Empirical Study on ISP Operation and Maintenance With MikroTik Router

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In Sectional Gratification of the Requirements of the Degree of Bachelor of Science in Electronics and Telecommunication Engineering, this Report was presented

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APPROVAL

This report title **"Empirical Study on ISP Operation and Maitenance With MikroTik Router"** submitted by Md.Mehedi Hasan to the department of Electronics and Telecommunication Engineering (ETE),Daffodil International University,has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. Electronics and Telecommunication Engineering and approved as to its style and contents. The presentation will be held on March 2021.

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DECLARATION

I want to note that **Md. Mehedi Hasan** is preparing me for this internship study. **ID: 171-19-1970** to the Department of Electronics and Telecommunication Engineering (ETE), **Md. Taslim Arefin**, **Associate Professor and Head**, Faculty of Engineering, Department of Electronics and Telecommunication Engineering (ETE) under my honorable supervisor. I shall also declare that I do collect data from my internship at an ISP-based company, Atova Technology Ltd.

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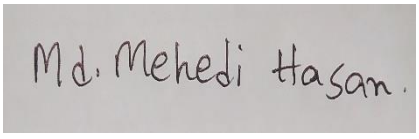

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At first, I want to express my gratitude to the almighty Allah for charitable everything to me.In the true spirit of achievement,through quality commitment and time to the internship program, a goal of completion is achieved.

Without the coordination,assistance,and support provited to may be many personalities, I am so grateful for carrying out my mission.. This internship report is not consume possible without the provision and direction of **Md. Taslim Arefin, Associate Professor and Head,,** Department of Electronics and Telecommunication Engineering(ETE), Daffodil International University Dhaka.Under the direction I choose this subject,In the staff of the department of Electronics and Telecommunication(ETE) at the Daffodil International University.For the kind assistance and also to other faculty participants,must grant this for final internship with the pertial support of my family members.

ABSTRACT

The operating system is the MikroTik Router and is designed for a network router.The main objective of this report is to manage Mikrotik router's network and bandwidth setup.For the purposes of the ip and addressing, In this report work based on Networking,Os Mikrotik,Mikrotik Ethernet Route,then basic configuration of Mikrotik,Installation of Mikrotik,Winbox Dashboard,Interface,Ip addressing,DNS server Firewall,IP routing,Ip Ping,Winbox interface menu,DHCP configuration,Bandwidth management,PPPoE configuration,Wireless connection,ARP/AP configuration,IP service,User ID and many other features are included.It is really equipment are connected to computers, and useful for everyday life.In the critical network of basic networks,network equipment are connected to computer and several devices,switches,routers,and wireless access point.One machine can communicate with another computer and with other networks,such as the internet,on a network connected system.Now today,there are a vast number of people with everyday lives all over the world with intenet technology.So,right now,networking is so much of a major reality.Thats why it is a machine variable.To form a network,the computer system is connected.The Mikrotik router is a multitude of DNS server Bandwidth control features,etc.

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Chapter 1

Introduction

1.1 Introduction

This is internet information technology that is part and parcel of our everyday life.It is the vast number of people who use it all over the world.It relies on the server for internet communication.Internet service interface technology is not possible without a DNS server.

In the internship,the practice of making student the real work is the practice.That is the area of internship employment in a vital position of accounts,engineering medical science.each of them is there importance in internship and before degreenaward.This is a showfocused on software and internet networking technology for e-commerce.

Different types of services such a banking software,credit card,ATM technology,debit card,mobile banking,online transaction,etc.To the prepare myself for the competitive network and system management job market in my internship program mikrotik platform.The appropriate opportunity is provided by Atova Technology Ltd.In this ISP based company.knowledge is gathered from the network

1.2 Motivation of Report

I am currently monitoring my degree in Electronics and Telecommunication Engineering (ETE) at Daffodil International University.The key reason for the interest in the network system of mikrotik is to ensure that the people in Bangladesh have a better and faster source of networking.I am pursuing the importance of expanding national data,in which the learning of the path book continues and cables me to stand in the oftenbroad subject of the mikrotik network .I was completely capable of learning the Mikrotik Networking of the Mikrotik router from the day it was announced.As a web enters the supplier,I have communicated to a great standard sound.What is at the lead of my thoughts,interacting with individuals paying attention to their requiements and giving them better organization.In my collecting knowledge of my ability to evaluate and cover the state of the law broadly and quickly but then specifically of Mikrotik.

1.3 Objectives:

ICT is currently one of the main elements necessary for building a career.The objective of this work on the Mikrotik Network is:

i)To control the operating system Bandwidth to Achieve User Prosperity Prevalent.MikroTik, as a network router. The use of a machine to become a reliable network router is the operating system and software for that. A range of features for the IP network and wireless network are included in the computer.

ii) To run on the Router OS-based system intended for installation on the MikroTik Router Board. It can also be installed on a PC and converted into a firewall router, a VPN server client, and an access point. A capable portal based on a wireless access device will support the system**.**

iii) To learn how to install, configure, manage and optimize the solution from Mikrotik Network. This is a very high level for network protection systems. For that reason, and for the subject, I chose an internship.

1.4 Report Layout :

In the **Chapter 1** I have described Introduction,Objective and Motivation of the Internship.

In the **Chapter 2** I have described the Networking,types of networking which is using for Mikrotik ,Introduction of Mikrotik and types of the so many Router.

In the **Chapter 3** I have described basic configuration of Mikrotik such as the,

(os installation,Winbox Dashboard,Interface,IP Addressing,DNS Server of the Firewall IP Route IP Ping) etc.

In the **Chapter 4** I have described the Mikrotik fundamental charge at the operation and Maintenance about various kind of operation,

setup(DHCP,Bandwidth Management,PPPoE,ARP,Firewall) etc.

In the **Chapter 5** Depict about of my report decision and future extent of MikroTik.

CHAPTER 2

Introduction to Mikrotik

2.1 Networking

In the present era, networking is also an important thing to communicate. I can not think of sharing data from one place to another without networking. Through networking, data can now be easily exchanged from one location to another. By distributing data between many computers, I can create a network. [1], MikroTik is a Latvian company founded in 1996 to build routers and wireless ISP systems. In most countries around the world, MikroTik currently offers network ownership hardware and software systems. The perception of standard laptop hardware and complete routing systems in the victimization industry allowed America to develop the Router OS computer code in 1997 that provides intensive stability Controls for all types of interfaces and routing of information. I appear to set out to build their own hardware in 2002, and the whole router board was born as well. In most parts of the world, there are resellers, and most likely buyers in each country on the planet.[2]

2.2 Types of Networking

2.2.1 LAN (Local Area Network)

In our everyday lives, it uses the local area network. It is mainly intended to use title-medium workplace-court and business trade networks to form small medium office lamps and share information and resources between system time and could be saved for electronic printer equipment scanner, etc. The native space network will not improve computers and alternative network devices so that the system will share one of the other resources. The computer network is that because of the design of the computer network, the sole use of the cable is limited by the computer network at most distance and spare choice .[3]

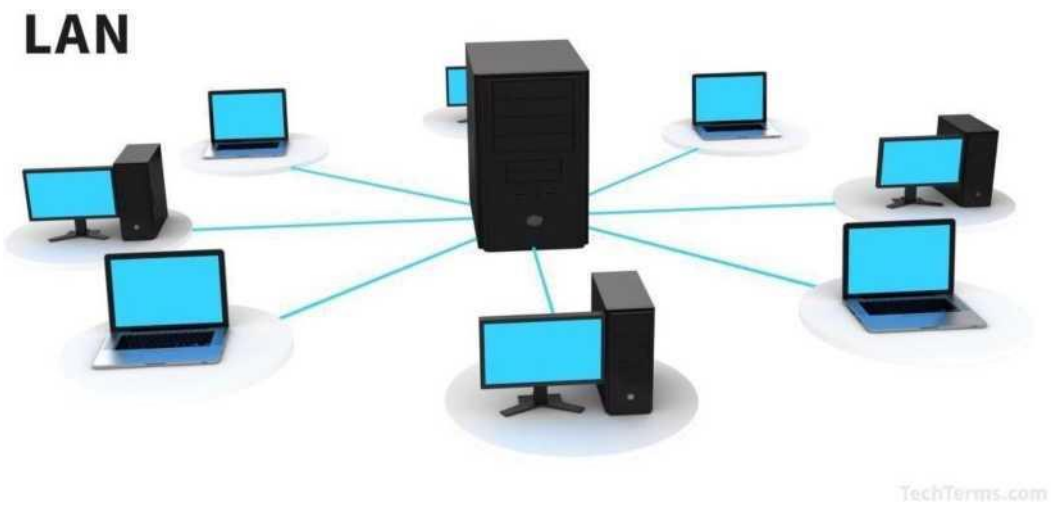


Figure 2.2.1 **Local Area Network (LAN)**

2.2.2 MAN (Metropolitan Area Network)

MAN stands for Networks in the Metropolitan Region, one in each of a number of networks. An person may be a fairly new category of a network. MAN is the wider space network than a local area of a neighborhood} and, as its name suggests, encompasses the city's world. MAN seldom reaches over 100 kilometers and instead requires a mixture of varied hardware and transmitting media. It's one form of cable TV network network or it's a method of connecting a number of PC networks to an even larger network, so in addition to device-to-device, resource area unit shared PC networks to LAN. A community network such as Cable TV Network, covering the entire city or a gaggle of several indigenous networks, is created by a person. The resource is shared from network to network and from laptop computer to laptop computer to boot during this process. MAN is typically owned by large corporations to interconnect different branches within a city. [4]

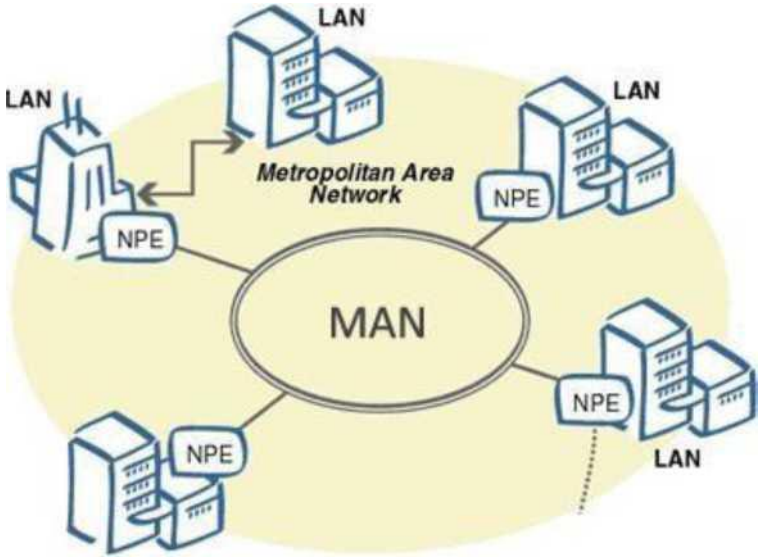


Figure 2.2.2 **Metropolitan Area Network (MAN)**

2.2.3 WAN (Wide Area Networks)

The Large Area Network is established with LAN and MAN in the broad geographical field. This form of network is built with the use of the telephone company only because it is difficult to grow a wide-area network, with special areas and technology used to connect to various LANs. It is very difficult to handle WAN of the plans to build more than the LAN because it is important to create a LAN across the globe, so the satellite is used in many cases. Most Wide Area networks run at a speed of 1,544 Mbps at 56kbps.

The features of Wide Area Network are

1. These networks can expand in a large region and their costs can be distributed across the world.

2. Generally, these are slower than the local area network.

3. Any Internet-wiring system such as router-modem switches, etc., must be used by the Wide Area Network.

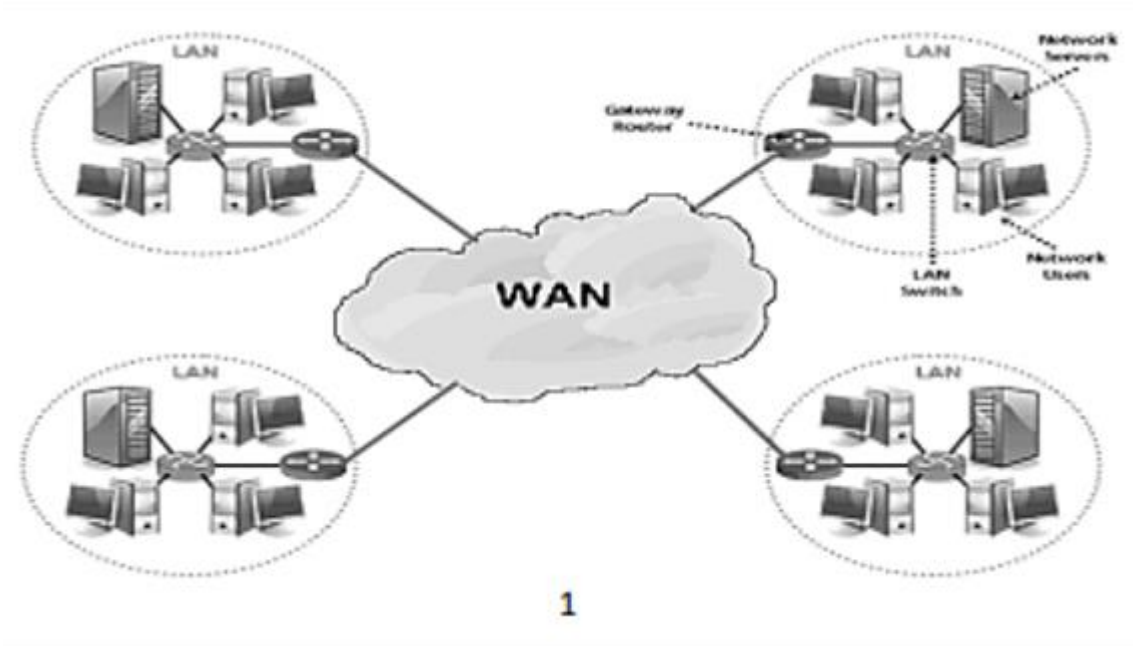


Figure 2.2.3 **Wide Area Network (WAN)**

2.3 Training Served

For my internship, I chose Atova Technology Ltd. There are three months of training and MikroTik Router Training is done about networking MicroTouch switch configuration. Training is done because I was accepted here at first and began lessons. At first, we have no idea about networking First, we learn about IP configuration We get different IP subletting and reconciliation information Then we started to mount the micro-router in the virtual box And we gather all sorts of micro-router information. Second, if a new configuration can be forwarded by a MikroTik router, then the device would have to be reset to give it first. In the Mikrotik router, it is important to first get an Internet connection, to check the IP on the interface, and then to provide the DNS and the gateway. We have no idea about the different Mikrotik router setups, so we have the PPPoE DHCP configuration service that I know all sorts of bandwidth management configurations and how I can pick or share bandwidth. How to configure and block Facebook and YouTube bandwidth through the MikroTik router that our teacher doesn't know. We didn't shake it again by experimenting despite learning all the types of configurations. I have a full understanding of the MikroTik router configuration after completing a three-month course..

We learn about networking and IP sub-netting properly in the first month and switch VLAN setup and switch management.

> Learning and understanding of Network Components.
> MikroTik Basics Analysis and Comprehension.
> Centos Simple Commands Key Commands.

We learned the second month from Atova Technology Ltd MikroTik training Basic MikroTik setup and OS installation in VMware :

> Installation of MikroTik by OS
> Website Faltering
> The IP Addressing Principle.

IP Address Concept Last month we learned the very important MikroTik hole configuration for the management of the MikroTik router.

> IP Configuration
> Sub netting
> Networking Binding
> VLAN
> PPPOE

> Static and DHCP
> Bridge
> Bandwidth Management
> ARP/AP
> PPPOE
> Wireless Configuration
> Firewall
> Firewall security

2.4 OS of Mikrotik

The operating system is MikroTik OS. There are various license levels for the operating system, ranging from 0 to 6, where 0 is a 24-hour trial version. You can test all Router OS features free of charge in the trial mode. The different license level characteristics can be compared here. It's very quick to install the Router OS. You can either download the ISO file, burn it to a CD, and boot it. Alternatively, Router OS will be written to any secondary drive you have connected to our Windows PC by Net Install. Switch and boot the drive to our Router PC. You can find all installation methods, plus update files and more here.[4]

2.5 Mikrotik Ethernet Route

2.5.1 HEX lite

In a nice plastic case, HEX lite might be a tiny 5 port LAN router. Its value is alone under the Router OS license-there is simply no alternative once it involves managing your wired home network, not only is it in expensive, small, reasonable and easy to use-it is most likely the most inexpensive MPL-capable router on the market, no more compromise between values and options-each RB750R2 has. It works perfectly in any SOHO atmosphere with its compact style and clean appearance.

Figure 2.5.1 **HEX lite**

2.5.2 HEX PoE

HEX PoE is a Gigabit Ethernet 5 port router for locations that do not require wireless connectivity. To add optical fiber connectivity, the computer has a USB 2.0 port and an SFP port. Other PoE capable devices can be powered by ports 2to5 with the same voltage as applied to the unit. It is affordable and simple to use, but comes with a very powerful 800 MHz CPU at the same time, capable of all the advanced configurations supported by Router OS. Ethernet ports are shielded and fewer power adapters and cables are 1A per port to worry about Max current. Passive PoE input and passive or 802.3 af/at PoE output are also provided. Other PoE-capable devices can be powered by Ethernet ports 2-5 with the same voltage as applied to the unit.

Figure 2.5.2 **HEX PoE**

2.5.3 RB2011

The RB2011 is a multiport device series that is low-cost. Designed for indoor use, and accessible with a multitude of options in many different cases. With 5 Gigabit Ethernet ports, five Fast Ethernet ports, a power jack and PoE support, the RB2011iL is the most basic model. It's powered by the new 600MHz 74K MIPS network processor of the next generation Atheros. For port 10, there is a PoE output function - it can be the power of another PoE

Capable devices with the same voltage as the unit being applied. The maximum load capacity for the port is 500mA.

Fig:2.5.3 **RB201**1

2.5.4 CCR1036-8G-2S

With the new CCR1036-8G-2S(+) now having two SFP(+) ports for 10G interface support, our fastest router has now become even better. It uses the same Tiller CPU 36 core as our other model CCR1036 and delivers the same performance, but ten-gigabit links are now likely. The device has two SFP(+) ports, eight Gigabit Ethernet ports, a serial console cable, and a USB port, and comes in a 1U rackmount case. The CCR1036-8G-2S(+) has two sodium slots and is shipped with 4 GB of RAM by default, but in Router OS there is no memory limit (will accept and utilize 16GB or more). Also available now, the 16 GB RAM EM model supports both SFPPs..

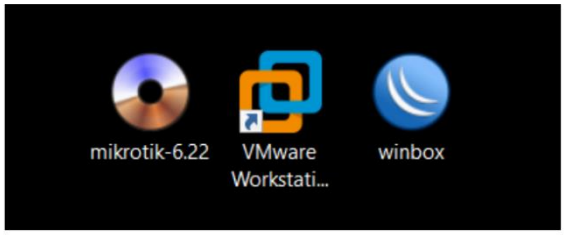
Figure 2.5.4: **CCR1036-8G-2S**

Chapter 3

Configuration of Mikrotik

3.1 Basic Configuration of Mikrotik

Step 1: The first install VMware application and then open it and after that click on **File>New virtual Machine>Tyical>Next**



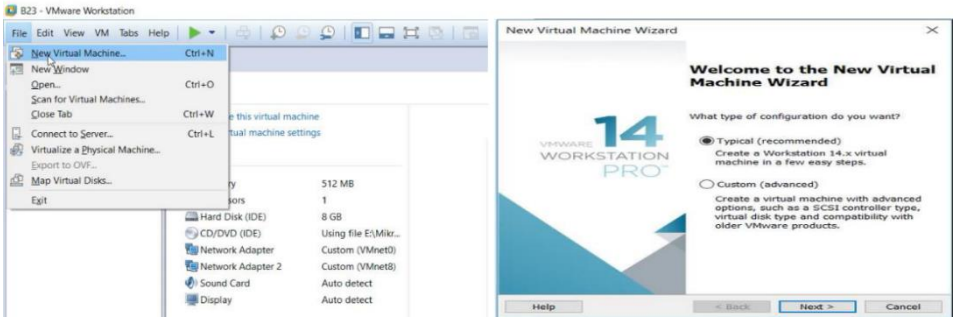


Figure: **Basic Configuration of Mikrotik**

Step 2: The disk image file(ISO) installer and then click next.then create a name for the virtual machine and select the location where iot installs, click next.Now configure the hardware requirement.

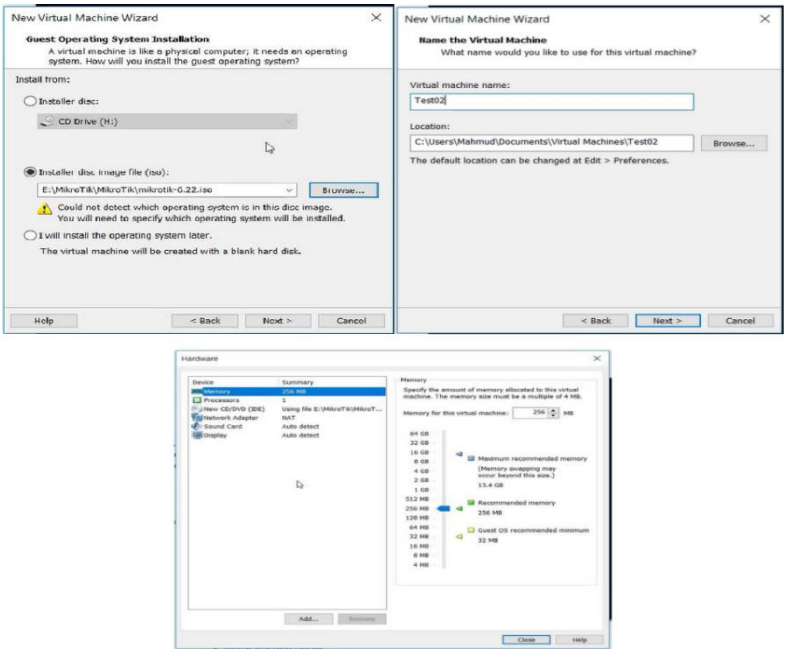


Figure: **Basic Configuration of Mikrotik**

3.2 OS Installation of Mikrotik

Step 3: Click on the **power of virtual machine**.A welcome screen come where click **a** for select all and then **i** to install after press “n” to not configure and continue the process press **y.**

When installation is complete see a login screen where press MikroTik.

Login:**admin**

Password:**admin**

Then go in,

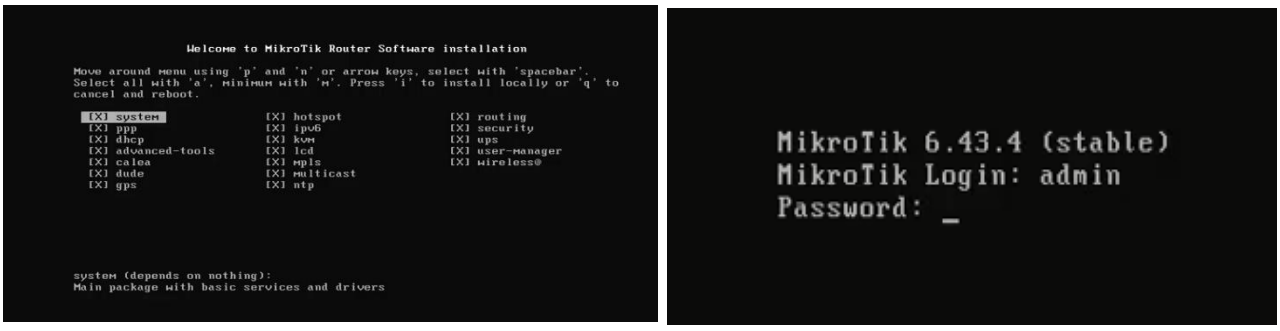


Figure: **installation of Mikrotik**

3.3 Winbox Dashboard

Step 4: Install router os and run winbox first to download winbox and router OS ISO image file in VMware, preferably in the login window on the MAC address form admin and user password.

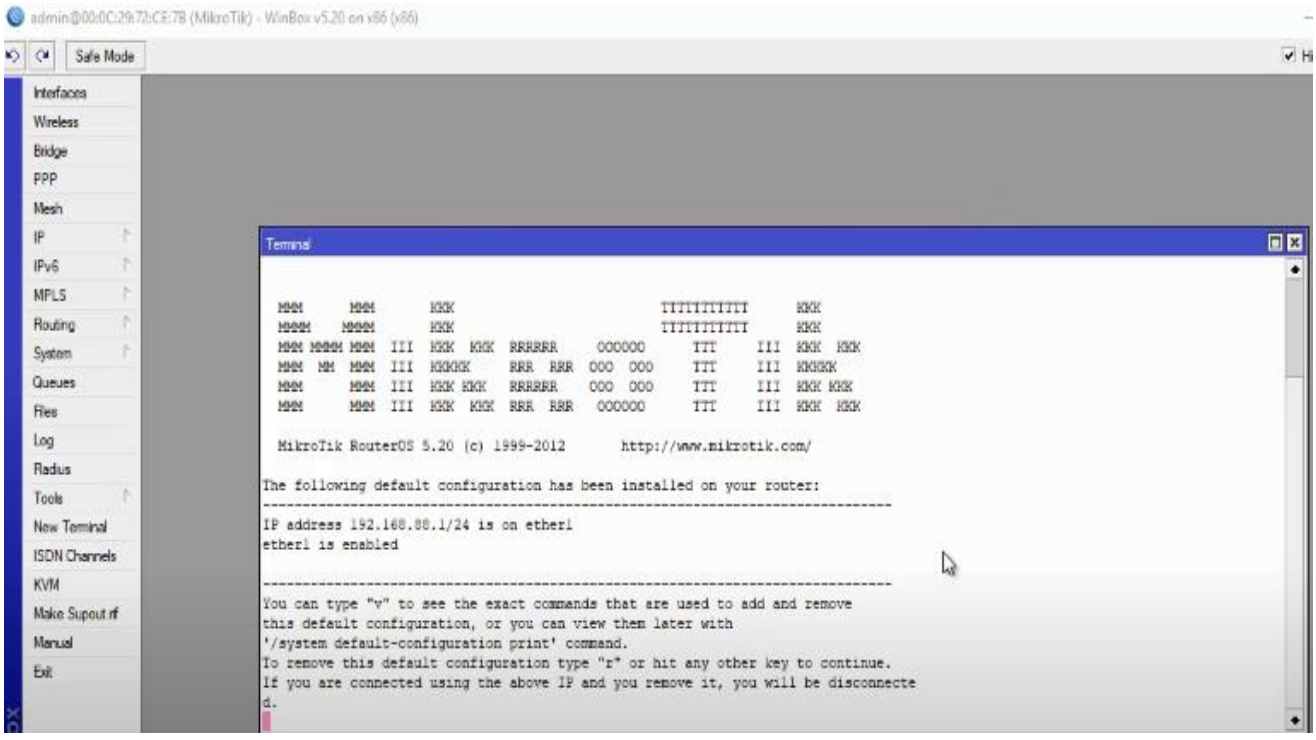


Figure: **Winbox Dashboard**

3.4 Interface

At first click on **interface >General-ether 1**>**Type-ether**>**MTU-1500**>**Apply ok.**So the Mikrotik router OS supports a wide range of network cards and virtual interfaces.Each has its own sub-menu but the general interface menu can be used to configure and read the standard properties of all interface.

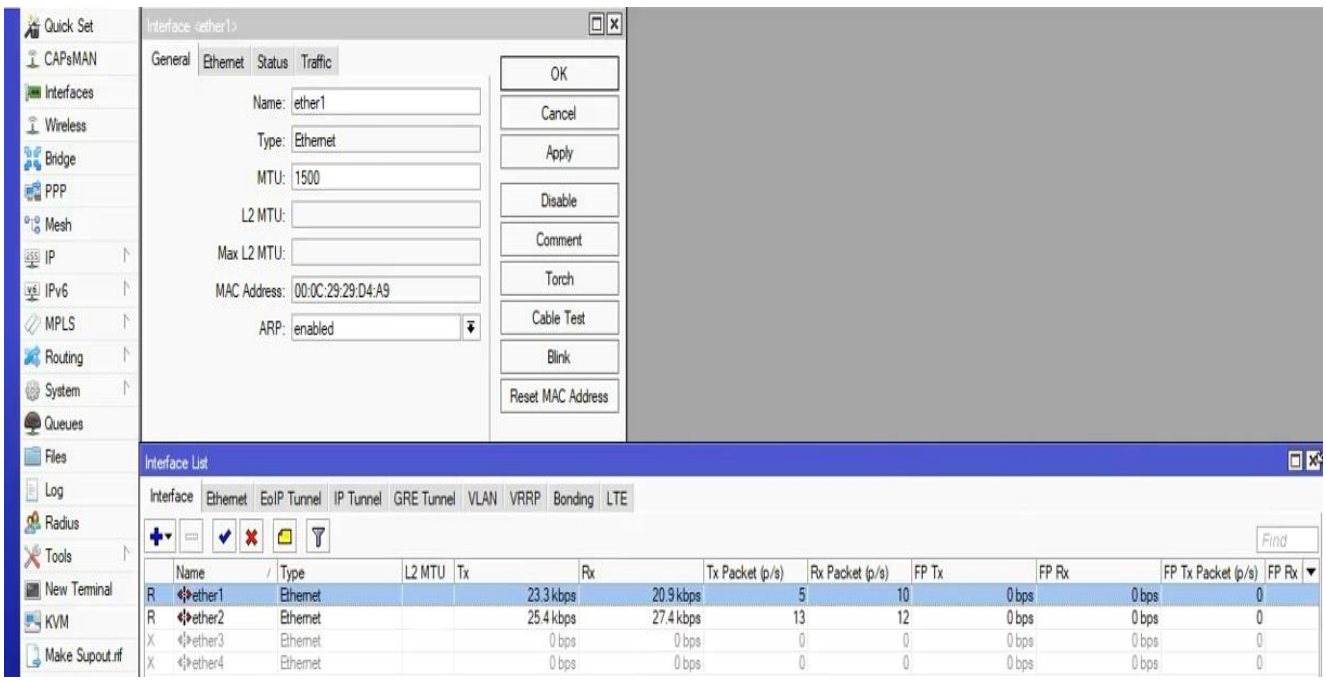


Figure: **Interface**

3.5 IP Addressing

Then click on **IP address**> **add IP on Address >Network and Interface>Apply ok**. The IP addresses **192.168.1.1/24** and the network address are added **192.168.1.0** and next followed by the interface Ether 1.In IP networks,IP addresses are used to identify hosts in general.

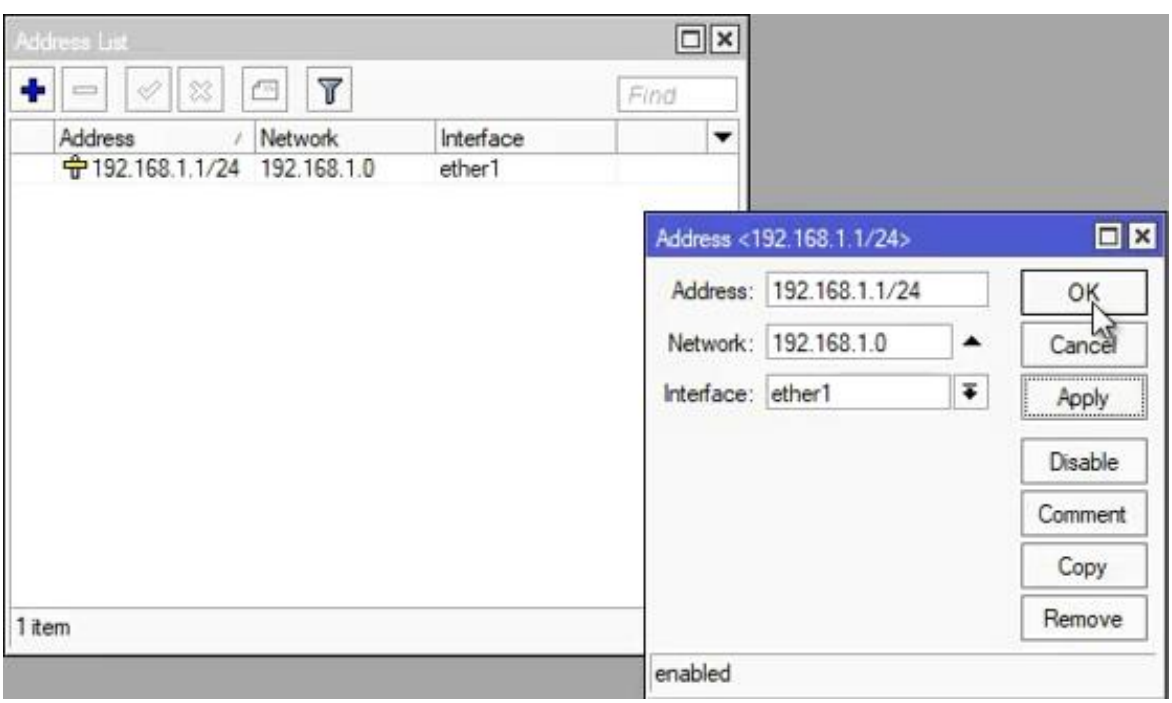


Figure: **IP Addressing**

3.6 DNS Server

Then **IP>DNS>ADD Server IP address>click on Allow Remote Request>Apply Ok**.So the settings of server is 8.8.8.8 click on alliw remote request,the added of max UDP pack size of 4096,Query server timeout are 2000,total timeout are 10,000,max concurrent Queries are 100, then Max concurrent TCP session are 20, Cache size 2048kib,Cache max TTl 7d.00:00:00 and used 17kib,it's the DNS server.

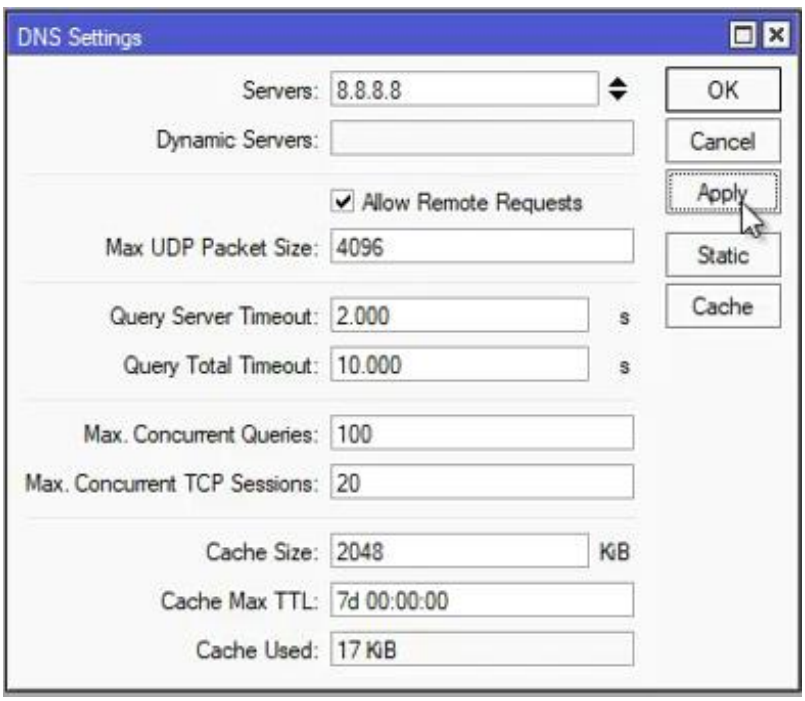


Figure: **DNS Server**

3.7 firewall

Click on **IP>Firewall>Add>Action and Select masquerade>Apply Ok**.So the Mikrotik router OS Firewall uses stateful Filterig technology to detect and block a variety of stealth scans,SYN floods.When a foreign packet claims to be part of an existing link and attempts to reach the network,the firewall consults its list of connections.

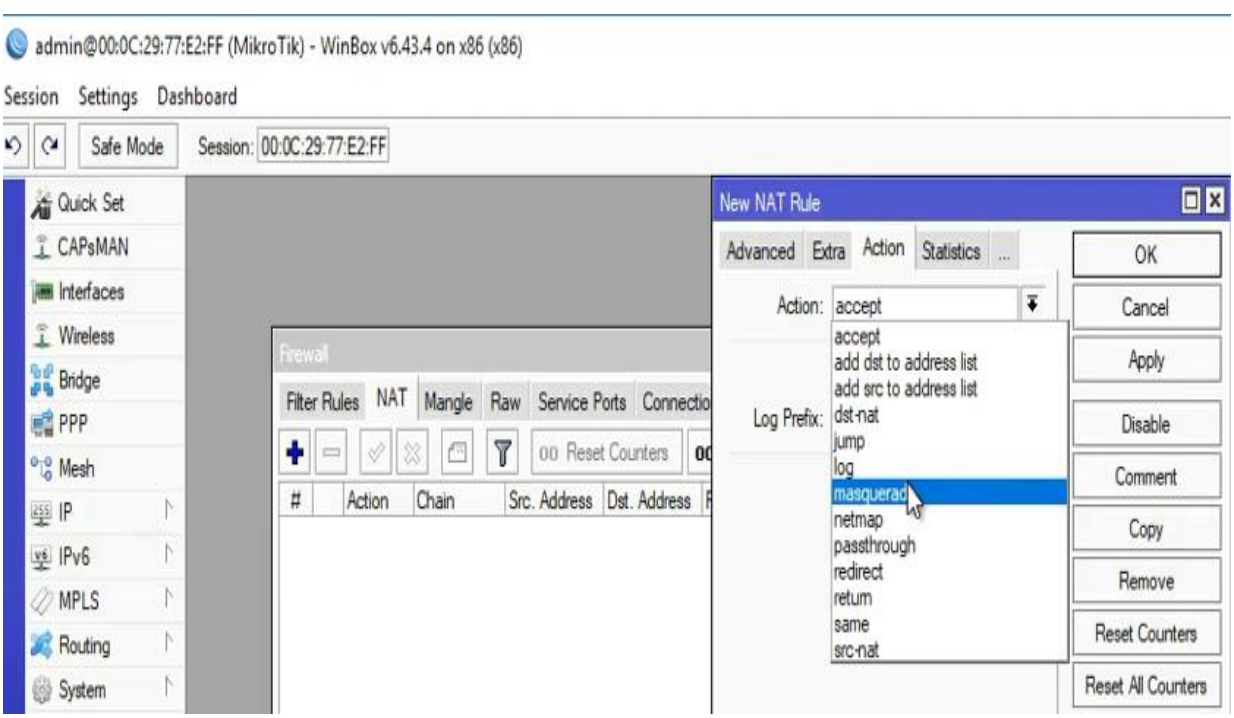


Figure: **Firewall**

3.8 IP Routing

Click on **IP>Route>Add New Route>Dst-Address,Gateway>Apply Ok.** There are three parts of ip routing: a new route with the dst address 0.0.0.0/0 and the gateway 103.100.0.1, a gap 1 scope 30 and a target scope 10, and the dst address 103.100.0.0/30. It's reachable over ether 2 and the last of the dst addresses, 192.168.1.0/24, is reachable over ether 1.

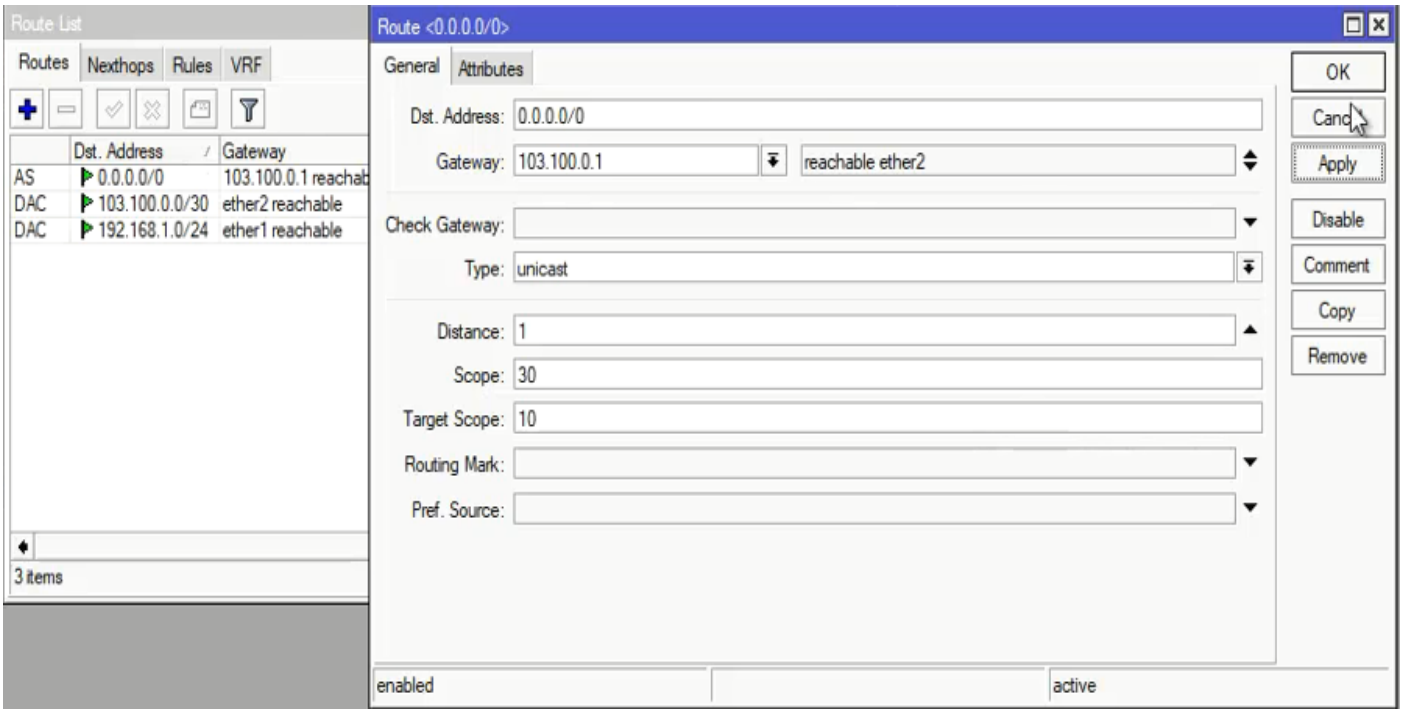


Figure: **IP Routing**

3.9 IP Ping

After finishing then checked by **New Terminal>Terminal=ping(IP)>ok**. When communicating with a remote host, Ping uses the Internet Control Message Protocol (ICMP) Echo messages to decide whether it is active or inactive, as well as the round-trip delay.so the check of ip ping are below in figure.

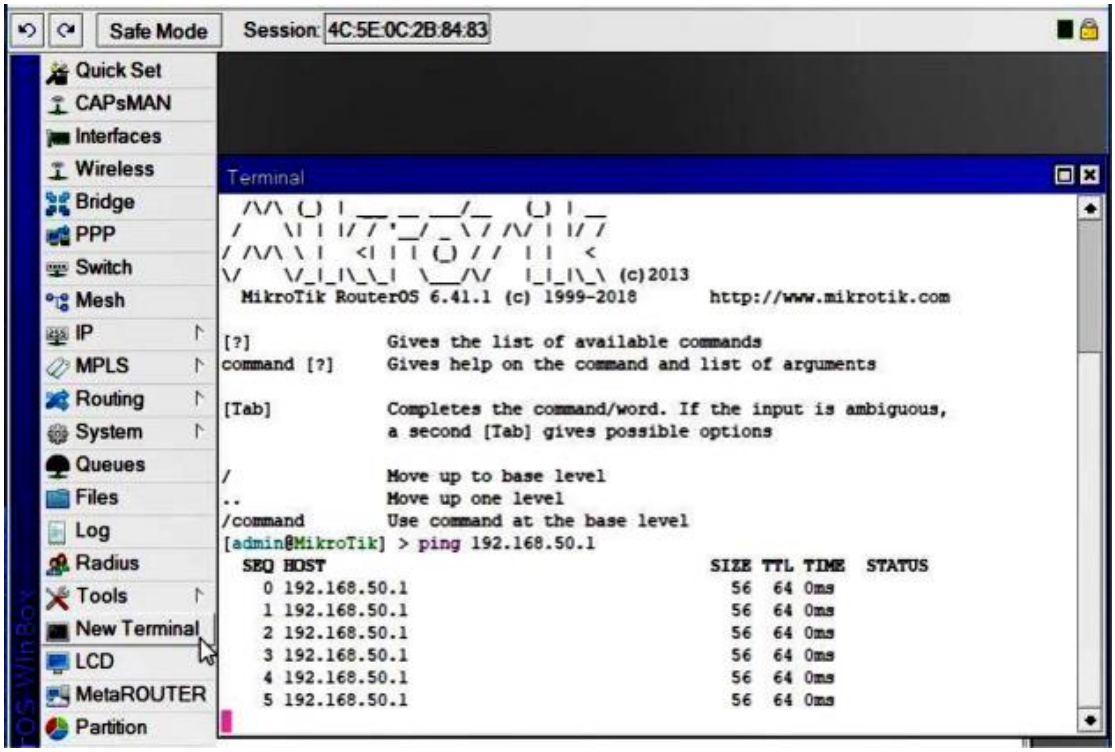


Figure: **IP Ping**

3.10 Basic Configuration of Mikrotik

I first go to the MikroTik dashboard for the basic setup of the MikroTik router, then go to IP and from here to there. **addresses**.

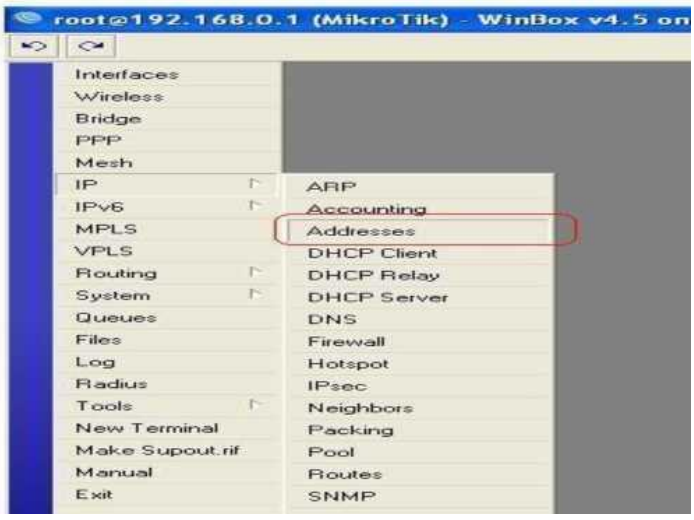


Fig3.2 **Basic Configuration of MikroTik**

When open the Address List dialog window, this window will click on the place to open the IP Address window, as shown below.

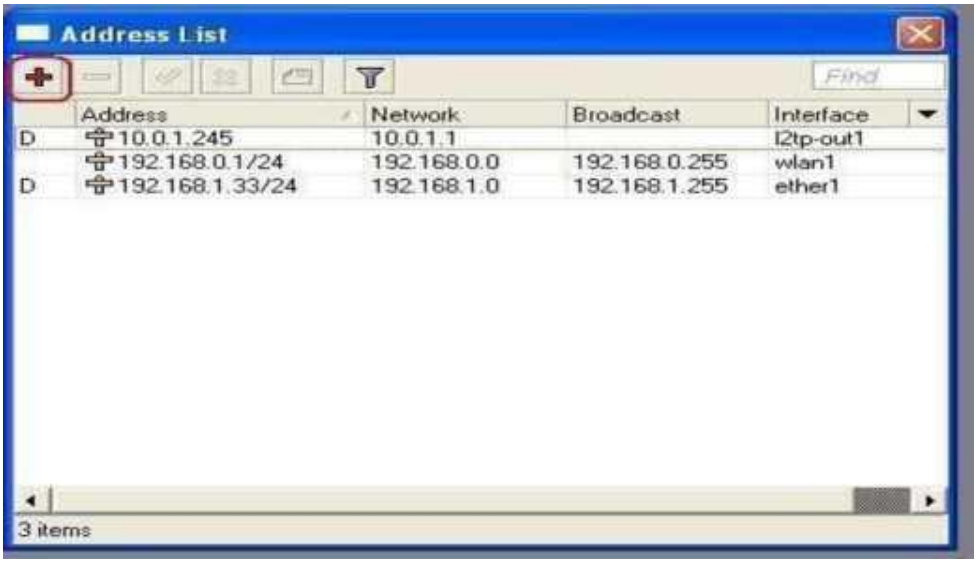


Fig3.3 **Basic Configuration of MikroTik**

3.11 Basic Configuration of Mikrotik

When open of the IP address dialoge then enter the address details and then click ok

Fig3.4 **Basic Configuration of MikroTik**

This is a tutorial that shows how to set the new Mikrotik Winbox user's password. As shown below, click on the menu object :

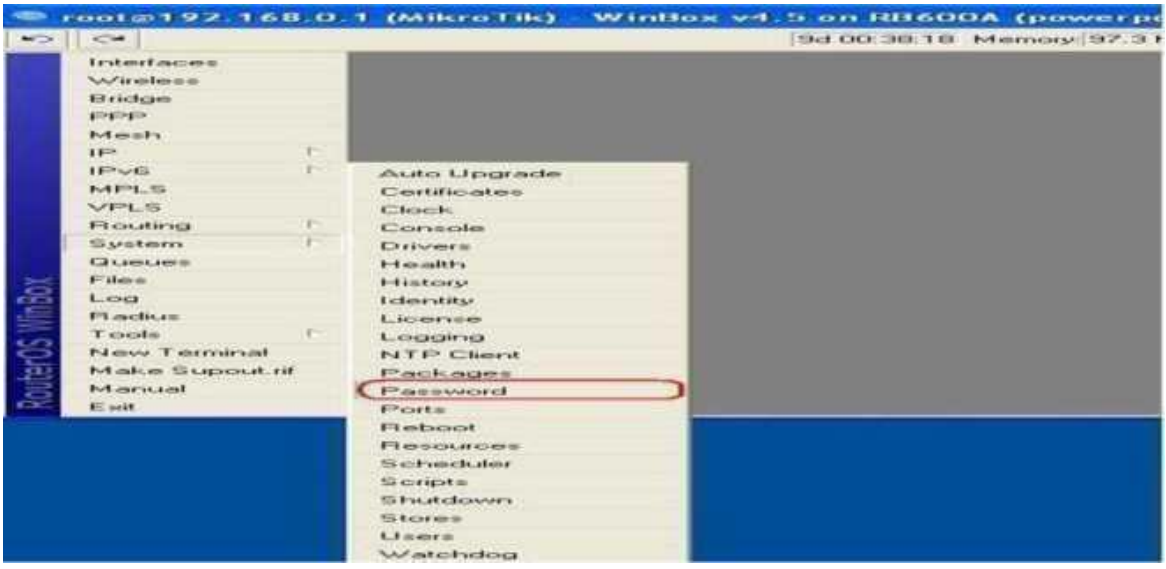


Fig3.5 **Basic Configuration of MikroTik**

3.12 Winbox Interface Menu

The administration of MikroTik Router OS using an expedition is a diminutive usefulness of the sanctions in Winbox. It's in the native binary of Win32. All Winbox interface functions represent console functions as closely as possible, which is why there are no Winbox sections in the manual. Most of the systems and advanced ones.

■ The Winbox is signed with a Mikrotik-issued Extended Validation certificate. For key exchange and authentication, WinBox uses ECSRP for.

■ Both sides check if the other side knows the password..

■ In RoMON mode, Winbox allows Vice Regent to be the latest version to be able to connect to the latest version of the router.As an encryption algorithm, Winbox utilizes AES128-CBC-SHA

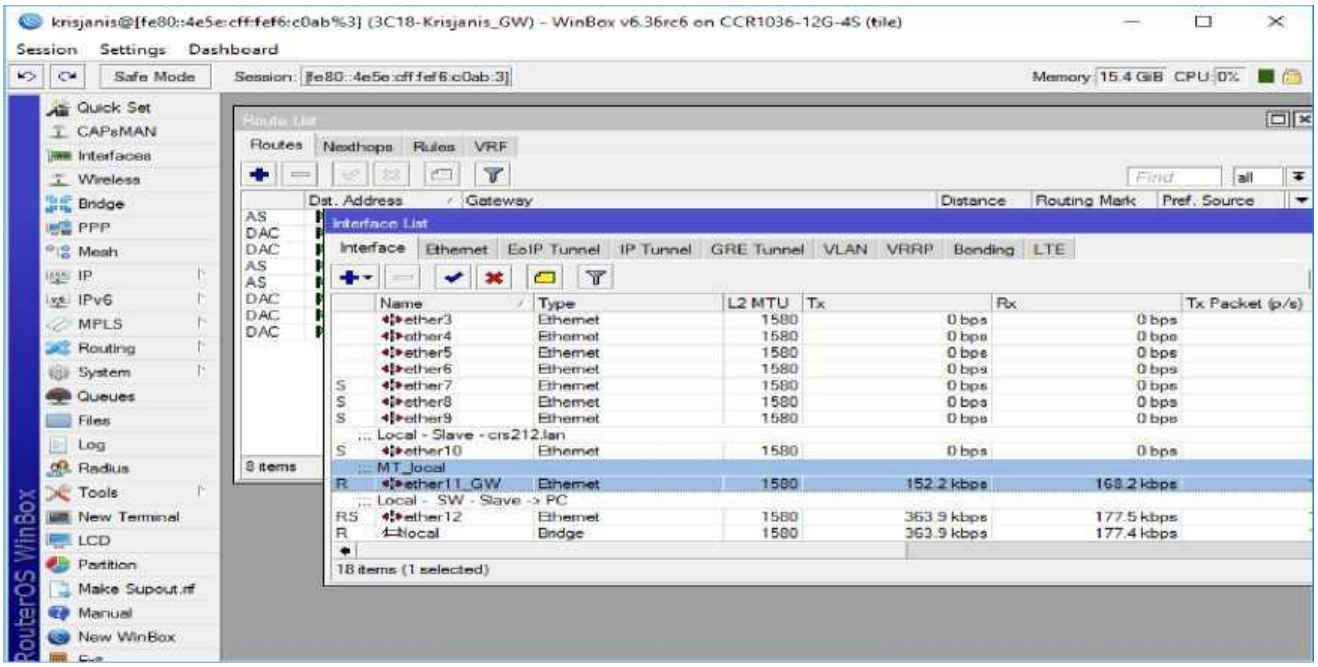


Figure 3.1: **Winbox Interface Menu**

Chapter 4

Operation and Maintenance

In this chapter I have described,

- DHCP Configuration
- Bandwidth Management
- PPPoE Configuration
- Wireless Connection
- Wireless Configuration
- ARP/AP Configuration
- Firewall Configuration
- IP service
- User ID etc.

The Mikrotik router is used for both setup and maintenance, and it has been demonstrated here how to configure it.So Shown down it step by step all different configuration is out.

4.1 DHCP Configuration

Step 1: Login with Winbox software then,

Step 2: Go to IP > DHCP Client

Step 3: See a new window.

Step 4: Click on the + button to add a DHCP client

Step 5: After clicking in the red (+) button, and another window will appear.

Step 6: In the first setting, let's pause. Ethernet LAN port 1 is an interface, for instance. Our Wireless Card is an interface that is attached to the WAN board. If our Mikrotik Ethernet port 1 is connected by an Ethernet cable to our ADSL router, then the Mikrotik Ethernet port 1 should be a DHCP client, as this port receives an IP address from the ADSL router. Pick Ether 1 under Gui, press Submit and OK.[5]

Step 7: See Ether 2 now in search of an IP address. In the picture below, ether 2 is the measuring mechanism and one of the network links is the controlling contact to prevent the connection from being filled.

Step 8: Then Queues Open the Winbox The easy queues, then, Then press the plus open site, this gui of the **ether 2**,and the click on **Interface-ether 2** and click on add default route, Then **apply**>**ok**

.

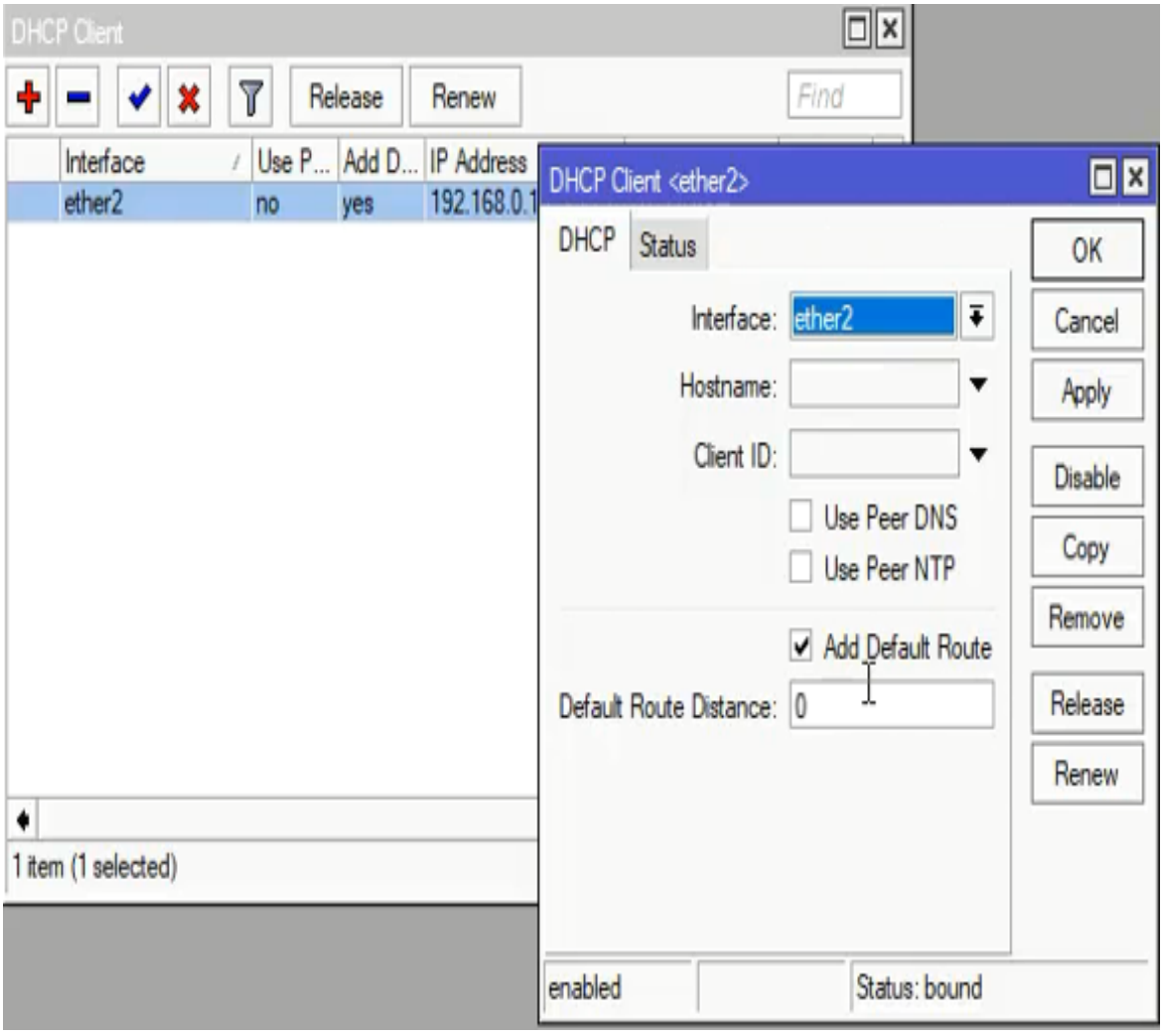


Fig: 4.1 **DHCP Configuration**

4.2 Bandwidth Management

There are 2 ways to bandwidth management,

i)Add multiple queues(1 per IP).

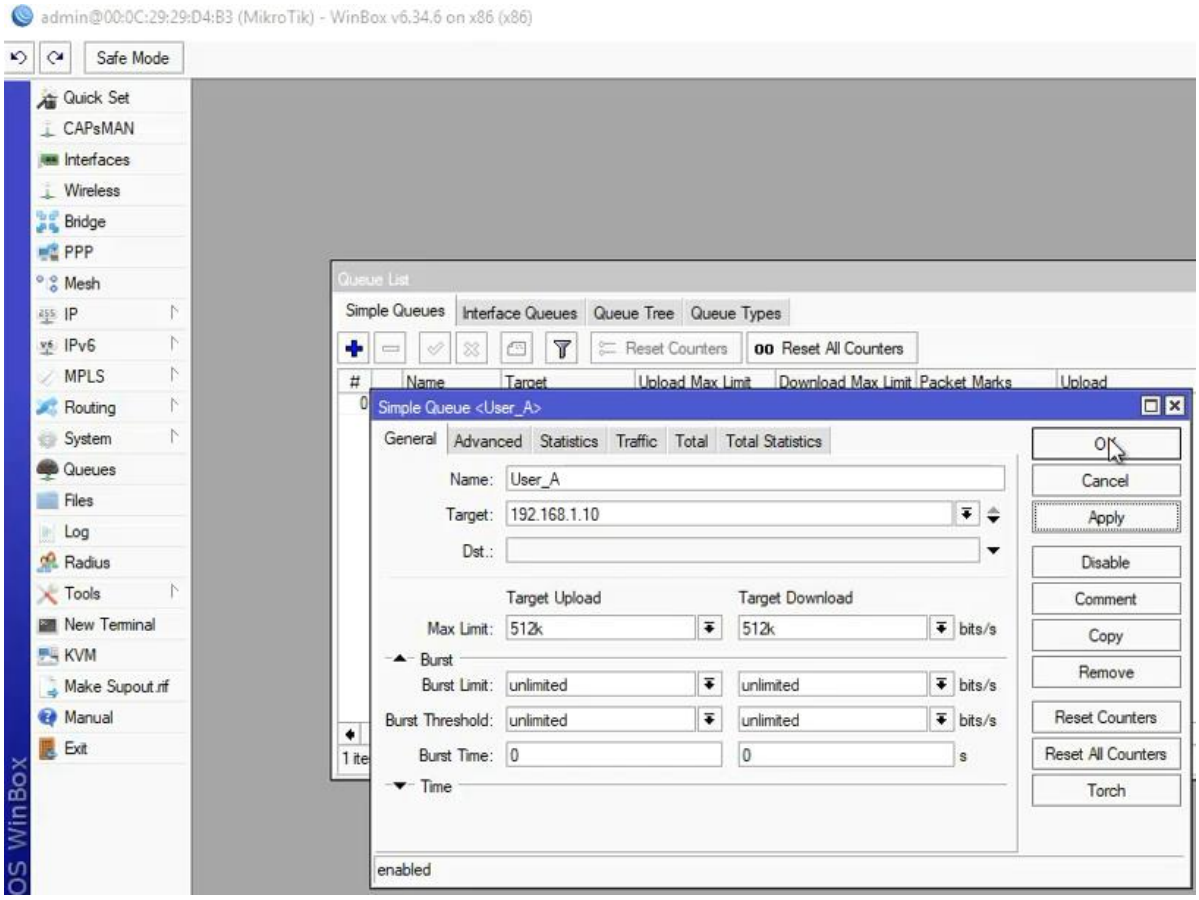


Fig:4.2 **Bandwidth Management**

ii) Define the two new types of queues for PCQs. (1 for download and 1 for upload) and I almost always use a winbox. After that, the exact CLI commands will not be remembered. Winbox, however. We're going to have to go to Queues and then add Queue Forms (+) to give it a name to say. Download 10M, sort-PCQ rate-10M, Classifier-Dst. Default Address for Rest is OK.[5]

Add another one:

name -10M-Upload, kind-PCQ, rate-10M, Classifier-Source Address

4.3 PPPOE Configuration

In the network protocol for Point-to-Point Protocol (PPP) encapsulation frames within the Ethernet loop, PPPoE stands for the Point-to-Point Protocol over Ethernet. Usage is use

In a network protocol for Point-to-Point Protocol (PPP) encapsulation frames within Ethernet frames, often the DSL services where PPPoE stands for Point-to-Point Protocol over the Ethernet. It is primarily used for DSL devices where individual users link via Ethernet to the DSL modem. Network Ethernet is packet-predicated and has no link capacity. They lack all the security features for IP and MAC disputes and rogue DHCP servers. Separate users are wired over Ethernet to a DSL modem. The Ethernet networks are packet-based and have no connection capabilities. To defend against IP and MAC conflicts and DHCP server conflicts, they also lack basic security features.

Step l.

Build a PPPoE client and presume that Ether1 is our WAN port. Click on PPP and then click on plus symbol. Plug our WAN cable into Ether1. Add (+) Then pick the Client PPPoE. Next We will see Gui in General tab, then select it as ether1 Now go to the Dial Out tab, and then fill in the User and Password tab, then press Submit, and at the bottom, we'll see Linked status.

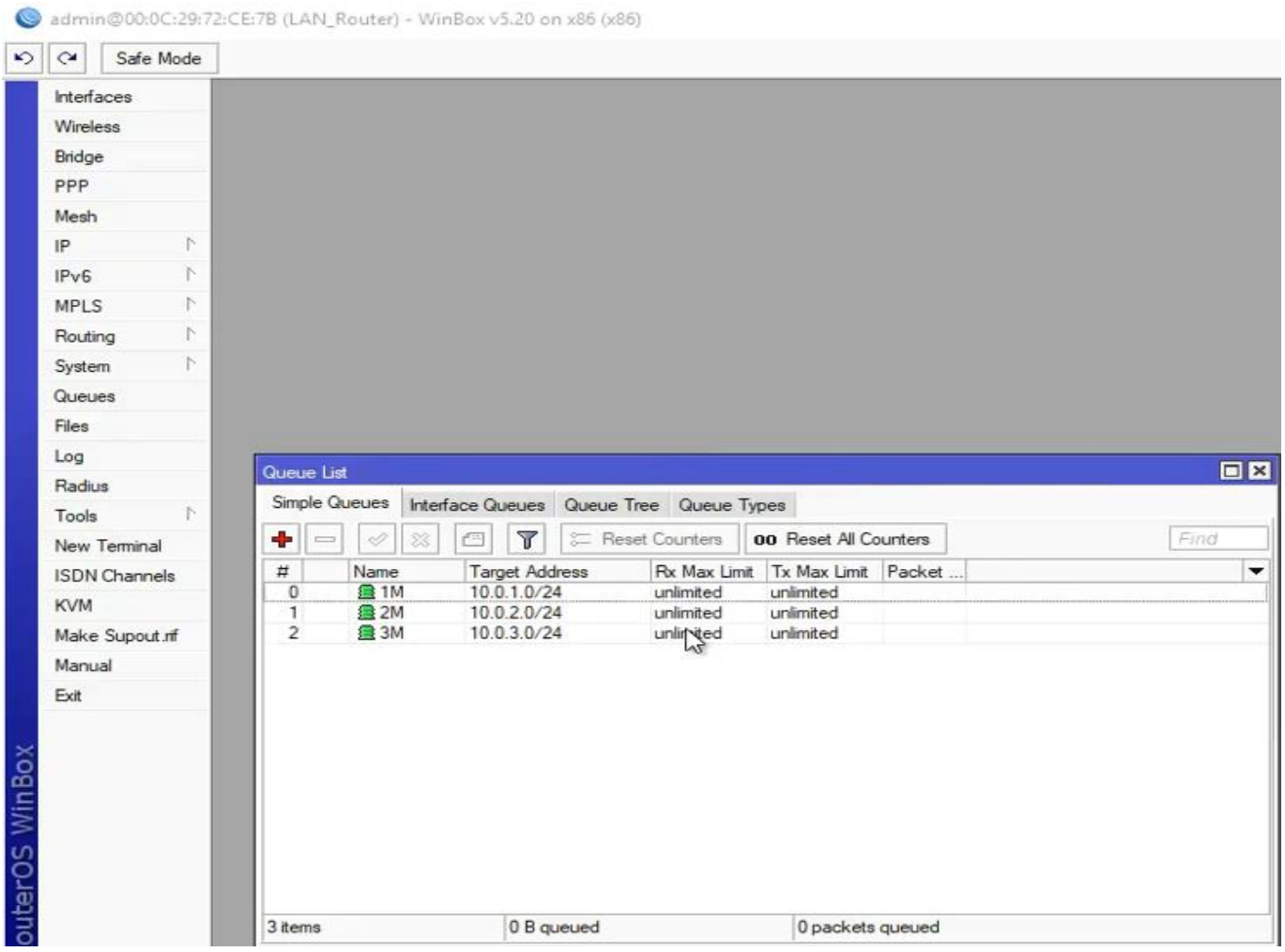


Fig:4.3 **PPPoE Configuration**

Step 2.

Set DNS - click on **IP** and choose **DNS** - Fill in the **DNS IP addresses**

Step 3.

Set DNS, click IP, and pick DNS - Fill out the IP addresses of the DNS. Then one, then When you click on the "Ports" tab, click the "Add (+) symbol" button to add the port to the bridge. Choose the interface we want to add to the bridge, choose the bridge we built earlier, then click OK.

Step 4.

Add **IP address** for LAN, click on **IP** then selected **Addresses,**

To add a new IP address, click on the add (+) sign, fill in the IP address and then choose the bridge name we created earlier.

Step 5.

Create on **DHCP** Server,Click on **IP** then choose **DHCP Server** Click on **DHCP Setup**, then choose our bridge and click next.

Step 6.

NAT,LAN network Click on the **IP** then choose of Firewall.In the general tab, select **scant** and choose PPPoE-out 1 (PPPoE name of that we have created earlier) in out interface. - In the action tab, choose **masquerade** then click ok.[5]

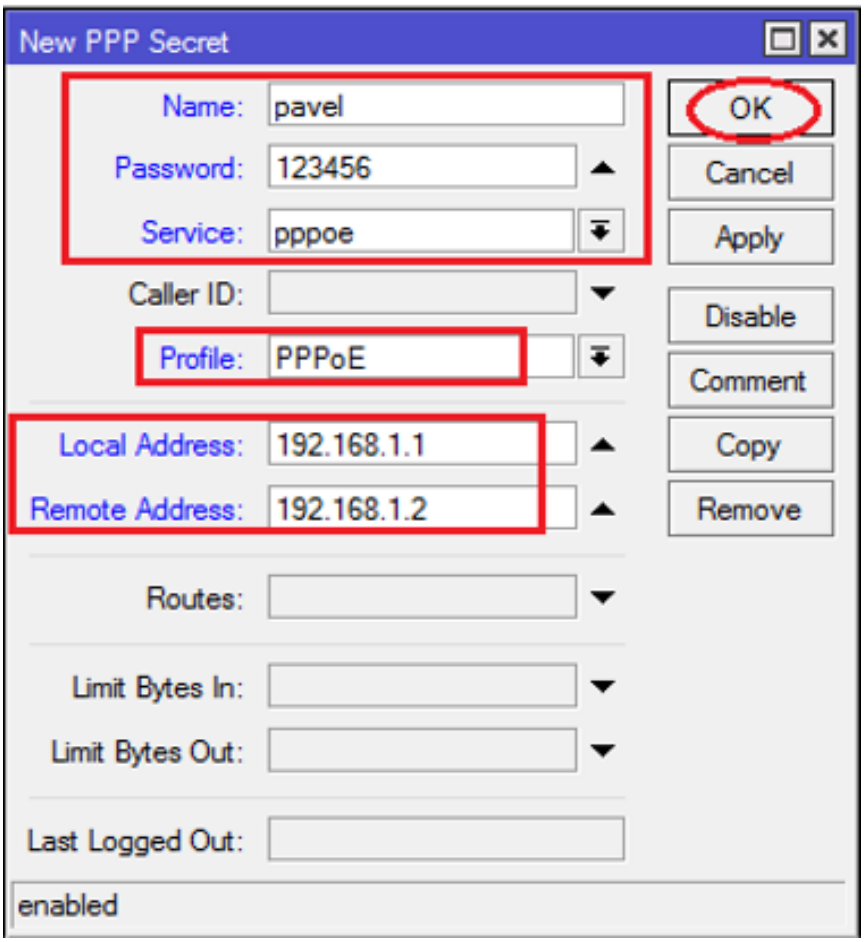


Fig:4.4 **PPPOE Configuration**

Fig:4.5 **PPPOE Configuration**

4.6 : Wireless Connection

Radio waves are used by a wireless local area network (LAN) to connect devices such as laptops and cell phones to the Internet and to the business network and its apps. You connect to the company's wireless network when you connect to a Wi-Fi hotspot at a cafe, a hotel, an airport lounge, or another public location.

Step 1: create a new security profile,and go to **Wireless**>**Security Profile** and add a new profile. Then the create of a virtual access point go to **Wireless**>**Interfaces** and then add a Virtual AP.

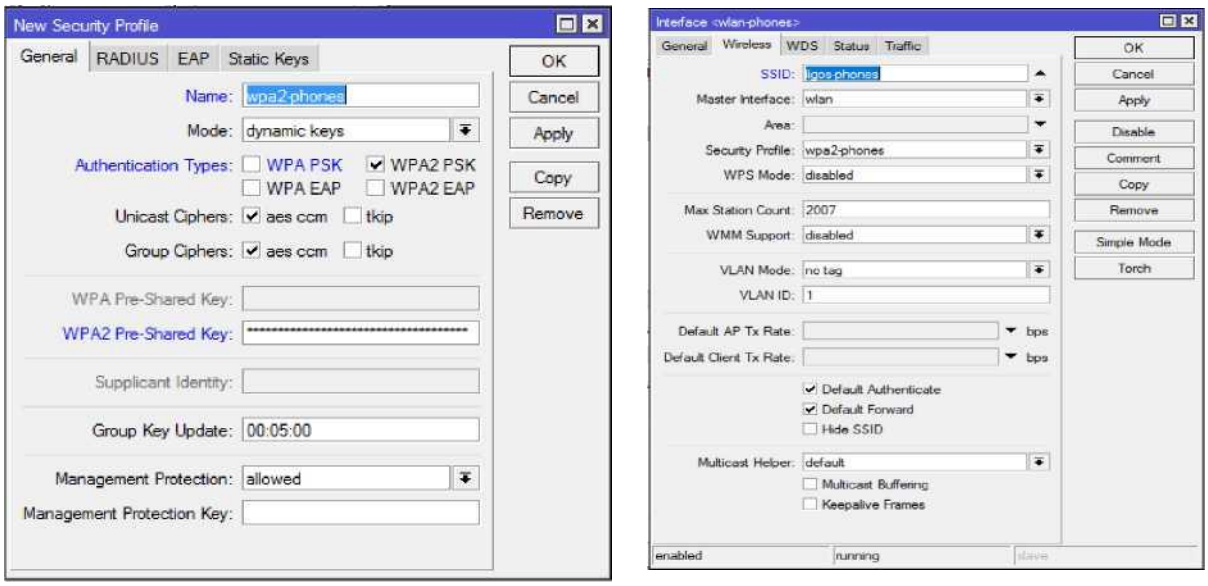


Fig: 4.6 **Wireless connection**

Step 2: A network interface is not so much use without in **IP address**.

Then go to **IP** > **Address** and then add a new address. Go to the **IP** > **Pool** and then add on a **new pool** and click **ok**

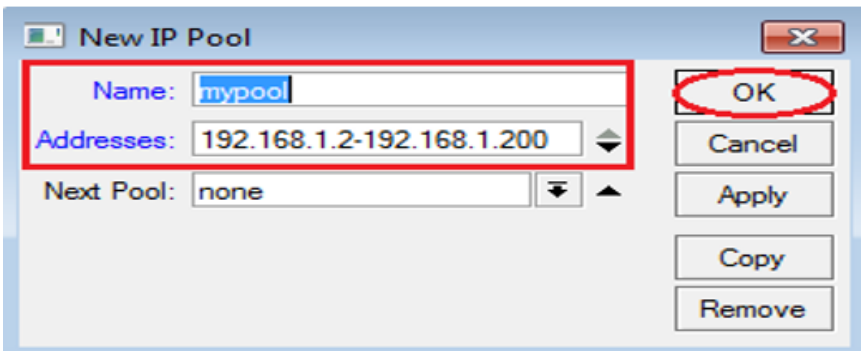


Fig: 4.7 **Wireless Connection**

Step 3: Go to **IP menu,**then **DHCP Server,**then **DHCP** and(+) a **DHCP Server**,set a name of server and select the **DHCP Interface** and the last of introduce **DHCP** and **pool.**

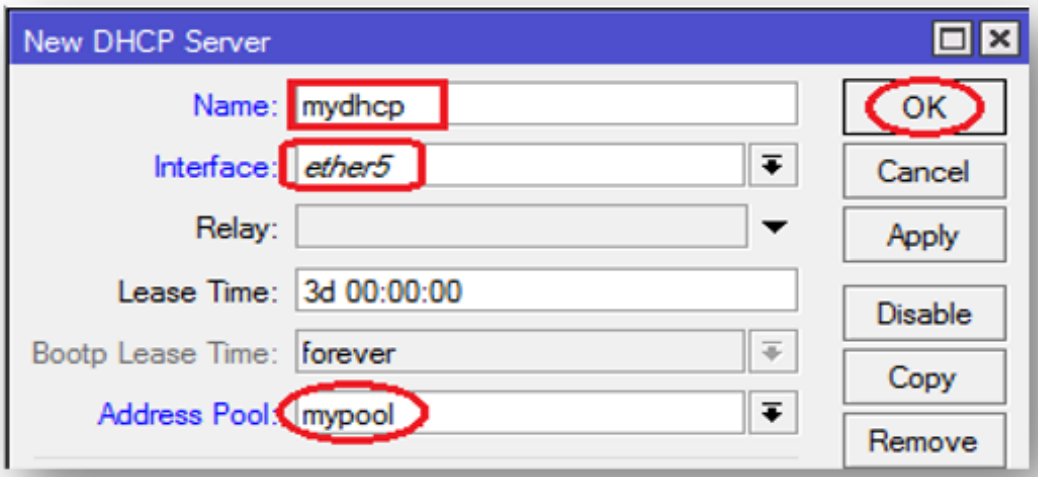


Fig 4.8 **Wireless Configuration**

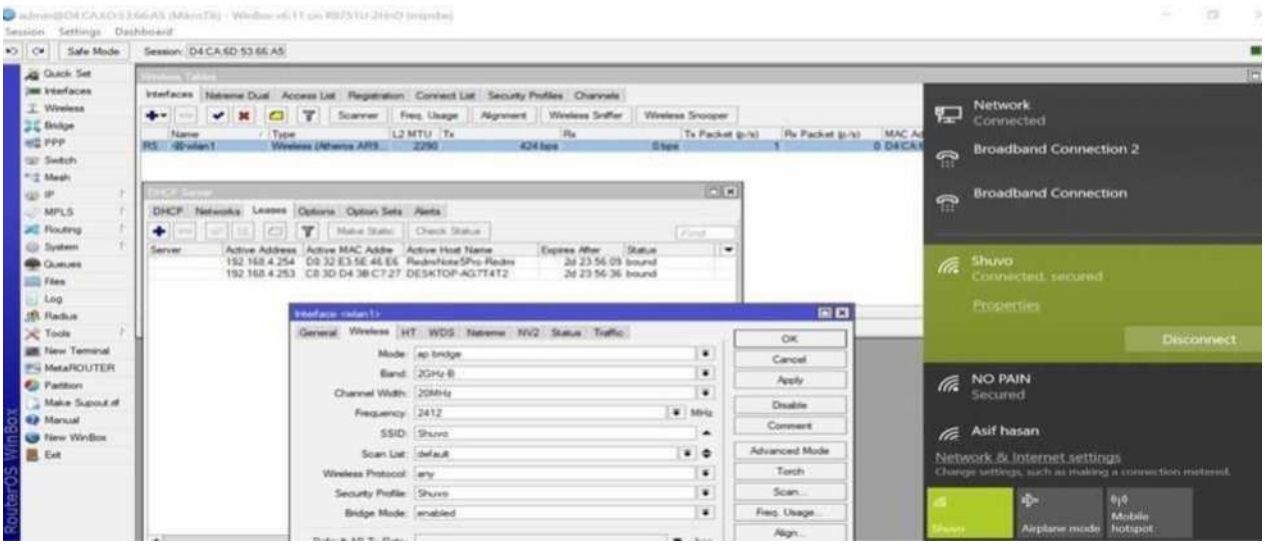


Fig 4.9 **Wireless Configuration**

4.10 ARP/AP Configuration

ARP binding places a static IP to MAC address entry in the ARP table of a computer. When making DHCP requests, DHCP reservations allow a computer on the network to always get the same IP assignment. They are not linked.

I first go to the IP address and select ARP, then click (+) to sign and add information on the screen and press ok, then select Static IP Address, System MAC Address Interface Ether 1

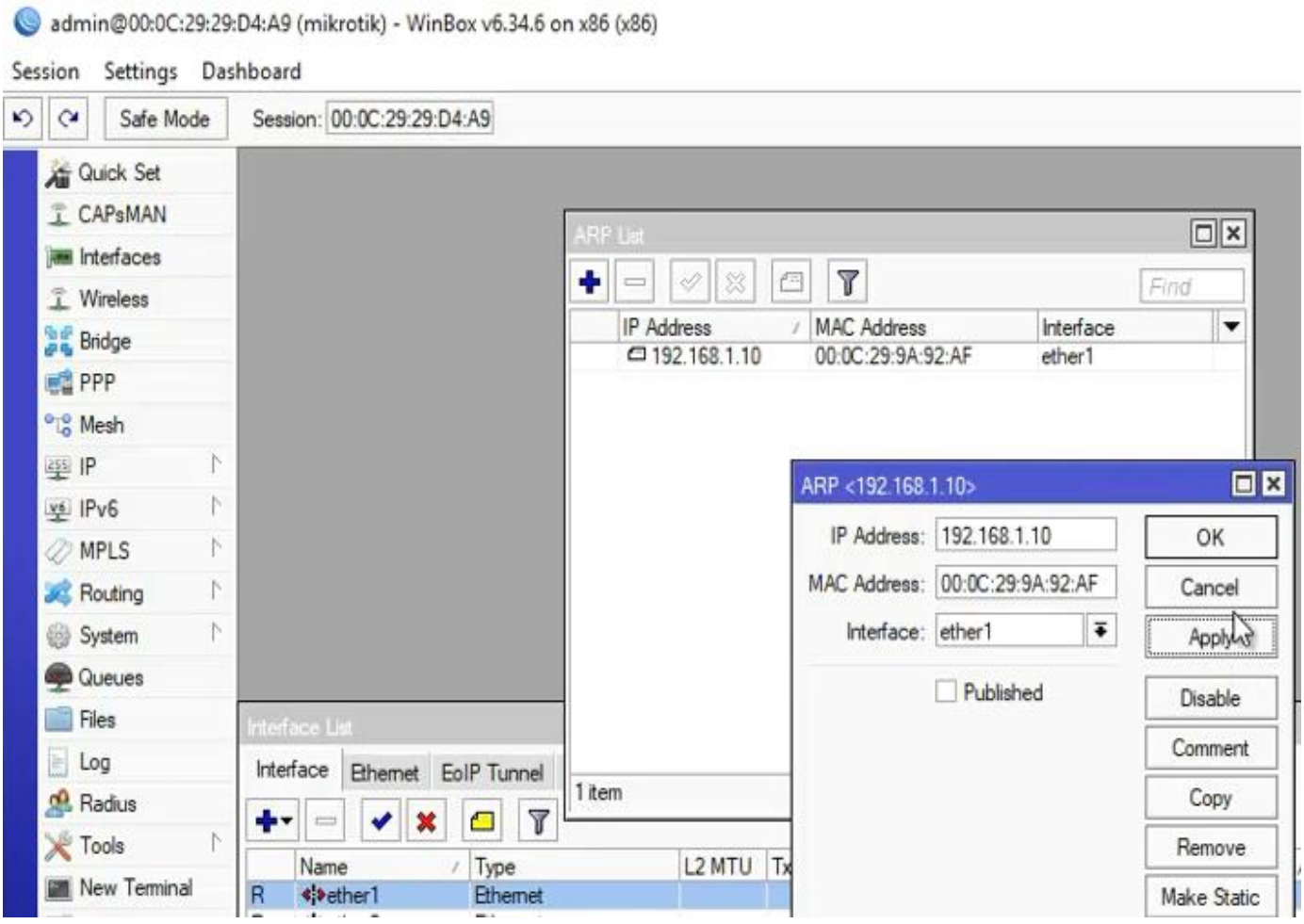


Fig4.10 **ARP/AP Configuration**

Then,

Click (+) to sign and add the details needed on the DHCP Server page, Static IP Address and MAC Address, and then click Use Static IP Server: The DHCP 1

Comments: show the username to be found,

4.11 Firewall Configuration

The firewall incorporates packet filtering and thus offers security features that are used to control the flow of information to, from and through the router. Together with the Network Address Translation, it accommodates the router itself as an implementation for preventative unauthorized access to directly installed networks, and as a filter for outgoing traffic..

Rule-1:

Chain: Input

Source Address: 192.168.1.0/24 and Dst address: 202.4.96.25

Then go to the Action tab and select Accept and click OK. This will create a rule a filter rule.

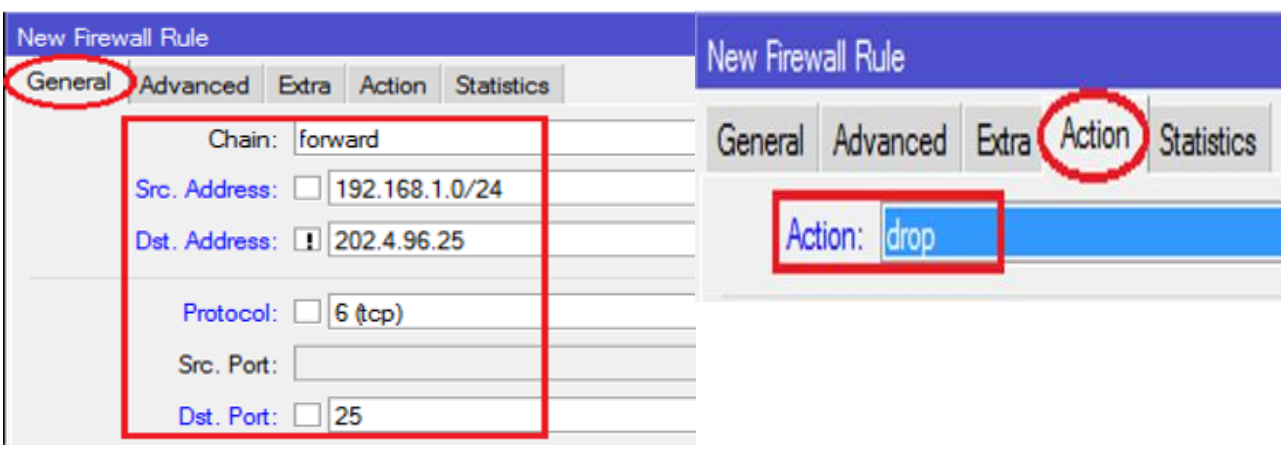


Fig4.11 **Firewall Configuration**

Rule-2:

Chain: Input

Source address: **192.168.1.0/24** Address of source: (your LAN's IP block) Action,Accept **Apply**> **Action**> All right. **OK**.You can now reach our router from the IP/IP block on the WAN side and the IP block on your LAN side. In addition, you can access the Internet anywhere, but because our aim is to prevent unauthorized IP access from routers, we need to establish two guidelines as well as two rules. So that, without any other IP block other than IP, it can not be reached from the router Similarly, then, press Add (+),

Rule-3:

Chain: Input Src Address 203.99.15.100/30 Action: Tec tunes Ads Drop Ads **Apply**> **ok.**

Rule-4:

Chain: Input Source Address 192.168.1.0/24 Address 192.168.1.0/244 Action: Drop Apply> Apply> Action OK Currently, except for 203.99.15.100/30 and 192.168.1.0/24 IP blocks, our router is not accessible from other IP/IP blocks. More filter rules such as brute force attack on your router, port block of various virus spam, special port block of some particular network can be generated. The screenshots of several spamming virus port blocks below

Here, Rule-14 has blocked the 192.168.1.0/24 3129 ports of this IP block. That means it is difficult to use those 3131 ports in the port. This port is usually used on a proxy server. Many network administrators want to avoid their users from using a proxy server so that they can block the appropriate ports..

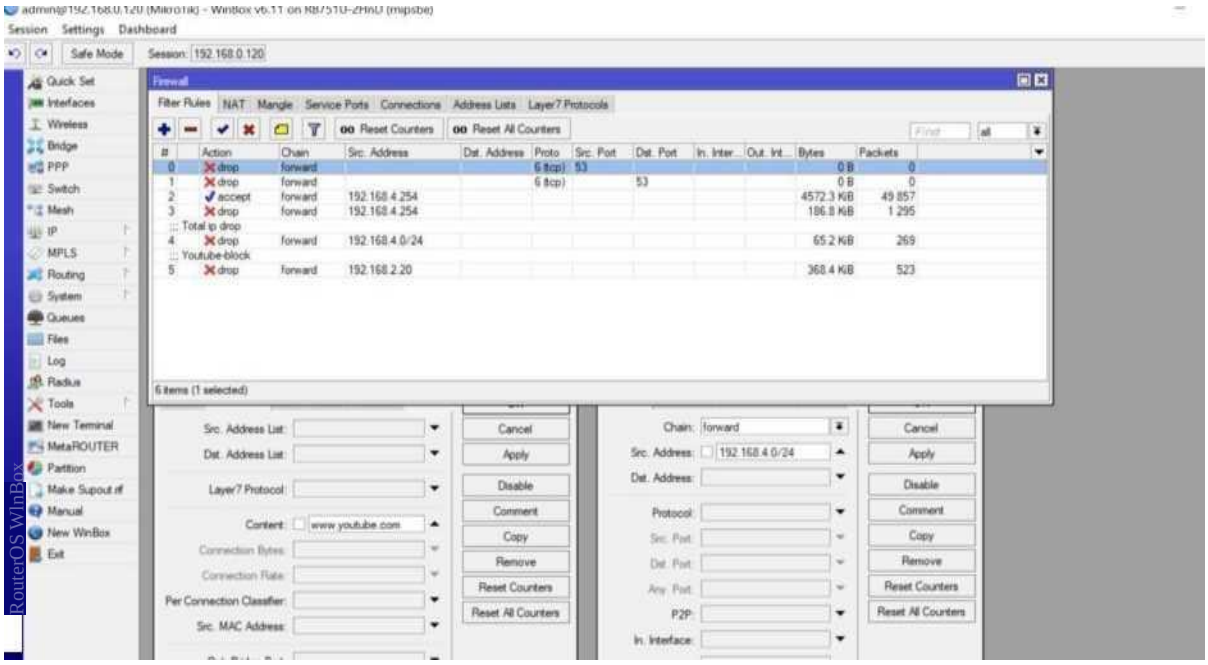


Fig:4.12 **Firewall Configuration**

4.13 : IP Services

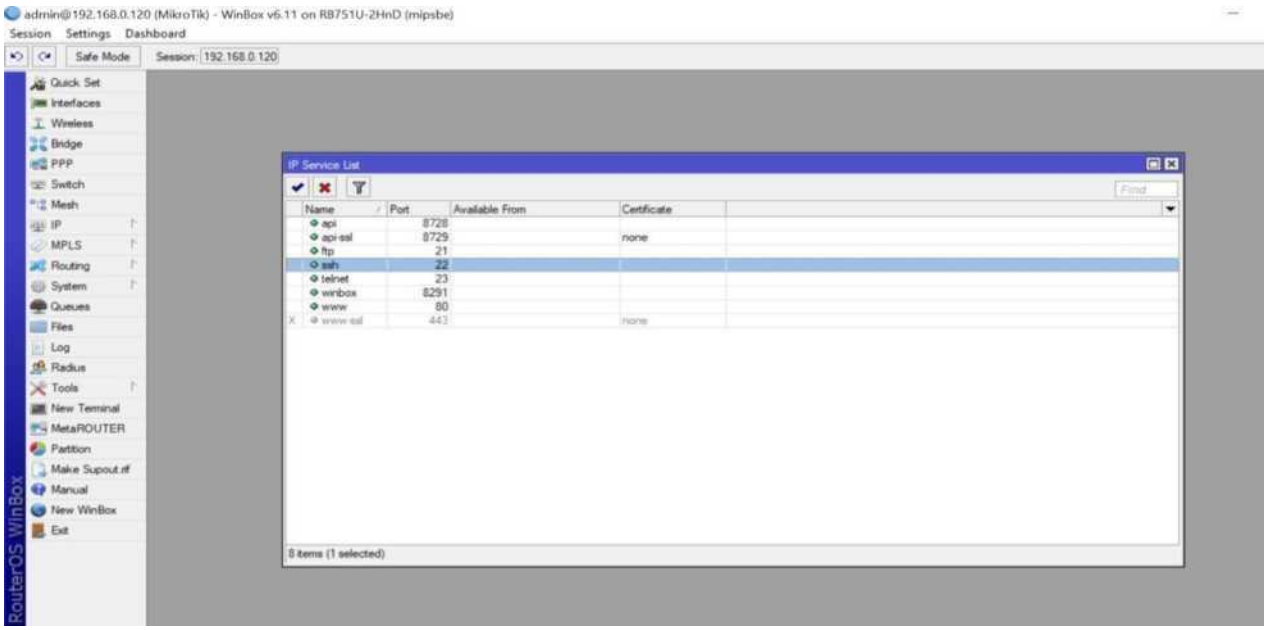


Fig: 4.13 **IP Service**

4.14 User ID

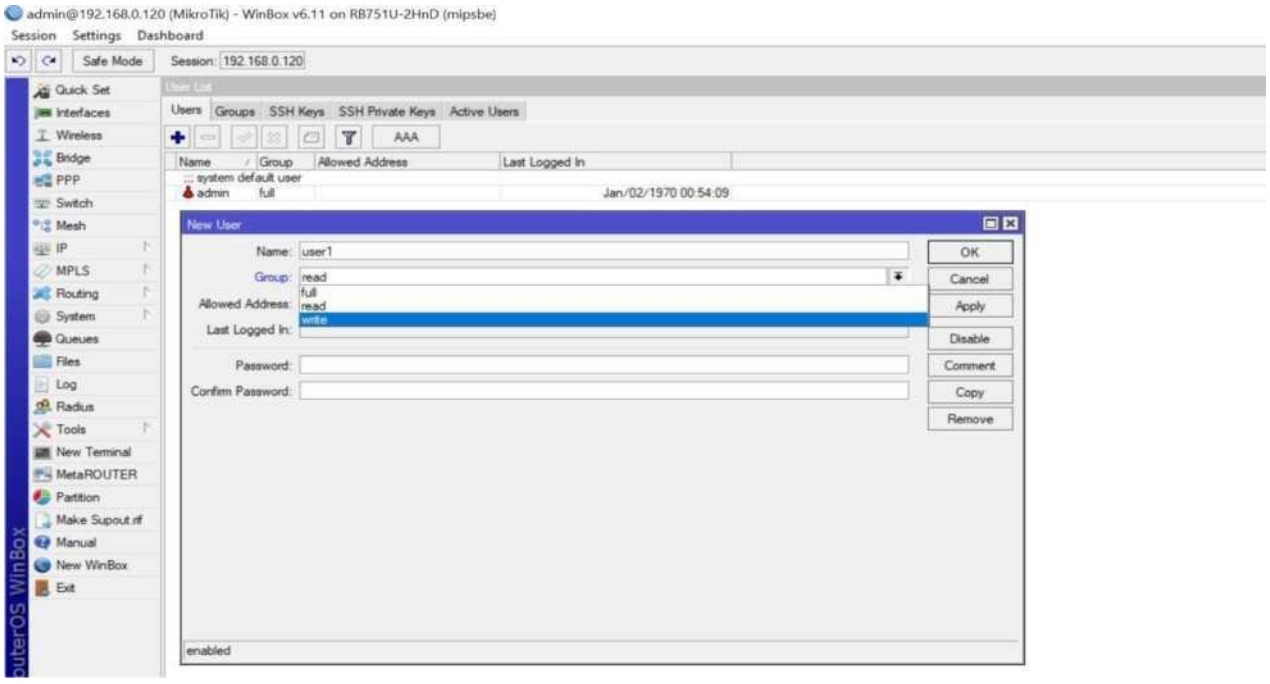


Fig4.14 **User ID**

CHAPTER 5

Conclusion

5.1 Conclusion

The role level of the section revolves around Network Security and Services Arrangement, and some more. After completing my internship, I can claim that if anyone has completed his training from Atova Technology Ltd, he will be able to fully operate the Mikrotik router to be able to operate and he/she will be able to manage the different jobs he/she can with all his arrangements on a regular basis. I am very good at running Mikrotik Router after completing my internship. Because of the configuration of all types of microcontroller router, I can now run the Mikrotik router itself. I even learned the way to build a network institution through ISP during this session. Internal knowledge for foreign community, service life management and planning, my gift would be able to u se it.

5.2 Future Scope

Networking provides a lot of job opportunities. Creation of Desktop Software, development of kernel and system drivers Open source software and developers of open source software and network engineers are also in demand. There are many companies in Bangladesh that rely on IT Infrastructure Solutions, Data Center Solutions, Network Solutions, Software and Database Solutions, Information Security (IS), Backup Solutions, Hardware Delivery and Intelligent IT Services (ITES) and have developed day by day. It generates the impression of MikroTik, and is a marvelous and gigantic working structure that you can literally learn by preparation. On the machine, MikroTik is presented, which will allow customers to switch their imparity on Mikrotik condition in a matter of seconds. Internet connectivity gadgets would have this condition,

For example, encouraging clients to tackle the Web without booting the separation into the simple working framework of their contraption - paying little attention to whether Windows is the working method. Meanwhile, on adaptable Internet computers, MikroTik is showing up. This is a mix of contraptions, such as cell phones and netbook computers. Small workstations make up machines that segment the inner value of their larger accomplices in a more essential, beneficial bundle.

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Date: January 02, 2021

INTERNSHIP CERTIFICATION

This is to certify that Mr. Md. Mehedi Hasan, Son of Md. Menhaz Uddin, a student of ETE, Daffodil International University, Dhaka, Bangladesh has successfully completed 12 weeks (From 15th September, 2020 to 15th December, 2020) long internship program from Atova Technology. During this period we found he was punctual, hardworking and inquisitive.

We wish his every success in life.

02.01.2021

Ferdosh Alam
Managing Director
Atova Technology

Atova Technology Lalmatia, Dhaka 02.01.2021

Ferdosh Alam
Managing Director
Atova Technology

RUPER BAZAR
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