

Internship on ‘Network Management Using Mikrotik’

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

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APPROVAL

This internship titled “**Network Management Using Mikrotik**”, submitted by **Md Ashikul Alam, ID: 172-15-9959** 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 January 2022.

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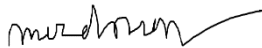
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DECLARATION

I hereby declare that this project has been done by **Md Ashikul Alam, ID: 172-15-9959** under the supervision of **Md. Riazur Rahman**, Assistant Professor, Department of CSE, Daffodil International University. I also declare that, I collect Information from my Internship Company “Inspire Broadband”, ISP Base Corporation, Books, Internet, and Senior Brothers and friends also.

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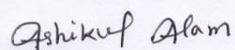
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Finally, I must acknowledge with due respect the constant support and patients of our parents.

ABSTRACT

This Internship on “**Network Management Using Mikrotik**”, Mikrotik Operating system shifts simple to keep up with and minimal expense productivity. Mikrotik is a grounded brand for programming in a wide extent of enterprises, for its consistency and constancy paying little mind to its huge cost. As of late, Mikrotik has been causing gradually expanding influences in the switch software circles. It is step by step ending up being comprehensively used in light of the fact that it offers heavenly switch and firewall organization, yet moreover offers phenomenal customer service paying little heed to being definitely more affordable than most of its opponents. Both OS are intended for an organization switch. The Computer incorporates a great deal of elements for product and remote Network. A Mikrotik switch is many capacities Bandwidth the executives, DNS server, Static, Dynamic, Firewall, NAT, Hotspot, cache Server, highlight point Tunneling, DHCP Server, and so on The Mikrotik switch primarily utilizes in data transfer capacity the executives for little or large Industry. The point of this Internship is to make practically a Mikrotik Router to deal with a little or larger Network. A Mikrotik Router principally use for data transmission control for your client. Client can provide Internet wire or Wireless to control data transfer capacity. At the point when a client arrangement on ISP server or Mikrotik switch design that time this switch give high security administration to customers. This report has explained about the motivation behind the particular server utilizing on network access Industry or any customer as well.

TABLE OF CONTENTS

CONTENTS	PAGE
Board of examiners	ii
Declaration	iii
Acknowledgements	iv
Abstract	v
CHAPTER	
CHAPTER 1: INTRODUCTION	1-2
1.1 Instructions	1
1.2 Motivation	1
1.3 Objectives of Internship	1
1.4 Introduction to the Company	2
1.5 Report Layout	2
CHAPTER 2: ORGINAZATION	3-5
2.1 Introduction	3
2.2 Service provide	3
2.3 Target Group	4
2.4 Strength Weaknesses Opportunities and Threats Analysis	4
2.5 Organization Structure	5

CHAPTER 3 : TAKES, INTERNSHIP ROLES, AND ACTIVITES	6-44
3.1 Daily Task and Activities	6
3.2 Project Task and Activities	7
3.2.1 Details of IP Address	7
3.2.2 About Subnetting	8
3.2.3 Introduction of MikroTik	9
3.2.4 Mikrotik Router Configuration	17
3.2.5 Static IP Configuration with Mikrotik Router	18
3.2.6 Dynamic Routing Configuration (DHCP) With Mikrotik	26
3.2.7 Configuration of Queue	28
3.2.8 Bridge setup using Mikrotik	32
3.3.1 Bandwidth Distribution fix site	31
3.3.2 Peak & off-Peak hour speed setup	38
3.3.3 MAC Binding	40
3.3.4 Queue for P2P over Ethernet Server Configuration	43
CHAPTER 4: CONCLUSION, FUTURE CAREER AND SCOPE	48
4.1 Conclusion and Discussion	48
4.2 Future Career and Scope	48

APPENDIX

REFERENCES

54

LIST OF FIGURE

FIGURE	PAGE NO
Figure 2.5.1.0 Organization structure	5
Figure 3.2.1 Subnetting	7
Figure:-3.2.3.1 Software for VMware, Mikrotik ISO, Winbox exe	8
Figure:- 3.2.3.2 New Virtual Machine Create	8
Figure:- 3.2.3.3 VMware Welcome Screen	9
Figure:- 3.2.3.4 VM Setup for version	10
Figure:-3.2.3.5 VM Setup selects ISO	10
Figure:- 3.2.3.6 VM setup for Operating system	11
Figure:- 3.2.3.7 VM setup name	11
Figure:- 3.2.3.8 VM setup resizes RAM	12
Figure:- 3.2.3.9 VM setup	12
Figure:- 3.2.3.10 VM setup On disk	13
Figure:- 3.2.3.11 VM setup disk file	13
Figure:- 3.2.3.12 VM setup Hardware	14
Figure:- 3.2.3.13 VM setup finish	14
Figure:- 3.2.3.14 VMware Configuration for Mikrotik OS	15
Figure:- 3.2.3.15 Mikrotik OS Installation	15
Figure:- 3.2.4.1 Network Topology for Mikrotik	16
Figure:- 3.2.4.2 WinBox Dashboard	16

Figure:- 3.2.5.1 Interface	17
Figure:- 3.2.5.2 IP Addressing	17
Figure:- 3.2.5.3 Domain Name system Server	18
Figure:- 3.2.5.4 Firewall	18
Figure:- 3.2.5.5 Firewall	19
Figure:- 3.2.5.6 IP Routing	19
Figure:- 3.2.5.7 Internet Protocol Ping (IP)	20
Figure:- 3.2.5.8 TCP/IPV4 Configuration	20
Figure:- 3.2.6.1 Domain Name System	21
Figure:- 3.2.6.2 Domain Name System Setup select network	21
Figure:- 3.2.6.3 Domain Name System Setup Gateway	22
Figure:- 3.2.6.4 Domain Name System setup IP range	23
Figure:- 3.2.6.5 Domain Name System setup	23
Figure:- 3.2.6.6 Domain Name System setup	24
Figure:- 3.2.6.7: Dynamic Host Configuration Protocol (DHCP) Final step	24
Figure:- 3.2.6.8 Domain Name System Check IP	25
Figure:- 3.2.6.9 Address Regulation Protocol for Dynamic Host Configuration Protocol (DHCP)	26
Figure:- 3.2.7.1 Network Topology of Queue Configuration	27
Figure:- 3.2.7.2 Add IP Address	28
Figure:- 3.2.7.3 Queues	29

Figure:- 3.2.7.4 Adders Regulation Protocol	30
Figure:- 3.2.7.5 Network Connection Details	31
Figure:- 3.2.7.6 Simple Queues	32
Figure:- 3.2.7.7 Network Topology of Parent Concept	33
Figure:- 3.2.7.8 Simple Queues of Parent	34
Figure:- 3.2.8.1: Interface List of Bridge	35
Figure:- 3.2.8.2: Create Bridge name	36
Figure:- 3.2.8.3: LAN conFig of Bridge port	37
Figure:- 3.2.8.4: Change Interface	38
Figure:- 3.2.9.1: Block IP conFig and create rule	39
Figure:- 3.2.9.2: IP source conFig, drop and forward	40

LIST OF TABLES

TABLES	PAGE NO
Table 1.1 Information on the company	2
Table 3.3.1.1 IP address ranges	7

CHAPTER 1

INTRODUCTION

1.1 Instructions

Mikrotik router is used on little and large organizations. This router is cost efficient and easy to use. Moreover it utilizes for data transfer capacity control. Most effect site guests additionally usage P2P utilize instruments are valuable because of transfer speed utilized, because of its technique for sending enormous sharp of information by the recipient of the despatcher. The Internet Service Provider Associations for the most part utilizes Mikrotik directing from transmission capacity control and client the executives. Then again, Mikrotik steering gives assumption based system administrations access to the WAN, LAN, and cloud. Our company switches to incorporate advanced investigation, application and headway.

1.2 Motivation

I realize that the use of internet builds each day and the growth is impressively climbing. Each organization or company is utilizing networking to ensure the proper use of internet and having the control on the use of internet. That is the reason I pick “Inspire Broadband” for the getting the hang of systems administration the board framework. “Inspire Broadband” has some notable and most of the Internet Service Providers among Dhaka city. I had the option to discuss best with the customers just as the conveyance on Internet.

1.3 Internship Objective

It MikroTik OS gives a command based and graphical UI based OS and works without facing any major problem. The principle objective and intention are to keep up with clients and ensure security Issues. My internship activity project is to support me on as skilled and capable of in the designated action promotes.

Some Objective are given bellow:

- 1.3.1 Setup MikroTik OS networking Configuration.
- 1.3.2 Know regarding the networking devices used in Mikrotik and Mikrotik
- 1.3.3 How to contact with customer with impressive behavior
- 1.3.4 Give great service to customers

1.4 Introduction of Company

"Inspire Broadband" is a top notch Internet specialist co-op in our country which provides quality and stable internet service and known as reputed ISP company, having set up a good foundation for itself as a one-stop coordinated ICT administration and arrangement supplier beginning around 2005. "Inspire Broadband" will be accountable for an assortment of administrations and training as well. Moreover it is Dhaka's fastest Internet administration at a sensible cost. To serve the corporate area, it has Its personal Fiber Optic & Hotspot wide area network arrangement, AME and separate customers. This is an organization which uses all the time most recent innovation and updating their services rapidly.

Table 1.1 Information on the company

Company Name	Inspire Broadband
Type of Organization	Internet Service Provider(ISP)
Address	312, South Paik Para, Mirpur, Dhaka – 1216 Dhaka – 1207, Bangladesh
Cell Phone	09609-666777 09639-777666
Internal IP Phone	01512-999666 01610-888666
E-mail	support@inspirebroadband.net
Website	https://inspirebroadband.net/

1.5 Report Layout

First of all, I discuss about the target of my internship, Introduction, Motivation of the internship, I choosing company of the Motivation. Besides I have explained Company profile, Company services and products, and so on. Thirdly I have talked over day wise activities and exercises, Challenges and so on. Fourthly I have expressed on the Capabilities gained, insightfully arranged reflections. At Last, I have discussed broadly on the Ending and Future opportunity segment.

CHAPTER 2

ORGANIZATION

2.1 Introduction

Inspire Broadband is a Dhaka-based internet service provider that has provided one-stop ICT services & solutions since 2005. It is equipped with its own Optical and Radio Link in order to service business clients. Furthermore, the management team is accredited and affiliated with SUN, Mikrotik, Microsoft, Linux, and Oracle, making it a very safe and strong management team. Inspire Broadband employs standard, up-to-date technology in your organization, as well as a twenty-four hours-a-day, seven-days-a-week service to your customers. With a group of extremely effective specialized specialists, the center of corporate Organization Arrangement division is able of providing given that condition-of-the-industry organization & media transmission solutions.

2.2 Service Provide

➤ **IT Services**

- ✓ High-performance Internet speed deliver
- ✓ Daily Backup
- ✓ Provide Internet Service in Commercial Side by side
- ✓ Twenty-four hours seven days maintain
- ✓ Create Hotspot in any area
- ✓ Data center and Vice-position
- ✓ Domain Naming Server & cache server clarification
- ✓ FTP server Clarification
- ✓ Ip telephony

➤ **Professional Training Service**

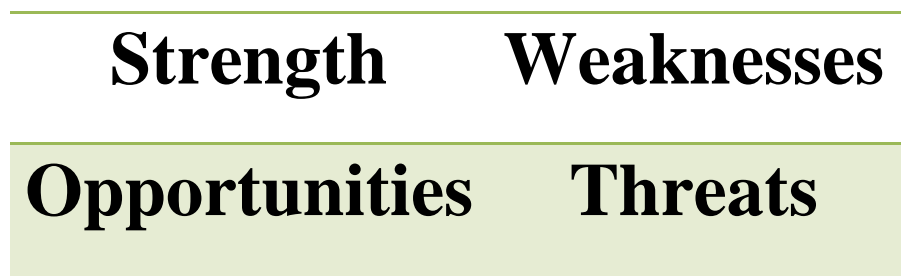
- ✓ Mikrotik certified network association (CCNA)
- ✓ ISP setup using Mikrotik
- ✓ FTTx and OLT(V-SOL,BDCOM,C-DATA)

2.3 Target Group

- ❖ We can try to rise the highest area of the high level in our country.
- ❖ This goal is the main core issue of a company. Fineness is varied well for the company so you want to provide good service to any client or any Organization.
- ❖ One or more of the businesses are run in your organization example education, hospitals, clinics, wood Industries, Garments Industries, Real estate companies, etc.
- ❖ We would like to increase our journey to high levels of skills and business of their clients.

2.3 Strength Weaknesses Opportunities and Threats Analysis

It's a Commercial method in several thoughtful of place to progress the ability.



Strength

Communication including every several attempt to tackle the risky, gather data likewise sets up e-commerce, Knowledge of existing networks. Great understand by a client.

Weaknesses

Major value of attempt and Infrastructure. it's highly cost of result is more comparable attempt.

Opportunities

Climbing up the skill of customers, reaction globally. It's simple preparation on cloud period.

Threats

It provides the limitation to us to the specialist, where gathering a group is intense, and to the server, where collecting a gathering is troublesome.

2.4 Company Hierarchy

Hierarchy of Inspire Broadband Ltd.

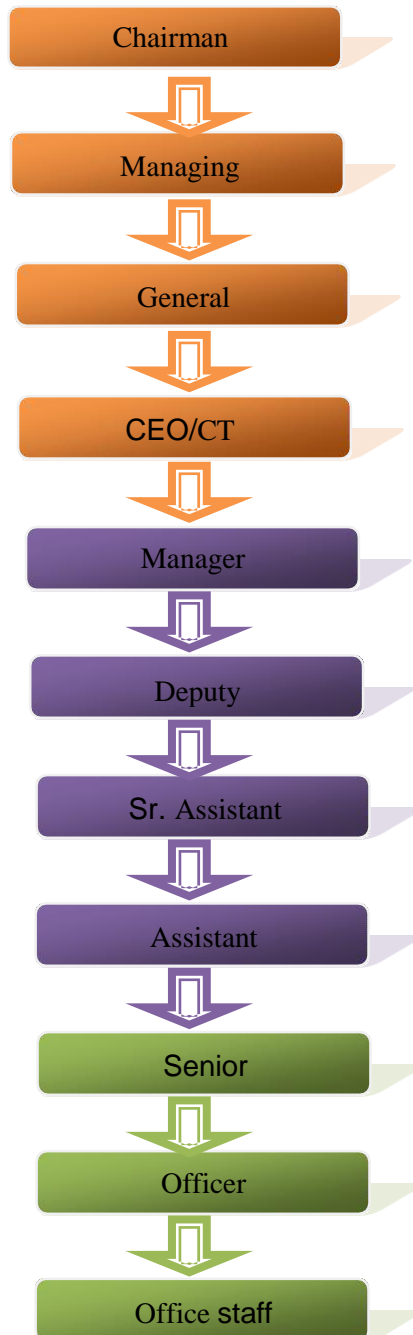


Fig 2.5.1 Organization structure

CHAPTER 3

TASK, PROJECT, AND ACTIVITIES

3.1 Daily Task and Activities:

1st month I known and completed the following tasks during my internship at Inspire Broadband in this month.

- Know About Internet protocol Address
- Know About sub netting
- Knowing Mikrotik
- computer base deployment of Mikrotik OS using VMware
- Set up Mikrotik Router
- Mikrotik router set up Internet Service Provide link
- Set up Local Area Network

2nd month: I known & completed the following tasks this month:

- Firewall & Network Address Translation Set up
- Static-Internet Protocol setup
- Dynamic Routing (DHCP) setup
- Queue setup

3rd month: During this month, I completed the following tasks:

- Bandwidth distribution
- Day/Night Package
- Bridge Mode setup
- Setup Site Blocking

4th month: I known and completed the following tasks this month:

- Bind MAC Address
- PPPOE Server setup in Mikrotik Router

3.2 Project Task and Activities:

3.2.1 Details of IP Address

IP and Network administrators have separated an Internet Protocol address into two sections. At the point when an individual imparts over the Internet, your IP address is utilized. This is the significant correspondence channel. A major scope of complexity completed organization configuration grant for the arrangement of individuals or network and the appropriately sub local area design. Internet Protocol address has 5 Classes

Class	Range	No of Network	No of Address per Network
A	0-126	27=128	224=16777216
B	128-191	241=16384	216=65536
C	192-223	221=2097152	28=256
D	224-239	Multicast Addresses	
E	240-254	Multicast Addresses	

Table 3.2.1 IP address ranges

3.2.2 About Subnetting

Subnet is a sensible subsection of an Internet Protocol Network Address. At the point when I work little network that time I can estimate Subnetting or loss IP.

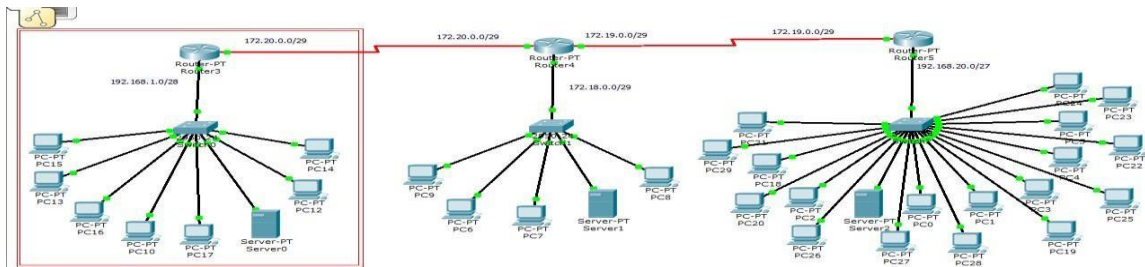


Fig 3.2.2.1 subnetting

3.2.3 Introduction of Mikrotik:

It is a hardware industrial organization arranged in the United States. Latvia established MikroTik in 1996 to advance ISP Framework with Switch and Remote Gadgets.



Fig:-3.2.3.1 Software for Mikrotik ISO, Winbox exe, VMware

The application is used to set up the Mikrotik Router.

Now I'll show how to install the guideline. Step-by-step instructions:

Step 1:

Install VMware Application and open it

- File
- Then Click New Virtual Machine and Next
- Then Click Next
- Then Click on Ok.

A screenshot of the VMware Workstation 15.5 Pro application window. The 'File' menu is open, showing options like 'New Virtual Machine...', 'New Window', 'Open...', 'Scan for Virtual Machines...', 'Close Tab', 'Connect to Server...', 'Virtualize a Physical Machine...', 'Export to OVF...', and 'My Virtual Data...'. The 'New Virtual Machine...' option is highlighted. The main workspace shows the 'WORKSTATION 15.5 PRO' logo and three buttons: 'Create a New Virtual Machine', 'Open a Virtual Machine', and 'Connect to a Remote Server'.

Fig: - 3.2.3.2 Create VM

Now I Create New VMware Machine for Install Mikrotik ISO

This Window Create New virtual Machine For install Mikrotik OS.



Fig 3.2.3.3 VMware Welcome Screen

Select Custom>Next

This Box Install 2 options 1st option VMware matching creates by default and 2nd option defines as usual.

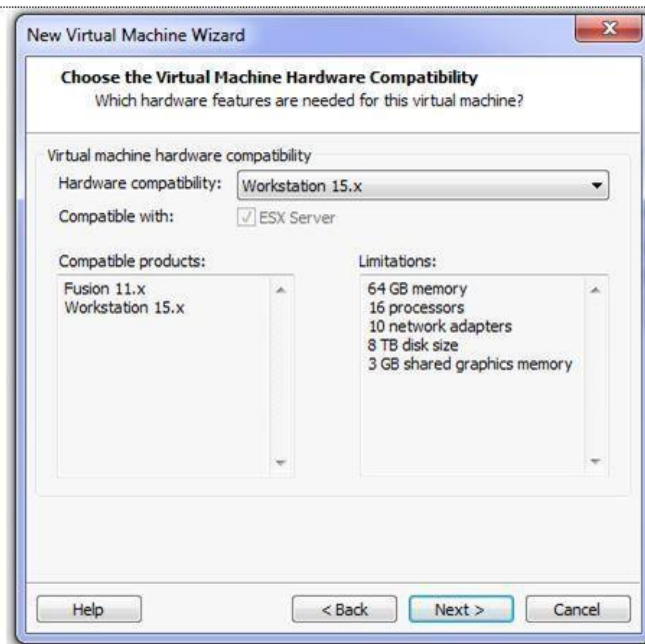


Fig:- 3.2.3.4 VM Setup for version

Select VMware Hardware Complexity>Workstation15X>next

Now, Select VMware workshop version which you setup. This

Window select for version VMware.

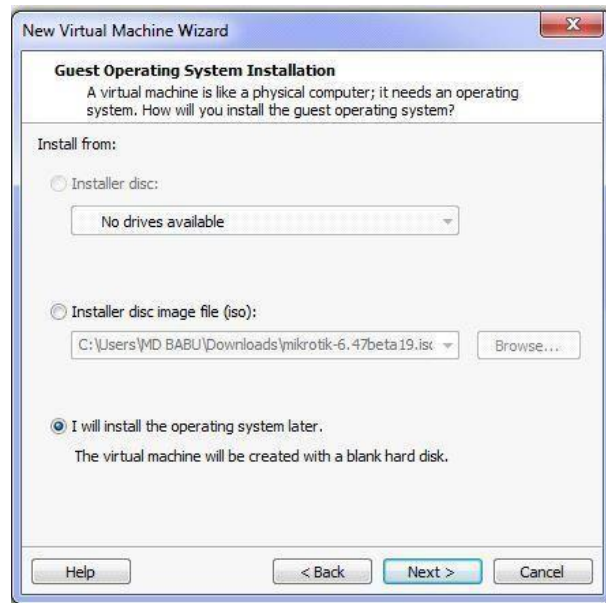


Fig:-3.2.3.5 VM Setup selects ISO

Select> I will Install later>next

This Window choose 3 any option first Option Install on Disk 2nd option select ISO location 3th Option I will install the operating system later.

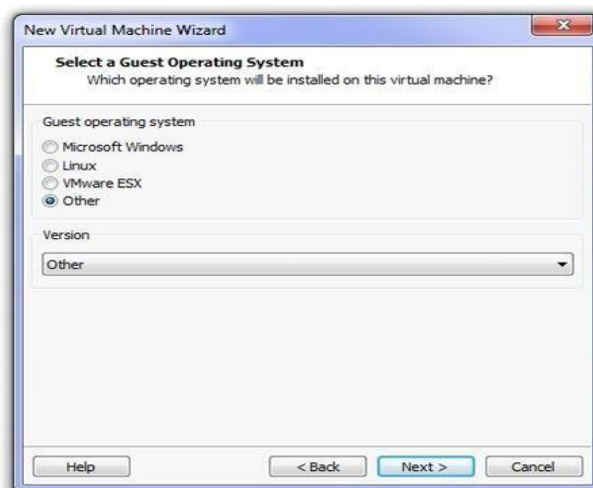


Fig:- 3.2.3.6 VM setup for Operating system

Select OS>others>next

Now, Select which OS you are installing that you have selected

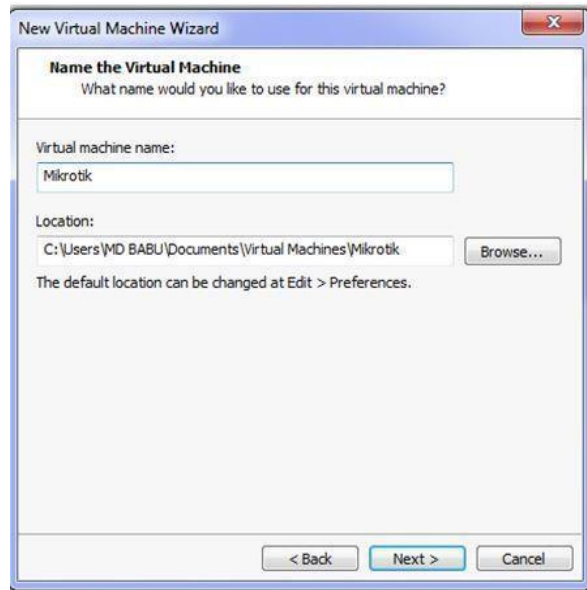


Fig:-3.2.3.7 VM setup name

Select Virtual matching name>mikrotik >next

Now write virtual matching name and select location which you have saved

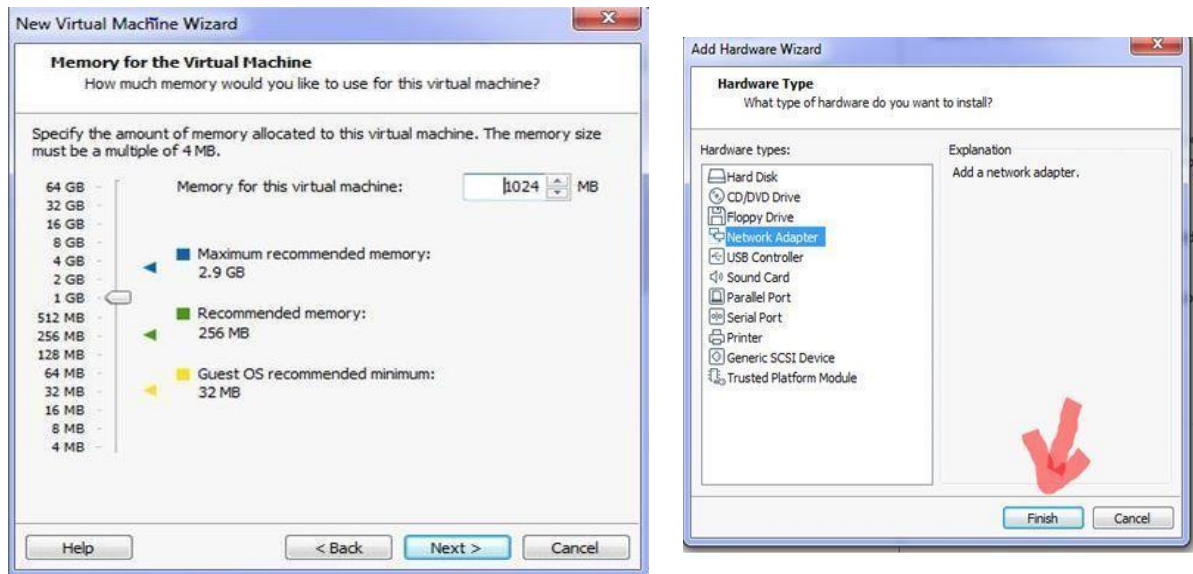


Fig:-3.2.3.8 VM setup resizes RAM

Select memory for the virtual matching>1024>next

Now select memory for the virtual memory. I am put on 1024 MB.



Fig:-3.2.3.9 VM setup

Select number of processor 1> number of core 1>next

Now select Number of Processor and Computer Processor core.



Fig:-3.2.3.10 VM setup On disk

Maximum disk>10.0>next

Now assign on maximum disk size. I am select on 10.0 GB.



Fig:-3.2.3.11 VM setup disk file

Select next.

Now Browse which location Disk file are save and press next button.

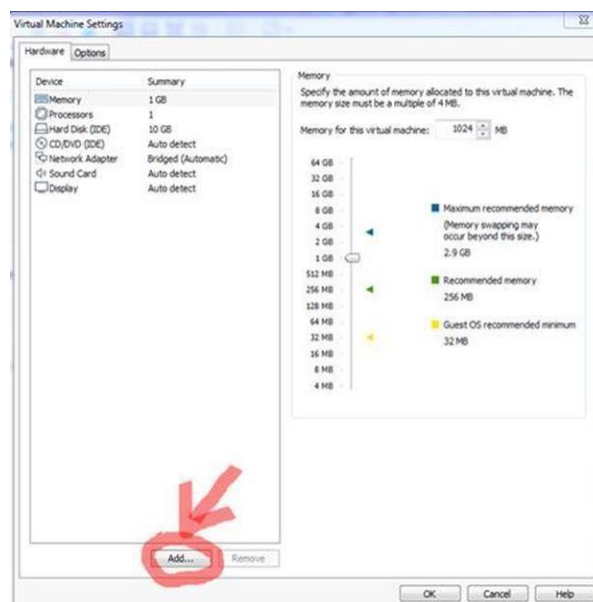


Fig:-3.2.3.12 VM setup Hardware

Add>network adapter>add>Ok.

Now add hardware on Network adapter.

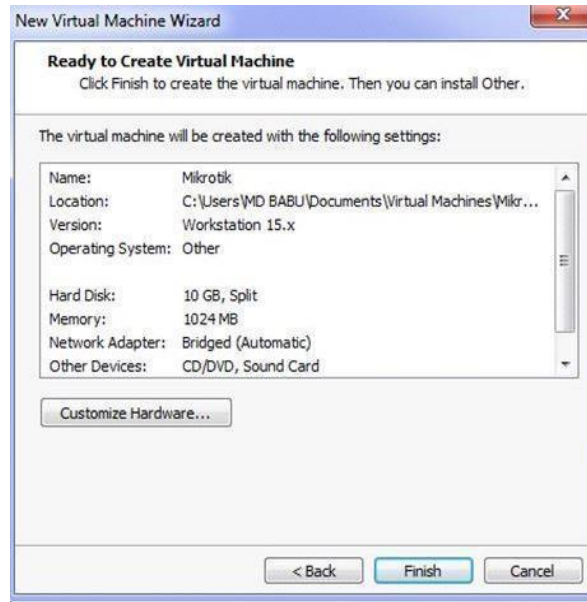


Fig:-3.3.3.12 VM setup finish

Click on the Finish button.

Now ConFig all hardware requirement and press button finish.

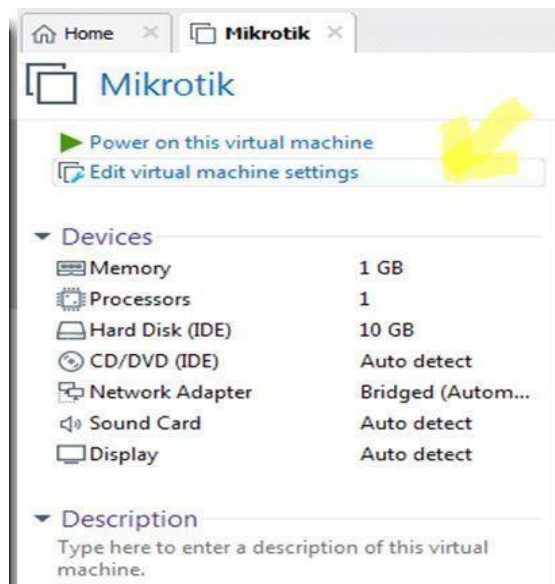


Fig 3.2.3.13 VMware Configuration for Mikrotik OS

Click CD>Browse ISO>Ok>Power On.

Now click CD ROM and select Mikrotik ISO and click Power on virtual matching.

Step:-2

At present, I click on installer Circle picture plate (ISO) & select the ISO Picture report, which I quickly snap. Then, at that point, I give the virtual PC a name and pick where locale this record ought to be saved or presented in, then, at that point, click right away. By and by Design the Prerequisite Equipment in the way that we require.

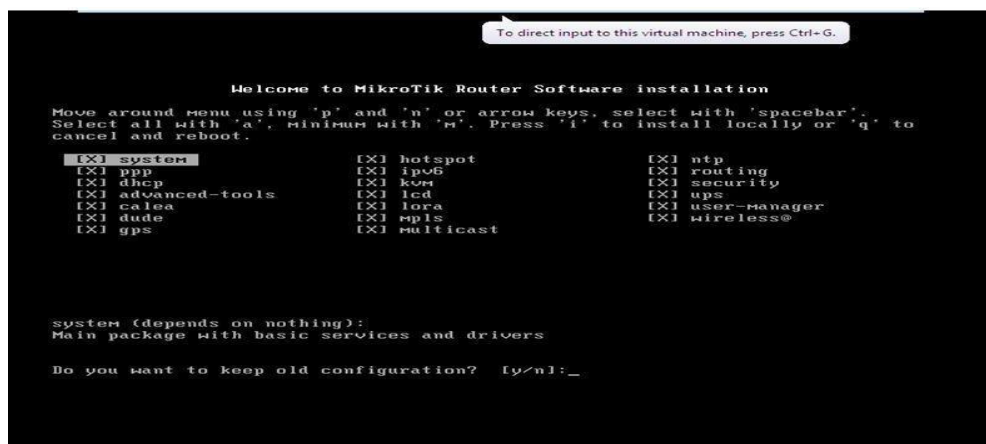


Fig 3.2.3.14 Mikrotik OS Installation

Press spacebar>i>n>y

Now select all Option on Mikrotik ISO and press I to Install and press n to new configuration and sure install to y.

3.2.4 Mikrotik router Configuration

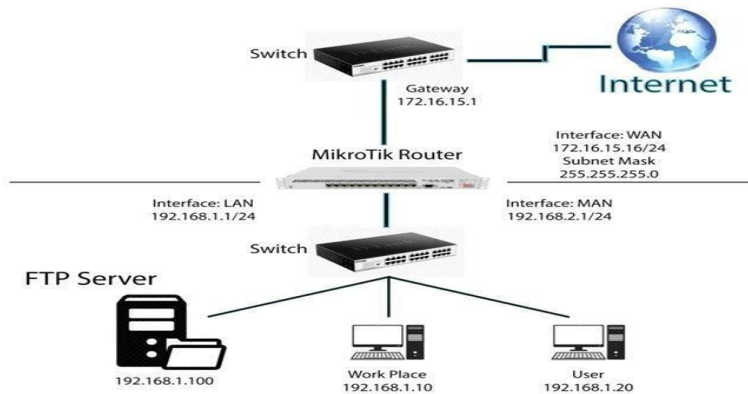


Fig: 3.2.4.1 Topology of Network for Mikrotik

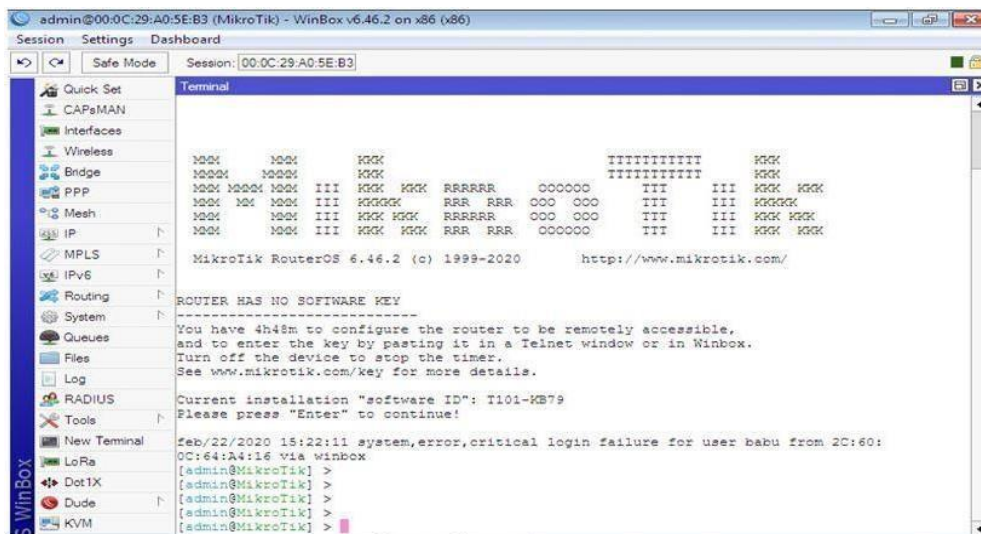


Fig: 3.2.4.2 WinBox homepage

Press user name admin> password Nun.

At the point when the Mikrotik ISO file deployment Successfully, that time hang tight for MikroTik login name and secret key for Sign in then the Mikrotik switch default credential admin & secret blank. Now I hit enter key from keyboard then switch start order line. I utilizing Mikrotik switch Graphical User Interface on WinBox application. This application associates with Mikrotik switch Physical Address.

3.2.5 Static IP Configuration with Mikrotik Router

Step 1:

Mikrotik Router Assign Port name which port are LAN, WAN and FTP server

First of all, define port Name

- ◆ Click On Interface
- ◆ Double click on port name and change name (WAN, FTP Server, LAN) and hit Apply and then OK.

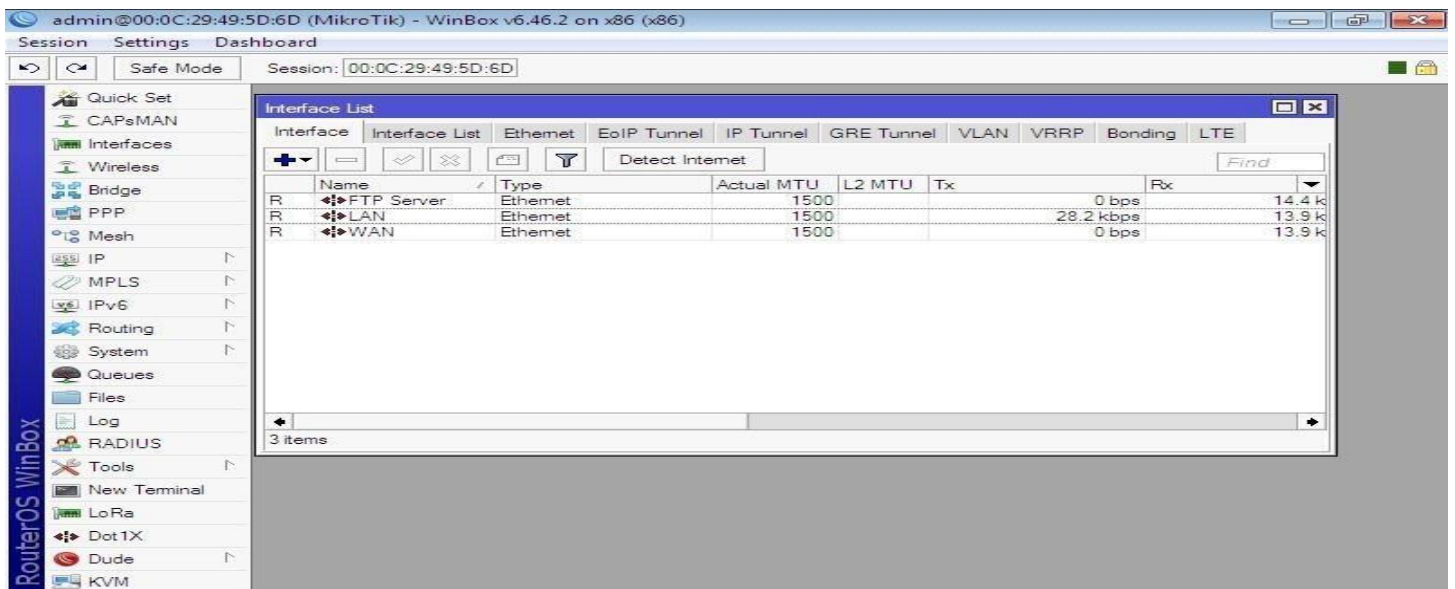


Fig: 3.2.5.1 Interface

Step 2:

- ❖ Static IP is used for manually allocate on Mikrotik Router LAN port and which Computer are Connect on this port this Computer physically dole out IP that is static. Now select add and put IP address and pick Interface.
 - ◆ Now assign an IP address first Click IP → Address → Add IP on Address on CIDR value → Apply → OK
 - ◆ Add → Address → 192.168.0.1/24 → interface → WAN

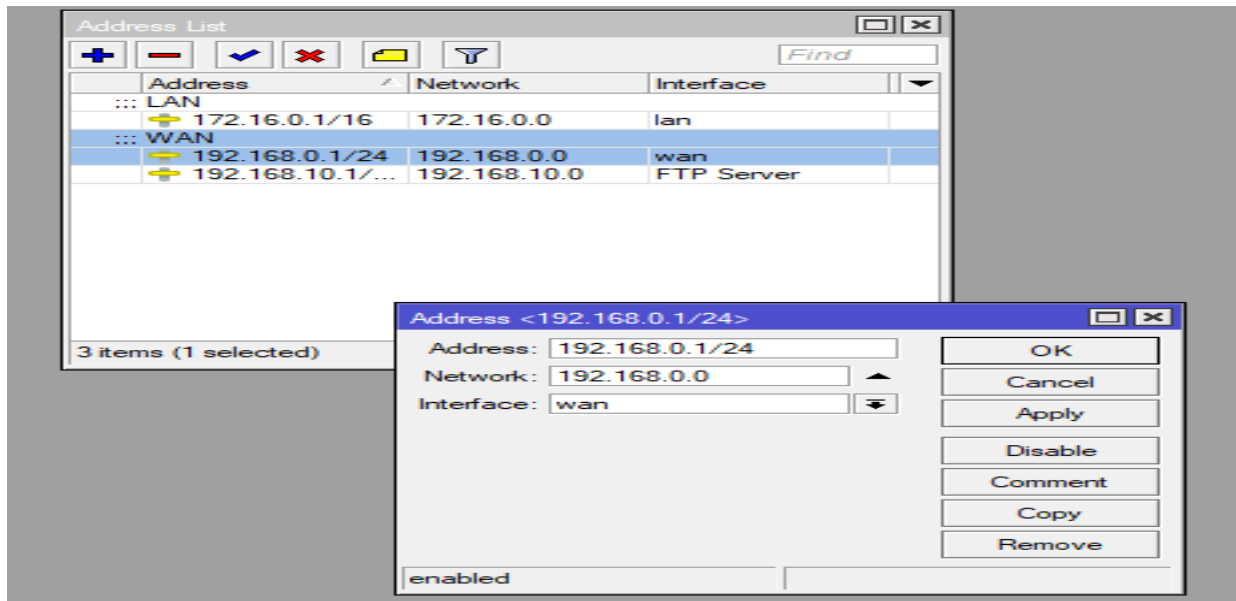


Fig: 3.2.5.2 Assign IP Address

Step 3:

❖ DNS are use server IP you can use your personal server IP. I just use Google primary DNS server IP 8.8.8.8.

◆ Click Again IP → DNS → Add DNS server IP (8.8.8.8) → Apply → OK

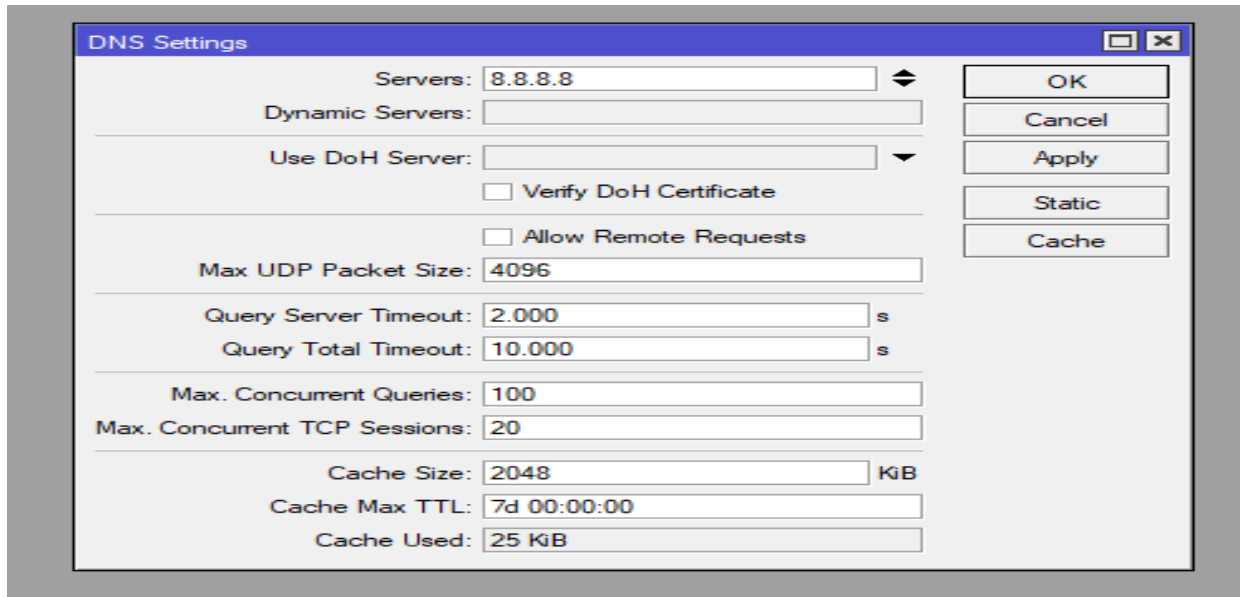


Fig: 3.2.5.3 Assign DNS Server IP

Step 4:

❖ Firewall Configuration means you can permission Communication for Wide Area

Network(WAN) first, select srcnet

◆ After Click Again IP → Firewall → NAT → Add → General → Chain:

srcnet → Out Interface WAN → Apply → OK

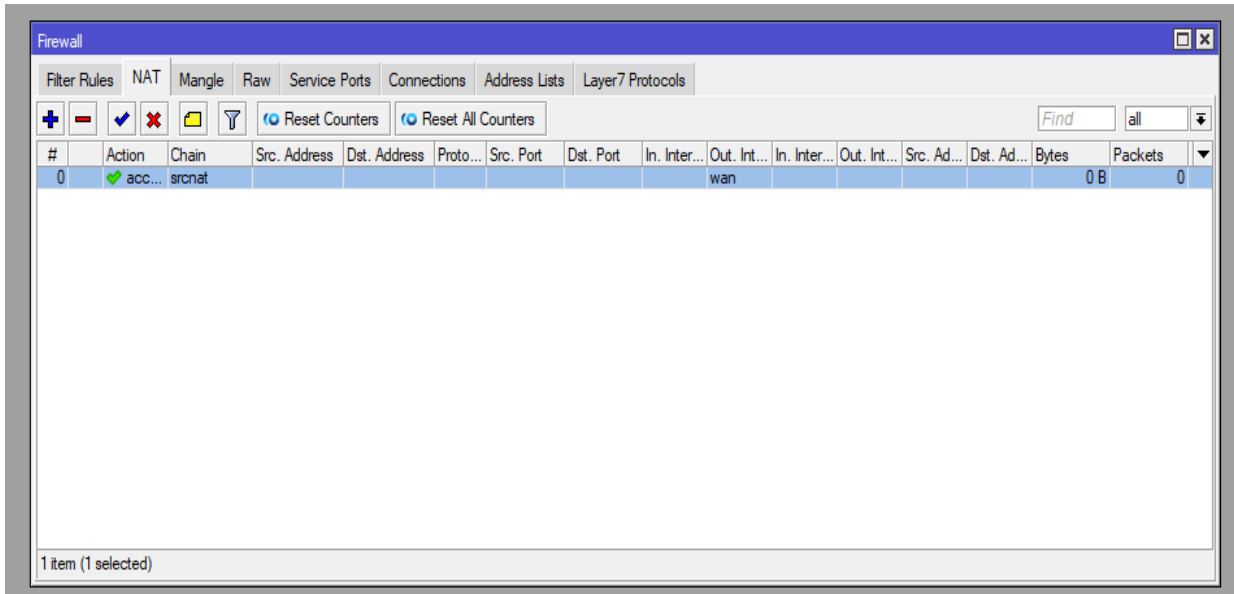


Fig: 3.2.5.4 conFig NAT

Step 5:

- ❖ Firewall Configuration implies you would permission be able to get to World Aria Network convert Private IP to Public IP for Communication. Secondly, select disagree.
- ◆ After Click Again IP → Firewall → NAT → Add + → Action=masquerade
→ Apply → OK

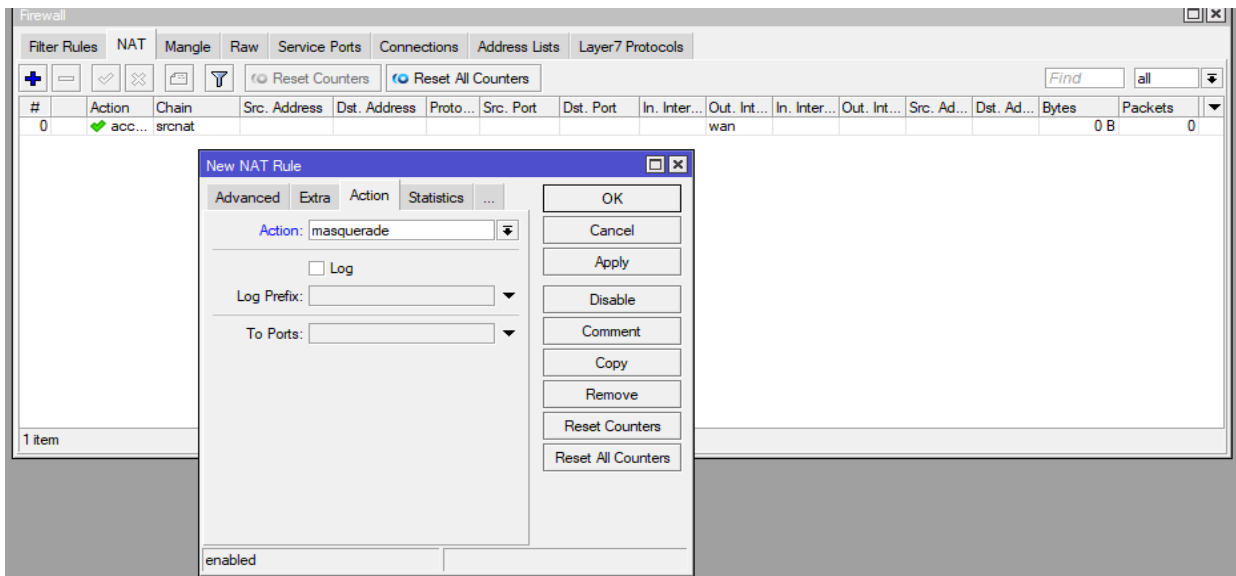


Fig: 3.2.5.5 conFig NAT

Step 6:

IP Route means you select your destination address and your gate way when you select 0.0.0.0/0 then you can reach any destination and which route you access the Internet that is Gateway my gateway is 192.168.0.1

- ◆ Click IP → Routes → NAT → Add + → General → Dst Address + Gateway → Apply → OK

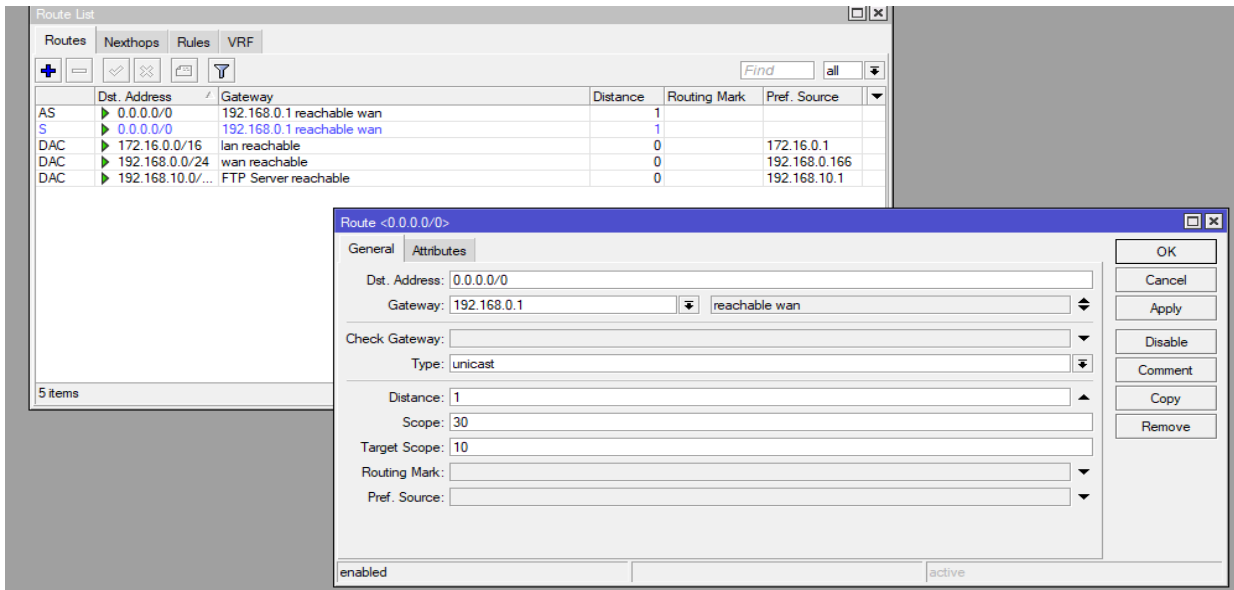
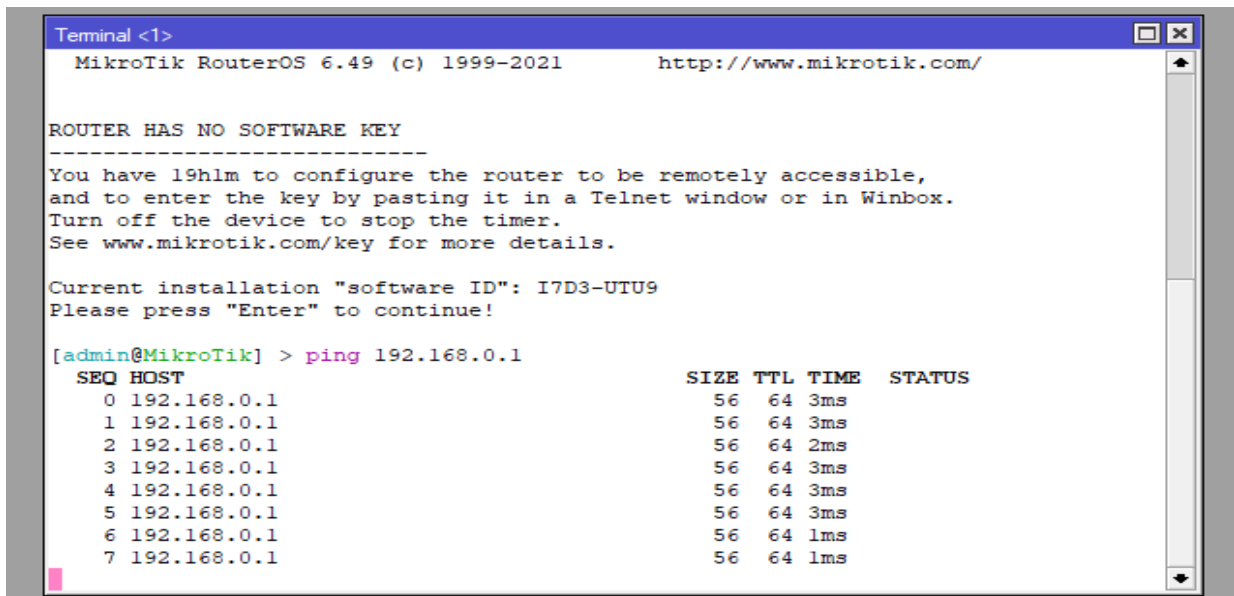


Fig:3.2.5.6 Default Route

Step 7:

Then Static IP Configuration has been Complete. Than check internet on Mikrotik Router on Terminal.

- ◆ Go To New Terminal → press Enter and write ping space (gateway IP) →
Enter



```
Terminal <1>
MikroTik RouterOS 6.49 (c) 1999-2021      http://www.mikrotik.com/

ROUTER HAS NO SOFTWARE KEY
-----
You have 19h1m to configure the router to be remotely accessible,
and to enter the key by pasting it in a Telnet window or in Winbox.
Turn off the device to stop the timer.
See www.mikrotik.com/key for more details.

Current installation "software ID": I7D3-UTU9
Please press "Enter" to continue!

[admin@MikroTik] > ping 192.168.0.1
  SEQ HOST                SIZE  TTL  TIME  STATUS
  ---  ---                ---  ---  ---  ---
  0 192.168.0.1            56   64  3ms
  1 192.168.0.1            56   64  3ms
  2 192.168.0.1            56   64  2ms
  3 192.168.0.1            56   64  3ms
  4 192.168.0.1            56   64  3ms
  5 192.168.0.1            56   64  3ms
  6 192.168.0.1            56   64  1ms
  7 192.168.0.1            56   64  1ms
```

Fig: 3.2.5.7 Pinging to Gateway (IP)

Step 8:

Finally, Reached on My Computer with Static IP Manually and I using Google primary DNS server 8.8.8.8

- ◆ Click Network Setting Change Adapter Option → Local Area Connection
→ Right Click and Properties → Choose Option IPV4 → use IP Address
gateway subnet mask and DNS server → Apply → OK

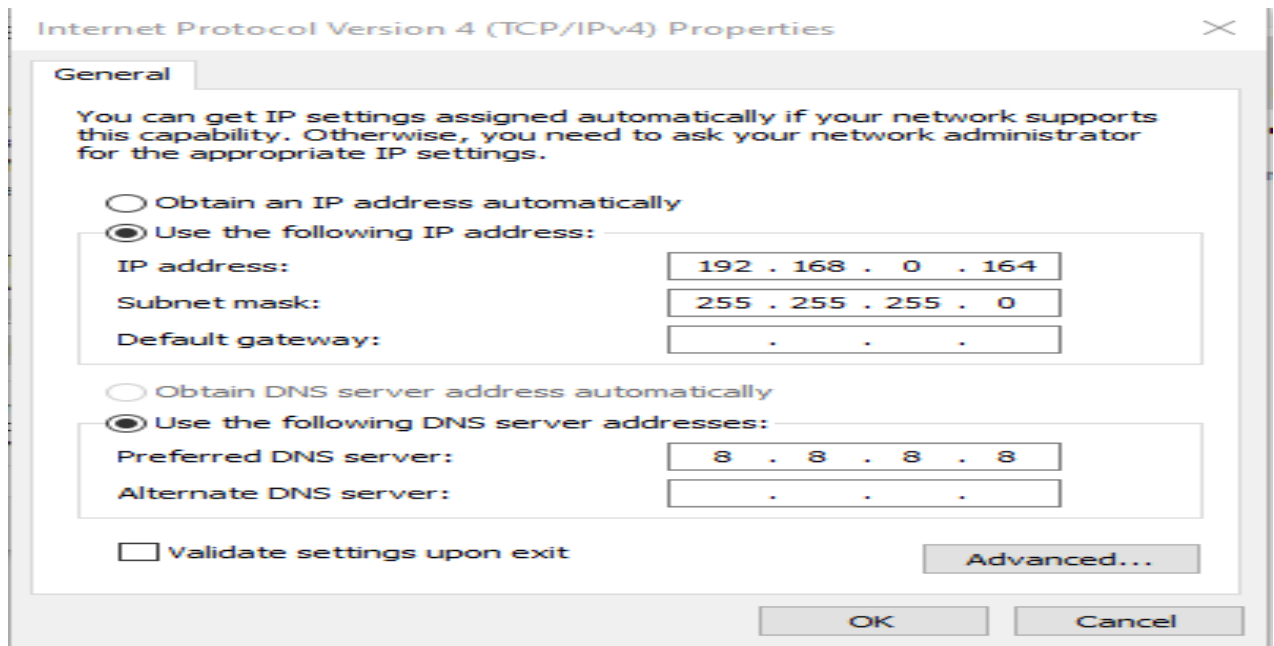


Fig: 3.2.5.8 Internet Protocol Version 4 (TCP/IPV4) Configuration

3.2.6 Dynamic Host Configuration Protocol (DHCP) With Mikrotik

The main purpose of configuring DHCP server is to get automatically IP , subnet mask , gateway and DNS address. We will click on that port, in which we want to conFig DHCP and we will create IP Pool.

Step 1:

To create an IP Pool the steps are:

- Go to IP Menu
- Then Pool
- Add an IP Pool with specifying the IP Range
- Then press OK

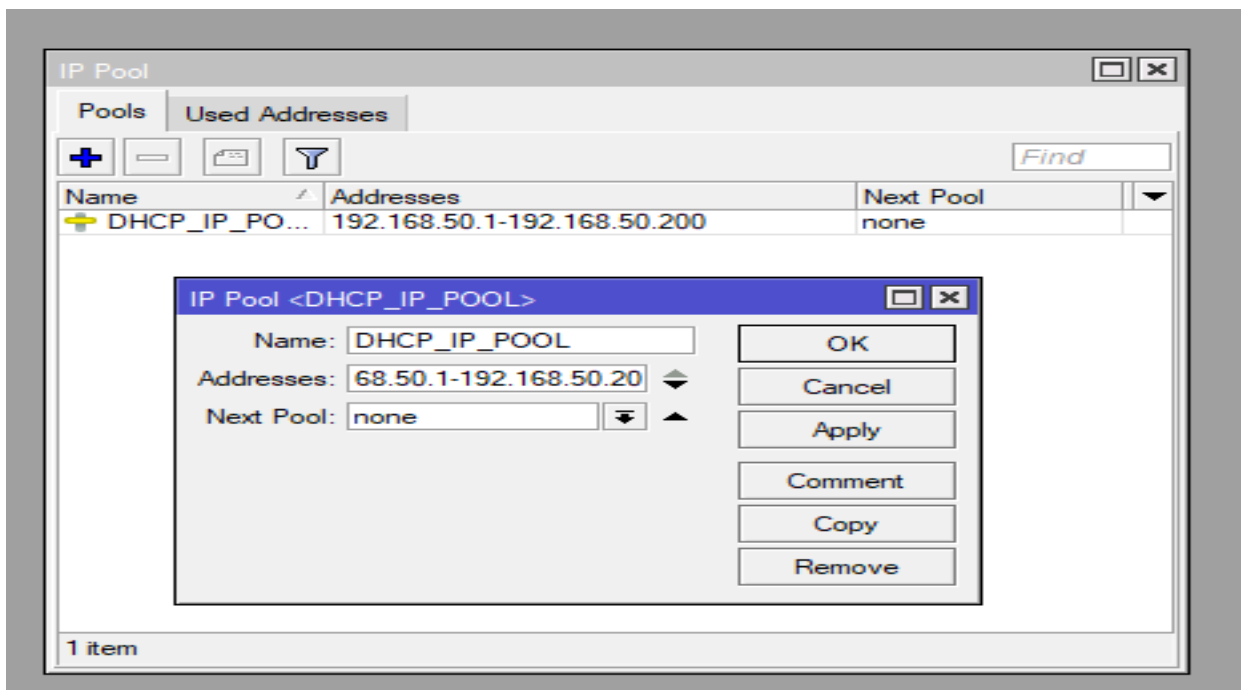


Fig: 3.2.6.1 IP POOL

Step 1:

To Configure DHCP Server the steps are:

- Go to IP Menu
- Then DHCP Server
- Then DHCP
- Add [+] a DHCP Server - Set a Name of Server –
Select the DHCP Interface - Introduce DHCP Pool

The 'New DHCP Server' window is shown with the 'Generic' tab selected. The configuration fields are as follows:

Name:	DHCP
Interface:	ether4
Relay:	
Lease Time:	3d 00:00:00
Bootp Lease Time:	forever
Address Pool:	DHCP_IP_POOL
DHCP Option Set:	
Src. Address:	
Delay Threshold:	
Authoritative:	yes
Bootp Support:	static
Client MAC Limit:	
Use RADIUS:	no

Checkboxes at the bottom:

- Always Broadcast
- Add ARP For Leases
- Use Framed As Classless
- Conflict Detection

Buttons on the right: OK, Cancel, Apply, Disable, Copy, Remove. The status bar at the bottom left shows 'enabled'.

The 'New DHCP Network' window is shown with the following configuration:

Address:	192.168.50.0/24
Gateway:	192.168.50.1
Netmask:	255.255.255.0
<input type="checkbox"/> No DNS	
DNS Servers:	8.8.8.8
Domain:	
WINS Servers:	
NTP Servers:	
CAPS Managers:	
Next Server:	
Boot File Name:	
DHCP Options:	
DHCP Option Set:	

Buttons on the right: OK, Cancel, Apply, Comment, Copy, Remove.

Fig: 3.2.6.2 DHCP Configuration

3.2.7 Configuration of Queue

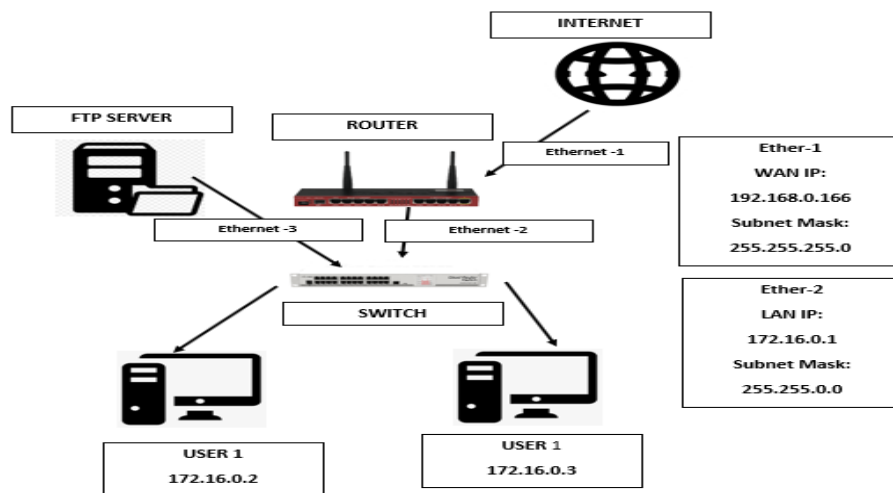


Fig 3.2.7.1 Queue Network Topology Configuration

Step 1: Add IP address for Local Area Network (LAN).

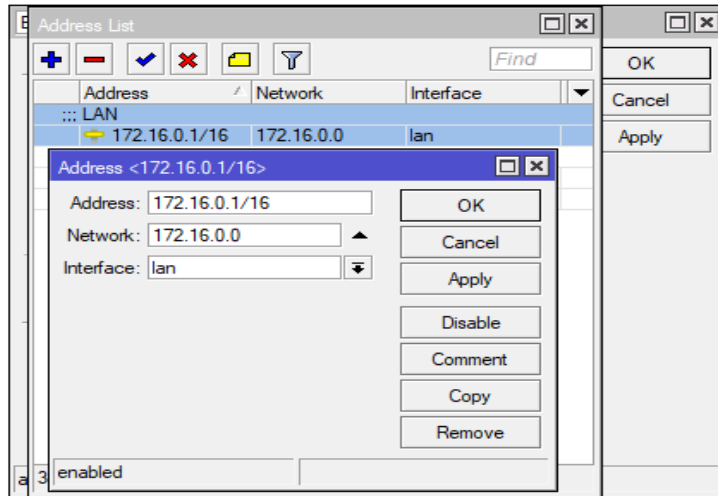


Fig: 3.2.7.2 Assign Lan IP

- 1st click on IP
- Address
- Add IP On Address and Network
- Apply
- Ok

Step 2: Dipannita: 6MB Upload and 9MB

Download

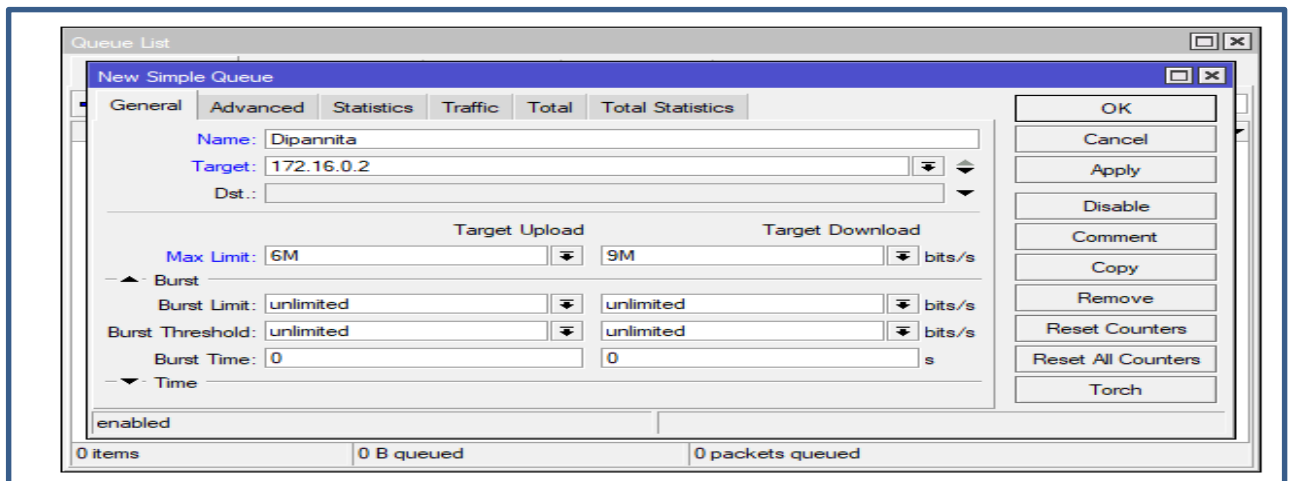


Fig: 3.2.7.3 Queues for Dipannita

Jo : 7MB Upload and 9MB Download

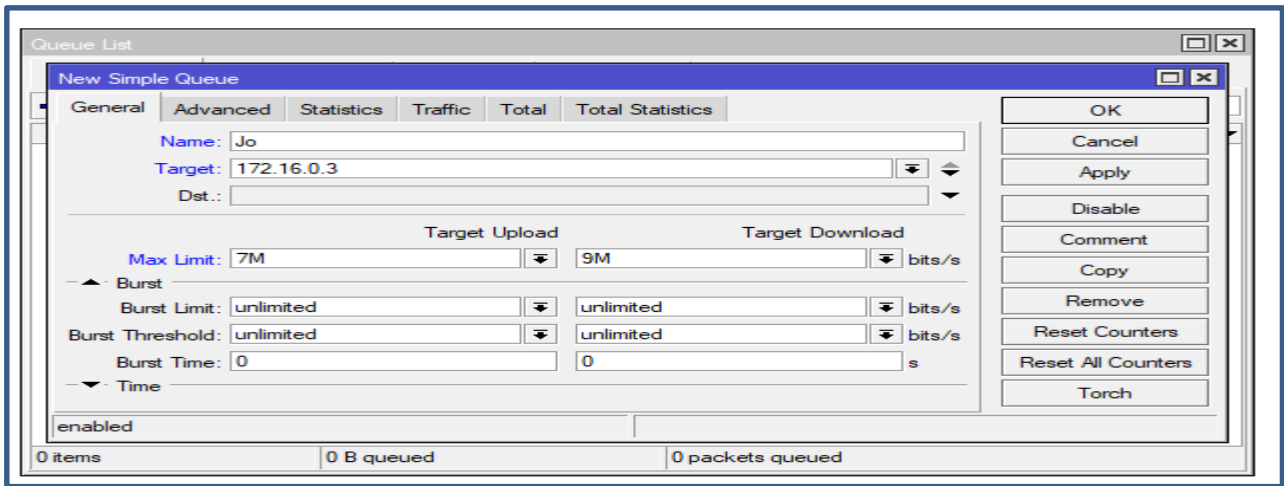


Fig: 3.2.7.4 Queues for Jo

Now, click on “Queues → Simple Queues → Add → General → Name, Target, Max Limit → Upload and Download → Apply OK”.

You can characterize user and IP and which client maximum restricted Upload and Download speed allocate the IP.

Step 2: Let’s have a look on Physical address of “Dipannita”

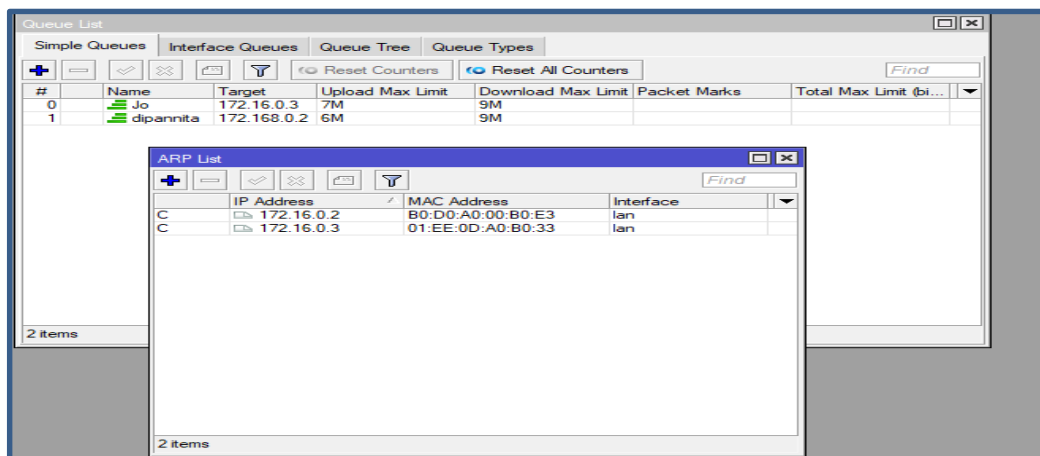


Fig: 3.2.7.5 ARP

IP → ARP list

Step 3: If we see ping reply coming then the IP is reachable ,if the ping reply not coming then host unreachable .

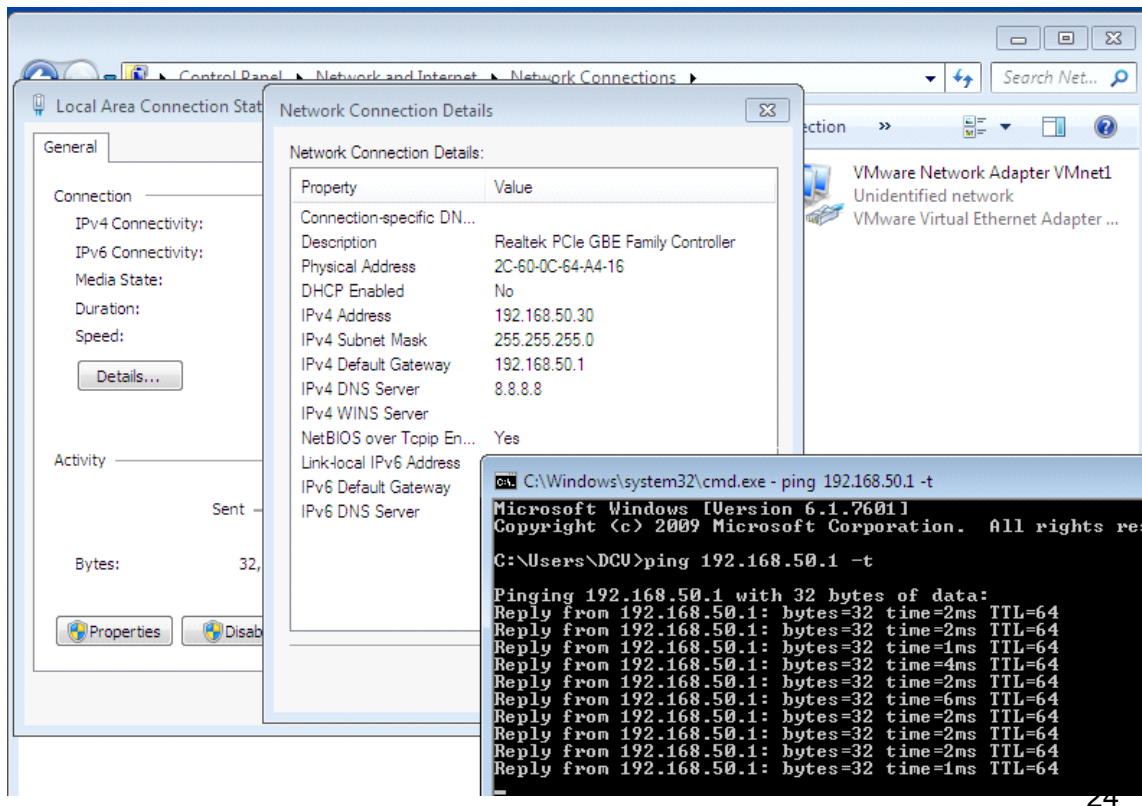


Fig: 3.2.7.6 Ping reply

Click On Windows Search Bar and type cmd and hit enter. Then type ping 172.16.0.2

PRIORITY set:

Step 4: First of all add user on Queue List and set on specific priority for Client. This is minimum client's range, the maximum Priority.

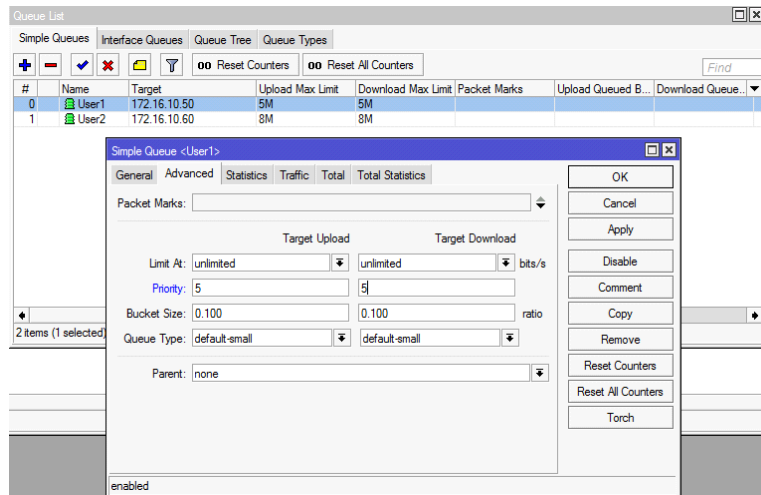


Fig: 3.2.7.7 Priority Set

Click on Queues → Simple Queues → User1 → Advanced → Priority → Target Upload and Target Download → Apply OK".

Queues of Parent Concept:

Step 1: Making a parent concept's block Model

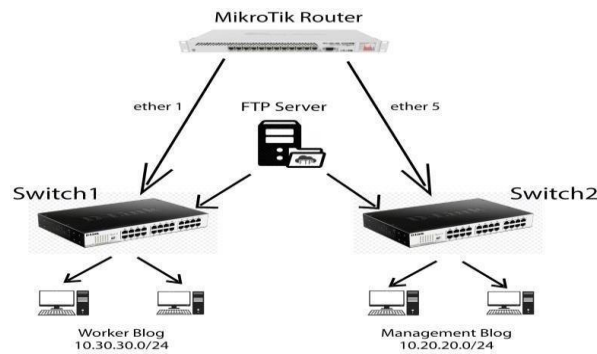


Fig: 3.2.7.8 Making a parent concept's Topology

Step 2: I separate client which client are control, which client are employees. When we apply any command on administrator then

In the certain amount way, we make the next block and make a client of administration block.

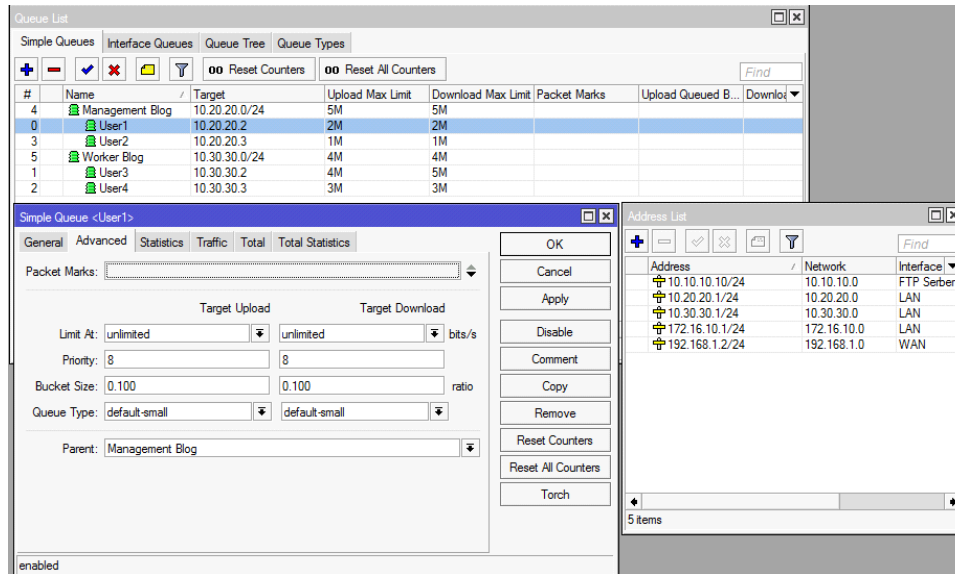


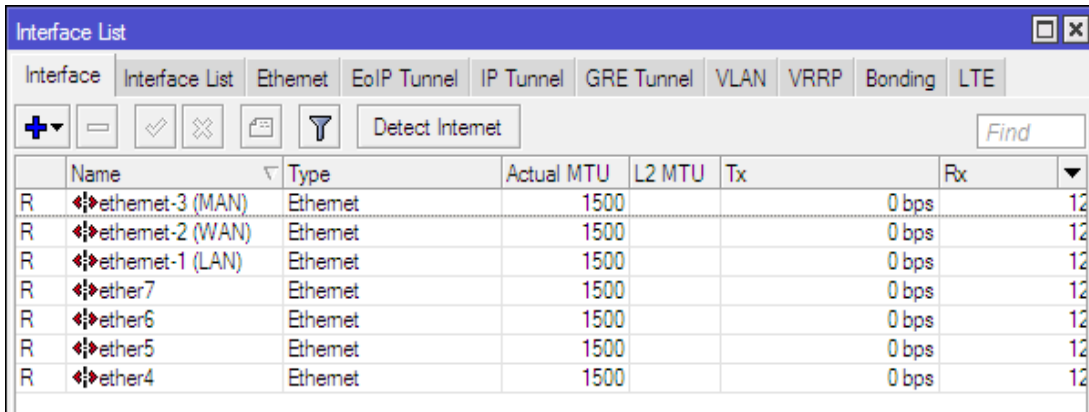
Fig: 3.2.7.9 Simple Queues of Parent

At first Click on "Queues → Simple Queues → General → Name :(example: Management Blog) → Target: (example:10.20.20.0/24)>Apply OK".

Next Click on “Queues → Simple Queues → General → Name :(example: User1) → Target :(example: 10.20.20.2) → Advanced → Parent: select management blog → Apply → OK”

3.2.8 Bridge setup using MikroTik:

Ether Ports **Step 1:** Ether ports on MikroTik:



	Name	Type	Actual MTU	L2 MTU	Tx	Rx
R	ethermet-3 (MAN)	Ethernet	1500			0 bps
R	ethermet-2 (WAN)	Ethernet	1500			0 bps
R	ethermet-1 (LAN)	Ethernet	1500			0 bps
R	ether7	Ethernet	1500			0 bps
R	ether6	Ethernet	1500			0 bps
R	ether5	Ethernet	1500			0 bps
R	ether4	Ethernet	1500			0 bps

Fig 3.2.8.1: List of Bridge Interface

Click on Interface list

Now, I click Interface list and show my Interface which I make.

Step 2: Now I make Bridge. Bridge name LAN one port to another port inter connected.

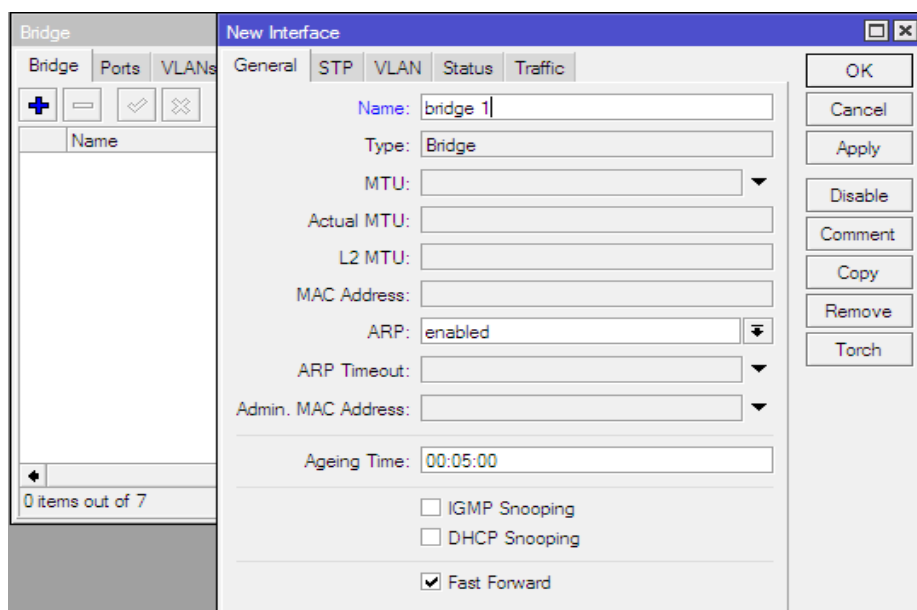


Fig 3.2.8.2: Bridge creating

Click on, "Bridge → Bridge → Add → General → Name: bridge 1 → Type: Bridge → Apply → Ok".

Step 3: Add Ports:

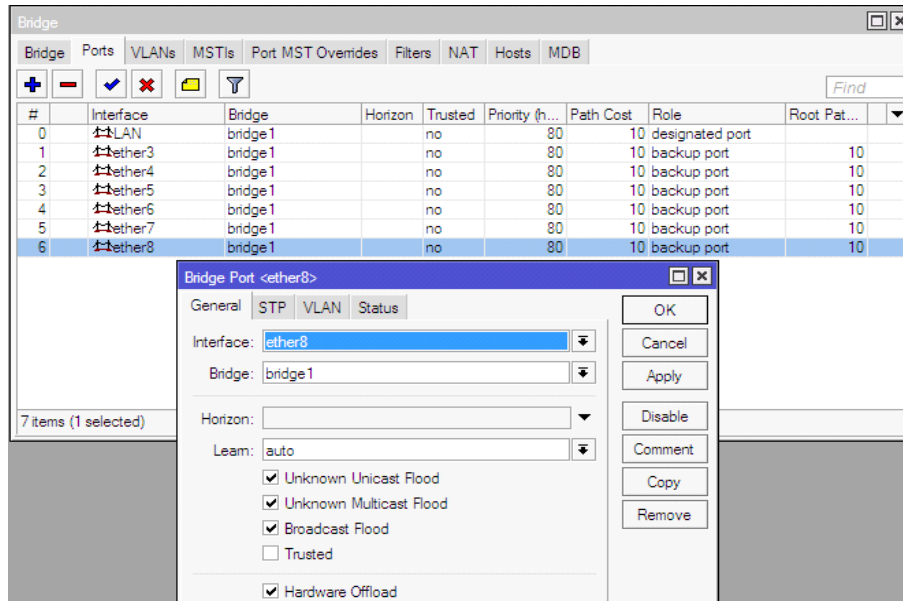


Fig 3.2.8.3: LAN conFig of Bridge port

Now click, "Bridge→Ports→Add→General→Interface: Select→Bridge: bridge 1→Apply→Ok".

Now, select on bridge and which interface are you interconnect that interface are you connect.

Step 4: Last Step, "Select address list then click interface and hit ok".

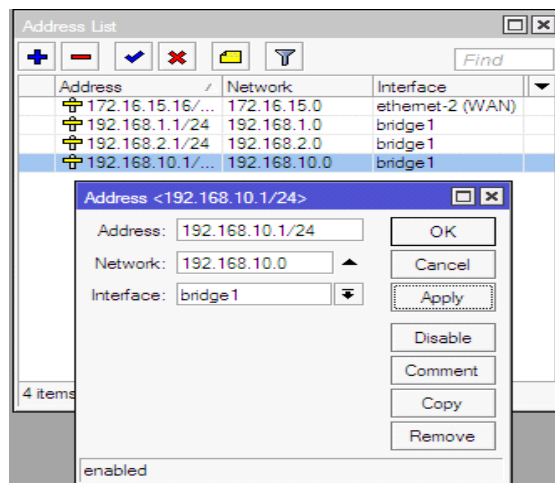


Fig 3.2.8.4: Change Interface

"Address list to select interface and apply→ Ok"

3.2.9 Manage site using layer 7 protocol:

Step 1: we manage any kind of website. For example we make a network on our company on this time we set rule for block YouTube, FB etc.

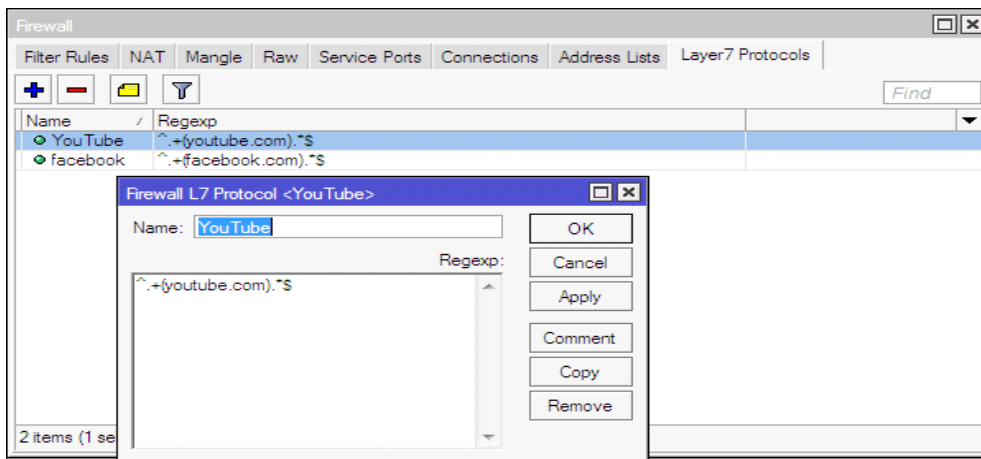


Fig 3.2.9.1: site restriction using layer 7 protocol

Click on, "IP→Firewall→Layer7Protocols→Add→Name: Example: Face book → Regexp: Example: ^0+(facebook.com).*\$ →Apply→Ok".

Step 2: drop this Website any one cannot browse site.

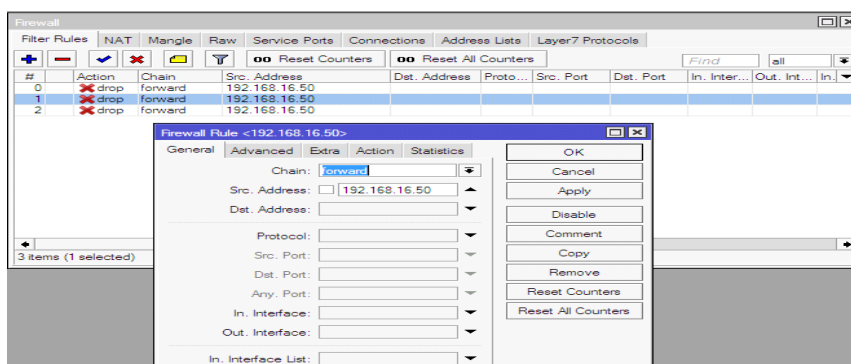


Fig 3.2.9.2: IP source conFig, drop and forward

Next, "IP→Firewall→Filter Rules→General→ Src. Add: Example: 192.168.16.50→Advanced→Layer 7 Protocol: Example: face book →Action→ Action : drop→Apply→Ok".

Not Site Block:

Step 1: This user is permeation on this site.

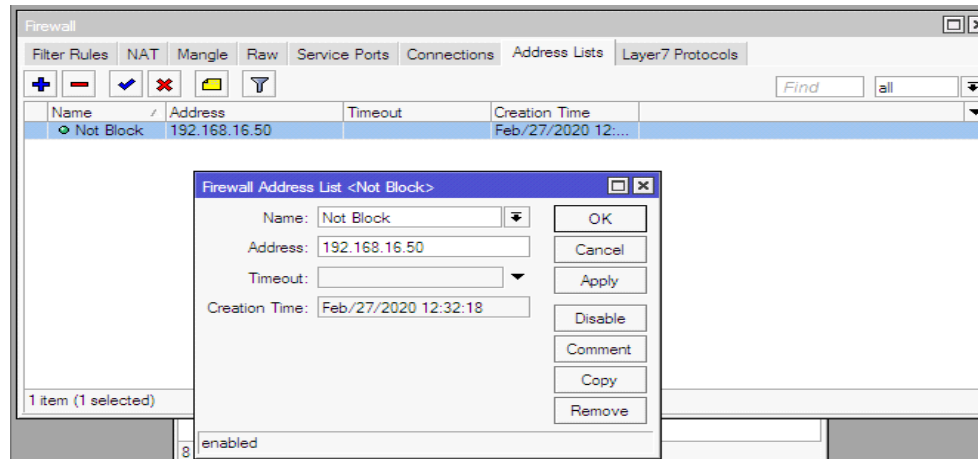


Fig 3.2.9.3 Site restrictions

Click on, "IP→Firewall→Address Lists→Name: Example: No Block→Address: 192.168.16.50→Apply→Ok."

Step 2: Create rules to apply no site blocking

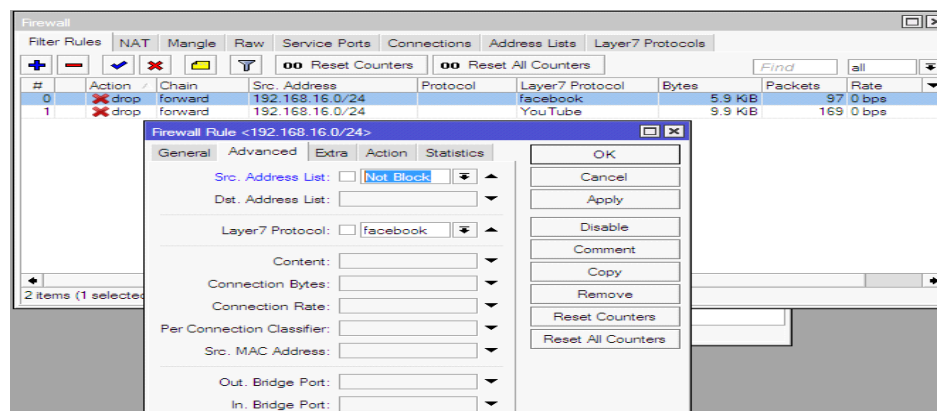


Fig 3.2.9.4: No site blocking

Next, "IP→Firewall→Filter Rules→Select Rules (Double click)→Advanced→Src. Address List :(Select) Not Block→Apply→Ok."

3.3.1 Bandwidth Distribution fix site

Step 1: For example I make a cache server for FB this time I add address list for cache server IP

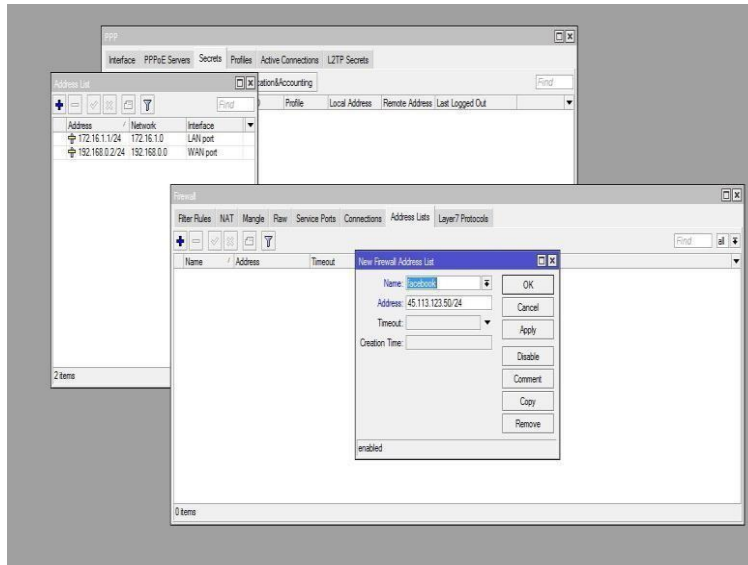


Fig:-3.4.1.1 Mangle for fix site

IP → firewall → address list → +add → name → address → Apply → Ok

Step 2: I make a rules for distribute correct bandwidth for website .

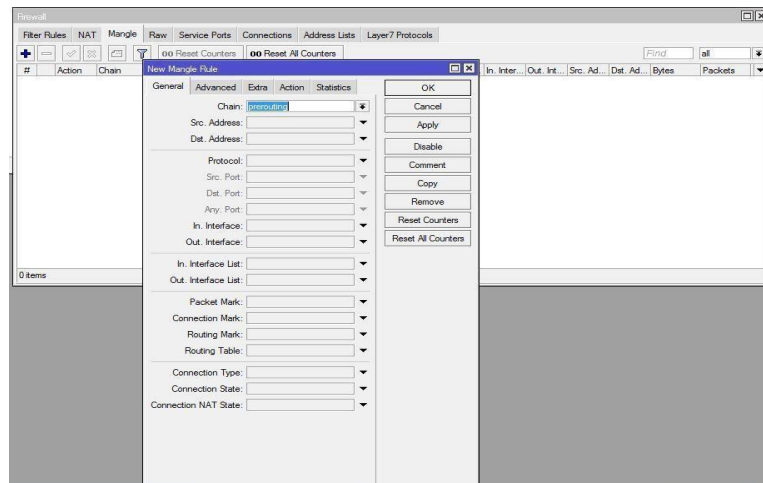


Fig:-3.4.1.2 Mangle for fix site

IP→firewall→Mangle→general: chain→apply→Ok

Step 3: I selected destination address & selected which I make for Cache Server.

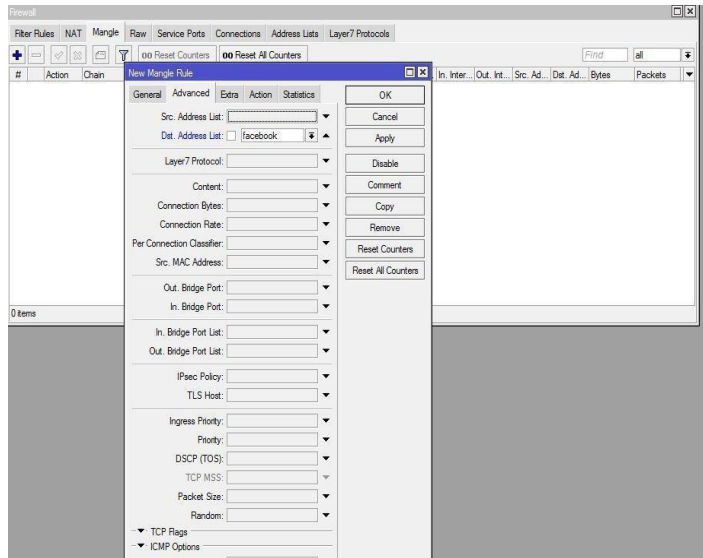


Fig:-3.4.1.3 mangle for fix site

IP→firewall→Advanced: destination address list: Facebook →apply→Ok

Step 4: I make rules for selected bandwidth on site for connect mark.

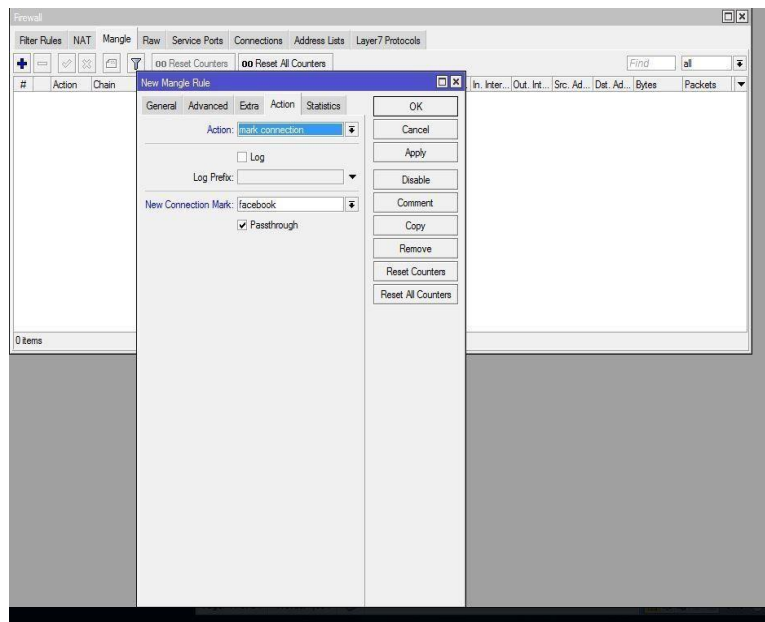


Fig:-3.4.1.4 mangle for fix site

IP → firewall → action: mark Connection → new connection: facebook → apply → Ok

Step 5: I can making rules two for selected bandwidth for FB

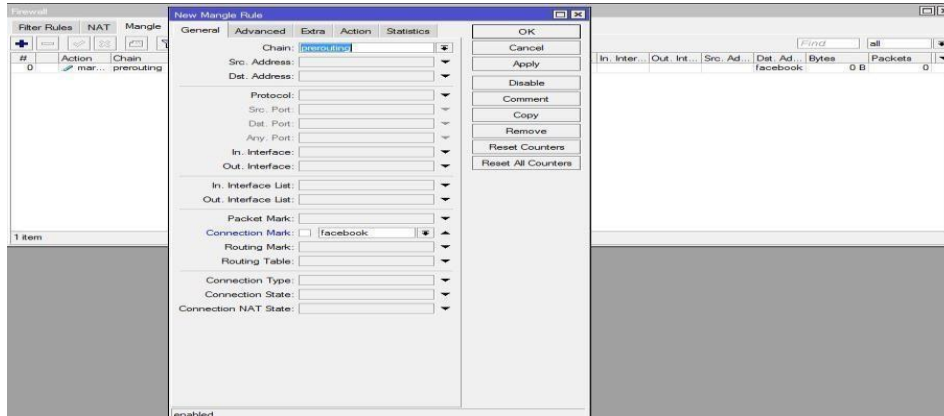


Fig:-3.4.1.5 mangle for fix site

IP → Firewall → General : chain → connection mark: Facebook → apply

Step 6: |I can making rules two for selected and width for FB

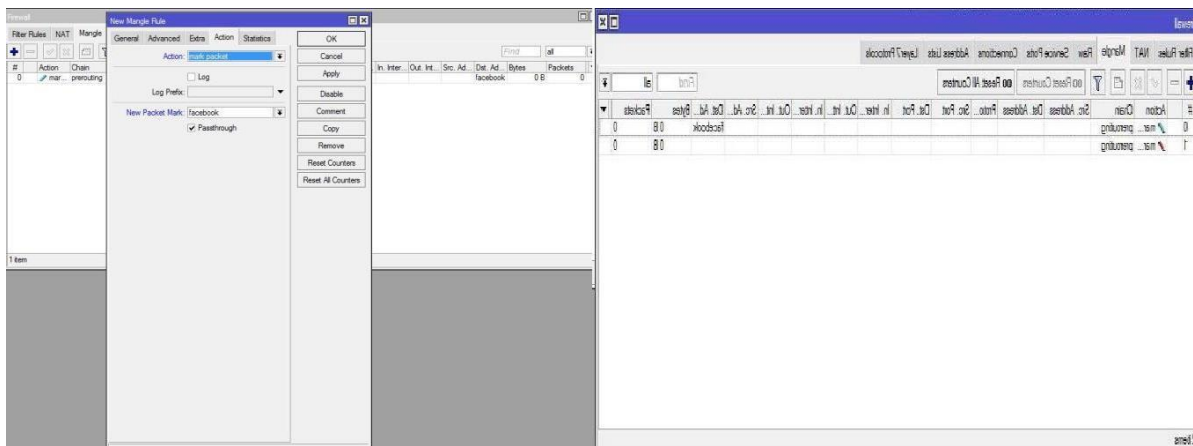


Fig 3.4.1.6 Bandwidth Assign for fix site

IP → firewall → action → mark packet → new packet: Facebook → apply → Ok

Step 7: I making a rules for upload bandwidth for FB.

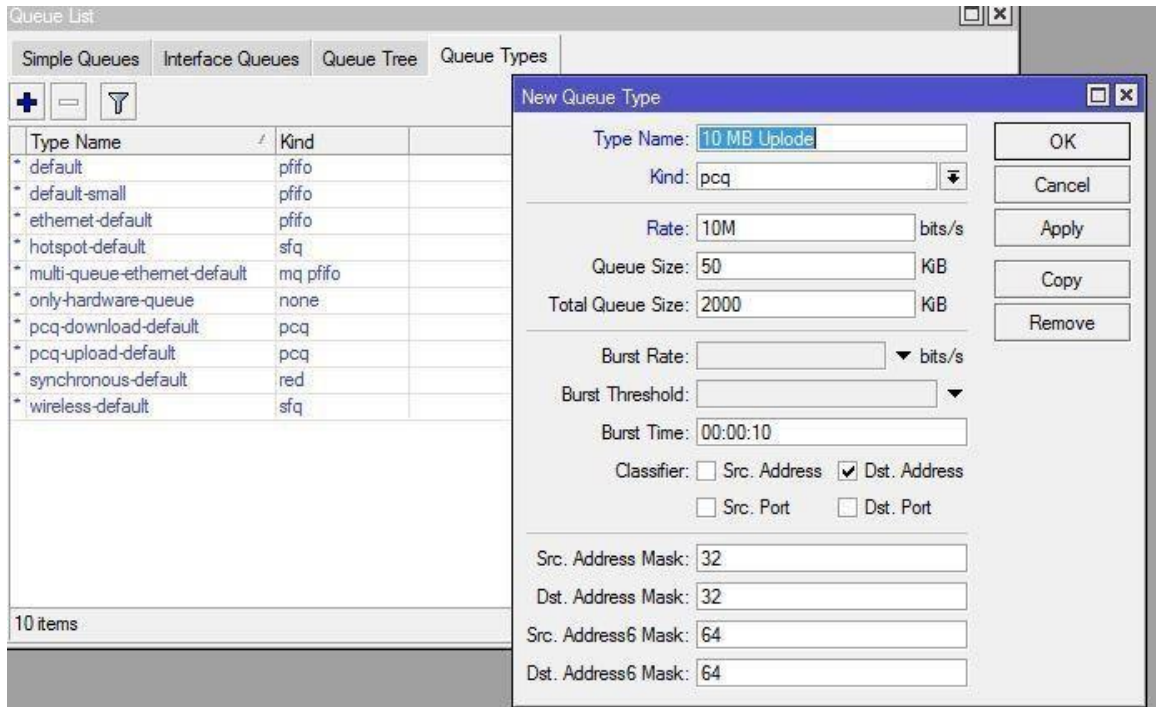


Fig 3.4.2.1 Type of queue

Queue list → Queue types → + add → name 10 MB Upload → Kind: PCQ → rate: 10M → check source address → apply → Ok

Step 8: I making a rules for download bandwidth for FB.

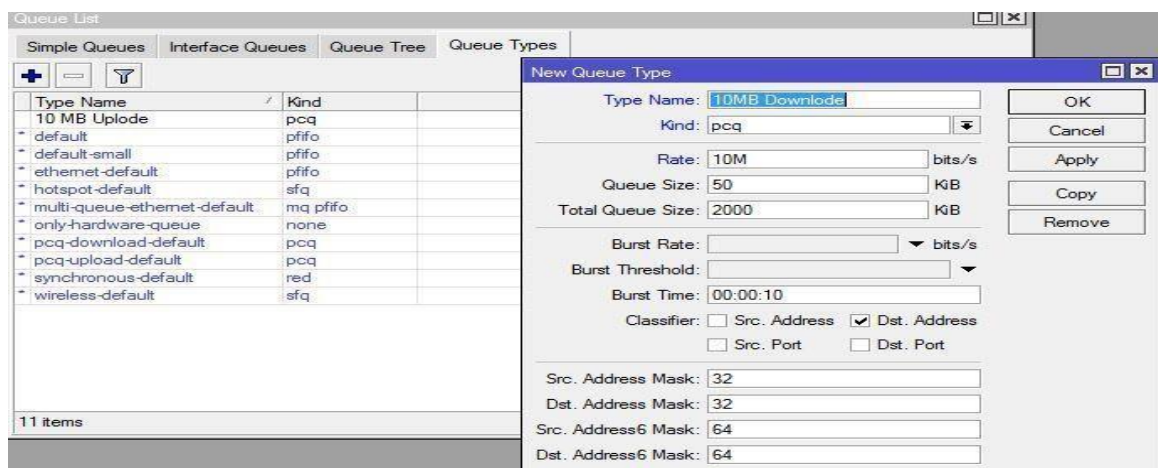


Fig 3.4.2.2 Type of queue

Queue list → Queue types → + add → name 10 MB
 Download → Kind: PCQ → rate: 10M → check destination
 address → apply → Ok

Step 9: That network are assign the policy that's IP use

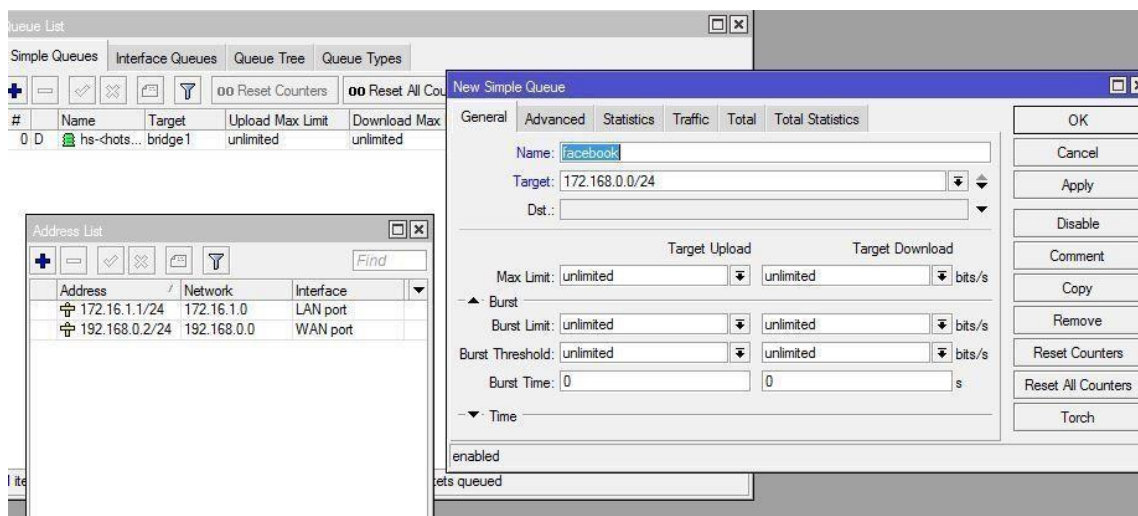


Fig 3.4.3.1 Fix Network on simple queue

Queues → general → name: Facebook → target: 172.168.0.0/24 → apply

Final Step: I make two rules before that rules are assigning & selected packet mark.

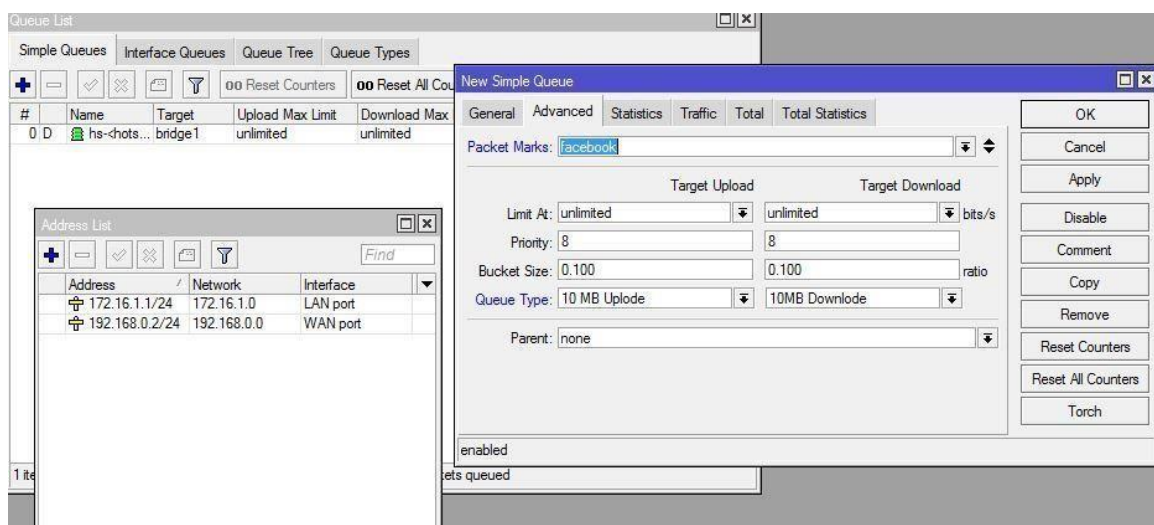


Fig 3.4.3.2 Simple Queue on fix Network

Queues → general → name: Facebook → target: 172.168.0.0/24 → advance → packet marks : Facebook → target Upload → Queue type : 10MB Upload → target Download → queue type: 10MB Download → Apply → Ok.

3.3.2 Peak & off-peak hour speed setup:

Step 1: Similar to above I making two rules for peak & off-peak hour package.

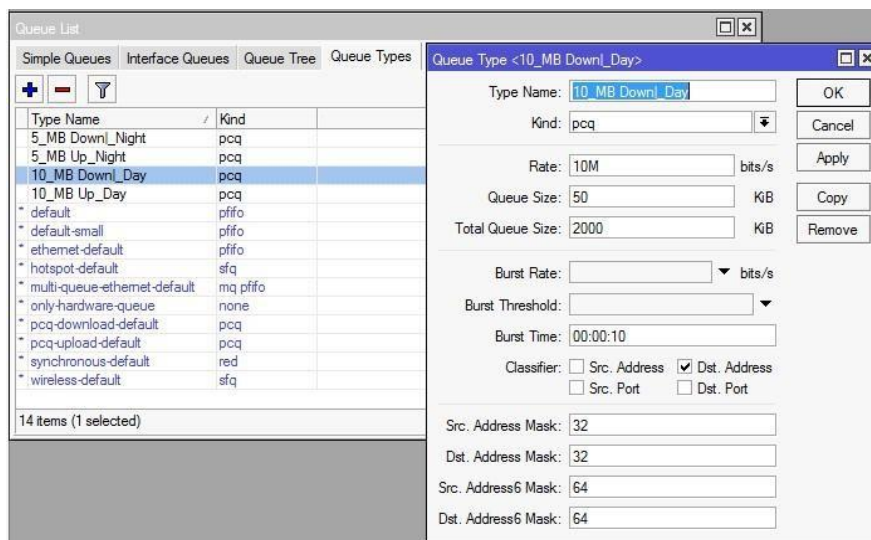


Fig 3.4.2.1: Setup peak & off-peak hour using queue

Toggle on, "Add → Queue Types → Add → Queues → Queue

Types → Add → 10 MB Down Day → is an example of a type name.

Kin:pcq → Rate: 10M → Select Dst. Address → Apply → Ok. Classifier: Select Dst. Address → Apply → Ok".

Following that, "Add → Queue Types → Add → Queues → Queue

Types → Add →

10 MB Up Day → is an example of a type name.

Kin:pcq → Rate: 10M →

Select Src. Address → Apply → OK".

Following that, "Add → Queue Types → Add → Queues → Queue

Types → Add →

5 MB Down Night → is an example of a type name.

Kin:pcq → Rate:5M → Select Dst. Address → Apply → Ok.

Classifier:Select Dst. Address → Apply → Ok ".

Following that, "Add → Queue Types → Add → Queues → Queue Types
→ Add →

5 MB Up Night → is an example of a type name.

Kin:pcq → Rate:5M →

Select Src. address → Apply → OK → Ok → Ok → Ok → Ok → Ok →

Ok → Ok → Ok → Ok → Ok ".

Step 2: I selected no time for customers will be use speed peak package.

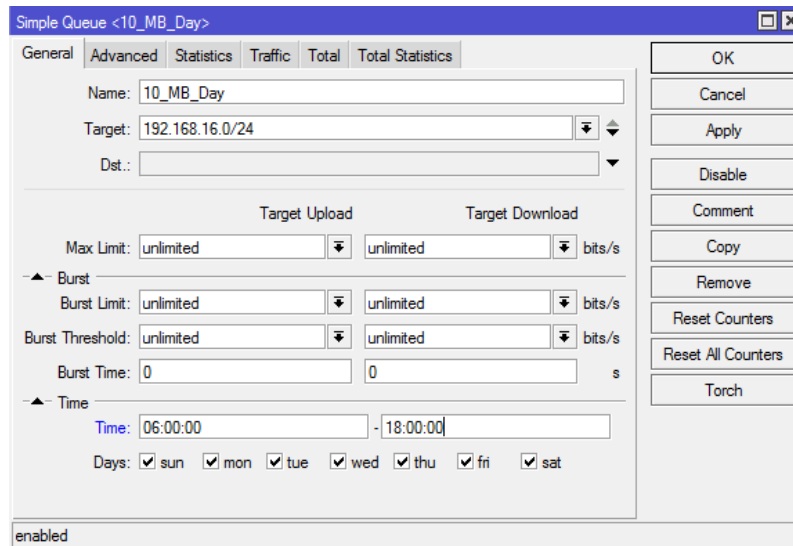


Fig 3.4.2.2: Simple Setting (Day) For This Pack

Click on, "Queues>Simple Queues>General>Name: Example:

10_MB_Day>Target:Example:192.168.16.0/24>Time>Time:06:00:00-

18:00:00>Apply>Ok"

Step 3: I selected no time for customers will be use speed off-peak package.

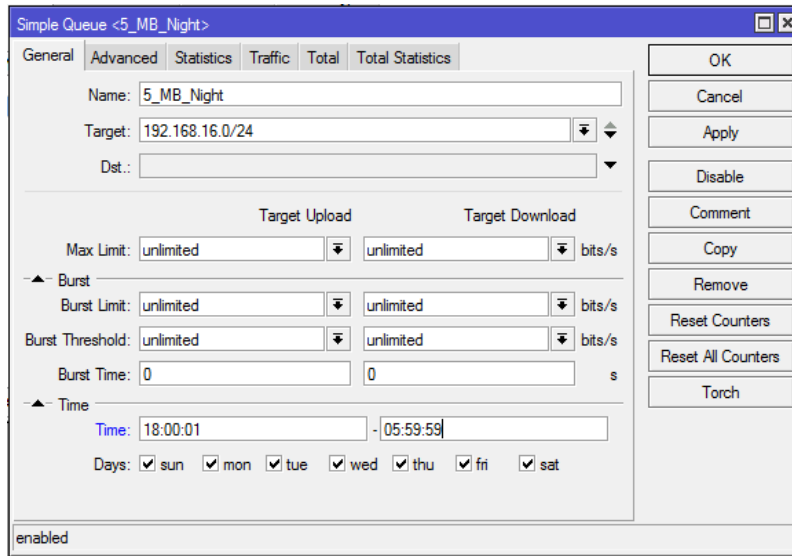


Fig 3.4.2.3: Simple Setting (off-peak) For This Pack

Click on, "Queues>Simple Queues>General>Name: Example: 5_MB_Night>Target:Example:192.168.16.0/24>Time>Time: 18:00:01-05:59:59>Apply>Ok".

Step 4: Since times up for peak package that time its package are rate.

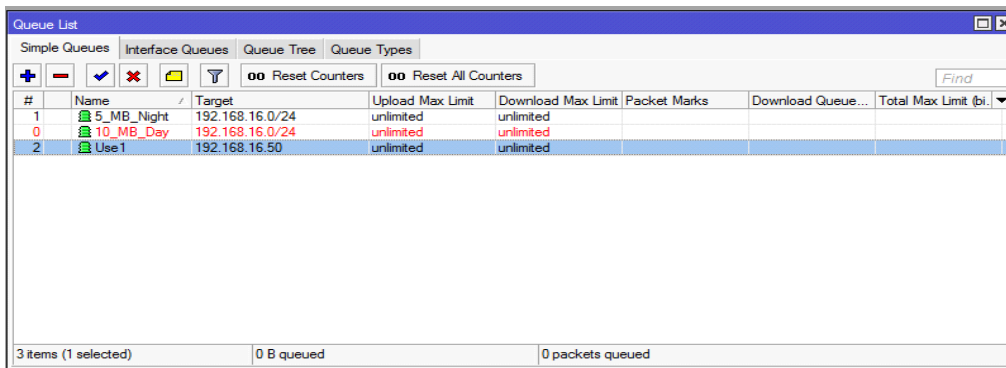


Fig 3.4.2.4: Simple Queues for This Day/Night Pack

Click on, "Queues>Simple Queues>General>Name: Example: User1>Target: Example: 192.168.16.50>>Apply>Ok".

3.3.3 MAC Binding

Step 1: Customer's able to bind MAC address. This user connects on computer & connected to Internet.

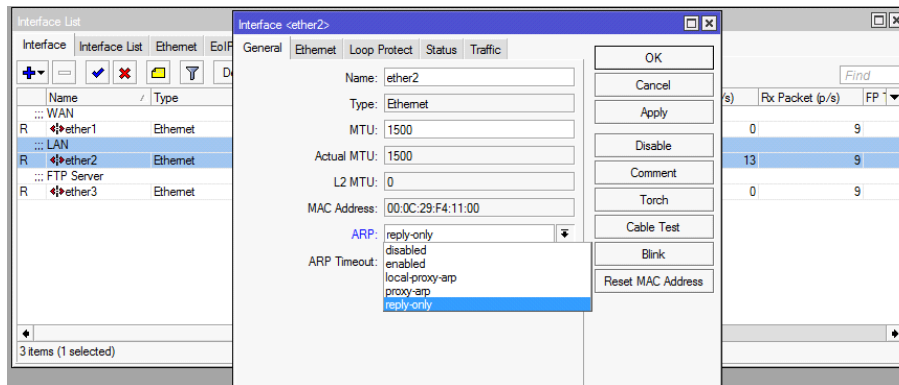


Fig 3.4.3.1: Simple settings for Interface

Click on, "Interfaces>Select ether2(LAN) And (Double click>General>ARP:reply-only>Apply>Ok".

Step 2: You can assign static IP address on network Adapter and use subnet mask and use default gateway

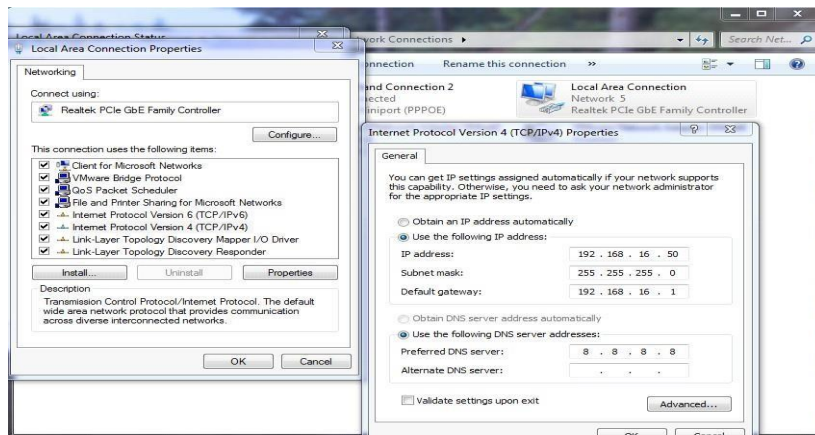


Fig 3.4.3.2: Configuration TCP/IPv4 with Internet protocol

Now connect pc with static IP click on “PC Setting>Network>Change adapter setting>Local Area Connection>Properties>IPv4=Use your static IP address, gateway, subnet mask and DNS server>Apply OK”.

Step 3: My NIC Port scan & show IP address and MAC address are connecting with local area network.

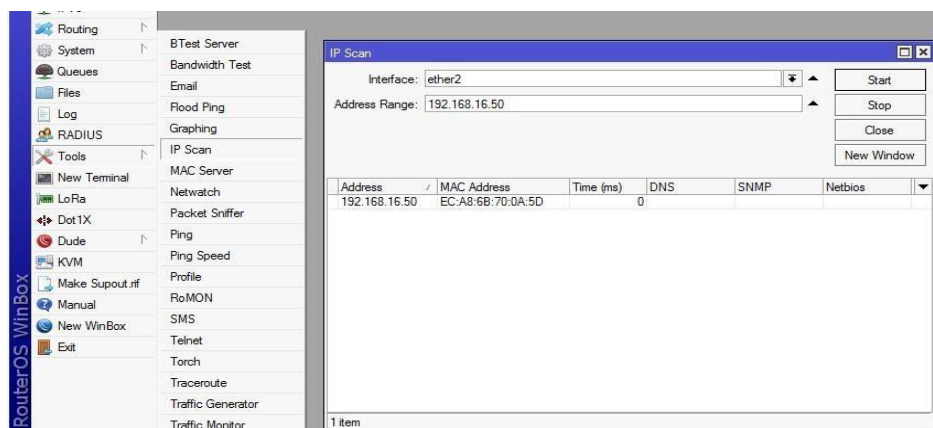


Fig 3.4.3.3: Internet Protocol Scan

Click on, "Tools>IP Scan> Interface: Select LAN Example: ether2>Address Range: 192.168.16.50>Start".

Step 4: I assign IP address for Devices.

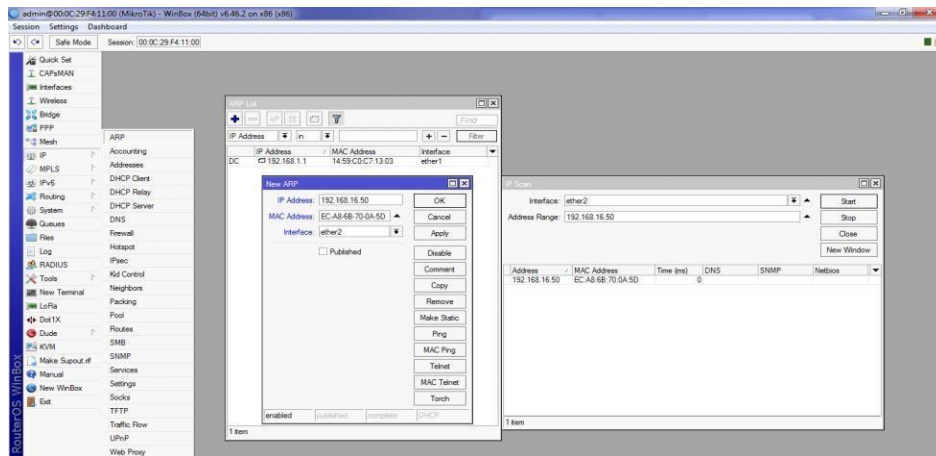


Fig 3.4.3.4: MAC Address Add

Click on, "IP>ARP>Add>IP Address: 192.168.16.50> MAC Address: EC-A8-6B-70-0A-5D>Interface: LAN Example: ether2>Apply>Ok".

3.3.3 Queue for P2P over Ethernet Server configuration:

Step 1: Here Show IP addressing list & I add my network address.

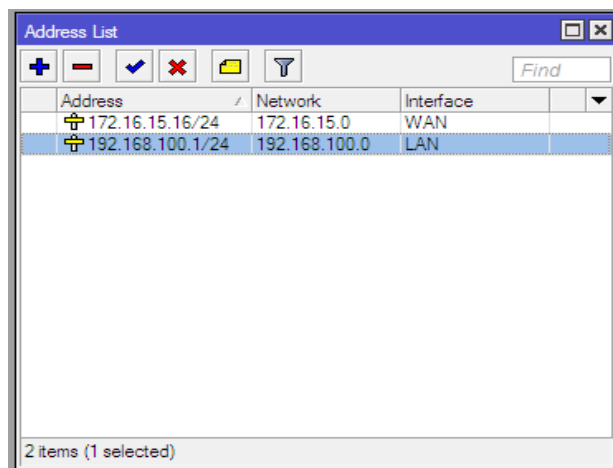


Fig 3.4.4.1: Queue for P2P over Ethernet Server

At first click on "IP>Addresses>Add>Address: Example: 192.168.100.1>Network: Example: 192.168.100.0>Interface: Example: LAN>Apply>Ok".

Step 2: Now, create PPPOE server and select on LAN Interface.

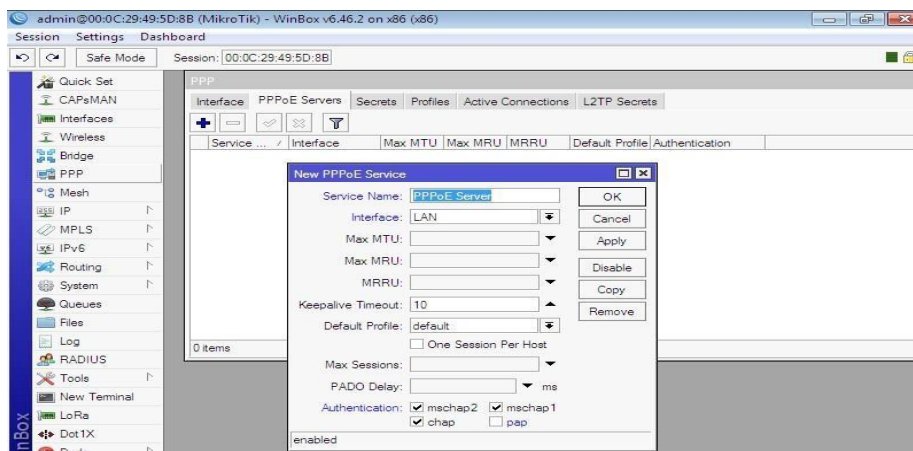


Fig 3.4.4.2: Queue for point to Point over Ethernet Server

Now, Click on: "PPP>PPPoE Server>Add>Server Name: Example: PPPoE Server>Interface>LAN>Apply>Ok".

Step 3: Now I am creating 5MB pack & this pack is give on IP range.

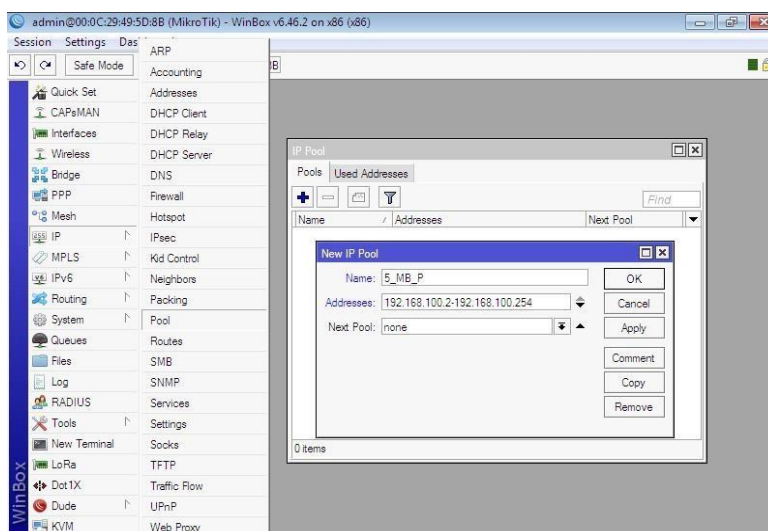


Fig 3.4.4.3: Internet Protocol Pool ConFig for Queue for point to Point over Ethernet Server

Click on "IP>Pool>Add>Name: Example: 5_MB_P>Address: Example: 192.168.100.2-192.168.100.254>Apply>Ok".

Step 4: I am make pack on 5 MB.

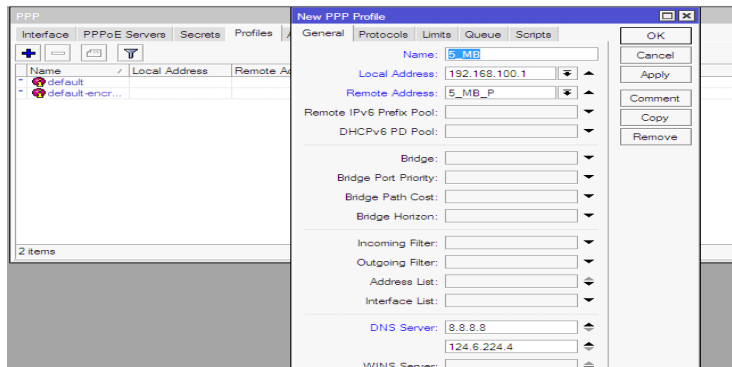


Fig 3.4.5.4: Queue for P2P pack

Click on, "PPP>Profiles>General>Name: Example:5_MB>Local Address: Example:192.168.100.1>Remote Address: Example:5_MB_P>DNS Server: Example:8.8.8.8 and 124.6.224.4>Apply>Ok".

Step 5: At present I make credential.

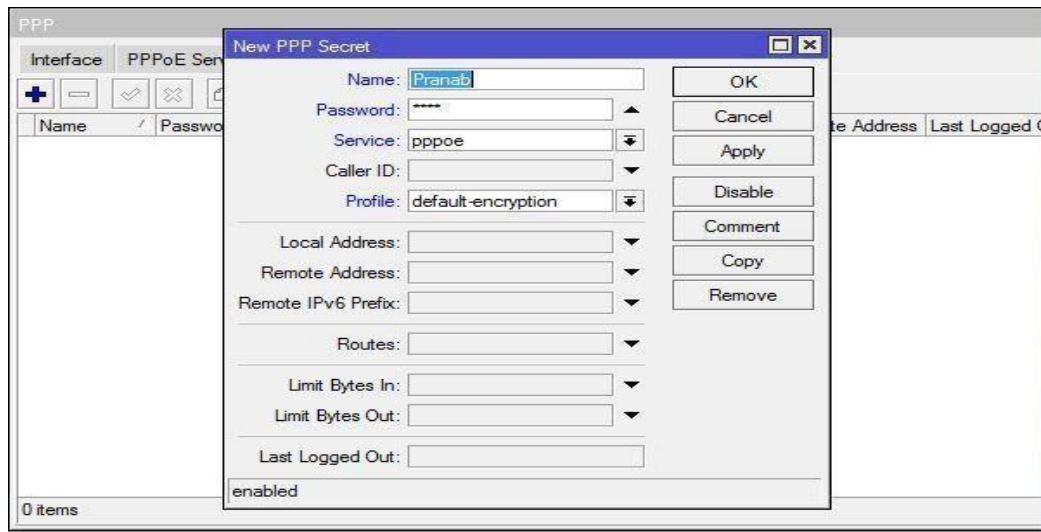


Fig 3.4.5.5: Queue for P2P secret

Next on, "PPP>Secrets>Name: Example: pranab >Password: Example: 12345>Service: pppoe>Profile: 5_MB>Apply>Ok".

Step 6: Similar to above I make PCQ Queues for 5 MB upload

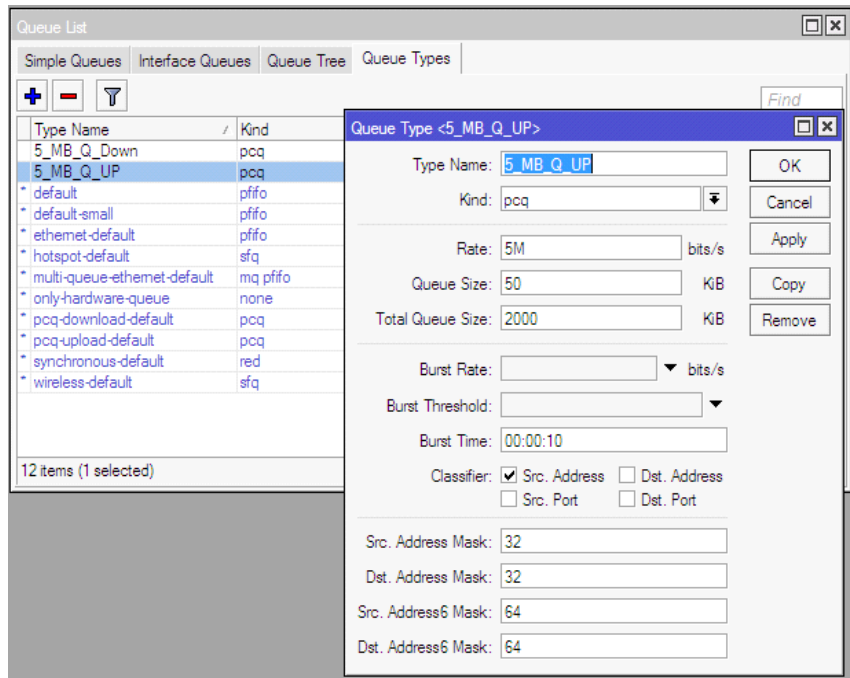


Fig 3.4.5.6: Configure the PCQ rules

Click on, "Queues>Queue Types>Add>Type Name: Example: 5_MB_Q_UP>Kind: pcq>Rate>5M>Classifier: Select Src. Address>Apply>Ok.

Again Add>Add>Type Name: Example: 5_MB_Q_UP>Kind:pcq>Rate>5M>Classifier: Select Dst. Address>Apply>Ok."

Step 7: Now I declare Pack Name

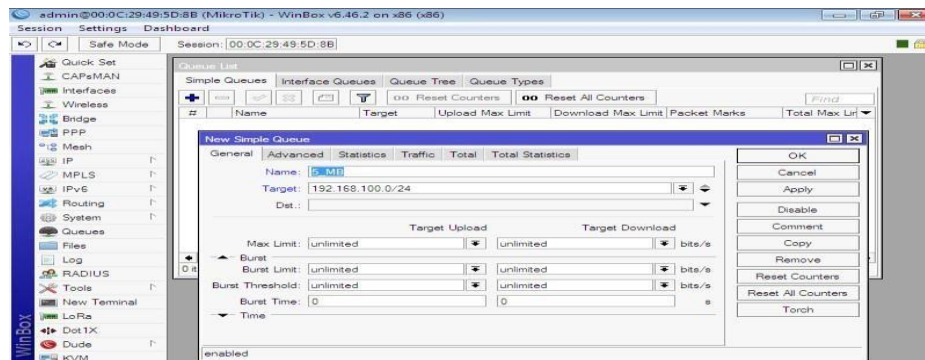


Fig 3.4.5.7 Type of Queue for P2P over ethernet

Click on, "Queues>Simple Queues>General>Add>Name: Example:5_MB>Target:
Example:192.168.100.0/24>Advanced>Queue
Type:5_MB_Q_UP/5_MB_Q_DOWN>Apply>Ok."

Final Step: Here I make targeted upload & download bandwidth

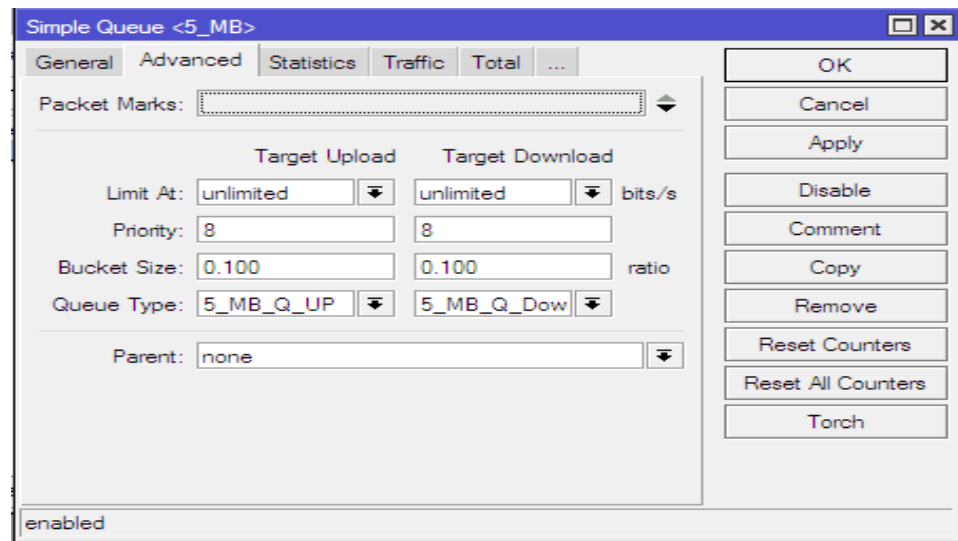


Fig 3.4.5.8 Queue Type for Queue for point to Point over Ethernet Server

Next, "Queues>Simple Queues>Advanced>Queue Type: 5_MB_Q_UP/
5_MB_Q_Down >Apply>Ok".

CHAPTER 4

CONCLUSION AND DISCUSSION

4.1 Conclusion and Discussion

It temporary profession plans to build data and abilities to make Internet Service Provider courses of action & give network access. MikroTik gives a complete outline of a trustworthy, constant, & useful association. Most associations today are incredibly subject to their work on the web. It is unfathomable to hope to oversee organization without a genuine authoritative arrangement. Associations interface totally with their associations and accomplish the Association's objectives. Subsequently, network arranging is something that an association's planners ought to know about. Mikrotik is a minimal expense switch that can be utilized for both little and enormous scope associations. It's a Huge Success through Access through Box accordingly; Mikrotik switches might be effortlessly made due. Give the association a significant degree of safety. Mikrotik can give mind blowing remote access. The board is a point and web middle person specialist. We really want to Fig out how to utilize the fundamental association plan and, specifically, how to utilize the Temporary position.

4.2 Future Career and Scope

If Assuming I don't have any related knowledge, disclosure business can be a critical issue. An effective temporary job can help me in transforming my work opportunity into a learning opportunity.

- Configuration and upkeep of an FTP and DNS server for use in our daily lives.
- To be able to work on the ISP platform.
- To enter the workplace as a network administrator.
- To work for an IT firm.
- To be an expert in computer networks.
- To work as a system administrator
- To be a manager of Information Technology (IT).
- Able to provide Technical Assistance.
- IT Job at a Bank

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