Play
- **4** Gamer play Game Friendly and No port Blocking
- 4 24 Hours/7 days Support the customers and maintain physical problem
- Company has skills 15+ years activity
- Personal and Customs FTP Server and BDIX uses the customers
- Free Wi-Fi Testing Router Service and Customize bandwidth support

2.2 Product & Market Situations

Explore Online ISP is the bandwidth provider in Mohammadpur, Dhaka. This company delivers broadband connectivity and delivers qualified service with solution from the year 2005. The ISP provides most of the corporate and residential areas in Mohammadpur, Dhaka. This company provides 24 hours high speed bandwidth service with very cheap rate. Networks providing the simplest, most efficient and most effective network and delivers the message, The class is the homebased network of the workplace organization.

Services:

- Network Connection
- Protecting System
- Various Up-stream
- Client Support 24/7
- 4 Commercial level Internet authorization
- ♣ Sale of different kinds of Routers
- ↓ Networking cables, TZ networking device
- PPPoE Client Server

2.3 Target Group

The strategies of the organization is to think about the clients, perfect his goals. The new proposal for the highest increase in the company increases. The count of the business client stand-up creations consists of all clients and all small to middle-sized dealings. This exact values and the essential market create to more customers.

2.4 Organization Structure



Figure 2.1: Organizational Structure

CHAPTER 3

TASK, PROJECTS AND ACTIVITIES

3.1 Daily Task and Activities

First Month: I learned during my internship and achieved some responsibilities completed successfully-

- **4** Knowledge of Network IP range and class wise address.
- **4** Knowledge of Networking setup of LAN.
- **4** Knowledge about Mikrotik company also Mikrotik device.
- **4** Setup Mikrotik router.

Second Month: In this second month of my Internship I learned and achieved some responsibilities-

- How an ISP setup in Winbox.
- Firewall and NAT setup in Winbox.
- **4** Static IP setup in Winbox.
- **4** Queue setup in Winbox.
- \downarrow D.H.C.P setup in Winbox.

Third Month: In this third month of my Internship I learned and achieved-

- **FTP** Server setup.
- How to block a Site.
- How to unblock a Site.
- **H** Bridge configures.
- **4** Day and Night Bandwidth package create and time setup.

Fourth Month: In this last month of my Internship I performed that-

- ♣ PPPoE setup in Winbox.
- Overview above all content.

3.2 Events and Activities

From Explore Online ISP I have knowledge physically and practically works in this office. My internship program is a new way of gaining my knowledge and in real life I have achieved the following tasks.

- ↓ I know the Internet protocol range, classes & addresses of all classes.
- ↓ I know about Mikrotik devices, price & capability.
- **4** I have well knowledge of networking materials.
- **U**Observe and protecting networks.
- **4** Create the users account, user password
- **4** Server, LAN, switch and router solutions.
- ↓ Identify network errors.
- 4 Observe internet speed via graphs on winbox or links.
- ➡ Signifying IT resolutions services.
- **4** Managed companies F.T.P server.
- Supporting the customer over the phone, otherwise going to his house if necessary to solve the problem.
- 4 Check out Fiber Optic Media Conversion & Devices.

3.3 Project Task and Activities

3.3.1 IP Range and Addresses

IP/Internet Protocol is necessary for separated network or creating network. An IP address is a number that detects the address of a particular computer. Local Area Network IP address of the computer to detect the computer connected to the network.

IP Range:



Figure 3.1: Ranges of IP Addresses

IP address are 5 classes & have 4 octet. Each Octet has 8bit. IP addresses are over-all 32bit. Class--A has only one Network & three Host octet. Class--B has two Network & two host octet. Class--C has three Network & one host octet and Class D&E is using for multicasting & researching for experiments.

3.3.2 Local Area Network System

Local area network involves of under wired and wireless end positions, To configure a LAN need to PCs, Router, Switch, Server, Wireless Access Point, and Devices.



Figure 3.2: LAN Networking System

3.3.3 About of Mikrotik

The most common mistake we make is to use a Mikrotik router. Mikrotik and Mikrotik routers are two different things. Microtek is a router or a company name. Who usually make networking products. It is a Latvian company based in Riga, Latvia. The company started its journey in 1996. Mikrotik companies get the most popular because of their routers. Their routers have become popular with everyone because of their low price and very good quality. Mikrotik Router is a router made by Microtek Company. One of the most popular routers today is the Mikrotik Router. What makes it so popular is its wizard interface. It is very easy to configure and manage. With the help of Mikrotik router, network bandwidth management and network administration work can be done.

3.3.4 Structure of Mikrotik Router



Figure 3.3: Structure of Mikrotik Router

Log-in Interface:

MikroTik	RouterOS WebFig Login
You have connected to a router. Administrative access only. If this device is not in your possession, please contact your local network administrator.	Login: admin Login Password:
© mikrotik	



Installation process of Mikrotik RouterOS for PC using Virtual Machine=VMware

at home installation material:

- **↓** Virtual Machine=VMware Software.
- ♣ Application of .iso file
- **WinBox Application**

Not required for my Internship place cause, My Internship place has already there Mikrotik router. Virtual Machine essential at home exercise else arrangement Mikrotik router.

We I соме	to MikroTik Router Sof	tware installation
Move around menu using Select all with 'a', mi cancel and reboot,	'p' and 'n' or arrow ke nimum with 'm'. Press '	ys, select with 'spacebar'. i' to install locally or 'q' t
[X] system [X] ppp [X] dhcp [X] advanced-tools [X] calea [X] dude [X] gps	[X] hotspot [X] ip⊍6 [X] kvm [X] lcd [X] mpls [X] multicast [X] ntp	[X] routing [X] security [X] ups [X] user-маnager [X] wireless@
system (depends on noth Main package with basic	ing): services and drivers	

Figure 3.5: Installation Console of Mikrotik

Interface of WinBox:

the Outerly Set		Terminal	n ×
CAR-MAN			•
L CAPSIMAN			
) Interfaces			
Wireless		NMM MMM KKK TTTTTTTT KKK	
📲 🖁 Bridge		NOOM MAAN KKK TITTITITT KKK	
📑 PPP		MMM MMMM MMM III KKK KKK RRRRRR 000000 TTT III KKK KKK	
°t¦8 Mesh		MMM MM MMM III KKKKK RKR KRR COO COO TIT III KKKKK MMM MMM III KKKKK BBBBBB COO COO TIT III KKKK	
255 IP	Þ	MMM MMM III KKK KKK RRR RRR 000000 TTT III KKK KKK	
MPLS	Þ	MikroTik RouterOS 6.46.2 (c) 1999-2020 http://www.mikrotik.com/	
ve IPv6	Þ	······································	
🐹 Routing	\neg	ROUTER HAS NO SOFTWARE KEY	
System	\land		
🙊 Queues		You have 4h48m to configure the router to be remotely accessible, and to enter the key by pasting it in a Telnet window or in Winbox.	
Files		Turn off the device to stop the timer.	
E Log		See www.mikrotik.com/key for more details.	
A RADIUS		Current installation "software ID": T101-KB79	
🄀 Tools	1	Please press "Enter" to continue!	
📰 New Termina	al	feb/22/2020 15:22:11 system,error,critical login failure for user babu from 2C:60:	
🔀 🏣 LoRa		0C:64:A4:16 via winbox	
All Dot 1X		[admingMikrolik] >	
Oude	Þ	[admin@MikroTik] >	
		[admin@MikroTik] >	
o Service		[admin@MikroTik] >	

Figure 3.6: Terminal of Winbox

3.3.5 Configuration of Static IP

'Interface >> then select Ethernet >> General >> and select LAN then OK'

Interface List		×
Interface Interface List Ethemet EoIP Tunnel IP Tunnel GRE Tunnel VLAN VR	RP Bonding LTE	
🛨 📼 🖌 🗶 🗂 🍸 Detect Internet	Find	
Name / Type Actual MTU L2 MTU Tx	Fx	-
R elethemet-1 (LAN) Ethemet 1500	43.6 kbps	27
R #Pethemet-2 (WAN) Ethemet 1500	0 bps	31
	0.000	1
Interface <ethemet-1 (lan)=""></ethemet-1>		
General Ethemet Loop Protect Status Traffic	ок	
Name: sthemet-1 (LAN)	Cancel	
Type: Ethemet	Apply	
MTU: 1500	Disphie	
Actual MTU: 1500	Crisabile	- 1
 L2 MTU: 0 	Comment	•
3 items (1 selected) MAC Address: 00:0C:29:A0:5E:BD	Torch	
ARP: reply-only	Cable Test	
ARP Timeout:	Blink	
	Reset MAC Address	

Figure 3.7: Ethernet -1 (LAN)



'IP - Address - type Address - type Network for LAN, MAN, WAN then OK'

Figure 3.8: Interface of Ethernet -1, Ethernet -2, Ethernet -3

Now 'IP to DNS to (+) to Servers finally OK'

DNS Settings		
Servers:	10.122.255.170	ОК
Dynamic Servers:	8.8.8.8	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:	10240 KiB	
Cache Max TTL:	7d 00:00:00	
Cache Used:	65 KiB	

Figure 3.9: Domain Name Server Settings

Go to IP—Firewall—NAT then follow below same as Action tap

Firewall				Firewall					
Filter Rules	NAT Mangle Raw Service Ports Conne	ections Address Lists L	ayer7 Prot	Filter Rules	AT Mangle	Raw Se	ervice Ports C	onnections Address	Lists Layer7 Protocols
+ -	🗸 🗶 🔽 🍸 00 Reset Counters	00 Reset All Counters	Fit	+ - 🗸	* 🗆	70	o Reset Counte	ers 00 Reset All Co	unters Find
# Act	tion Chain Src. Address E	Ost. Address Proto Src	. Port D	# Action	1	Chain	Src. Addres	ss Dst. Address Prot	o Src. Port Dst. Port
				U ⊷ii ma	isquerade i	srcnat			
	NAT Rule <>								
	General Advanced Extra Action Statist	tics OK		NAT Rule 🗇					
	Chain: srcnat	∓ Cancel		General Adva	nced Extra	Action §	Statistics	ОК	
	Src. Address:	- Apply		Action:	masquerade		Ţ.	Cancel	
	Dst. Address:	- Disable			add dst to addr add src to addr	ress list ress list		Apply	
	Protocol:	✓ Comment		Log Prefix:	dst-nat jump			Disable	
	Src. Port:	- Сору		To Ports:	log masquerade			Comment	
tem (1 sele	Dst. Port:	- Remove			netmap passthrough			Сору	
	Any. Port:	Reset Counter	ers		redirect retum			Remove	
	In. Interface:		iters		same src-nat			Reset Counters	
	Out. Interface: 🗌 ethemet-2 (WAN) 🔻							Reset All Counters	
	In. Interface List:	•							
	Out. Interface List:	•							

Figure 3.10: Firewall & NAT Rule

'IP to Routes to General - type Dst. Address and type Gateway then OK'

Route List	
Routes Nexthops Rules VRF	
+ - < :: - 7	
Dst. Address / Gateway	Distance Ro
AS 0.0.0.0/0 172.16.15.1 reachable ethemet-2 (WA)	N) 1
DAC 172.16.15.0/24 ethemet-2 (WAN) reachable	0
DAC 192.168.1.0/24 ethemet-1 (LAN) reachable	0
DAC P 132.168.2.0/24 ethemet-3 (MAN) reachable	0
Route <0.0.0.0/0>	
General Attributes	
Dst. Address: 0.0.0.0/0	
Gateway: 172.16.15.1	e ethemet-2 (WAN)
Check Gateway:	
Type: unicast	
Distance: 1	
Scope: 30	
Target Scope: 10	
Routing Mark:	
Pref. Source:	

Figure 3.11: Route Configure

Ping process to check Internet connectivity

Interfactors Image Image </th <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>								
Bidge PPP IS PoenFlow Plv6 PoenFlow Pv6 Pv6 Pv6 Pv7 Pv8 Pv1S Routing								
™G Mesh IP ► ⊘ OpenFlow IPv6 ► ⊘ MPLS & Routing								
IP ▷ OpenFlow IPv6 MPLS IRAN								
⊘ OpenFlow IPv6 ▷ ⊘ MPLS Image: Notice of the second s								
⊘ MPLS ト i Routing ト								
< Routing 🗈 🗈								
-								
😥 System 🗈								
Queues								
Files	MMM MMM		KKK		1	TTTTTTTTT	т	KKK
Log	MMMM MMMM		KKK		3	TTTTTTTTT	т	KKK
A RADIUS	MMM MMMM MMM	III	KKK KKK	RRRRRR	000000	TTT	III	KKK KKK
🗶 Tools 🗈 🗈	MMM MMM	III	KKK KKK	RRRRRR	000 000	TTT	III	KKK KKK
New Terminal	MMM MMM	III	KKK KKK	RRR RRR	000000	TTT	III	KKK KKK
Dot1X								
KVM	MIETOIIE ROUT	erus	6.46.5 (C)	1999-2020	nttr	S://www.ml	krot1)	c.com/
Make Supout.nf [[?]	Give	s the list	of availa	ble command	is		
Manual C	command [?]	Give	s help on	the comman	d and list	of argume	nts	
New WinBox	Tabl	Comr	letes the	command/wo	rd If the	input is	ambim	10113
Exit	[100]	ase	cond [Tab]	gives pos	sible optic	ons	unu rge	,
· · · · · · · · · · · · · · · · · · ·	*	Move	up to bas	e level				
5	· •	Move	up one le	vei	1 1			
	aupport ddi at -1	ovel	command at	d netl > a	arce addres		-+	
1	ad command nam	e sor	ce (line 1	column 1)	oroc addres			
r	support@dist-1	.expl	oreonlineb	d.netl > p	ing 8.8.8.8			
	SEQ HOST	-			SIZE	TTL TIME	STAT	rus
	0 8.8.8.8				56	5 116 31ms		
	1 8.8.8.8				56	5 116 31ms		
	2 8.8.8.8				56	5 116 31ms		

Figure 3.12: Ping Interface

Configuring process of TCP/IPv4 below the process:

		🖳 Local Area Connection Properties 🛛 🔯
Control Panel Network	and Internet 🔸 Network Conr	Networking
Organize 👻 Disable this network device	Diagnose this connection	Connect using:
Bluetooth Network Connection Disabled Bluetooth Device (Personal Area	Local Area Conne Network Realtek PCIe GBE	Reatek PCIe GBE Family Controller Configure This connection uses the following items:
Internet Protocol Version 4 (TCP/IPv4) Proper General You can get IP settings assigned automaticall this capability. Otherwise, you need to ask yo for the appropriate IP settings. Obtain an IP address automatically Obtain an IP address sutomatically Obtain an IP address in IP address: IP address: 192 Subnet mask: 255 Default gateway: 192	rties 2 2 23	Client for Microsoft Networks Section 2015 S
 Obtain DNS server address automatically Ouse the following DNS server addresses 		OK Cancel
Preferred DNS server: 124 Alternate DNS server: 8	. 6 . 224 . 4 . 8 . 8 . 8	
Validate settings upon exit	Advanced	

Figure 3.13: Configure of TCP/IPv4

3.3.6 Mikrotik Queue Process



Figure 3.14: Queue Process

Client1: 5 M.B Up, 5 M.B Down

Client2: 8 M.B Up, 8 M.B Down

Configuring process:

Address List		[IX
+ × - 7	'	Find	
Address /	Network	Interfac	e 🔻
🕆 10.10.10.10/24	10.10.10.0	FTP Se	rber
÷ 172.16.10.1/24	172.16.10.	D LAN	
+ 192.168.1.2/24	192.168.1.	D WAN	
Address <172.16.10.1/24	>		
Address: 172.16.10.1/2	24	ОК	
Network: 172.16.10.0	▲	Cancel	
Interface: LAN	₹	Apply	
		Disable	
		Comment	_
♦ 3 items		Сору	•
		Remove	
enabled			

Figure 3.15: Addresses Queue

Same configure process for user1 & 2 (Also same Upload & Download)

Configuring of User1

Queue List					
Simple Queues Interfa	ce Queues Queue Tree	Queue Types			
+ - • ×	🗂 🍸 00 Reset (Counters 00 Reset	All Counters		Find
# Name	Target	Upload Max Limit	Download Max Limit Packet Marks	Upload Que	eued B Download Queue
0 🔒 User1	172.16.10.50	5M	5M		
I B User2	1/2.16.10.60	8141	8M		
	Simple Queue <user1></user1>				
	General Advanced	Statistics Traffic T	otal Total Statistics		ОК
	Name: User	1			Cancel
	Target: 172.	16.10.50		₹ \$	Apply
	Dst.:			▼	Disable
		Target U	pload Target Downloa	ad E	Comment
•	Max Limit: 5M		₹ 5M ₹	bits/s	Сору
2 items (1 selected)	-A- Burst				Remove
	Burst Limit: unlim	ited	▼ unlimited ▼	bits/s	Reset Counters
	Burst Threshold: unlin	ited	Image: Image	bits/s	Reset All Counters
	Burst Time: 0		0	s	Torch
	-▼- Time			L_	
	enabled				

Figure 3.16: Configure of User1

Priority of Queue

Priority value is 1 to 8. Queue priority as 8; the value is defaults. The lowest priority of users is calculated as the highest priority.

Queue List						
Simple Queues	nterface Queues Queue Tree	Queue Types				
+	K 🖸 🍸 oo Reset	Counters 00 Rese	et All Counters			Find
# Name 0	Target 172.16.10.50 172.16.10.60	Upload Max Limit 5M 8M	Download Max Limit Packet Mar 5M 8M	rks	Upload Queued B Dow	nload Queue 🔻
	Simple Queue <user1> General Advanced Statis Packet Marks:</user1>	tics Traffic Total	Total Statistics		OK Cancel	
		Target Upload	Target Downloa	d	Apply	
	Limit At: unlimited Priority: 5		unlimited 5	bits/s	Comment	
•	Bucket Size: 0.100		0.100	ratio	Сору	•
2 items (1 selected)	Queue Type: default-sma	. ₹	default-small	F	Remove	
	Parent: none			₹	Reset Counters	
					Reset All Counters	
					Torch	
	enabled					



3.3.7 D.H.C.P Server Interface

DHCP setup process:

🔏 Quick Set	DHCP Server	
CAPsMAN	DHCP Networks Leases Options Option Sets Vendor Classes Alerts	
Interfaces	Find	
🚊 Wireless	Name / Interface Relay Lease Time Address Pool Add AR	
📲 🖁 Bridge		
📑 PPP		
°t <mark>8</mark> Mesh		
IP N		
🖉 MPLS 🗈 🗅		
👳 IPv6 🗈 🗈		
🔀 Routing 🗈 🗈	DHCP Setup	
💮 System 🗅	Select interface to run DHLP server on	
🙊 Queues	DHCP Server Interface: ethemet-1 (LAN)	
Files	etnemet-1 (LAN) Back etnemet-2 (WAN)	
Log	ethemet-3 (MAN)	
A RADIUS		
Select network for DHCP Address S DHCP Setup Select pool of ip address Addresses to Give Out	or DHCP addresses Space: 192.168.10.0/24 Back Next Cancel DHCP Setup Select DNS servers Base Intervers Intervers Intervers Intervers Intervers Intervers Intervers Intervers <th></th>	
	Back Next Cancel Back Next	Cancel
DHCP Setup Select lease time	DHCP Setup	
Lease Time: 00:10:00	Setup has completed successful	ully
	Back Next Cancel	

Figure 3.18: D.H.C.P config. process

3.3.8 Bridge Setup Process

Bridge setup by step to step:

Interface	e List											
Interfac	e Interface	List Et	hemet	EoIP Tunne	el IP 1	Tunnel G	RE Tunnel	VLAN	VRRP	Bondi	ng L1	ΓE
+ •		8	7	Detect In	temet							Find
Na	ame	V	Туре			Actual MT	U L2 MTU	Tx			Rx	•
R 📢	ethemet-3 (N)	IAN)	Etherr	net		1!	500			0 b	ps	12
R 4	ethemet-2 (V	VAN)	Etherr	net		1	500			0 b	ps	12
R 4	ethemet-1 (L	AN)	Etherr	net		18	500			0 b	ps	12
R 4	▶ether7		Etherr	net		18	500			0 b	ps	12
R 4	▶ether6		Etherr	net		19	500			0 b	ps	12
R 4	▶ether5		Etherr	net		19	500			0 b	ps	12
R 4	▶ether4		Etherr	net		19	500			0 b	ps	12
Bridge	1	N	lew Int	erface							_	
Bridge	Ports VI	ANs	Genera	STP V	(LAN	Status	Traffic					ок
-		**		Nar	me: b	nidge 1						Cancel
1	Name			Ту	pe: E	Bridge						Apply
				M	TU:					-		Disable
				Actual M	TU:							Comment
				L2 M	TU:							Copy
				MAC Addre	ess:							Bemove
				AF	RP: e	nabled				∓		Tarah
				ARP Timed	out:					-		Torch
			Admin.	MAC Addre	ess:					-		
•		_		Ageing Tir	me: 0	0:05:00						
0 items	s out of 7					IGMP S	nooping					
						DHCP	Snooping					I
						 Fast Fo 	rward					
Bridge												
Bridge	Ports VLANs	s MSTI	s Port	MST Overrides	s Filter	ns NAT	Hosts MDB					
-			7									Find
#	Interface		Bridge	Н	orizon	Trusted F	riority (h Pa	ath Cost	Role		Roo	ot Pat 💌
0	1⊐tLAN 1=1ether3		bridge1 bridge1			no no	80 80	10) designate) backup p	ed port		10
2	12tether4		bridge1			no	80	10	backup p	oort		10
4	1=1ether6		bridge1			no	80	10) backup p	port		10
6	1=1ether7		bridge1 bridge1			no	80 80	10) backup p) backup p	oort oort		10
		Bridge	Port <et< td=""><td>her8></td><td></td><td></td><td></td><td></td><td></td><td>]</td><td></td><td></td></et<>	her8>]		
		Gene	ral ST	P VLAN Sta	atus				ок			
		Interfa	ace: et	her8			1	F	Cancel			
		Brid	dge: bri	dge1			-		Apply			
7 items ((1 selected)	Hori	zon:					-	Disable			
	(Le	am: au	to					Comment			
			~	Unknown Uni	cast Flo	od			Сору			
and the second se												
			~	Unknown Mul	ticast Fl	lood		F	Remove			
			> >	Unknown Mul Broadcast Flor Trusted	ticast Fl od	lood		F	Remove			

Address List	
+ - 🗸 🗶 🔽 🍸	Find
Address / Network	Interface ethemet-2 (WAN) bridge1 bridge1
Address <192.168.10.1/24> Address: 192.168.10.1/24 Address: 192.168.10.1/24 Network: 192.168.10.0 Interface: bridge1	OK Cancel Apply Disable Comment Copy Remove
enabled	

Figure 3.19: Bridge Configuring

3.3.9 Setup of website URL Blocked/Unblocked

Url Blocked

Following:

'IP>>Firewall>>Layer7Protocols>>(+ icon)>>Name: YouTube/Facebook - Regexp: ^.+(youtube.com). *\$ or, ^.+(facebook.com).*\$ - OK'

Firewall					
Filter Rules NAT Mangle Ra	w Service Ports	Connections	Address Lists	Layer7 Protocols	
+ - 🗆 🍸					Find
Name / Regexp					-
 YouTube ^.+(youtube.com).*S				
facebook ^.+(facebook.co	m)."S				
Firewall L7 Protocol	YouTube>				
Name: YouTube			ок		
		Regexp:	Cancel		
^.+(youtube.com).*	\$	^	Apply		
			Comment		
			Сору		
			Remove		
2 items (1 se		~			

Firewall										
Filter Rules NAT	Mangle Raw	Service Ports	s Connec	tions Addres	ss Lists I	ayer7 Prot	ocols			
+ - * *	- 7	oo Reset C	ounters	oo Reset All	Counters			Find	all	₹
# Action C 0 X drop fc 1 X drop fc 2 X drop fc	Chain Sn orward 19 orward 19 orward 19	c. Address 02.168.16.50 02.168.16.50 02.168.16.50	1	Dst. Address	Proto S	irc. Port	Dst. Port	In. Inter	Out. Int	ln. ▼
	Firewall Rule	<192.168.16.5	50>							
	General A	dvanced Ext	ra Action	Statistics		ок				
		Chain: 🚺	orward	∓		Cancel				
	Si	rc. Address:	192.168.	16.50 🔺		Apply				
	D	st. Address:				Disable				
		Protocol:				Comment				
3 items (1 selected)	-	Src. Port:				Сору				
	1	Dst. Port:				Remove				
		Any. Port:			Re	eset Counte	ens			
	lr Ir	n. Interface:		•	Res	et All Coun	iters			
	Ou	t. Interface:								
	In. In	terface List:								

Figure 3.20: Blocked url

Url Unblocked

Following:

Firewall					[
Filter Rules NAT Mangle Raw Se	vice Ports Connection	s Address Lists	Layer7 Protocols			
+- • * 🗖 🍸				Find	all	₹
Name 🗸 Address	Timeout	Creation Time				-
 Not Block 192.168.16.50 		Feb/27/2020 12:.				
Firewall Address Name: Address: Timeout: Creation Time:	List <not block=""> Not Block 192.168.16.50 Feb/27/2020 12:32:18</not>	▼ OK Cance ▼ Apply Disable Commer Copy	1 X			
1 item (1 selected)		Remov	e			
8 enabled						

Figure 3.21: Unblocked url

3.3.10 Bandwidth Plan





Figure 3.22: Bandwidth Plan

3.3.11 Day & Night Scheduling bandwidth: (For Package 6)

Day configure down:

Queues to Add icon then following below:

Queue Type <day_do< th=""><th>vn></th><th></th><th></th><th></th></day_do<>	vn>			
Type Name:	day_down			ОК
Kind:	pcq		₹	Cancel
Rate:	20M		bits/s	Apply
Queue Size:	50		KiB	Copy
Total Queue Size:	2000000		КiВ	Bemove
Burst Rate:			▼ bits/s	
Burst Threshold:			•	
Burst Time:	00:00:10			
Classifier:	Src. Address	Dst. Address		
	Src. Port	Dst. Port		
Src. Address Mask:	32			
Dst. Address Mask:	32			
Src. Address6 Mask:	64			
Dst. Address6 Mask:	64			

Figure 3.23: Day Interface (Down)

Day configure up: Like as Day down configure

Queue Type <day_up></day_up>		
Type Name: day_Up		ок
Kind: pcq	₹	Cancel
Rate: 20M	bits/s	Apply
Queue Size: 50	KiB	Сору
Total Queue Size: 2000000	KiB	Remove
Burst Rate:	▼ bits/s	
Burst Threshold:	▼	
Burst Time: 00:00:10		
Classifier: 🗹 Src. Address 🗌 Dst. Address		
Src. Port Dst. Port		
Src. Address Mask: 32		
Dst. Address Mask: 32		
Src. Address6 Mask: 64		
Dst. Address6 Mask: 64		

Figure 3.24: Day Interface (Up)

Night configure down:

Queues to Add icon then following below:

Queue Type <might_do< th=""><th>/awa</th><th></th><th></th><th></th></might_do<>	/awa			
Type Name:	night_down			ОК
Kind:	pcq		₹	Cancel
Rate:	121		bits/s	Apply
Queue Size:	50		КiB	Copy
Total Queue Size:	2000000		КîВ	Bemove
Burst Rate:			▼ bits/s	
Burst Threshold:			•	
Burst Time:	00:00:10			
Classifier:	Src. Address	✓ Dst. Address		
	Src. Port	Dst. Port		
Src. Address Mask:	32			
Dst. Address Mask:	32			
Src. Address6 Mask:	64			
Dst. Address6 Mask:	64			

Figure 3.25: Night Interface (Down)

Night configure up: Like as Night down configure

Queue Type <might_up< th=""><th>></th><th></th></might_up<>	>	
Type Name:	night_up	ОК
Kind:	pcq Ŧ	Cancel
Rate:	12M bits/s	Apply
Queue Size:	50 KiB	Сору
Total Queue Size:	2000000 KiB	Remove
Burst Rate:	▼ bits/s	
Burst Threshold:		
Burst Time:	00:00:10]
Classifier:	Src. Address 🔽 Dst. Address	
	Src. Port Dst. Port	
Src. Address Mask:	32]
Dst. Address Mask:	32]
Src. Address6 Mask:	64]
Dst. Address6 Mask:	64]

Figure 3.26: Night Interface (Up)

Day Scheduled Time

Queues to Simple Queues then following below:

General Advance Name: Target: Dst.: [ed Statistics day_down 192.168.16.0/2	Traffic Total	Total Statistics	.	OK Cancel Apply
Name: Target: Dst.: [day_down 192.168.16.0/2	24		T	Cancel Apply
Target: [Dst.: [192.168.16.0/2	4		₹ \$	Apply
Dst.:					
				•	Disable
		Target Upload	d Target [Download	Comment
Max Limit:	unlimited	₹	unlimited	▼ bits/s	Сору
▲ Burst					Remove
Burst Limit:	unlimited		unlimited	▼ bits/s	Reset Counters
Burst Threshold: [unlimited	•	unlimited	◆ bits/s	Reset All Counters
Burst Time: [0		0	S	Torch
Time:	02:00:00		- 20:00:00		
Days:	🗸 sun 🔽 mo	n 🗹 tue 🔽	wed 🗹 thu 🕑 fri	✓ sat	

Figure 3.27: Day Scheduled Time Download

Like as Day Schedule Time,

Night Scheduled Time

Simple Queue	<night_< th=""><th>_down></th><th></th><th></th><th></th><th></th><th></th></night_<>	_down>					
General Adv	anced	Statistics	tistics Traffic Total Total Statistics				ОК
Nan	ne: ni	ght_down	Cancel				
Targ	et: 19	192.168.16.0/24 🗣					Apply
D	st.:					•	Disable
			Target	Upload	Target Dov	vnload	Comment
Max Lin	nit: unl	imited		₹	unlimited	➡ bits/s	Сору
Burst							Remove
Burst Lin	nit: unl	imited		₹	unlimited	▼ bits/s	Reset Counters
Burst Thresho	ld: uni	imited		₹	unlimited	➡ bits/s	Reset All Counters
Burst Tin	ne: 0				0	s	Torch
Tin	ne: 20	00:00			- 02:00:00		
Day	ys: 🗸	sun 🔽 ma	n 🗹 tu	e 🗸	wed 🗸 thu 🗸 fri 🗸	sat	

Figure 3.28: Night Scheduled Time Download

Like as Day and Night Schedule Time [Fig. 3.27, 3.28]

3.3.12 Point-to-Point Protocol over Ethernet Configuration

Go to IP>Address Add button [+] after configure goto PPP>PPPoE Add button [+] following below

Address List		PPP
+ - < × 🗆 🍸		Interface PPPoE Servers Secrets Profiles Active Connections L2TP Secrets
Address / Network	Interface	Service / Interface Max MTU Max MRU MRRU Default Profile Authentication
172.16.15.16/24	WAN	
⊕ 192,168,100,1/24 192,168,100,0	LAN	New PPPoE Service
		Service Name: PPPoE Server OK
		Interface: LAN To Cancel
		Max MTU: Apply
		Max MRU:
		MRRU: Copy
		Keepalive Timeout: 10
		Default Profile: default
		0 items One Session Per Host
		Max Sessions:
		PADO Delay: 📉 🔻 ms
		Authentication: 🗹 mschap2 🔽 mschap1
2 items (1 colorited)		l drap □ pap
2 items (1 selected)		enabled

Figure 3.29: Addresses of PPPoE Server

Go to IP> Pool Add button [+] after configure goto PPP>Profiles Add button [+] following below

Sadmin@00:0C:29:49:5	iD:8B (MikroTik) - WinBo	x v6.46.2 on x86 (x86)	
Session Settings Das	ARP	General Desired Line Ones Sector	
🖒 🖓 Safe Mode	Accounting	B Celleral Protocols Limits Queue Scripts	ок
A Quick Set	Addressee	Name: 5_MB	Cancel
CAPsMAN	DHCP Client	Local Address: 192 168 100 1 💿 🔺	Apply
Interfaces	DHCP Belay		, eppij
© Wireless	DHCP Server	IP Pod	Comment
Bridge	DNS	Pools Used Addresses Remote IPv6 Prefix Pool:	Сору
PPP	Firewall	Image: Second	Remove
ିର୍ଘ୍ଧ Mesh	Hotspot	Name / Addresses Next Pool V	
4 91 🦉	IPsec	Bridge:	
🖉 MPLS 🗈 🗅	Kid Control	New IP Pool Bridge Port Priority:	
哽 IPv6	Neighbors	Name: (5_MB_P OK Bridge Path Cost:	
🔀 Routing 🗈	Packing	Addresses: 192.168.100.2-192.168.100.254 Cancel	
∰ System ►	Pool	Next Pool: none TA Apply Bridge Horizon:	
Queues	Routes		
Files	SMB	Comment Incoming Filter:	
E Log	SNMP	Copy Outgoing Filter:	
& RADIUS	Services	Remove Address List:	
X Tools	Settings		
Mew Terminal	Socks	Ditems Interface List:	
o loRa	TFTP		
Dot 1X	Traffic Flow		
S Dude C	UPnP	124.6.224.4	
KVM	Web Proxy	WINS Server:	

Figure 3.30: IP Pool PPP Configure

New PPP Secret				Queue Type <5_MB_	Q_UP>		
Name:	Fojle_Rabbi		ОК	Type Name:	5_MB_Q_UP		ОК
Password:		•	Cancel	Kind:	pcq	₹	Cancel
Service:	pppoe	Ŧ	Apply	Rate:	5M	bits/s	Apply
Caller ID:	[•		Queue Size:	50	КiВ	Сору
Desfler	E MD	T	Disable	Total Queue Size:	2000	КiВ	Remove
Frome.	5_MB	·	Comment	Burst Rate:		bits/s	
Local Address:		•	Сору	Burst Threshold:		•	
Remote Address:		•	Remove	Burst Time:	00:00:10		
Remote IPv6 Prefix:		•		Classifier:	Src. Address Dst. /	Address Port	
Routes:		•		Src. Address Mask:	32		
				Dst. Address Mask:	32		
Limit Bytes In:		•		Src. Address6 Mask:	64		
Limit Bytes Out:		•		Dst. Address6 Mask:	64		

Go to PPP>Secrets> following below

Figure 3.31: PPP Interface

Sadmin@00:0C:29:49	1950&8 (MikroTik) - WinBox (6.46.2 on x86 (x86) Simple Queue <5_MB>		
Session Settings Da	Jashboard		
🍤 🗘 Safe Mode	Sessor: (0.002.23.49.50.88) General Advanced Statistics T	raffic Total	ОК
CAPsMAN	Datas tat	\$	Cancel
💓 Interfaces	Interact uses Gode me dowe rives Interact uses Interact uses Interact uses Interact uses Interact uses Interact Int	Tamet Download	Apply
Bridge	# Name Target Upload Max Lint Download Max Lint Packet Marks Total Max Lint At: Unlimited		Disable
ere fri	New Single Queue General Advanced Statistics Traffic Total Statistics OK Prinning R		Comment
P P ⊘ MPLS P	Name BUE Cancel Bucket Size: 0 100	0 100 ratio	Copy
₩ IPv6 N Routing N	Tegge: 132183.00.0024 F ← Appy De: De: D: D: D: D	5 MB Q Dow Ŧ	Remove
System Queues	Target Upload Target Download Commert		Reset Counters
Files	Max Linit: unlimited V unlimited V bits/s Copy Parent: none		
Log			Reset All Counters
🗙 Tools 🗈 🗈	Burst Threshold: Unlinited T Unlinited F bits/s		Torch
im LoRa	vors ime: u u s Torch		
Dot 1X			
KVM	enabled		

Figure 3.32: Queue of PPPoE

3.4 Challenges

I didn't have much opportunity to do internship, I did diploma before, The experience then was not very good. But this time I have worked very well and sincerely. What I have done here enables me to understand and what is a working life like; I learned how an companies daily works. In the office desk seat regularly is a lot of hardship and a lot of patience I got this experience from here. It was the most thrilling and rewarding experience of my life. Nevertheless internship period I have faced with some difficult issues and identified the issues and solved them.

- **Wheed to working environment.**
- ↓ Compatible with office rules.
- **Gained some organized potency.**
- **4** Creating social relationships with colleague and officials.
- Habit for comfortable language to communicate each other's.

CHAPTER 4

Competencies and Smart Plan

4.1 Competencies

As a result of acquiring skills due to a teaching method, a student must have the ability to know, understand or do. Contribute in network lab of an internship plan that gathers and places data, keeps a small number of low excellence internship outcomes in the student institution office. To learn the results, re-identify and configure the designs, test the installation and employer services. Knowledge of results onsite internship supervisor contribute to the approval of this approach. Completion of my internship in Explore Online ISP. I've collected a variety of knowledge to solve problems or issues. Faced a lot of practical work effectiveness. During my internship, I set some competencies that I achieved also I was trying to achieve this successfully.

4.2 Smart Plan

A organization does not become a big company at overnight. To become a big company, you have to have a smart plan behind it and all the companies have a clever mind. The grouping of multiple concepts made a smart plan.

- Each router should have backed up server and user documentation.
- **4** Speed up the internet.
- Reduce costs.
- Hire an IT or business professional in management.
- Upgrading of human resources.
- Centralize and appropriate time planning.
- Spread more advertising.
- 4 Understand the necessary steps to solve customers' problems and issues.
- Clients informed about the progress made.
- Improve old features to good services.
- **4** Powerful user safety and avoid bogus billing.
- Door-to-door collection of bills by the company.
- 4 Need to arrange maximum services and offers from other companies.

4.3 Reflections

A job is a real challenge for the workplace, especially if I have no experience. A successful internship can help me build experience for a profession. So, doing my future reflection planning internship as a success.

Think of a great idea that will be like a future job or a good job. I hope these internships in positions are available through a variety of and many career paths. Internship purposes as a network engineers, network managers, support engineer in the area, and IT engineer of any kind of organizations.

CHAPTER 5

Conclusion and Future Career

5.1 Discussion and Conclusion

In my internship brief I know about configuring a network by Mikrotik. I have a lot of ideas about IP class, how to create a lot of IP by breaking the network. After completing my academic life, this internship played a very important role. It has actually taught me a lot. This internship seemed like a great opportunity for me to gain skills in the present life. ISP during my internship gained a lot of skills about the company. The strategy and graph of computer networks, data connection, protection of network, interface and maintains of the best opportunities in a variety of applications. My trainers and supervisors are very good and I got a lot of new ideas from them which will come in handy later. I've been able to create different kinds of routers, which is very helpful for my future. This is my real life networking system experience which gives me the opportunity to meet very effectively in the future. Various IT training institutes in Dhaka and other cities have started training on MikroTik. There are many different types of MikroTik the vendor certification.

5.2 Scope for Further Career

It is very difficult to get a job in our country. More difficult I have no work or job experience. I did the internship so that with the internship I would have a work experience and would have the patience to sit in the office for so many hours. In my experience, which can help to take the advanced stage of the extreme values. I believe that this internship will bring something good for my future. What I will get from this internship-

- **4** To work in any ISP company.
- **4** Becoming a engineer at security sector.
- Opportunity to join as a Network Engineer.
- **4** Opportunity to join as a IT Security Engineer.
- Heank job in IT sector.

References

[1] Learn about Daffodil International University, available at <<<u>http://www.daffodilvarsity.edu.bd/</u>>>, last accessed on 01-10-2020 at 02:02 PM.

[2] Learn about Explore Online ISP, available at <<<u>http://www.exploreonlinebd.net/</u>>>, last accessed on 01-10-2020 at 02:02 PM.

[3] Learn about Cisco, available at <<<u>http://www.cisco.com/c/en/us/support/docs/ip/routing-information-protocol-rip/13788-3.html</u>>>, last accessed on 01-10-2020 at 01:02 PM.

[4] Learn about System Zone, available at <<<u>http://www.systemzone.net/category/computer-networking/mikrotik-router</u>>>, last accessed on 02-10-2020 at 02:05 PM.

[5] Learn about System Zone, available at <<<u>http://www.systemzone.net/static-routing-configuration-in-mikrotik-router</u>>>, last accessed on 01-10-2020 at 10:10 PM.

APPENDICES

Appendix: Information of Organization

explore online

Head Office

Name	Explore Online ISP
Address	A/15 (Ground Floor), Zakir Hossain
	Road, Block: E, Mohammadpur,
	Dhaka-1207
Telephone	09614338822, 01711313391
E-mail	exploreonline@gmail.com
Website	www.exploreonlinebd.net
Employees	25

Plagiarism Report

Rep	ort Checkii	ng - Fojle Rabbi 3			
ORIGIN	ALITY REPORT				
SIMILA	2% ARITY INDEX	9% INTERNET SOURCES	0% PUBLICATIONS	8% STUDENT PA	APERS
PRIMAR	RY SOURCES				
1	Submitte Student Paper	d to Daffodil Inte	rnational Unive	ersity	8%
2	WWW.EXP	loreonlinebd.net			1%
3	www.uke	essays.com			1%
4	WWW.COP	njagat.com			1%
5	exam-hu	b.com			<1%
6	dspace.c	laffodilvarsity.edu	1.bd:8080		<1%