

A STUDY OF BASIC NETWORKING 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

APPROVAL

This Internship report titled “A Study of Basic Networking with Mikrotik Router Configuration” submitted by “Ummay Salma Sumi” 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 08-07-2020.

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DECLARATION

I hereby declare that this internship report is prepared by me **Ummay Salma Sumi**, ID No: **152-15-6300** to the Department of Computer Science and Engineering, Daffodil International University, under my honourable Supervision **Saiful Islam, Senior Lecturer, Department of CSE**, and Daffodil International University. I also declare that I collect information from my internship organization Prisma Digital Network Limited based Corporation, Books, Internet and my friends also.

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

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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

This internship is on a study of basic networking with Mikrotik Router configuration. I am mainly working Mikrotik OS base. Mikrotick has been established in 1996. This router mainly using easy for bandwidth management. Actually a Mikrotik Router cost-efficient and easy access that can be used for small and big network management. Our Internet Service Provider (ISP) Company especially uses Mikrotik Router in this sector. These functions include IP addressing, IP distribution, Firewall, Nat, Routing, Bandwidth control, Point to Point Tunneling Protocol (PPTP), Domain Name System (DNS) server, Dynamic Host Configuration Protocol (DHCP) server, File Transfer Protocol (FTP) server, Point to Point Protocol Over Ethernet (PPPoE), Hotspot and many other features. In this sector we are using Cisco router, Cabling and Linux operating system etc. Now today all over the world using the internet in our daily life. A network provides the internet service computer to computer and other networking devices. So, Networking is so much important fact right now. Now this day using internet on E-Commerce web site, Software base application, Robotic, Internet of things (IoT), in our daily life. Its use is increasing day by day. They provide various advantages, For example- instant messaging, Parallel computing, Video conference, Interaction with other users using dynamic web pages, Sharing information by using the internet or web.

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CHAPTER 1

INTRODUCTION

1.1 Introductions

This is a time you can any resource search through the Internet all over the world. Nowadays a large number of people all over the world use internet technology and the server is a part and parcel. We cannot do anything for internet communication without server. That's why DHCP and DNS server is very important for internet technology. Now this day presently working with the small or big organization, Bank service, Etc. Through the software to connect to internet connectivity. Bank service mostly effects on the internet example Short Message Service (SMS) banking online banking debit card service credit service and also. When any organization use the internet at that time you can easily communicate and easy maintain. This report is about PC networking server configure server security Mikrotik Router OS base, Firewall, Bandwidth control, Backhauls Link, Wireless access point, Hotspot gateway and moreover.

1.2 Motivation

I understand the importance of gaining practical knowledge which will complement the textbook knowledge and help a student gain a wider perspective of the subjects. During the internship I have found that I am perfectly skilled in the details of basic networking and MikroTik. I thing Mikrotik operating system is very easy user use and when you use the ISP company that time you easily manage user and easily control bandwidth. I agree with this place is very perspective and important because we have communicated all places proper now. I think that I can successfully prove my experience with the help of

IST ENGINEERING LTD

1.3 Objectives

The main objective of high Education to gather knowledge. I am Choose an Internship on Networking because this day a large amount of job all over the world and I gain practically Experience. I try my level best to present my practical knowledge as well as. Mikrotik Router plays a role in a data center because in Mikrotik Router management bandwidth control is very easy. That's why I have select this topic for an internship.

- Install Mikrotik operating system
- Configure ISP server
- Maintain Bandwidth Control use Mikrotik
- Maintain user

1.4 Report layout

The report is as follows:

Chapter-1 I have described of internship, Motivation of internship and introduction to the company. Chapter-2 I have described the on the IT service and what are the roles of in jobs market of Mikrotik. Chapter-3 I have described on daly task and activities, Events and challenges. Chapter-4 I have described detail on the competencies, smart plan and reflections. Chapter-5 I have described on the conclusion and future scope.

CHAPTER 2

ORGANIZATION

2.1 Introduction:

The IST ENGINEERING LTD one of the best Company in Bangladesh. The company provides internet service and solution since 2016.

IST ENGINEERING LTD is an IT Support team where you will find complete IT solutions or Wire & WiFi Networking Solution, Domain Web Hosting, MikroTik Configure, Cisco R & S Configure, FTP/File/Media/Apache Server Configure, Graphic Design, Web Design. IST ENGINEERING LTD also providing you Bandwidth & System Configuration Service in your area. If you start ISP Business don't worry IST ENGINEERING LTD here to provide Bandwidth & System Configuration. Available in all kinds of information on no information charge

2.2 Services:

IST ENGINEERING LTD. 24 hours of high-speed data service through the internet. Mostly it offers high-speed Internet service to residential and corporate customer.

- Network Installation.
- Protected Ring Network.
- Manage Hosting.
- Multiple Upstream.
- IT Support.
- Corporate level Internet Solution.
- CC Camera

2.3 Company Profile

Register Head Office

IST ENGINEERING LTD

House# 292, Ulon Road, West Rampura, Dhaka-1219

info@istengineeringltd.com, <https://istengineeringltd.com>

CHAPTER 3

Internship Roles & Responsibilities

3.1 Daily Task and Activities:

● Month - 1: In the first month of my internship at Prisma Digital Network Limited I have learned and performed the following tasks:

- About IP address.
- Introduction of MikroTik.
- PC based Installation of MikroTik Router OS using
- VMware. MikroTik Router Configuration.
- How to configure your LAN Network.

● Month - 2: In this month I have learned and performed the following tasks:

- Firewall and NAT Configuration.
- Static-IP Configuration.
- (DHCP) Dynamic Routing Configuration.

● Month – 3: In this month of I have learned and performed the following tasks:

- Site Blocking Configuration.
- Bandwidth Distribution With Live Users.
- Day/Night Bandwidth Configure.
- HotsPot Configuration.
- PPPoE Server Configuration in MikroTik Router.

3.3.1 About IP address

IP mining internet protocol, Network has interpreted an IP address in two components: Community and host range part. The IP address is 4 octets and is octet is eight-bit that's mines IP address are total bit 32. A class IP address is 1 octet are network and 3 octets is host. B class 2 octets are network and 2 octets are host. C class 3 octets are network and 1 octet is host and D, E. Class is multicast.

3.3.2 Introduction of MikroTik

MikroTik is a network-based equipment manufacturing company. MikroTik was founded by Latvia in 1996 to develop ISP System with Router & Wireless Devices.

3.3.3 PC based Installation of MikroTik Router OS using VMware

Requirement Items:

- VMware Workstation Application.
- Mikro-Tik Router OS ISO image file.
- Winbox.

Now, I show the Install Guideline Step by Step:

Step 1: At first install VMware application and open it, then click on File>New
Virtual Machine and Next>Next>ok.



Figure 3.3.3.1: Virtual Machine Wizard

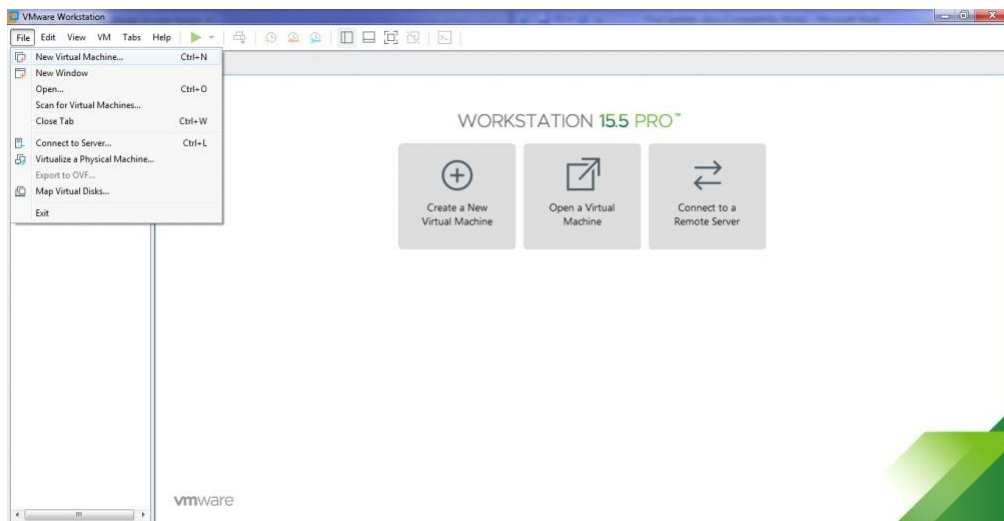


Figure 3.3.3.2: VMware Workstation

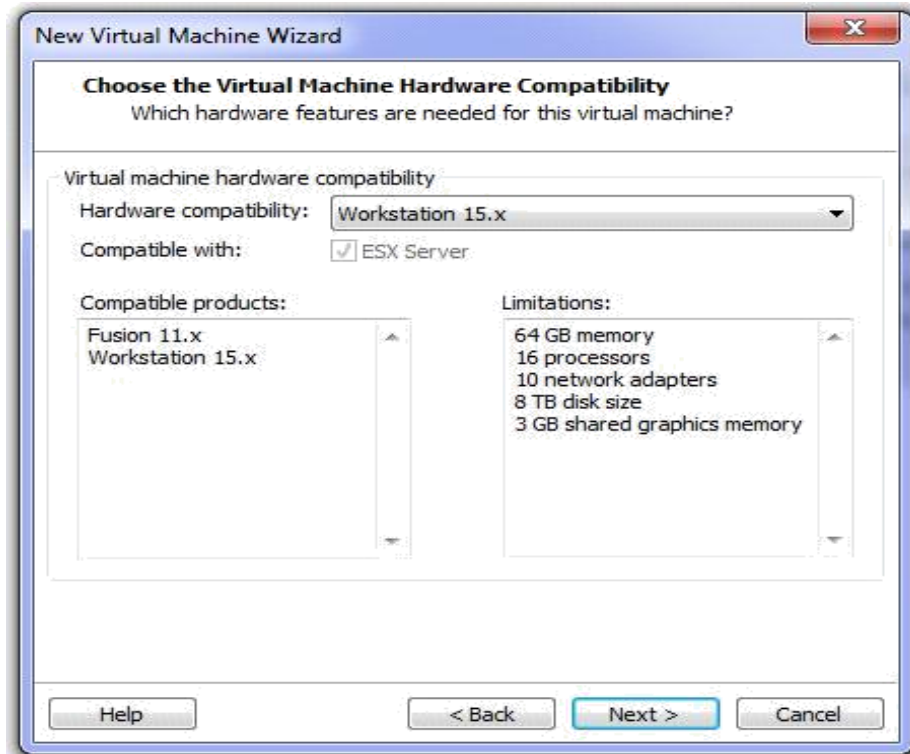


Figure 3.3.3.3: Virtual Machine Hardware Compatibility

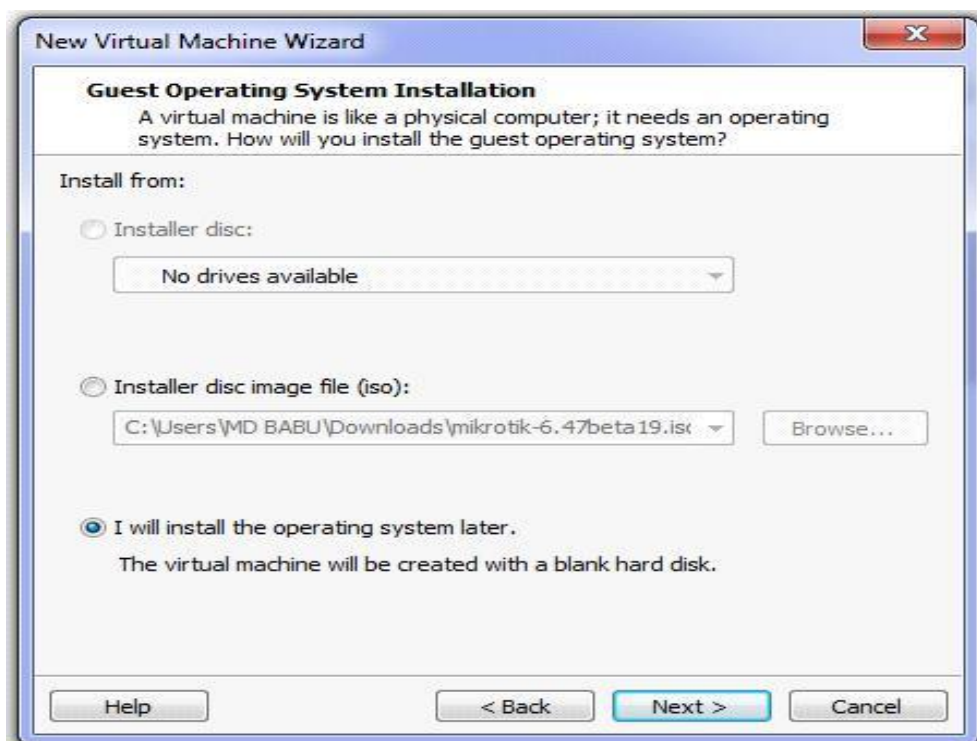


Figure 3.3.3.4: Guest Operating System Installation

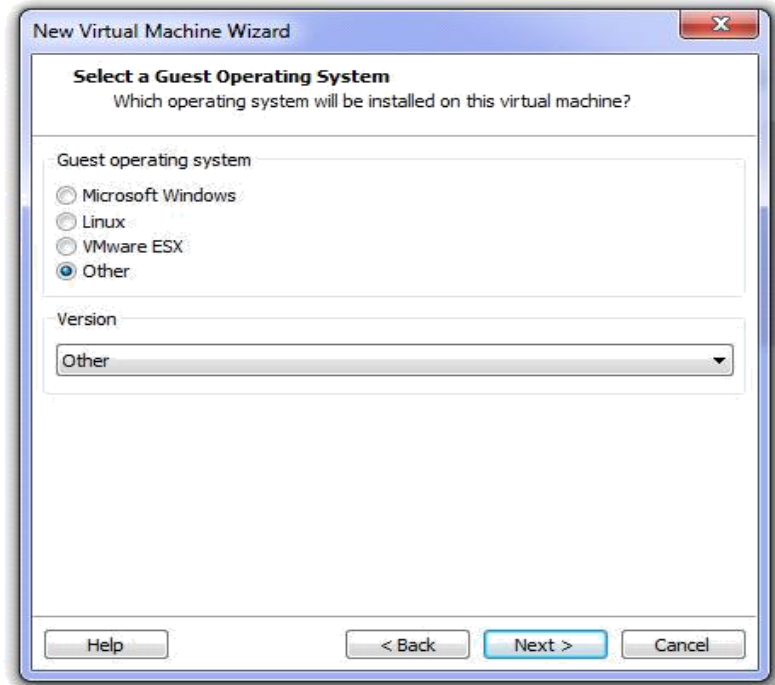


Figure 3.3.3.5: Select a Guest Operating System

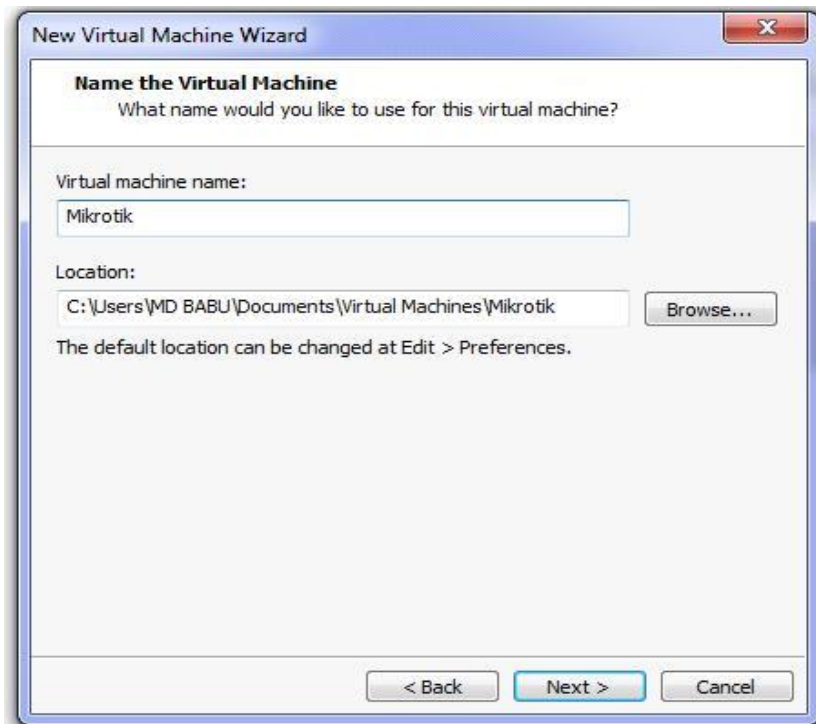


Figure 3.3.3.6: Name The Virtual Machine

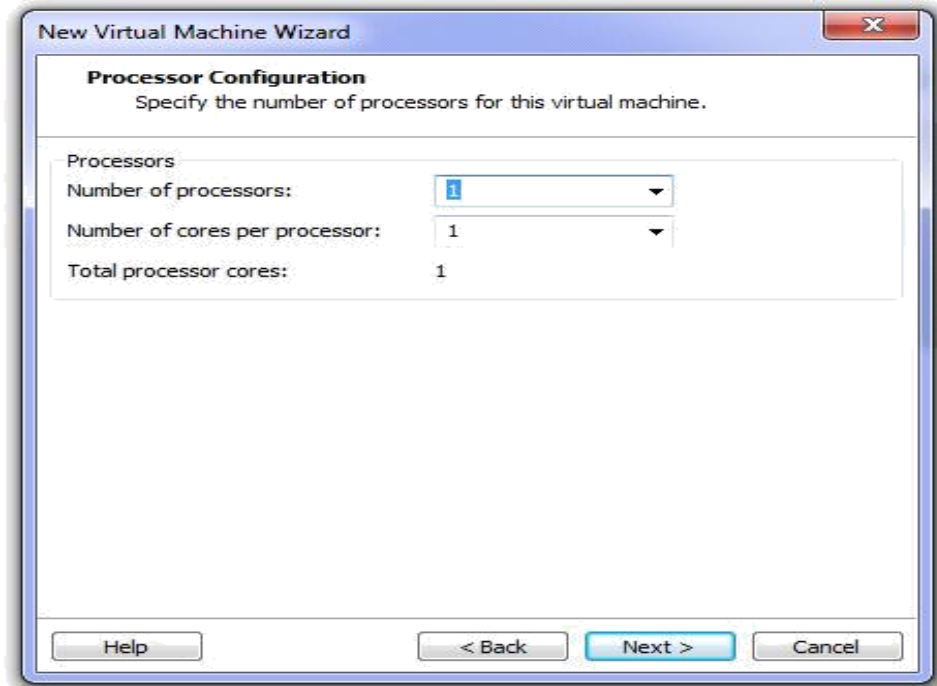


Figure 3.3.3.7: Processor Configuration

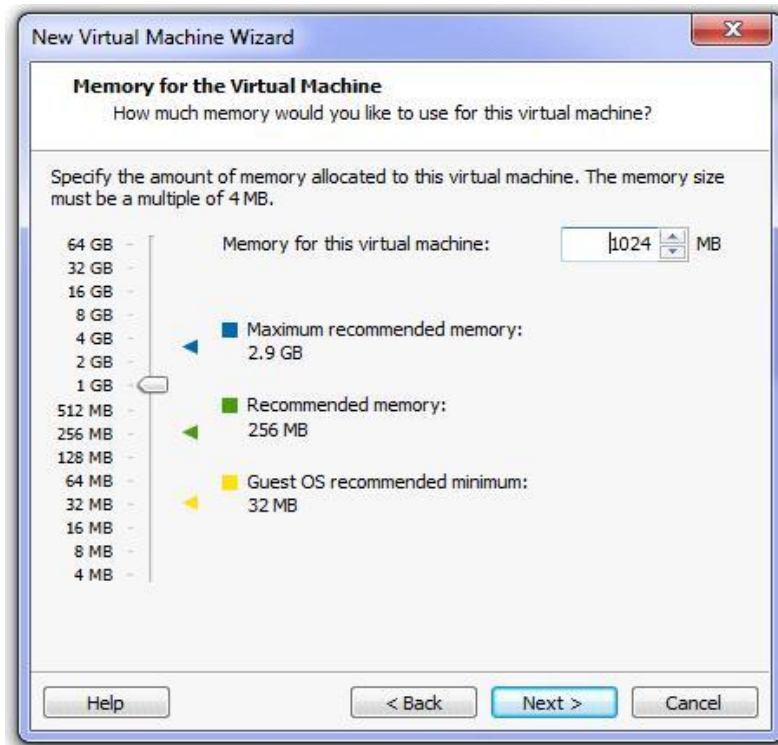


Figure 3.3.3.8: Memory for the Virtual Machine

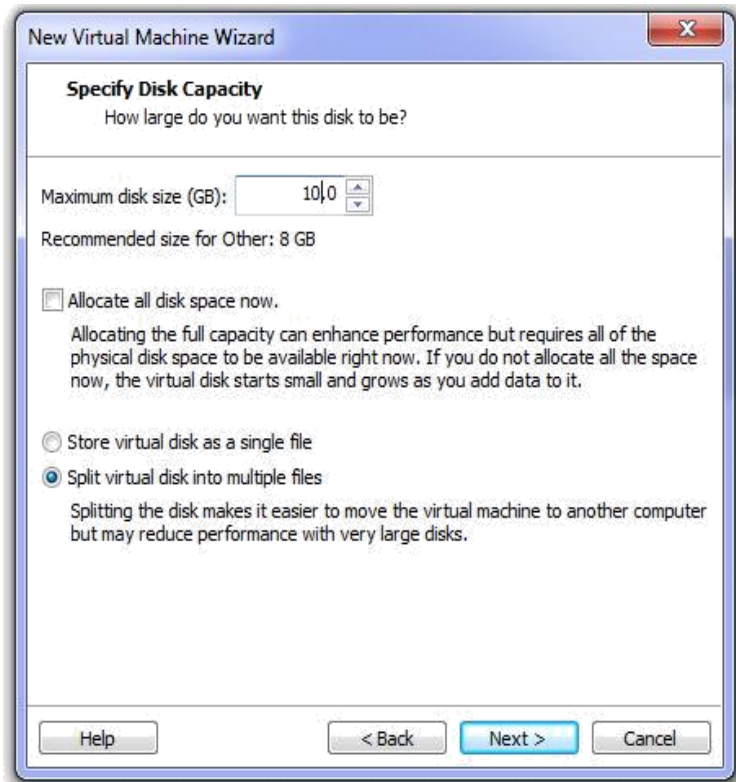


Figure 3.3.3.9: Specify Disk Capacity

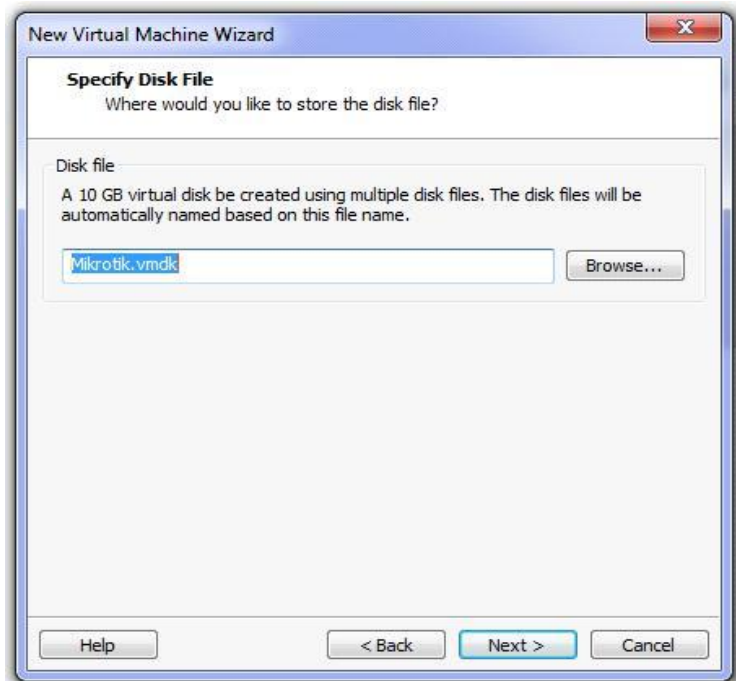


Figure 3.3.3.1.1: Specify Disk File

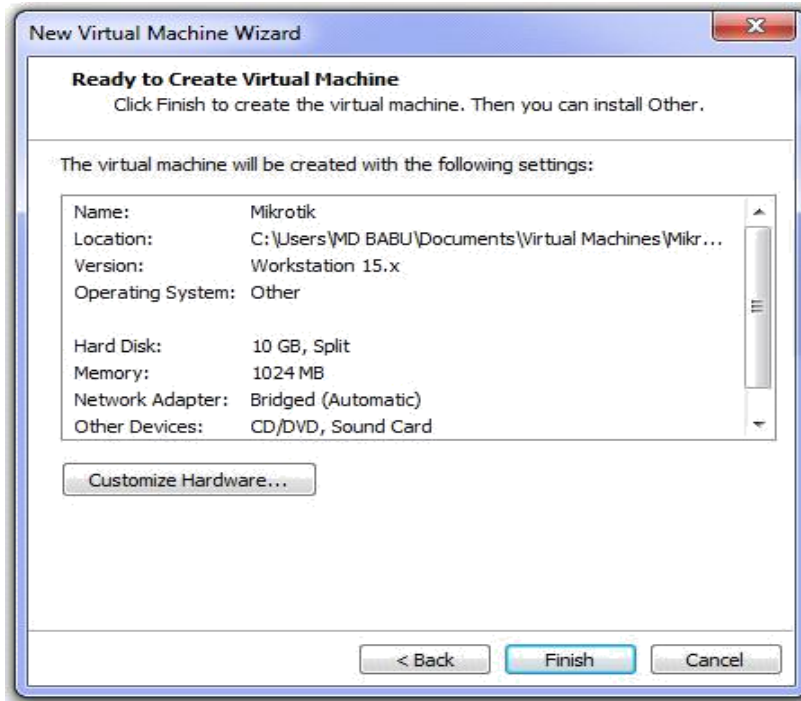


Figure 3.3.3.1.2: Ready to Create Virtual Machine

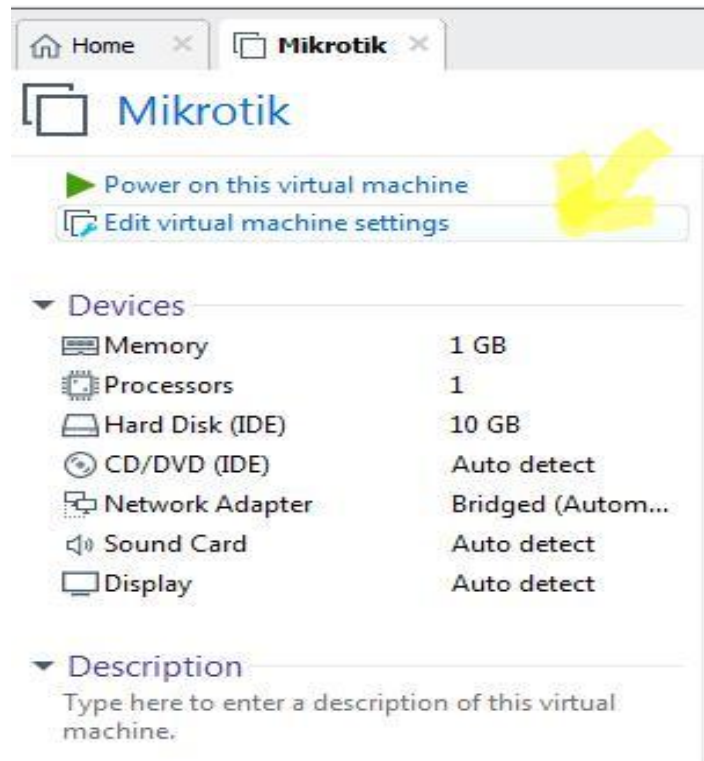


Figure 3.3.3.1.3: Edit Virtual Machine Settings

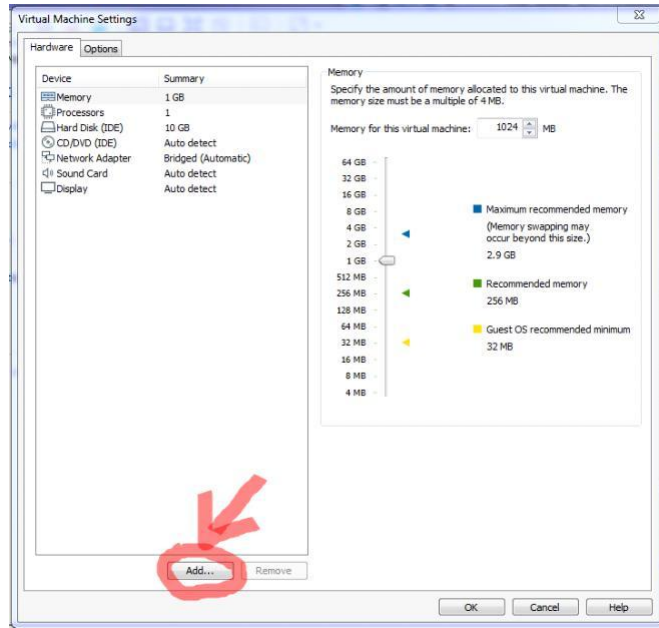


Figure 3.3.3.1.4: Virtual Machine Hardware List

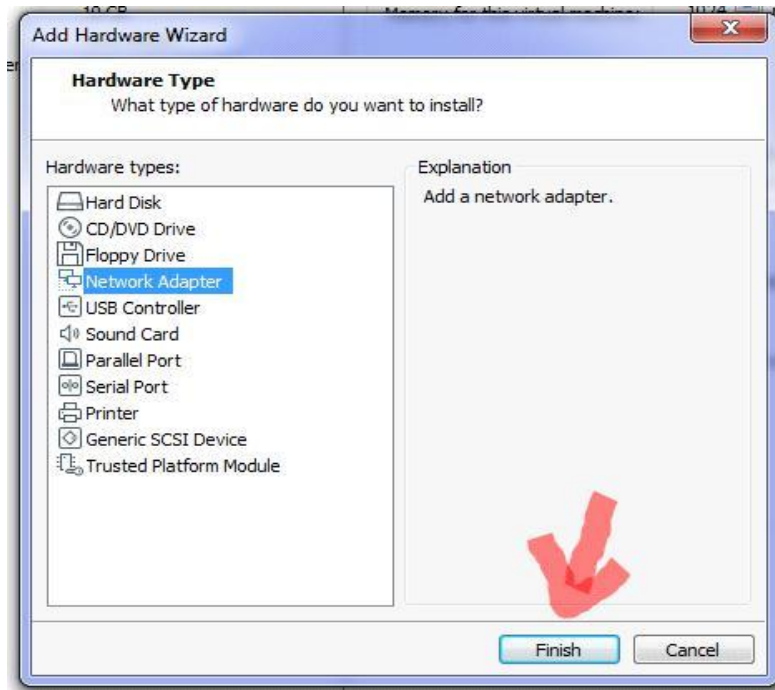


Figure 3.3.3.1.5: Hardware Types

Step 2:

Now select on the Installer disk image file (ISO) and choose the ISO image file and then click on Next. After that create a virtual machine name and also choose a location where the machine is Install, then click next. Now configure the Hardware requirement how we have need.

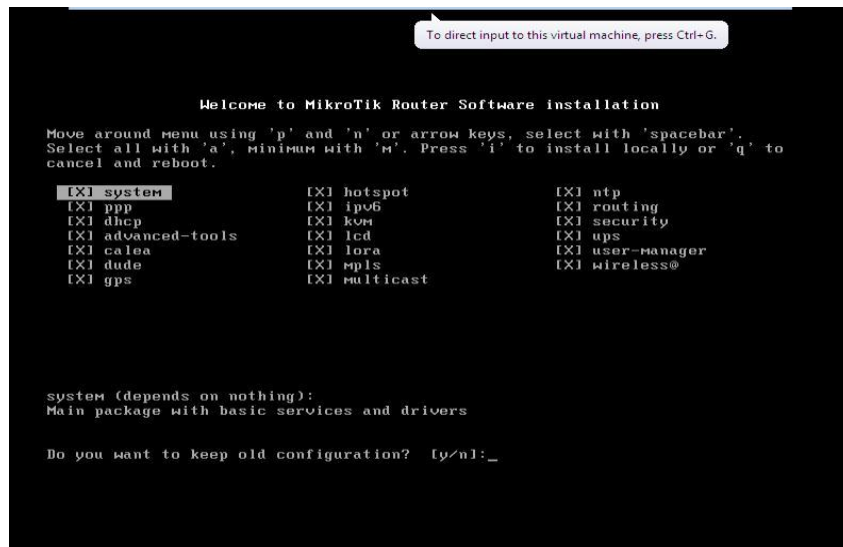


Figure 3.3.3.3: MikroTik OS Installation

3.3.4 MikroTik Router Configuration:

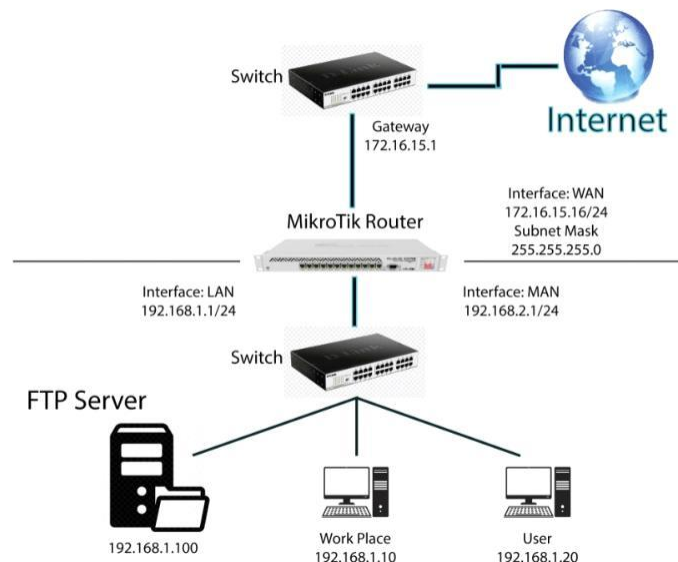


Figure 3.3.4.1: Network Topology of MikroTik

At first download WinBox and router OS ISO image file, in VMware and run WinBox, now click on the Mac address window and do not need to give user Password. after that install router OS type “admin” in the login window

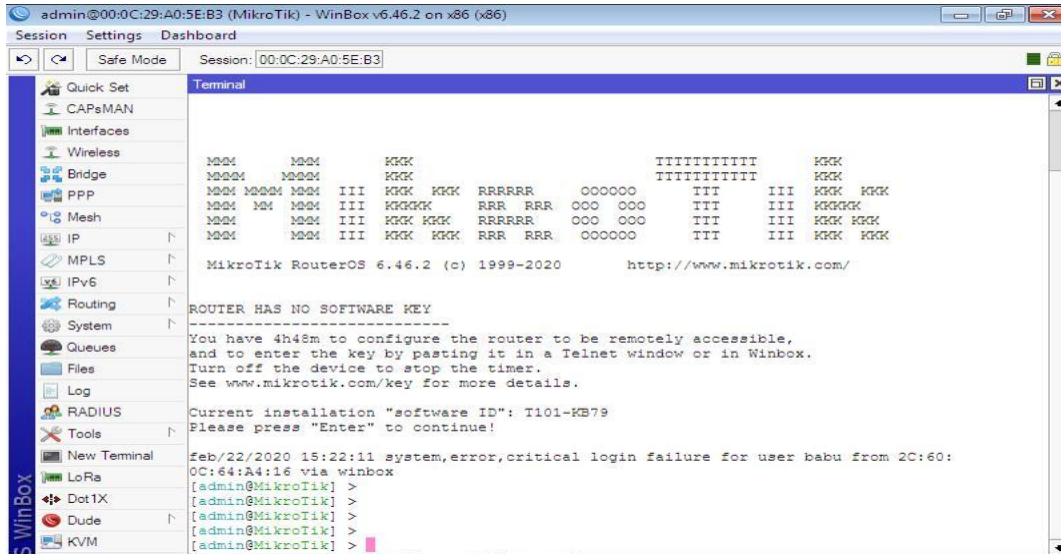


Figure 3.3.4.2: WinBox Terminal

3.3.5 Static-IP Configuration in MikroTik Router:

At first Click on, Interfaces>define our port > LAN, MAN, WAN.

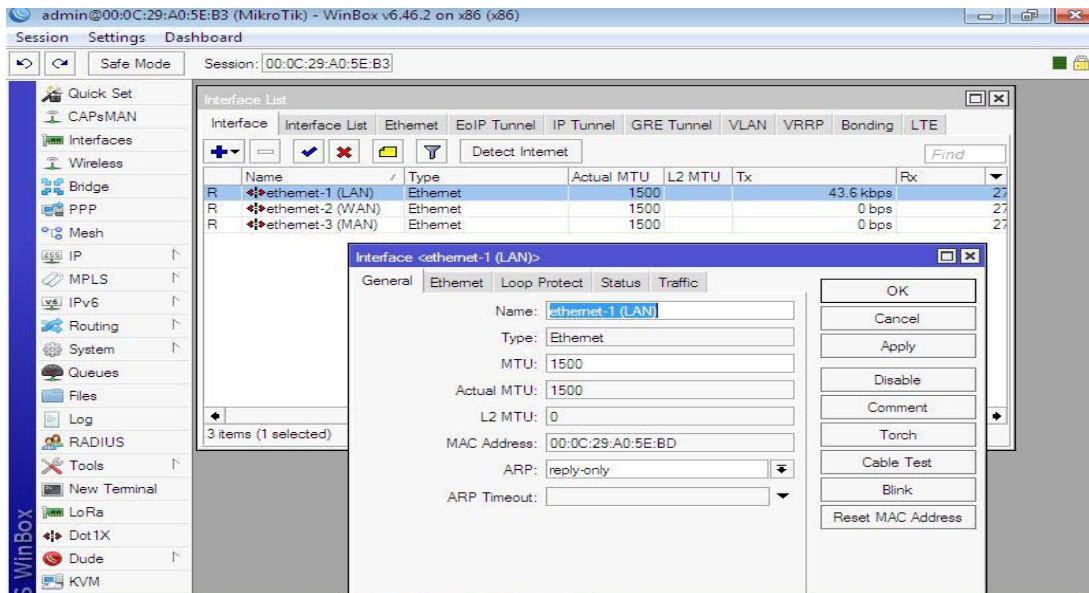


Figure 3.3.5.1: Interface

Now, click on “IP>Address>Add IP on Address and Network>Apply OK”.

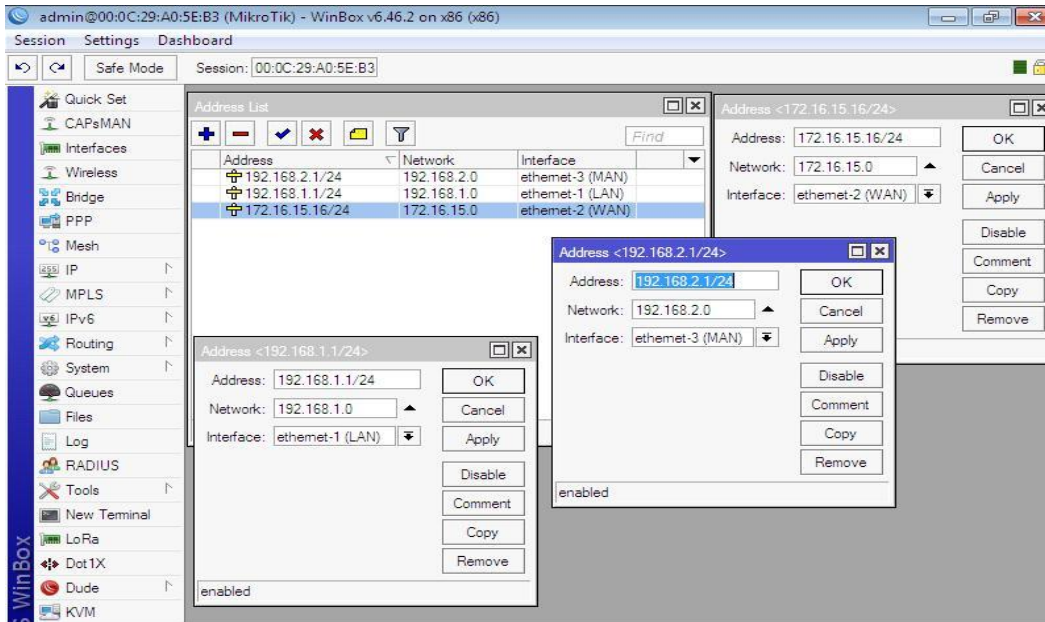


Figure 3.3.5.2: IP Addressing

Next, click “IP>DNS>Add Server IP address>Apply OK”.

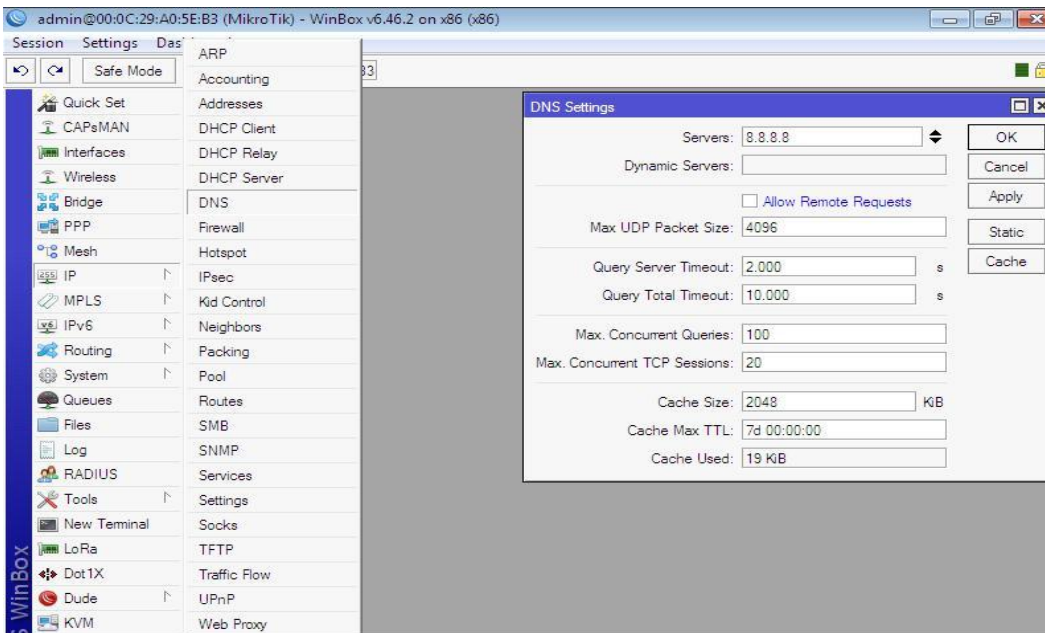


Figure 3.3.5.3: DNS Server

After that click on “IP>Firewall>NAT>Add+>General>Chain: srcnat> Out. Interface: ethernet-2 (WAN)>Apply OK”.

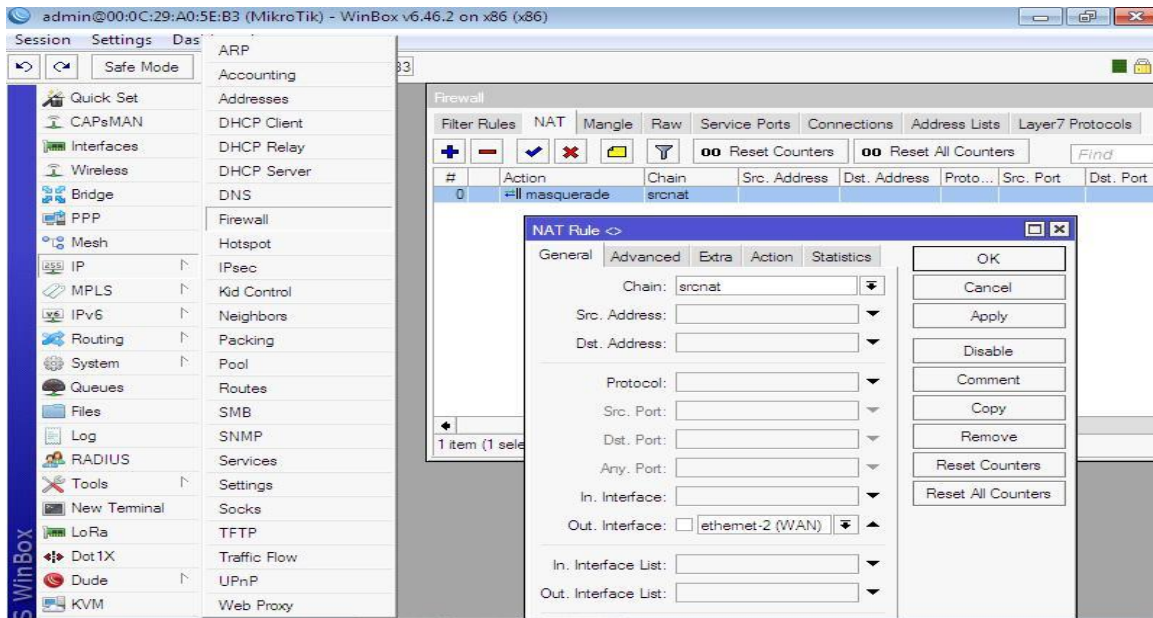


Figure 3.3.5.4: Firewall

Next, click on “IP>Firewall>NAT>Add+>Action>Select=masquerade>Apply Ok”.

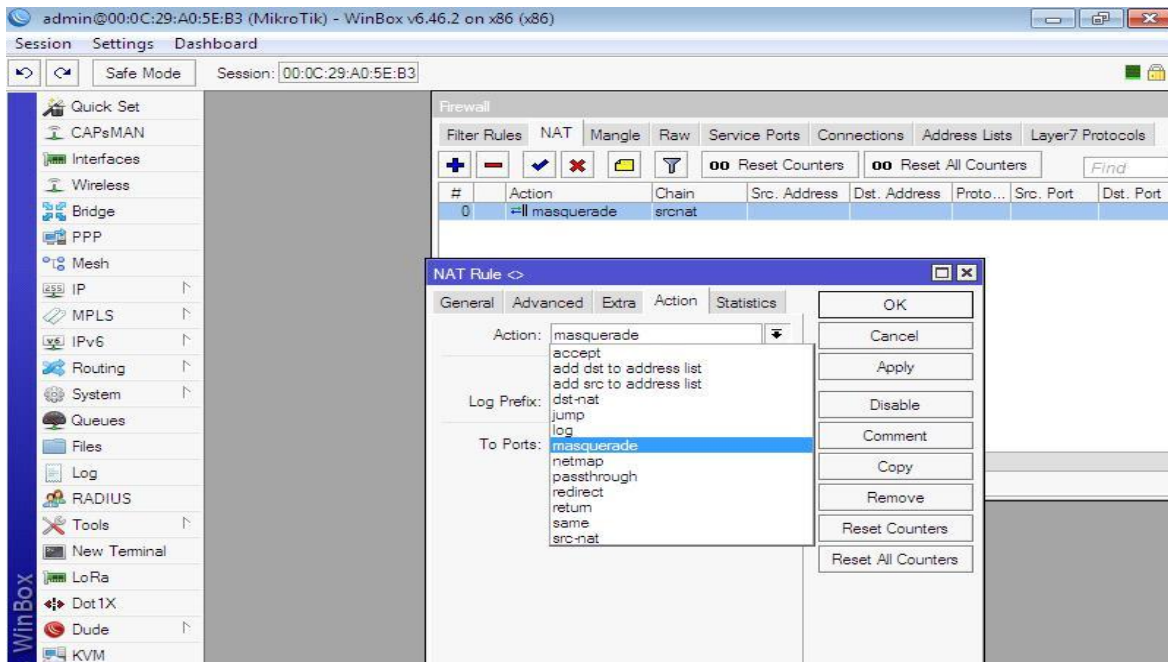


Figure 3.3.5.5: Firewall of Action

Now click “IP>Routes>Routes>Add+>General>Dst. Address + Gateway>Apply OK”.

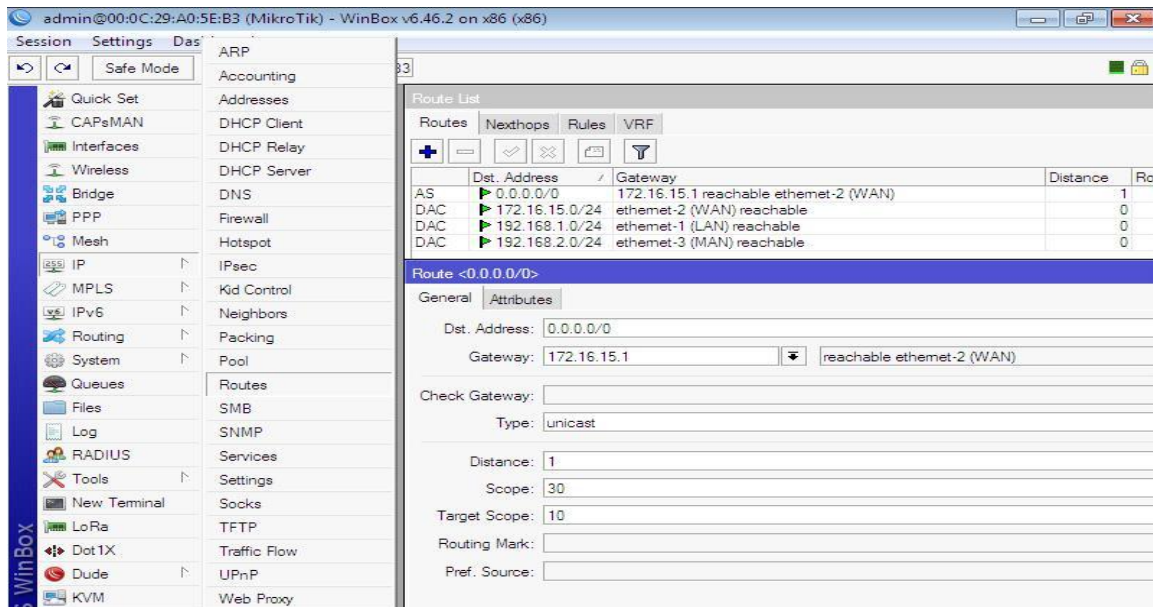


Figure 3.3.5.5: IP Routing

After process are complete then check the instruction by “New Terminal>Terminal=ping (Gateway IP)>OK”.

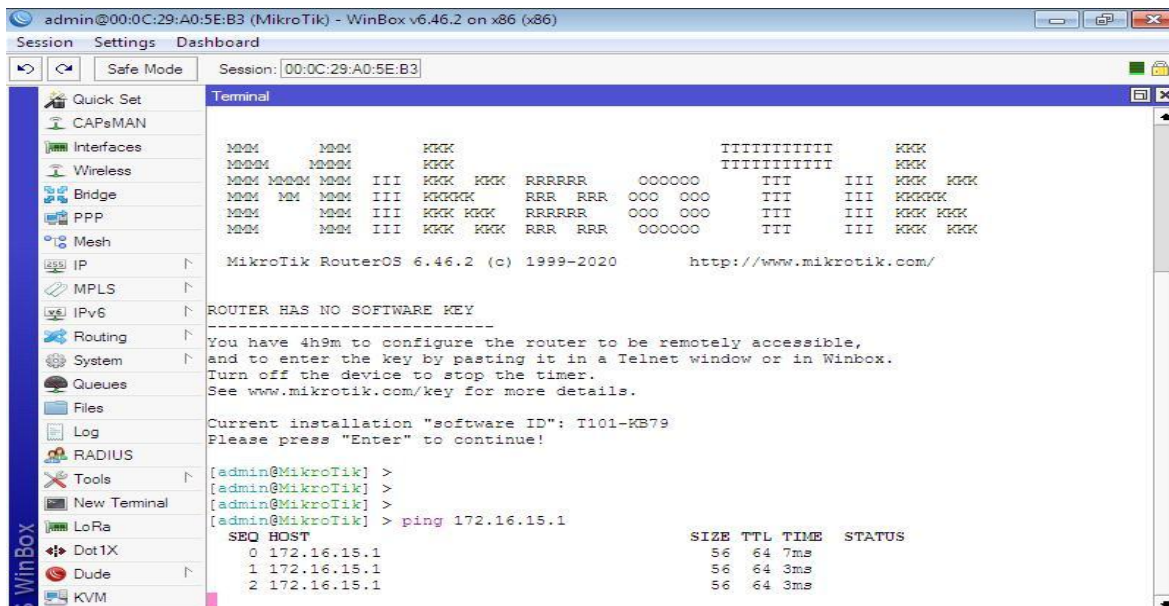


Figure 3.3.5.6: IP Ping

Final Step, now connects 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”.

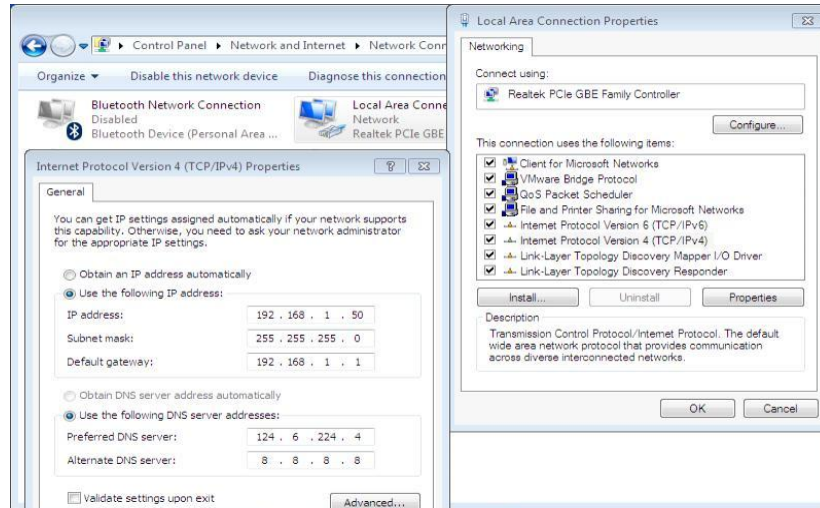


Figure 3.3.5.7: TCP/IPv4 Configuration

At first click on “IP>DHCP Server>DHCP Setup= select needed server interface>Next>DHCP Address Space= example (192.168.10.0/24)>Next> Gateway DHCP Network= example (192.168.10.1)>Next>Addresses to Give Out= example (192.168.10.100-192.168.10.254)>Next>Next>DNS Server>Next>Lease Time”.

3.3.7 Dynamic (DHCP) Routing Configuration with MikroTik:

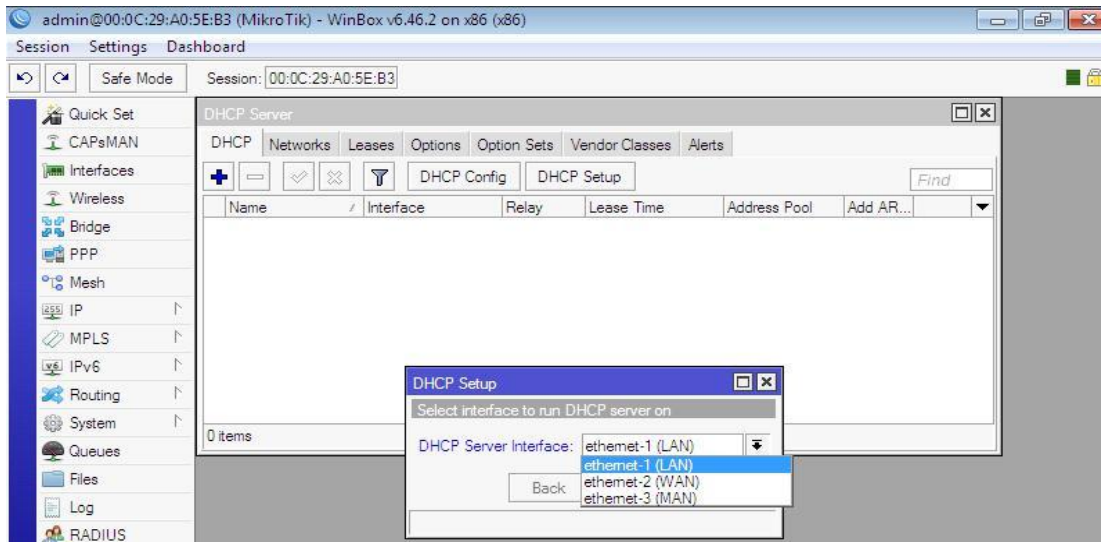


Figure 3.3.7.1: Dynamic Host Configuration Protocol Server Interface

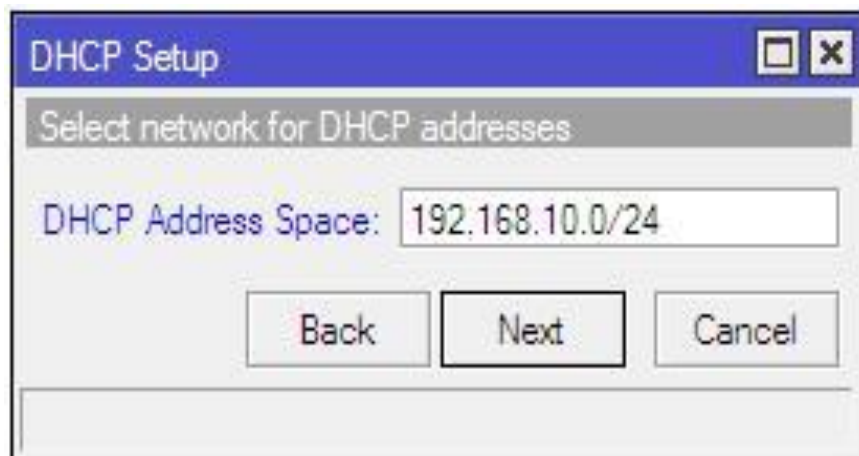


Figure 3.3.7.1: DHCP Address Space

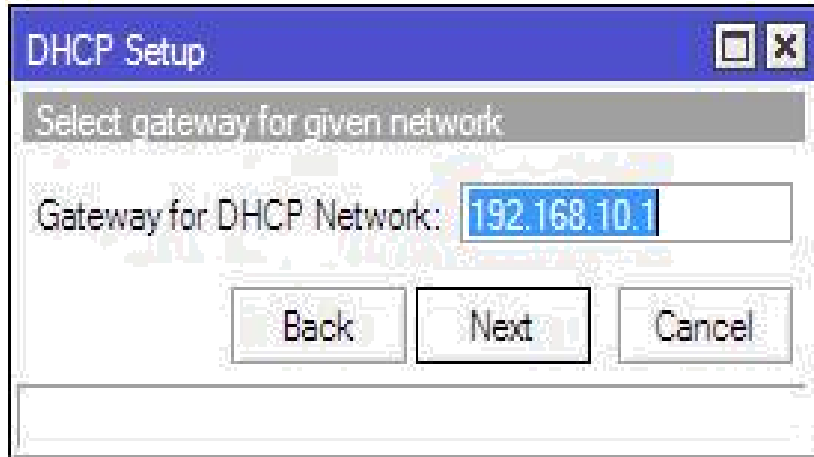


Figure 3.3.7.1: Gateway for DHCP Network

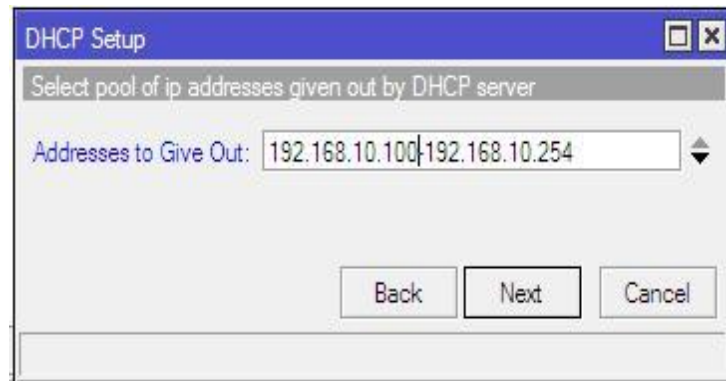


Figure 3.3.7.1: Addresses to Give Out

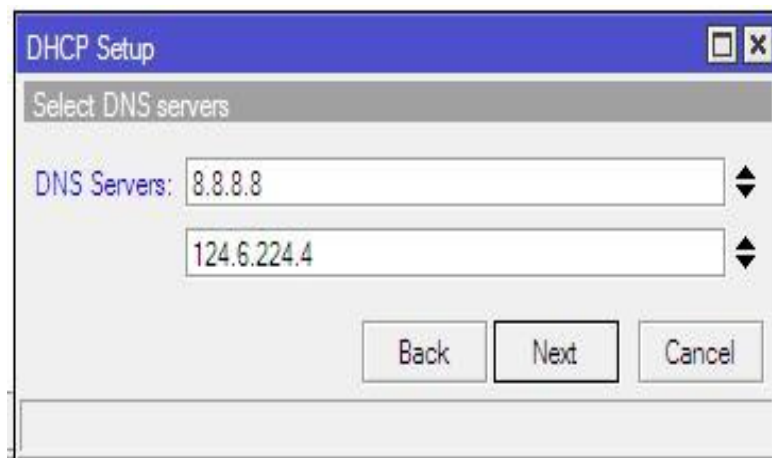


Figure 3.3.7.1: Domain Name System (DNS) Servers

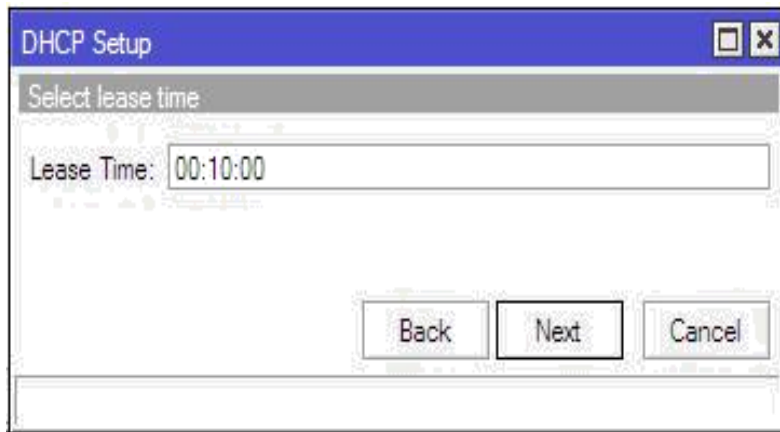


Figure 3.3.7.1: Lease Time

Now Restart WinBox and reconnect Ethernet port IPv4 into automatic from pc then click from WinBox “IP>ARP= where show ARP list”.

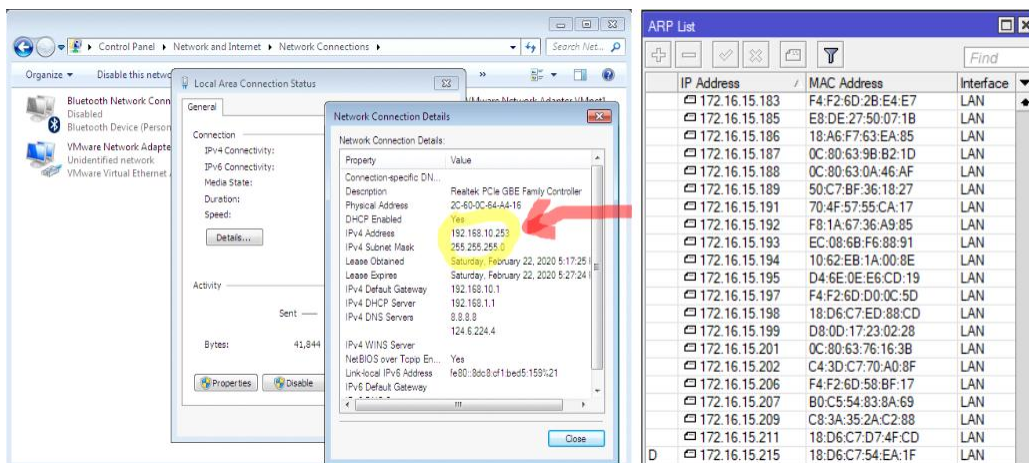


Figure 3.3.7.2: ARP for Dynamic (DHCP) Configuration

3.3.9 Site Blocking Configuration:

Step 1:

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

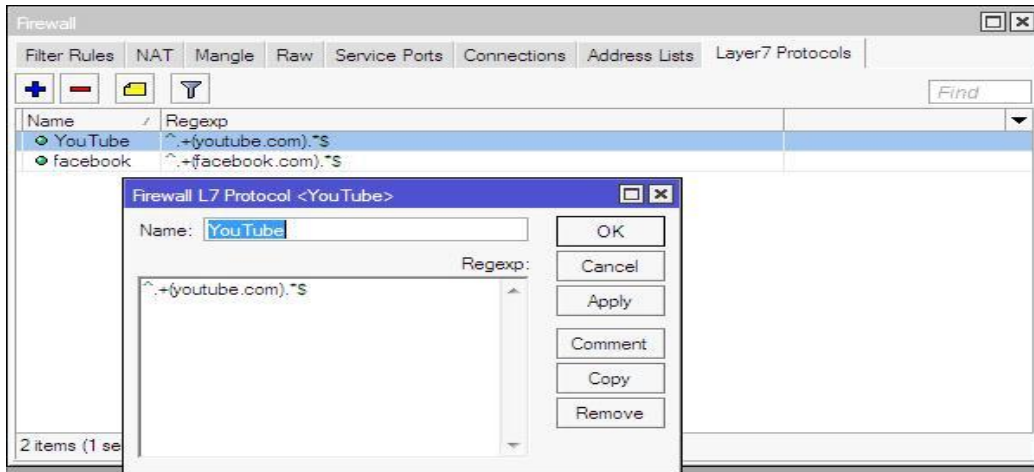


Figure 3.3.9.1: Block IP configure and create rule

Step 2:

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

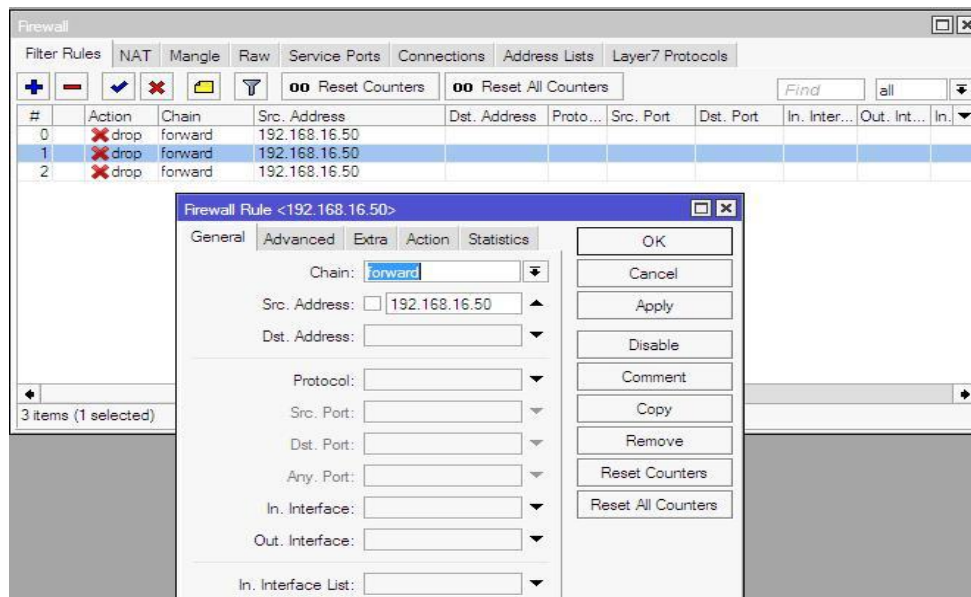
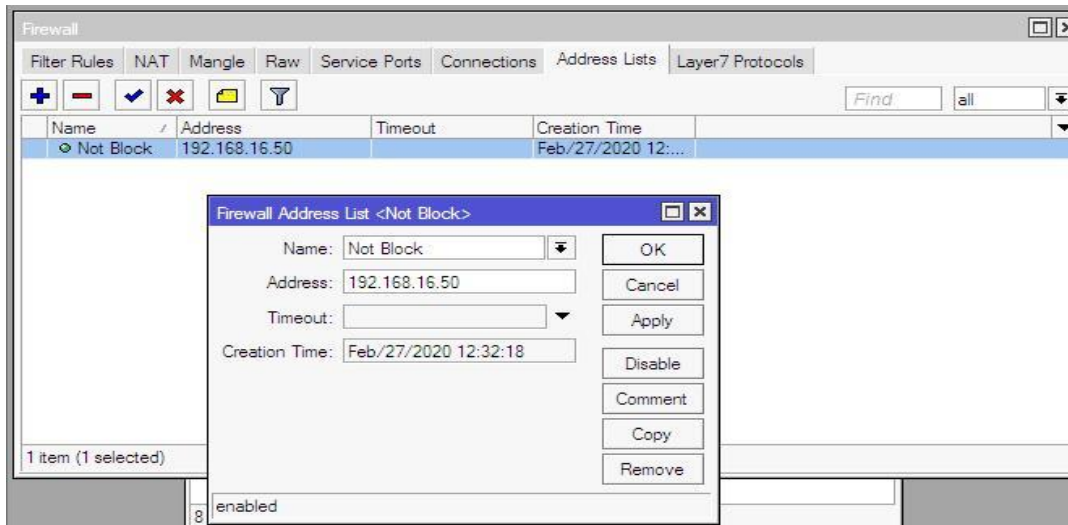


Figure 3.3.9.2: IP source configure, drop and forward

Not Site Block:

Step 1:

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



Step 2:

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

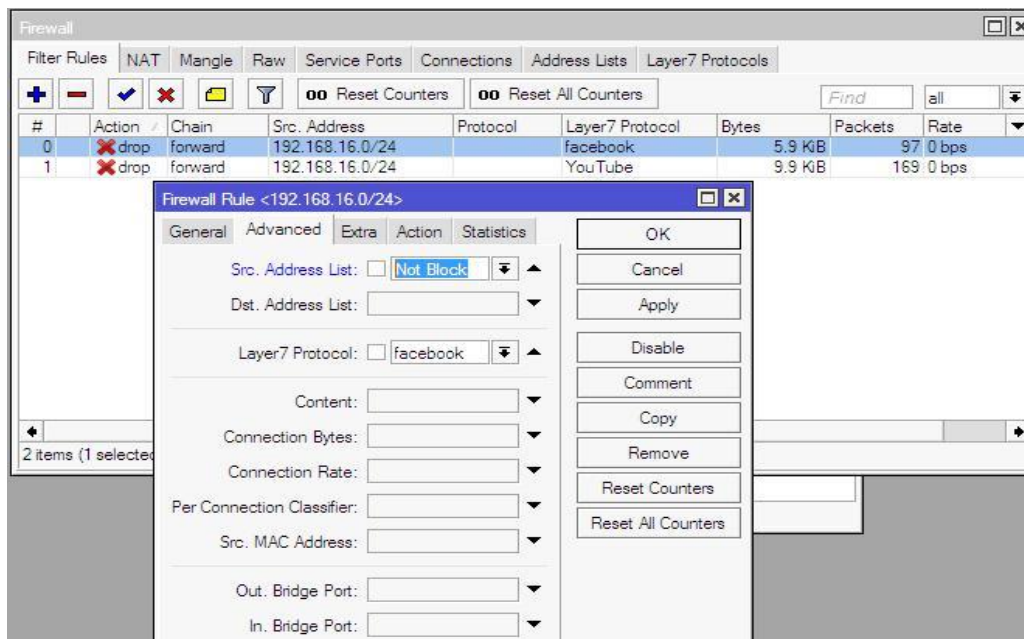


Figure 3.3.9.3: Result of Not Site Block

3.4.1 Bandwidth Distribution with Live Users:

Step 1:

Click on, "Queues>Queue Types>Add>Type Name: Example: 3_MB_Down>Kin: pcq>Rate: 3M>Classifier: Select Dst. Address>Apply>Ok".

Next, "Queues>Queue Types>Add>Type Name: Example: 3_MB_UP>Kin: pcq>Rate: 3M>Classifier: Select Src. Address>Apply>Ok".

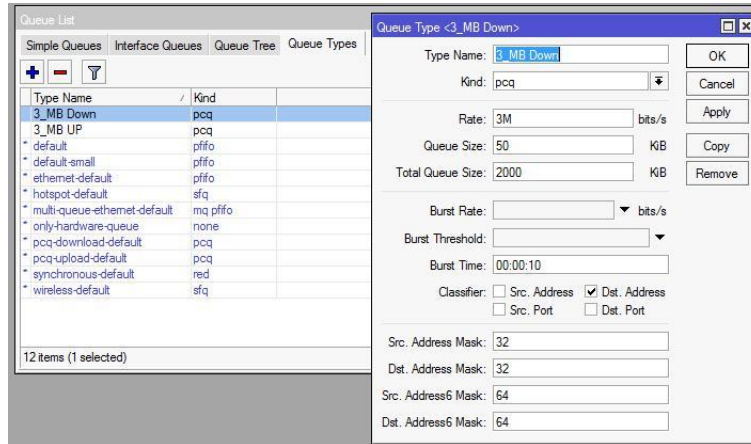


Figure 3.4.1.1: Queue Types for This Live Users

Step 2:

Click on, "Queues>Simple Queues>General>Name: Example: Live User>Target:Example:192.168.16.0/24>Apply>Ok".

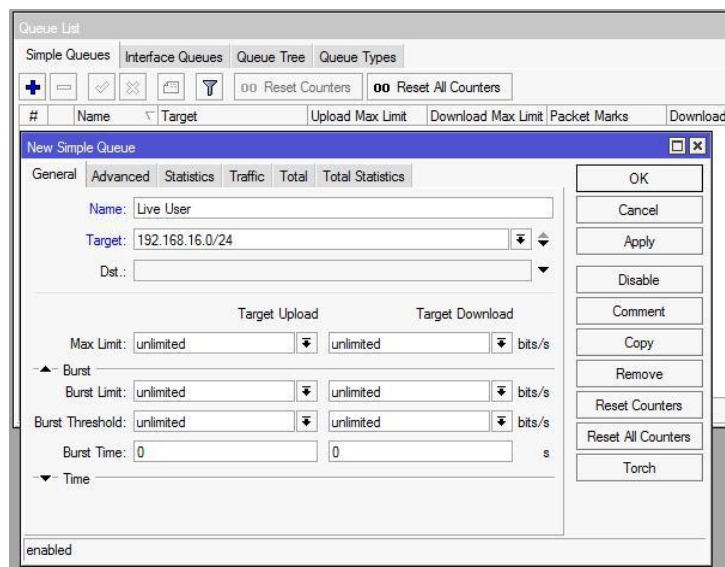


Figure 3.4.1.2: General Setting for This Live User

Step 3:

Click on, "Queues>Simple Queues>Advanced>Queue Type: 3_MB UP/3_MB Down>Apply>Ok".

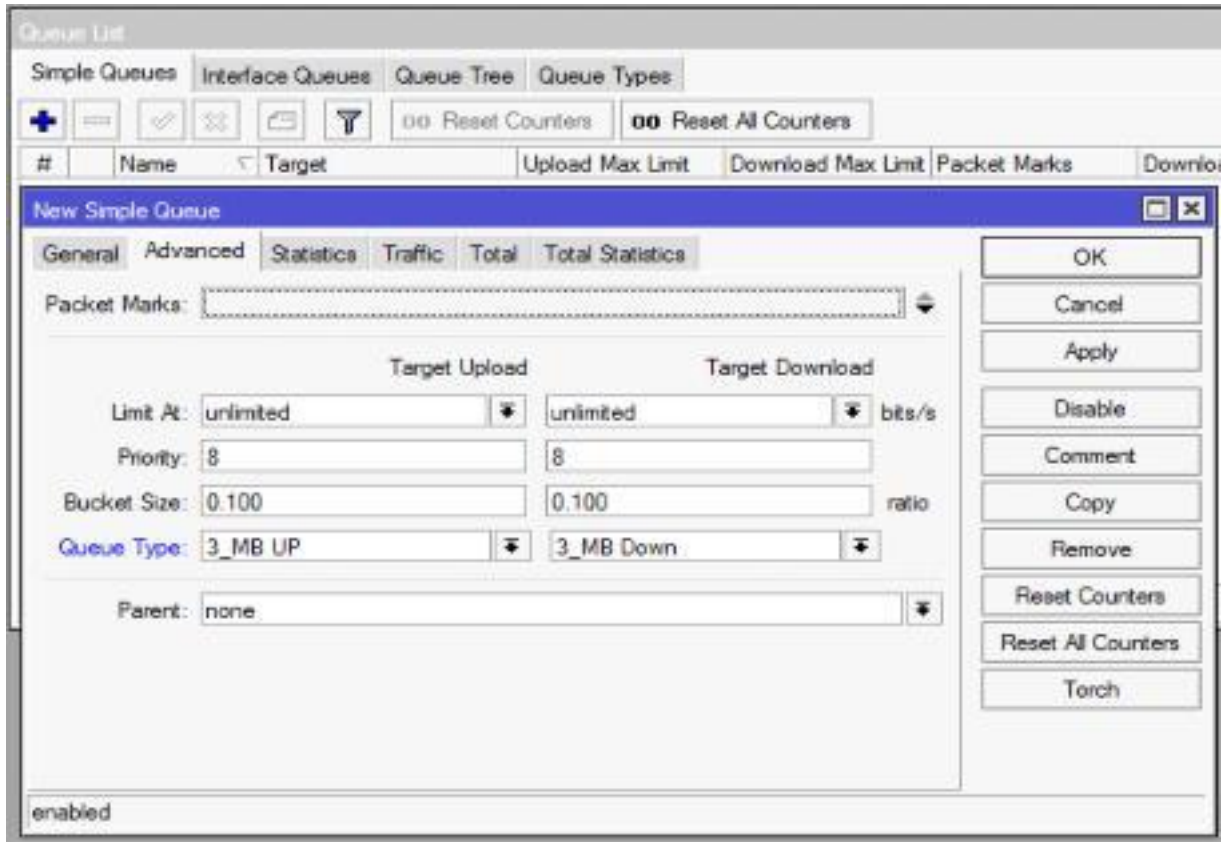


Figure 3.4.1.3: Advanced Setting for This Live Users

3.4.2 Day/Night Bandwidth Configure:

Step 1:

Click on, "Queues>Queue Types>Add>Type Name: Example: 10_MB_Down_Day>Kin: pcq>Rate: 10M>Classifier: Select Dst. Address>Apply>Ok".

Next, "Queues>Queue Types>Add>Type Name: Example: 10_MB Up_Day>Kin: pcq>Rate: 10M>Classifier: Select Src. Address>Apply>Ok".

Next, "Queues>Queue Types>Add>Type Name: Example: 5_MB_Down_Night>Kin: pcq>Rate: 5M>Classifier: Select Dst. Address>Apply>Ok".

Next, "Queues>Queue Types>Add>Type Name: Example: 5_MB Up_Night>Kin: pcq>Rate: 5M>Classifier: Select Src. Address>Apply>Ok".

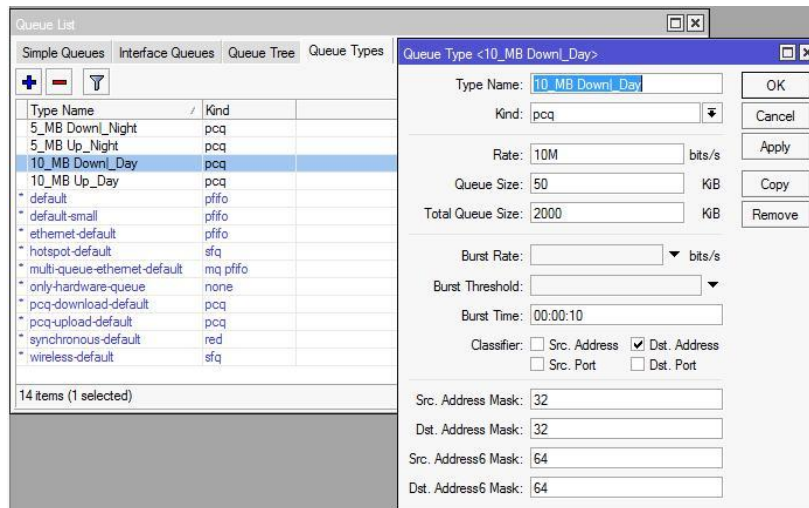


Figure 3.4.2.1: Queue Types for This Day/Night Pack

Step 2:

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".

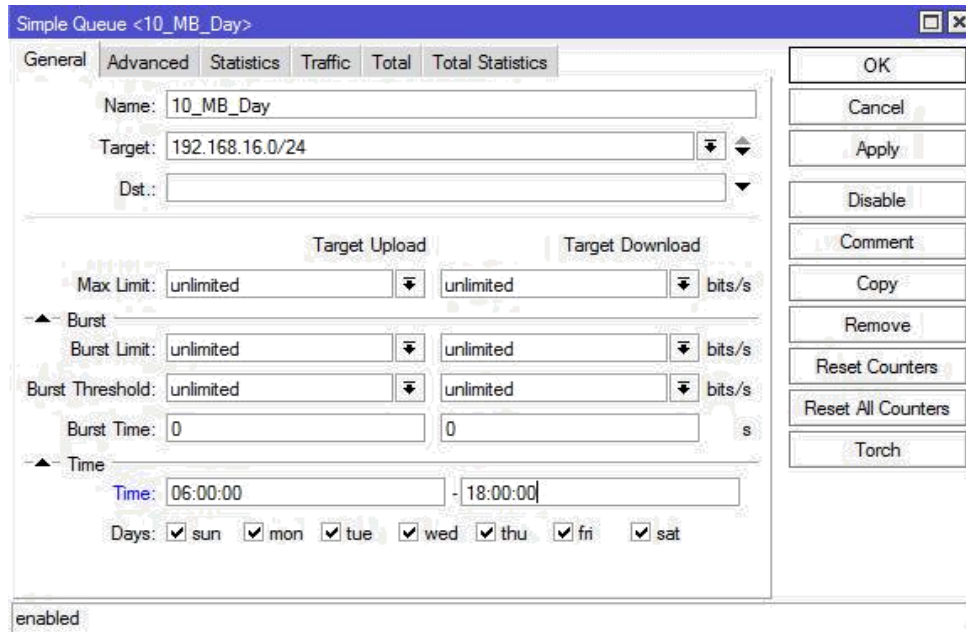


Figure 3.4.2.2: General Setting (Day) For This Day/Night Pack

Step 3:

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".

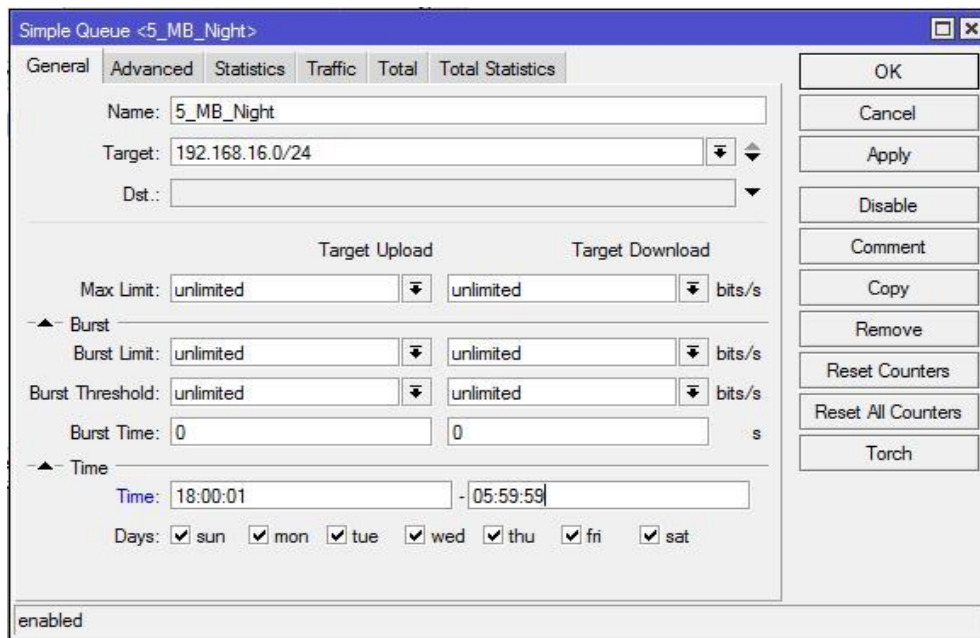
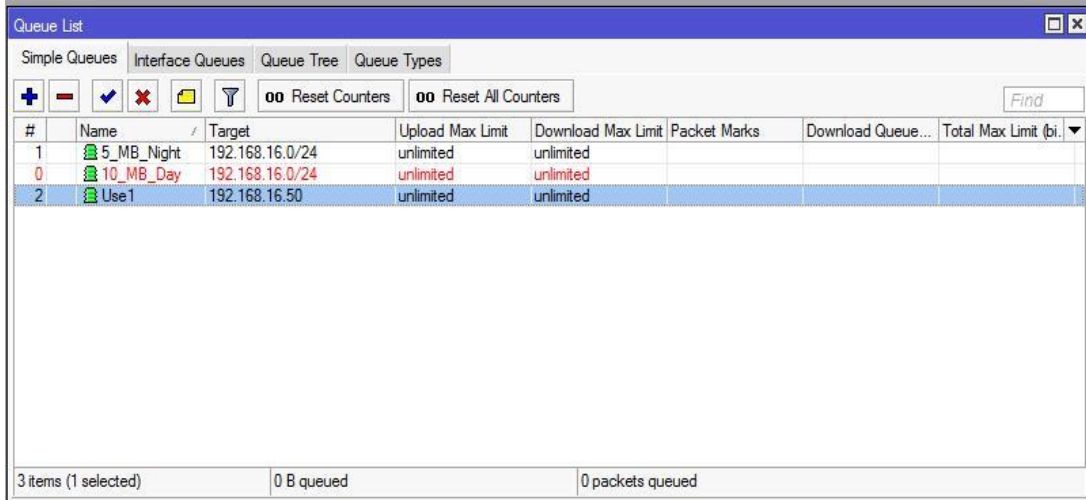


Figure 3.4.2.3: General Setting (Night) For This Day/Night Pack

Step 4:

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



The screenshot shows a window titled "Queue List" with several tabs: "Simple Queues", "Interface Queues", "Queue Tree", and "Queue Types". The "Simple Queues" tab is active. Below the tabs are several icons and buttons, including "Reset Counters" and "Reset All Counters". A table displays the following data:

#	Name	Target	Upload Max Limit	Download Max Limit	Packet Marks	Download Queue...	Total Max Limit (bi.)
1	5_MB_Night	192.168.16.0/24	unlimited	unlimited			
0	10_MB_Day	192.168.16.0/24	unlimited	unlimited			
2	User1	192.168.16.50	unlimited	unlimited			

At the bottom of the window, a status bar indicates "3 items (1 selected)", "0 B queued", and "0 packets queued".

Figure 3.4.2.4: Simple Queues for This Day/Night Pack

3.4.4 HotsPot Configuration:

Step 1:–

Click on, "IP>Pool>Name: Example: HotsPot_Pool>Address: 192.168.15.2-192.168.15.254>Apply>Ok".

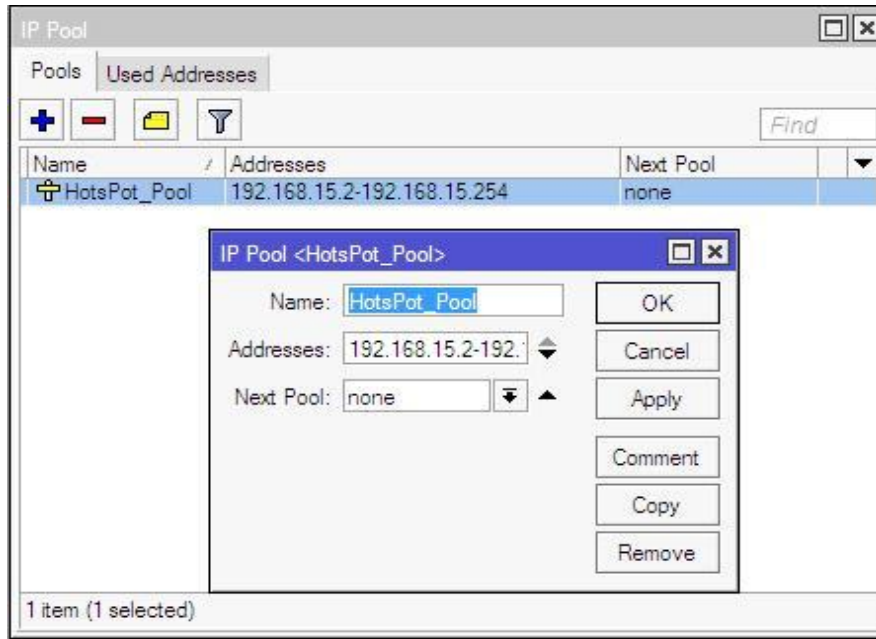


Figure 3.4.4.1: IP Pool Configuration

Step 2:

Click on, "IP>Hotspot>Servers>Hotspot Setup>HotSpot Interface: HotsPot (LAN)>Local Address of Network:192.168.15.1/24>Address Pool of Network: 192.168.15.2-192.168.15.254>Select Certificate: none>IP Address of SMTP Server: 0.0.0.0>DNS Servers: 8.8.8.8>DNS Name: mdbabu.com>Ok".

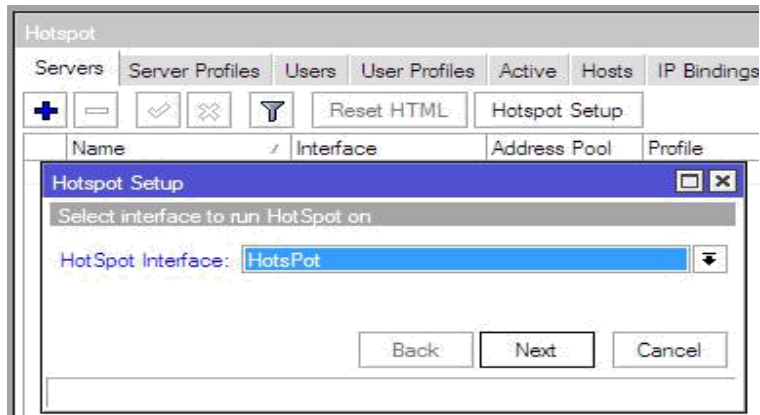


Figure 3.4.4.1: HotSpot Interface

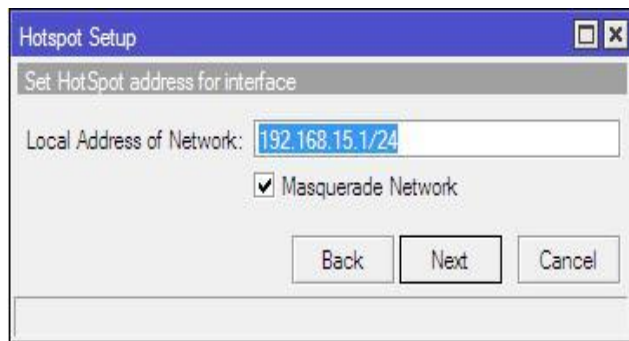


Figure 3.4.4.1: Local Address of Network

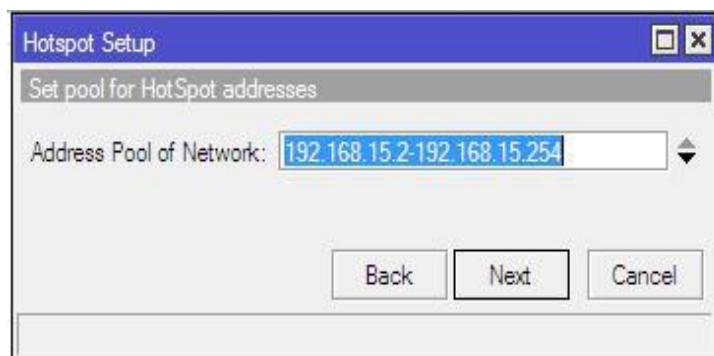


Figure 3.4.4.1: Address Pool of Network

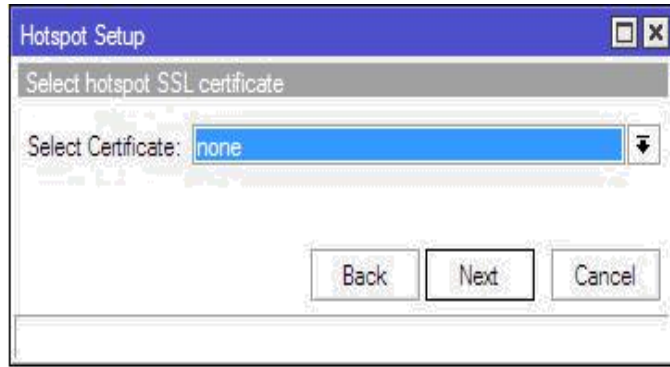


Figure 3.4.4.1: Select Certificate

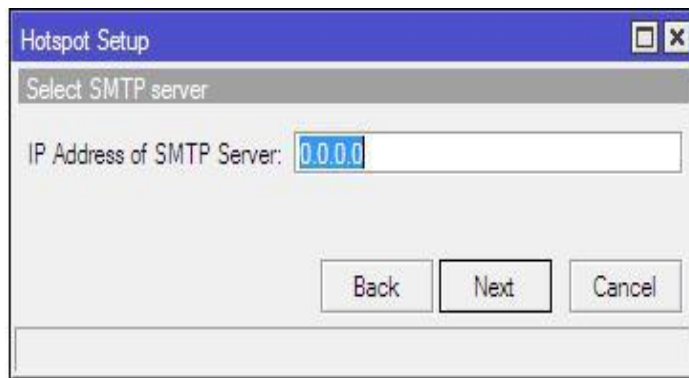


Figure 3.4.4.1: IP Address of SMTP Server

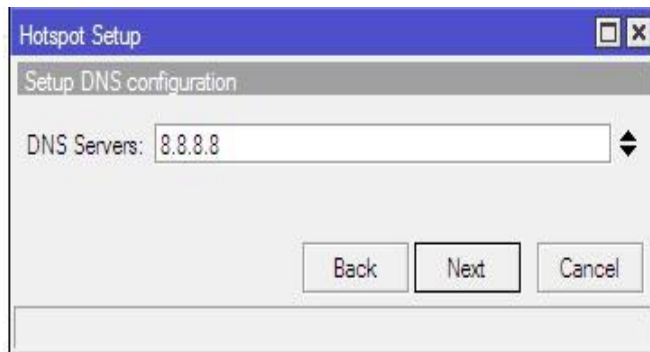


Figure 3.4.4.1: DNS Server for Hotspot Setup

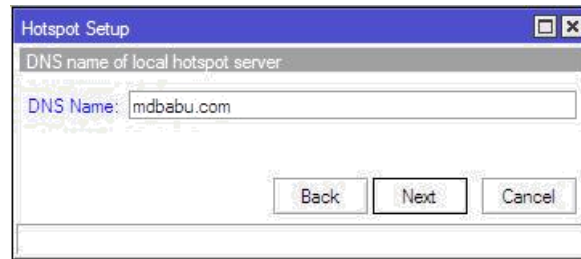


Figure 3.4.4.2: DNS Name

Step 3:

Click on, “IP>Hotspot>User Profiles>Add>General>Name: HotsPot_5MB>Address Pool: HotsPot_Pool>Apply>Ok”.

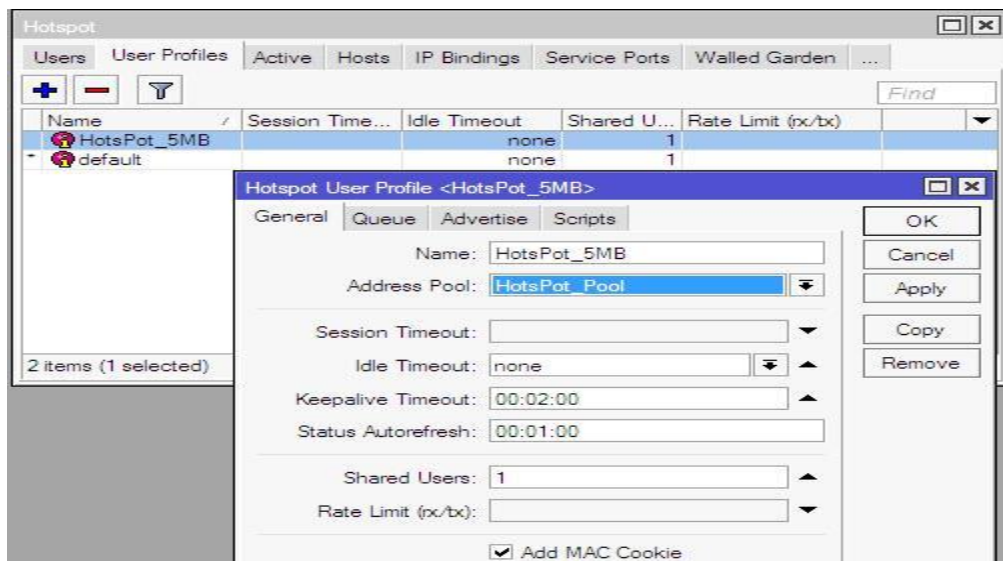


Figure 3.4.4.3: Hotspot User Profile

Step 4:

Click on, “IP>Hotspot>Users>Add>Server: hotspot1>Name: babu>Password: 123>Profile: HotsPot_5MB>Apply>Ok”.

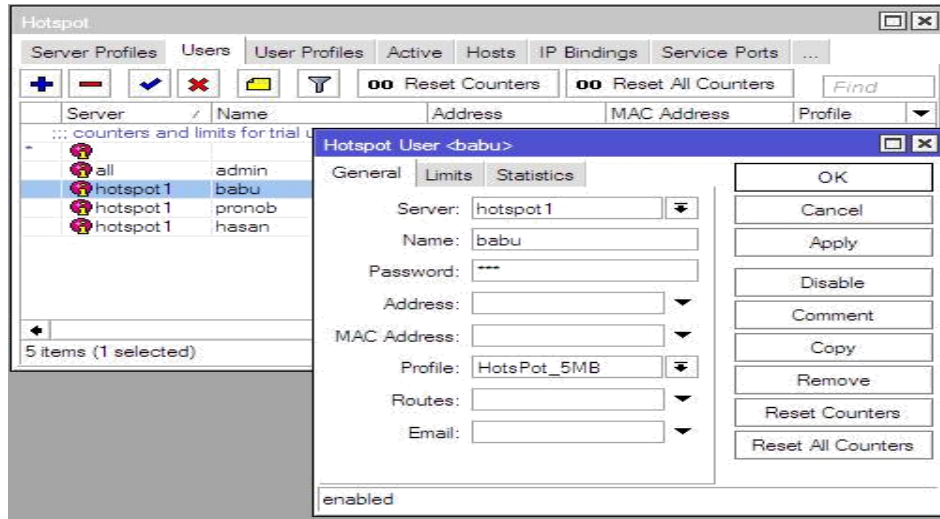


Figure 3.4.4.4: Hotspot Users Setting

Step 4:

Next, Check active user “IP>Hotspot>Active>Ok”.

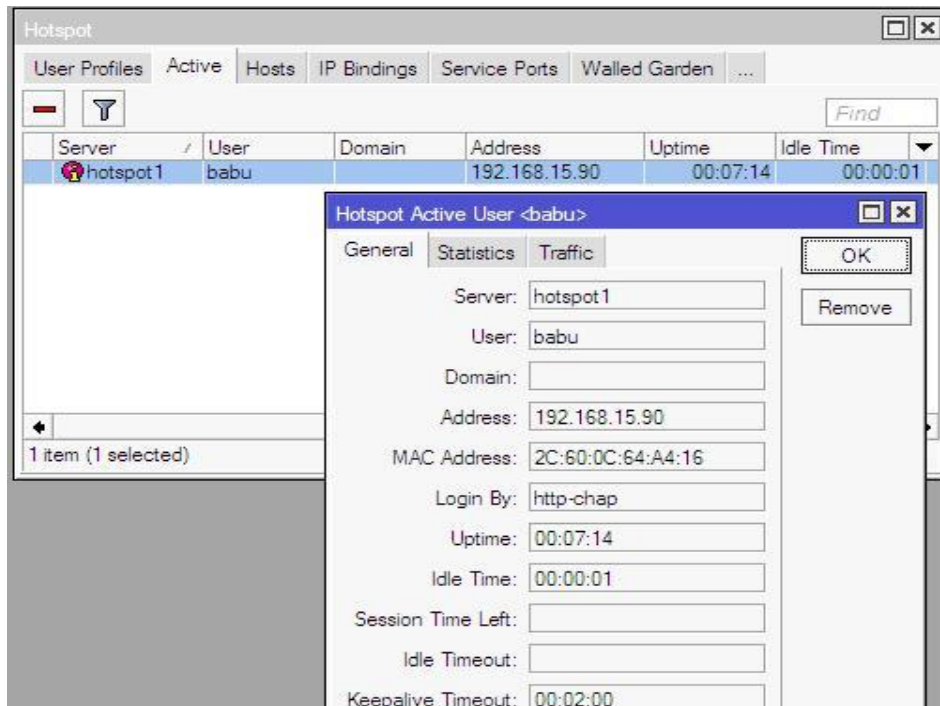


Figure 3.4.4.4: Hotspot Active User

Step 4:

User log-In System “Open browser and type www.mdbabu.com >Enter

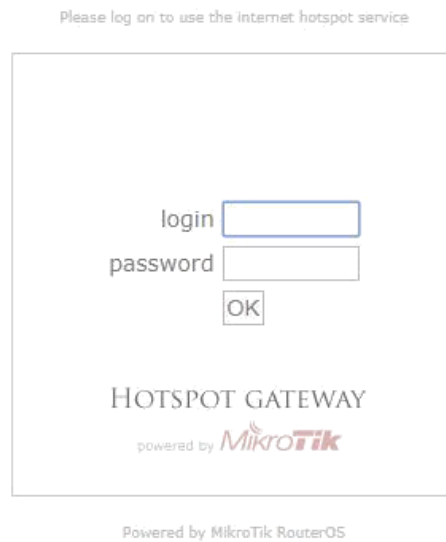


Figure 3.4.4.5: Hotspot Log In Panel

Step 5:

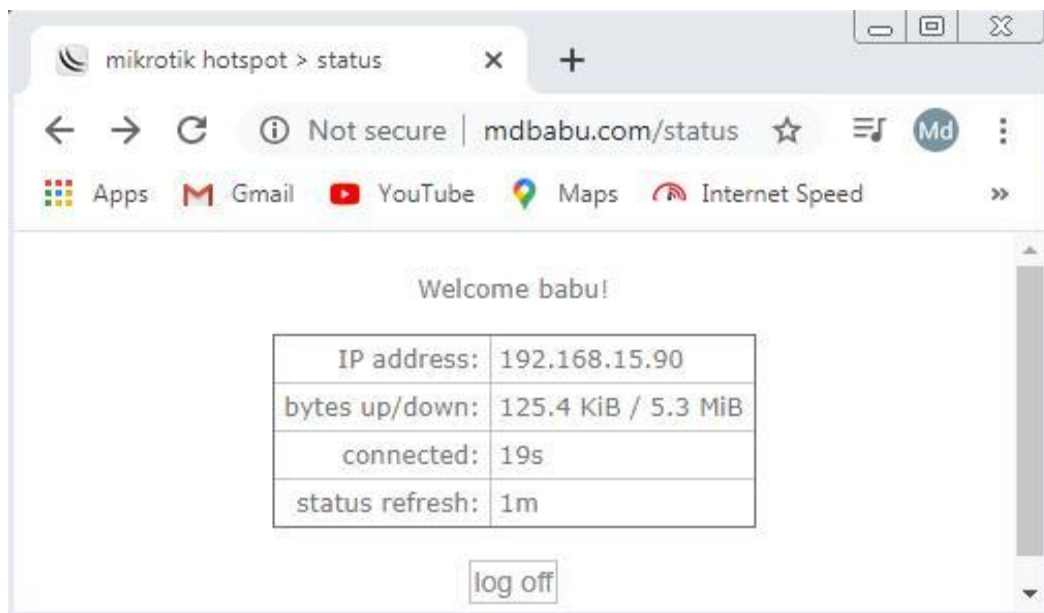


Figure 3.4.4.5: Log in success in Hotspot

3.4.5 PPPoE Server Configuration in MikroTik Router:

Step 1:

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

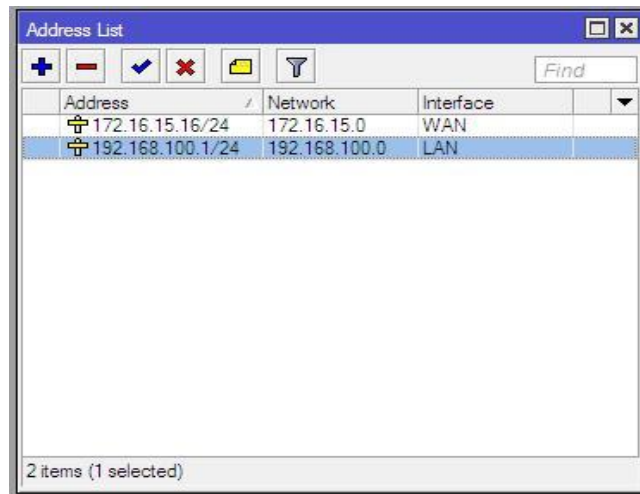


Figure 3.4.5.1: Address List for PPPoE Server

Step 2:

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

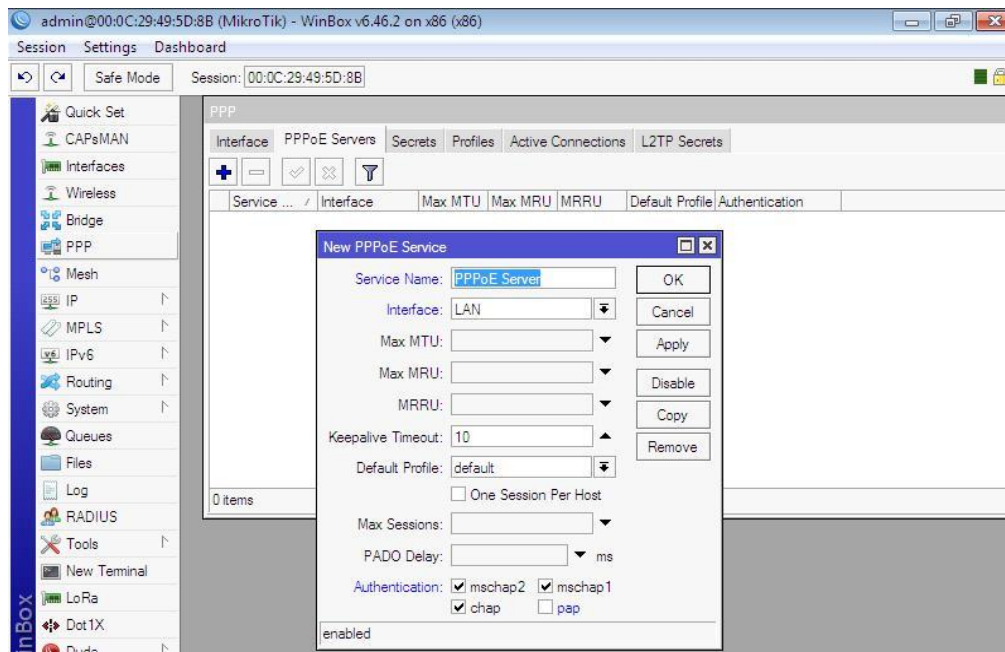


Figure 3.4.5.2: Point-to-Point Protocol over Ethernet (PPPoE) Server

Step 3:

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

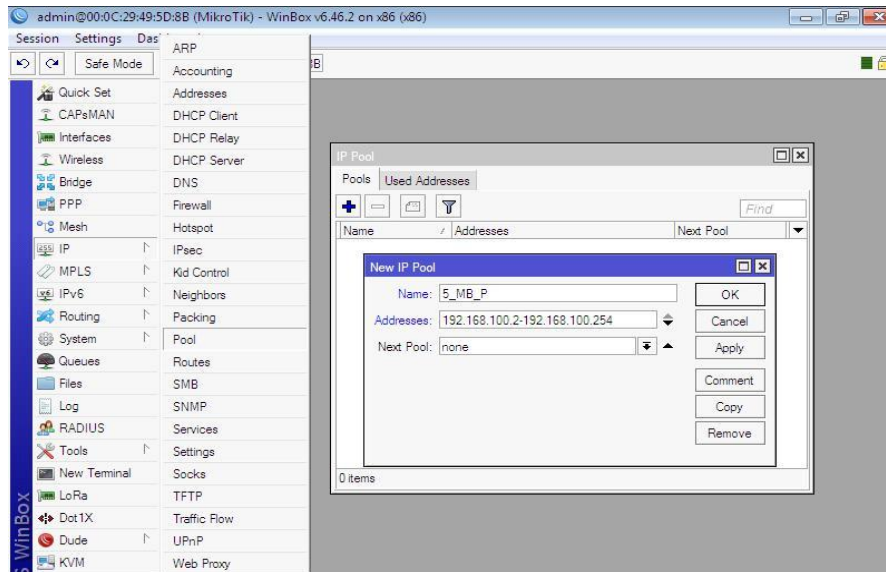


Figure 3.4.5.3: IP Pool Configure for PPPoE Server

Step 4:

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".

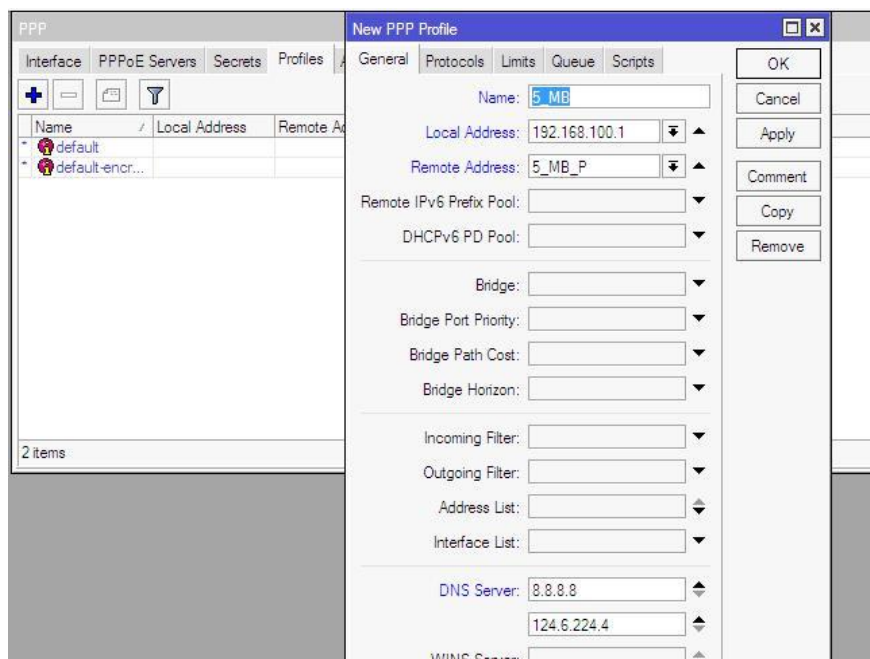


Figure 3.4.5.4: Point-to-Point Protocol (PPP) Profile

Step 5:

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

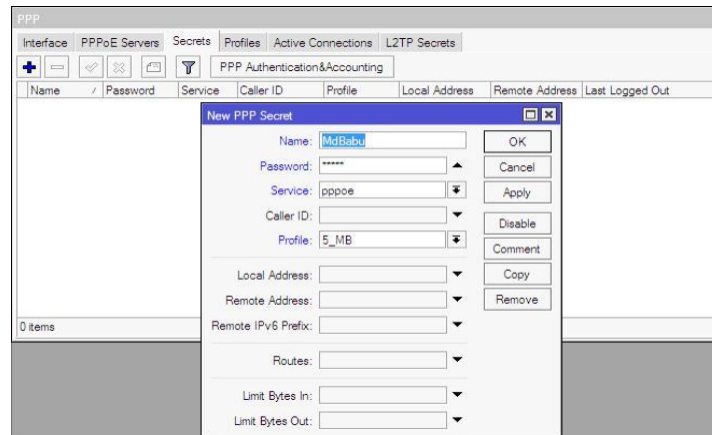


Figure 3.4.5.5: Point-to-Point Protocol (PPP) Secret

Step 6:

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."

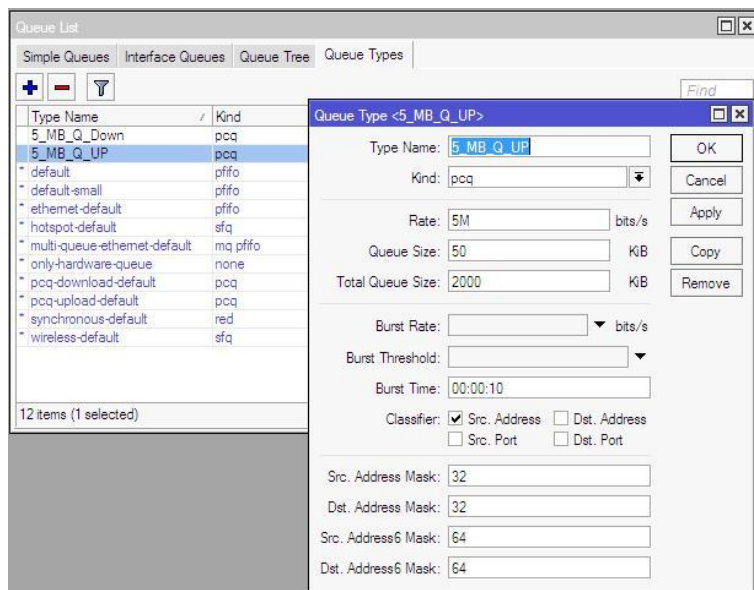


Figure 3.4.5.6: Queue Type for PPPoE Server

Step 7:

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."

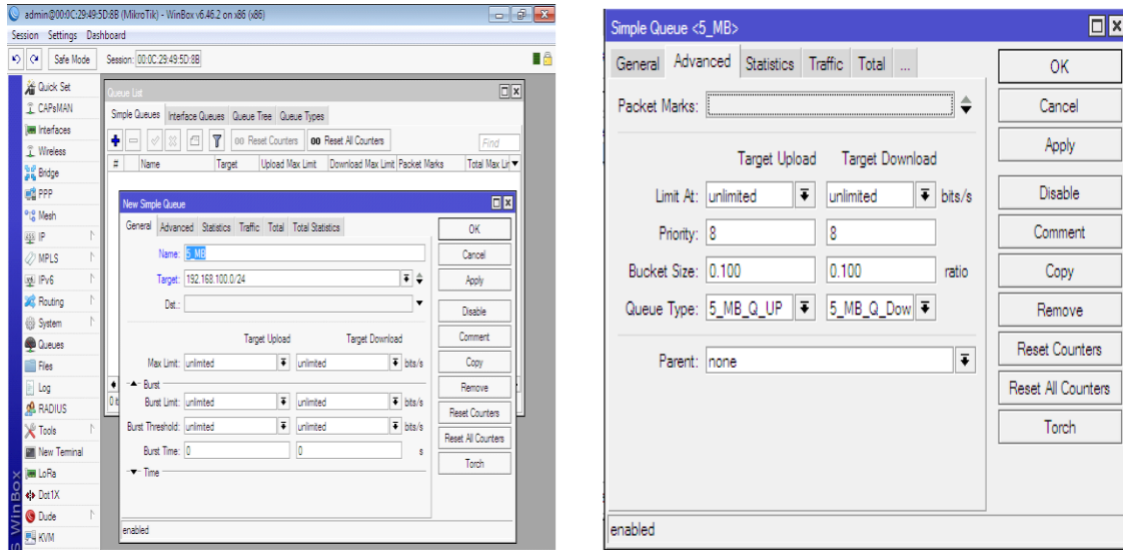


Figure 3.4.5.7: Simple Queue for PPPoE Server

CHAPTER 4

Conclusion and Future Career & Scope

4.1 Conclusion and Discussion:

In short of my internship project I will learn about configuring network by MikroTik and how to make and configure the network. I will also learn and complete understanding of IP classes. Main learning of this project was how to configure ISP link, Bandwidth Control in different ways, Bridge mode configuration, Firewall and NAT Configuration, Network Security, All of the instruction help and improved me to increase build my job aims and career skilful. This Internship is completely handed course and provides information and aptitudes which will introduce me to a Mikrotik for informative, Informative. Along with improving the most recent forms and server security, we always see the reconstruction and role of the programming department. The MikroTik operating system provides us with a comprehensive introduction of steady, Reliable and successful administration. Now, today most of the organizations are highly dependent on their work on the network thought internet. Therefore a proper network design is very important to think of an organization, without this it is not possible to manage all network support.

4.2 Future Career & Scope:

In real life finding a job can be a big challenge of anyone of our country, especially if we have no experience. That's why I choose an internship, because it can help me to improve my career opportunity into an experience. So, this internship provides me to find scope in a future life:

- Work in ISP based platform.
- Work at as an IT manager of a company.
- Work at as a Network Engineer.
- Work at as a technical support and security manager.
- Bank job for IT

References

- [1] About Daffodil International University, available at <<<https://daffodilvarsity.edu.bd/>>>, Access on 2 January'2020 at 10:00pm.
- [2] IST ENGINEERING LTD
House# 292, Ulon Road, West Rampura, Dhaka-1219
info@istengineeringltd.com, <https://istengineeringltd.com>
- [3] IP address, available at <<https://en.wikipedia.org/wiki/IP_address>> Access on 20 January'2020 at 11:00pm.
- [4] DHCP Configuration in MikroTik Router, available at <<<https://systemzone.net/dhcp-server-configuration-in-mikrotik-router/>>>, access on 05 February'2020 at 10:00pm.
- [5] Static-IP Configuration in MikroTik Router, available at <<<https://help.biznetnetworks.com/hc/en-us/articles/115011708608-How-to-Configure-Static-IP-for-Mikrotik-Router/>>> Access on 10 February'2020 at 11:00pm.
- [6] PPPoE Server Configuration in MikroTik Router, available at <<<https://medium.com/@alungeli03/pppoe-server-configuration-in-mikrotik-router-a5c4022b04d4/>>> Access on 20 February'2020 at 10:00pm.
- [7] Hotspot server setup, available at <<https://wiki.mikrotik.com/wiki/Hotspot_server_setup>> Access on 05 March'2020 at 11:00pm.

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< 1% match (Internet from 08-Jul-2019)
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[https://www.airman7.com/2018/konfigurasi-jaringan-dynamic-route-mikrotik dengan-vmware/](https://www.airman7.com/2018/konfigurasi-jaringan-dynamic-route-mikrotik-dengan-vmware/)

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ABSTRACT This internship is on a

study of basic

networking with Mikrotik Router configuration. I am mainly working Mikrotik

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OS base. Mikrotik has been established in 1996. This router mainly using easy for bandwidth management. Actually a Mikrotik Router cost-efficient and easy access that can be used for small and big network management. Our Internet Service Provider (ISP) Company especially uses Mikrotik Router in this sector. These functions include IP addressing, IP distribution, Firewall, Nat, Routing, Bandwidth control, Point to Point Tunneling Protocol (PPTP), Domain Name System (DNS) server, Dynamic Host Configuration Protocol (DHCP) server, File Transfer Protocol (FTP) server, Point to Point Protocol Over Ethernet (PPPoE), Hotspot and many other features. In this sector we are using Cisco router, Cabling and Linux operating system etc.

Now today all over the world using the internet in our daily life. A network provides the internet service computer to computer and other networking devices. So, Networking is so much important fact right now. Now this day using internet on E-Commerce web site, Software base application, Robotic, Internet of things (IOT), in our daily life. Its use is increasing day by day. They provide various advantages, For example, instant messaging, Parallel computing, Video conference, Interaction with other users using dynamic web pages, Sharing information by using the internet or web. TABLE OF CONTENTS CONTENTS PAGE NO Declaration i Acknowledgement ii Abstract iii Table of Contents V-vi List of Figures vi-vi CHAPTER 1: INTRODUCTION 11-12 1.1 Introduction 11 1.2 Motivations 11 1.3 Objectives 12 1.5 Report Layout 12 CHAPTER 2: ORGANIZATION 13 2.1 Introduction 13 2.2 Services 13 2.3 Company Profile 13 CHAPTER 3: INTERNSHIP ROLES AND RESPONSIBILITES 14-48 3.1 Daily Task and Activities 14 3.2 Events and Activities 15 3.3 Project Task and activities 15 3. 3.1 About IP Address 15 3. 3.2 Introduction of MikroTik 3.3.3 PC based Installation of MikroTik Router OS using VMware 3.3. 4 MikroTik Router Configuration 3.3. 5 Static- IP Configuration in MikroTik Router 3.3.7 (DHCP) Dynamic Routing Configuration with MikroTik 3.3.9 Site Blocking Configuration 3.4.1 Bandwidth Distribution With Live Users 3.4.2 Day/Night Bandwidth Configure 3.4.4 Hotspot Configuration 3.4.5 PPPoE Server Configuration in MikroTik Router CHAPTER 4: CONCLUSION,

FUTURE CAREER & SCOPE 4.1 Conclusion and Discussion 4.2
 Future Career & Scope REFERENCES 15 16-23 23-24 24-28 29-31 **32-33 34-35 35-38 39-44 45-48 49-50 49** 49 50 LIST OF FIGURES FIGURES PAGE NO Figure 3.3.1: Virtual Machine Wizard 15 Figure 3.3.2: VMware Workstation 15 Figure 3.3.3: Virtual Machine Hardware Compatibility 16 Figure 3.3.4: Guest Operating System Installation 16 Figure 3.3.5: Select a Guest Operating, System 17 Figure 3.3.6: Name The Virtual Machine 18 Figure 3.3.7: **Processor** Configuration 18 Figure 3.3.8: Memory for the Virtual Machine 19 Figure 3.3.9: Specify Disk Capacity 19 Figure 3.3.1.1: Specify Disk File 20 Figure 3.3.1.2: **Ready to Create Virtual Machine** 20 Figure 3.3.1.3: Edit Virtual Machine Settings 21 Figure 3.3.1.4: Virtual Machine **Hardware** List 21 Figure 3.3.1.5: Hardware Types 21 Figure 3.3.3: MikroTik OS Installation 22 CHAPTER 1 INTRODUCTION 1.1 Introductions This is a time you can **any resource search** through the Internet all over the world. **Nowadays a large number of people all over the world use internet technology and the server is a part and parcel. We cannot do anything for internet communication without server. That's why. DHCP and DNS server is very important for internet technology.** Now this day presently working with the small or big organization, Bank service, Etc. Through the **software to connect to internet connectivity. Bank service mostly effects on the internet example Short Message Service (SMS) banking online banking debit card service credit service** and also. When any organization use the internet at that time you **can easily** communicate and easy maintain. This report is about PC networking server configure server security. Mikrotik Router OS base, Firewall, Bandwidth control, Backhauls Link, Wireless access point, Hotspot gateway and moreover. 1.2 Motivation I understand the importance of gaining

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Turnitin practical knowledge which will complement the textbook knowledge and help a student gain a wider perspective of the subjects. During the internship I have found that I am perfectly skilled in the details of basic networking and MikroTik. I thing Mikrotik operating system is very easy user use and when you use the ISP company that time you **easily manage user and easily** control bandwidth. I agree with this place is very perspective and important because we have communicated all places proper

now. I think that I can successfully prove my experience with the help of IST ENGINEERING LTD 1.3 Objectives The main objective of high Education to gather knowledge. I am Choose an Internship on Networking because this day a large amount of job all over the world and I gain practically Experience. I try my level best to present my. practical knowledge as well as. Mikrotik Router plays a role in a data center because in Mikrotik Router management bandwidth control is **very easy.**

That's why I have select this topic for an internship. • Install Mikrotik **operating system** • Configure ISP server • Maintain Bandwidth Control use Mikrotik • Maintain user 1.4 Report layout The report is as follows: Chapter-1 I have described of internship, Motivation of internship and introduction to the company. Chapter-2 I have described the on the IT service and what are the roles of in jobs market of Mikrotik. Chapter-3 I have described on daly task and activities, Events and challenges. Chapter-4 I have described detail on the competencies, smart plan and reflections. Chapter-5 I have described on the conclusion and future scope.

CHAPTER 2 ORGANIZATION 2.1 Introduction: The IST ENGINEERING LTD one of the best Company in Bangladesh. The company provides internet service and solution since 2016. IST ENGINEERING LTD is an IT Support team where you will find complete IT solutions or Wire & WiFi Networking Solution, Domain Web Hosting, MikroTik Configure, Cisco R & S Configure, FTP/File/Media/Apache Server Configure, Graphic Design, web Design. IST ENGINEERING LTD also

providing you Bandwidth & System Configuration Service in your area. If you start ISP Business don't worry. TRST Network here to provide Bandwidth & System Configuration. Available in all kinds of information on no information charge 2.2 Services: IST ENGINEERING LTD. 24 hours of high-speed **data service** through the internet. Mostly it **offers high-speed Internet service to residential and corporate customer.**

• Network Installation. • Protected Ring Network. • Manage Hosting. • Multiple Upstream. • IT Support. Corporate level Internet Solution. • CC Camera 2.3 Company Profile Register Head Office **IST ENGINEERING LTD House# 292, Ulon Road, West Rampura, Dhaka-1219**

info@istengineeringltd.com, <https://istengineeringltd.com> CHAPTER 3 Internship

Roles & Responsibilities 3.1 Daily Task and Activities: • Month - 1 : In the first month of my internship at Prisma Digital Network Limited I have learned and performed the following tasks: Introduction of MikroTik. MikroTik Router Configuration. • Month - 2:

In this month I have learned and performed the following tasks: Static-IP Configuration. . Month = 3: In this month of I have learned and performed the following tasks: Hotspot

Configuration. 3.3.1 About IP address IP mining internet protocol, Network has interpreted an IP address in two components: Community and host range

part. The **IP address is 4 octets** and is octet is eight-bit **that's mines IP address** are total bit 32. A class IP address is 1 octet are network and 3 octets is host. B class 2 octets are network and 2 octets are host. C class 3 octets are network and 1 octet is host and D, E. Class is multicast. 3.3.2 Introduction of MikroTik MikroTik is a network-based equipment manufacturing company. MikroTik was founded by Latvia in 1996 to develop **ISP System with Router & Wireless Devices**. 3.3.3 PC based Installation of MikroTik Router OS using VMware Requirement Items: • VMware Workstation Application. • Mikro-Tik Router OS ISO image file. • WinBox. Now, **I show the** Install Guideline Step by Step: Step 1: At first install VMware application and open it, then click on File>New Virtual Machine and Next>Next>ok. Figure

https://www.turnitin.com/newreport_printview.asp?eq=0&eb=0&esm=0&oid=1351780343&sid=0&n=0&m=2&svr=20&r=80.80426569213056&lang=en_... 5/8

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Turnitin 3.3.3.1: Virtual Machine Wizard Figure 3.3.3.2: VMware Workstation Figure 3.3.3.3: Virtual Machine Hardware Compatibility Figure 3.3.3.4: Guest Operating System Installation Figure 3.3.3.5: Select a Guest Operating System Figure 3.3.3.6: Name The Virtual Machine Figure 3.3.3.7: **Processor** Configuration Figure 3.3.3.8: Memory for the Virtual Machine Figure 3.3.3.9: Specify Disk Capacity Figure 3.3.3.1.1: Specify Disk File Figure 3.3.3.1.2: **Ready to Create** Virtual Machine Figure 3.3.3.1.3: Edit Virtual Machine Settings Figure 3.3.3.1.4: Virtual Machine Hardware List Figure 3.3.3.1.5: Hardware Types Step 2: Now select on the Installer disk image file (ISO). and choose the ISO image file and then click on Next. After **that create a** virtual machine name and also choose a location where the machine is Install, then click next. Now configure the Hardware requirement how we **have need**. Figure 3.3.3.3: MikroTik OS Installation 3.3.4 MikroTik Router Configuration: Figure 3.3.4.1: Network Topology of MikroTik At first download WinBox and router OS ISO image file, after that install router OS in VMware and run WinBox, now click on the Mac address type "admin" in the login window and do not need to give user Password. Figure 3.3.4.2: WinBox Terminal 3.3.5 Static-IP Configuration in MikroTik Router: At first Click on, **Interfaces>define our port > LAN, MAN, WAN**, Figure 3.3.5.1: Interface Now, click on "IP>Address>Add IP on Address and Network>Apply OK". Figure 3.3.5.2: IP Addressing Next, click "IP>DNS>Add Server IP address>Apply **OK**". Figure 3.3.5.3: DNS Server After that click on "IP>Firewall>NAT>Add+>General>Chain: srcnat> Out. Interface: ethernet-2 (WAN)>Apply OK". Figure 3.3.5.4: Firewall Next, click on "IP>Firewall>NAT> Add +>Action>Select=masquerade>Apply Ok". Figure 3.3.5.5: Firewall of Action Now click "IP> Routes> Routes>Add+>General>Dst. Address + **Gateway**>Apply OK". Figure 3.3.5.5: IP Routing After process are

complete then check the instruction by "New Terminal>Terminal=ping (Gateway IP)>OK". Figure 3.3.5.6: IP Ping Final Step, now connects 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". Figure 3. 3.5.7: TCP/IPv4 Configuration At first click on "IP>DHCP Server> DHCP Setup= select needed server interface> Next >DHCP Address Space= example (192.168.10.0/24)>Next> **Gateway** DHCP Network= example (192.168.10.1)>Next>**Addresses to Give Out**= example (192.168.10.100-192.168.10.254)>Next>Next>**DNS Server**>Next>**Lease Time**". 3.3.7 Dynamic (DHCP) Routing Configuration with MikroTik: Figure 3.3.7.1: Dynamic Host Configuration Protocol Server **Interface** Figure 3.3.7.1: DHCP Address Space Figure 3.3.7.1: Gateway for DHCP Network Figure 3.3.7.1: Addresses to Give Out Figure 3.3.7.1: Domain Name System (DNS) Servers Figure 3.3.7.1: Lease Time Now Restart WinBox and reconnect Ethernet port IPv4 into automatic from pc then click from WinBox "IP>ARP= where show ARP list". Figure 3.3.7.2: **ARP for Dynamic** (DHCP) Configuration 3.3.9 Site Blocking Configuration: Step 1: Click on, "IP>Firewall>Layer7Protocols>Add>Name: Example: Facebook>**Regexp**: Example: ^.+(facebook.com).*\$ >Apply>Ok". Figure 3.3.9.1: Block IP configure and create rule Step 2: Next, "IP>Firewall>Filter Rules>General>Src. Add: Example: **192.168.16.50**>**Advanced**>**Layer 7** Protocol: Example: facebook>Action>Action: drop>Apply>Ok". Figure 3.3.9.2: IP source configure, drop and forward Not Site Block: Step 1: Clack on, "IP>Firewall>Address Lists>Name: Example: No Block>Address: 192.168.16.50>Apply>Ok." Step 2: Next, "IP>Firewall> Filter Rules>Select Rules (Double click)>Advanced>Src. Address List: (Select) Not Block>Apply>Ok." Figure 3.3.9.3: Result of Not Site Block 3.4.1 Bandwidth Distribution with Live Users: Step 1: Click on, "Queues>Queue **Types**>Add>Type Name: Example: 3_MB_Down>Kin: pcq>Rate: 3M>Classifier: Select Dst. Address>Apply>Ok". Next, "Queues>Queue

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Types>Add>Type Name: Example: 3_MB_UP>Kin: pcq>Rate: 3M>Classifier: Select Src. Address>Apply>Ok". Figure 3.4.1.1: Queue Types for This Live Users Step 2: Click on, "Queues>Simple Queues>**General**>Name: Example: Live User>Target:Example:192.168.16.0/24>Apply>Ok". Figure 3.4.1.2: General Setting for This Live User Step 3: Click on, "Queues>Simple

Queues>Advanced>Queue Type : 3_MB UP/3_MB Down>Apply>Ok". Figure 3.4.1.3: Advanced Setting for This Live Users 3.4.2 Day/Night Bandwidth Configure: Step 1: Click on, "Queues>Queue Types>Add>Type Name: Example: 10_MB_Down_Day> Kin: pcq> Rate: 10M>Classifier: Select Dst. **Address>Apply>Ok**". Next, "Queues>Queue Types>Add>Type Name: Example: 10_MB Up_Day> Kin: pcq>Rate: 10M>Classifier: Select Src. Address>Apply>Ok". Next, "Queues>Queue Types>Add>Type Name: Example: 5_MB_Down_Night>Kin: pcq>Rate: 5M>Classifier: Select Dst. **Address>Apply>Ok**". Next, "Queues>Queue Types>Add>Type Name: Example: 5_MB Up_Night>Kin: pcq>Rate: 5M>Classifier: Select Src. **Address>Apply>Ok**". Figure 3.4.2.1: Queue Types for This Day/Night Pack Step 2: 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". Figure 3.4.2.2: General Setting (Day) For This Day/Night Pack Step 3: 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". Figure 3.4.2.3: General Setting (Night) For This Day/Night Pack Step 4: Click on, "Queues>Simple Queues>General>Name: Example: User1>Target: Example: 192.168.16.50>>Apply>Ok". Figure 3.4.2.4: Simple Queues for This Day/Night Pack 3.4.4 Hotspot Configuration: Step 1: Click on, "IP>Pool>Name: Example: Hotspot_Pool>Address: 192.168.15.2 192.168.15.254>Apply>Ok". Figure 3.4.4.1: IP Pool Configuration Step 2: Click on, "IP>Hotspot> Servers > Hotspot Setup>HotSpot Interface: Hotspot (LAN >Local Address of Network: 192.168.15 .1/24>Address Pool of Network: 192.168.15.2- 192.168.15 .254>Select Certificate: none>IP Address of SMTP Server: 0.0.0.0>DNS Servers: 8.8.8.8> DNS Name: mdbabu.com>Ok". Figure 3.4.4.1: HotSpot Interface Figure 3.4.4.1: Local Address of Network Figure 3.4.4.1: Address Pool of Network Figure 3.4.4.1 : Select Certificate Figure 3.4.4.1: IP Address of SMTP Server Figure 3.4.4.1: DNS Server for Hotspot Setup Figure 3.4.4.2: DNS Name Step 3: Click on, "IP>Hotspot> User Profiles >Add>General>Name: Hotspot_5MB>Address Pool: Hotspot_Pool>Apply>Ok". Figure 3.4.4.3: Hotspot User Profile Step 4: Click on, "IP>Hotspot>Users>Add>Server: hotspot1>Name: babu>Password: 123>Profile: Hotspot_5MB>Apply>Ok". Figure 3.4.4.4: Hotspot Users Setting Step 4: Next, Check active user "IP>Hotspot>Active>Ok". Figure 3.4.4.4: Hotspot Active User Step 4: User log-In System "Open browser and type www.mdbabu.com >Enter Figure 3.4.4.5: Hotspot Log In Panel Step 5: Figure 3.4.4.5: Log in success in Hotspot 3.4.5 PPPOE Server Configuration in MikroTik Router: Step 1: At first Click on "IP>Addresses>Add>Address: Example: 192.168.100.1>Network: Example: 192.168.100.0>Interface: Example: LAN>Apply>Ok". Figure

3.4.5.1: Address List for PPPOE Server Step 2: Now, Click on:

"PPP>PPPOE Server>Add>Server Name: Example: PPPoE

Server>Interface>LAN>Apply>Ok". Figure 3.4.5.2: Point-to-Point Protocol over Ethernet (PPPoE) Server Step 3: Click on, "IP>Pool>Add>Name: Example:

5_MB_P>Address: Example: 192.168.100.2 192.168.100.254>Apply>Ok".

Figure 3.4.5.3: IP Pool Configure for PPPOE Server Step 4: 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". Figure 3.4.5.4: Point-to-Point

Protocol (PPP) Profile

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MdBabu>Password: Example: 12345>Service: pppoe> Profile:

5_MB>Apply>Ok". Figure 3.4.5.5: Point-to-Point Protocol (PPP) Secret

Step 6: Click on, "Queues>Queue Types>Add>Type Name: Example:

5_MB_Q_UP>Kind: pcq>Rate>5M>Classifier: Select Src.

Address>Apply>Ok. Agene Add>Add>Type Name: Example: 5_MB_Q_UP>

Kind: pcq> Rate>5M>Classifier: Select Dst. Address>Apply>Ok." Figure 3.4.5.6:

Queue Type for PPPoE Server Step 7: 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." Figure 3.4.5.7: Simple Queue for

PPPOE Server CHAPTER 4 [Conclusion and Future Career & Scope 4.1](#)

[Conclusion](#) [and](#) Discussion: [In](#) short of [my](#) internship project I will learn about configuring network by MikroTik and how to make and configure the **network**. I

will also learn and complete understanding of IP **classes**. **Main** learning of this project was how to configure ISP link, Bandwidth Control in different ways, Bridge mode configuration, Firewall and NAT Configuration, Network Security, All of the instruction help and improved me to **increase** build my job aims and career skilful. This Internship is completely handed

course and [provides information and aptitudes which will introduce me to a](#) Mikrotik [for informative, Informative. Along with improving the](#) most recent forms and server [security, we always see the reconstruction and role of the](#) programming department. [The MikroTik operating system provides us with a](#) [comprehensive introduction of steady, Reliable and successful administration. Now, today most of the](#) [organizations are highly dependent on their work on the](#) network

thought [internet](#). Therefore a proper network design is very important to think of an organization, without this it is not possible to manage all network support.

4.2 Future Career & Scope: In real life finding a job can be a big challenge of anyone of our country, especially if we have no **experience**. That's why I choose an internship, because it can help me to improve my career opportunity into an experience. So, this internship provides me to find scope in a future life: - Work in ISP based platform, **Work at as an IT manager of a company. - Work at as a Network Engineer.** Work at as a technical support and security manager. - Bank job for IT

References

[1] About Daffodil International University, available at <>, **Access on 2** January'2020 at 10:00pm. [2] **IST ENGINEERING LTD House# 292**, Ulon Road, West Rampura, Dhaka-1219 info@istengineeringltd.com, <https://istengineeringltd.com> [3] [IP address](#), available at <<[https://en.wikipedia.org/wiki/IP address](https://en.wikipedia.org/wiki/IP_address)>> Access on 20 January'2020 at 11:00pm. [4] DHCP Configuration in MikroTik Router, available at <>, **access** on 05 February 2020 at 10:00pm. [5] Static-IP Configuration in MikroTik Router, available at << [https:// help.biznetnetworks.com/hc/en-us/articles/115011708608-How-to-Configure- Static-IP-for-Mikrotik-Router/](https://help.biznetnetworks.com/hc/en-us/articles/115011708608-How-to-Configure-Static-IP-for-Mikrotik-Router/)>> **Access** on 10 February'2020 at 11:00pm. [6] PPPOE Server Configuration in MikroTik Router, available at <> Access on 20 February'2020 at 10:00pm. [7] Hotspot **server setup**, available at <<[https://wiki.mikrotik.com/wiki/ Hotspot server](https://wiki.mikrotik.com/wiki/Hotspot_server_setup) setup>> **Access on** 05 March 2020 at 11:00pm.

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