STUDY BASIC NETWORKING AND SYSTEM SUPPORT OF AN INTERNET SERVICE PROVIDER COMPANY

BY

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

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APPROVAL

This Internship titled **"Study Basic Networking and System Support of an Internet Service Provider Company",** submitted by **Md Rasel Khan** to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirement for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents.

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DECLARATION

I hereby declare that, this Internship titled **"Study Basic Networking and System Support of an Internet Service Provider Company"** has been done by me under the supervision of **Md. Rakib Hasan**, Lecturer, Department of CSE Daffodil International University. I also declare that neither this internship nor any part of this internship Report has been submitted elsewhere for award of any Degree or Diploma.

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ACKNOWLEDGEMENT

At the beginning I am very much grateful to the Almighty Allah for giving me the strength to complete the report properly. Without his diving blessings, it would never be possible for me to complete both internship period and this internship report successfully.

A special thanks and gratitude goes to **Md. Rakib Hasan,** my Internship supervisor, Lecturer, Department of Computer Science & Engineering**.** Without his valuable supervision and directions, it would not have been possible to complete this report. I would like to express my gratitude to the **Faculty of Science & Information Technology** to keep internship credit in the curriculum of the graduation program and give me a scope of tasting the flavor of industry oriented tasks and the field of work with my interest.

I am also thankful to my organization supervisor **Shuvo Dass,** System Engineer, System Support Department of **Amber IT Ltd**, from the core of my heart for his kind support, guidance, constructive, supervision, instructions and advice and for motivating me to do my internship smoothly at **Amber IT Ltd**.

I feel proud and gratified that I was always held under the supervision of System Support and NOC Department and got advises directly from **Mahbub Hasan Pavel, Manager,** Network & System Department of **Amber IT Ltd.** Here, with daily reporting along with mental and professional support enhanced my experience in the internship life.

I am also indebted to the employees of System and NOC team. When I am facing any problem, they are helping me all the time.

Finally, I must acknowledge with due respect the constant support and patience of my parents.

ABSTRACT

I did start my report with a brief introduction of myself and my work along with a focus on **Amber IT Limited** profile. **Amber IT** is an ISP company that provides basic Networking services throughout the country. This company provided Internet Service and Networking service all over of Bangladesh. Most of the user can also use internet service. This company has the largest ISP and Networking infrastructure comprising of Optical fiber and Radio link. To study and monitoring the working principle of various department of this company. I admitted myself in **Amber IT Limited** as an Internship for Six months. In that time I learned Fiber link and MRTG (Multi Router Traffic Grapher) graph monitoring and client end physical and logical support to study and observe the working procedure of networking. In my report I try to analyze them briefly.

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CHAPTER 1: INTRODUCTION

1.1 Introduction

Internship experience plays a vital role for every student to implement their theoretical knowledge and get a practical knowledge from any organization. For completing my B.Sc. degree in Computer Science & Engineering from Daffodil International University, internship report is one of the parts at the final semester. Amber IT Ltd. gives me the opportunity for gathering practical experience and preparation of the report. The main objective of my internship was to gain knowledge and overall experience about ISP Company. In the field of engineering practical works always enhance the understanding of relevant theories. The internship was done under the supervision of Shuvo Dass, System Engineer, System Support Department of Amber IT Ltd.

1.2 Motivation

Behind every achievement there must be some motivation and inspiration. I also have some motivator who inspired me to take Networking as internship. Here I must have to say the name of that person who inspired me and helped me to take my right track. **Raja Tariqul Hasan Tusher,** Lecturer of CSE department of Daffodil International University is the person who inspired me to take this track.

I also have to remember my parents, who are the real motivator for every good thing in my life. There are a huge number of telecom companies in our country and they recruit a lot number of Network Professionals. Every large company or Government Organization also recruits a number of network professional for maintaining their Enterprise Network System. Mikro-Tik based networks are more secure and popular to them. Those reasons are motivated me to learn Mikro-Tik base Network Administration.

1.3 Internship Objective

The core objective of this study is to gain realistic and practical understanding about the structure and activities of ISP networking, know about modern equipment and technique and to know about official working environment.The specific objectives of the study are given below:

Specific objectives:

- To understand and analyse the overall activities of an ISP company.
- To study the operational efficiency of an ISP company.
- To suggest the way and means for improvement on policy and techniques.
- To relate the theoretical learning with the real life situation.
- To gain knowledge about the activities and functions of Core Network.

1.4 Introduction to the Company

Amber IT Limited has come a long way since its establishment in 1997. From small beginnings as a provider of dial-up & radio link Internet access to local businesses, Amber IT Limited has grown consistently and organically as a communications provider serving a diverse portfolio of business class voice and data services. Amber IT Limited is not simply another link in the chain of voice and data supply in the Bangladesh. Their pioneering spirit is evidenced by the creation of a national, fully resilient, MPLS network and the continuous testing and adoption of emerging communications platforms. As a result, they have earned the reputation of a communications provider whose focus is on solidly addressing businesses' communications requirements. Amber IT Limited is dedicated to serving customers. Amber IT Limited achieve this not only through their extensive portfolio of internet/data connectivity, IP telephony and related services but also by simplifying the process of ordering, provisioning and supporting them.

Amber IT is part of Amber Group, a conglomerate comprising 20 companies across diverse industries. [2]

1.5 Report Layout

This report has been prepared to explain the works that I did for the internship. The Organization of my report in Chapter 1 Discussion about my Motivation, Internship Objective and Introduction to the Company. In Chapter 2, I discuss about Overview of Amber IT Limited, Company Profile, Vision & Mission, Uses Products & Devices in the Network, Services and Internet Connectivity System of Amber IT. In Chapter 3, I discuss about Networking System Overview of the Amber IT Limited, Network Topology, OSI/TCP Layer, Fiber Optics Cable & it's types and Uses Equipment for Physical Installation of broadband network. In Chapter 4, I discuss about Tasks, Project and Activities in Amber IT Limited, Customer Handling, Wi-Fi Router Configuration, Access Point Configuration and Mikrotik Router Configuration process. Chapter 5 is Conclusion.

CHAPTER 2: ORGANIZATION

2.1 Company Profile

Amber IT is leading Internet Service & IP Telephony service provider in Bangladesh. It was formed in 1997 by the name of Dhakacom LTD. In 2015 it was rebranded to Amber IT LTD to reflect upon its parent company AMBER GROUP which is one of the largest conglomerates with many diversified business in textiles, particle boards, lifestyle shopping, leisure resorts, media, entertainment, telecommunications and IT. With a humble start with Dial-UP services, today AMBER IT is a leading broadband Internet, Data and IP Telephony services. It is a market leader in information technology solutions and services in Bangladesh. [1]

2.2 Mission & Vision

Amber IT is set out to do the things our customers want in an Internet service providing company. Which is to provide the most reliable service, coupled with the most sophisticated and modern equipment available. We envision a world with ease of access and with hassle free service.

We are striving to be an exceptional citizen in the virtual frontier.

We have three guiding principles:
1. Keep It Simple! There's no reason why individuals who wish to be involved in the Internet, need to have sophisticated technical knowledge and the ability to write and understand HTML protocol.
2. Provide the best technology available! Those who know technology or need the most from it will be suitably impressed with our high-tech equipment. If it's current, we have it; if it's new, we'll be one of the first to get it!

3. Make it affordable! Amber IT programs are almost always one third to one half the cost of comparable services. This supports our mission of creating greater access to a greater number of people. [2]

2.3 Uses Products & Devices in the Network

Amber IT uses some products & devices for established network. Such as, Router (Juniper, Mikrotik), OLT, Switch, MC, ONU, Fiber Optic Module, Server PC, Fiber Optic Cable, UTP Cable, Optical Fiber Patch Cord etc.

Juniper:

Juniper Networks' first product was the Junos router operating system, which was released on July 1, 1998. The first Juniper router was made available that September and was a core router for internet service providers called the M40. It had ten times the throughput of comparable contemporary Cisco products. The M40 was followed by the smaller M20 router in December 1999 and the M160 in March 2000. [3]

Figure-2.1: Juniper Router [4]

MikroTik:

MikroTik is a Latvian company which was founded in 1996 to develop routers and wireless ISP systems. MikroTik now provides hardware and software for Internet connectivity in most of the countries around the world. In 2002 they decided to make their own hardware, and the RouterBOARD brand was born. They have resellers in most parts of the world, and customers in probably every country on the planet. This company is located in Riga, the capital city of Latvia. [5]

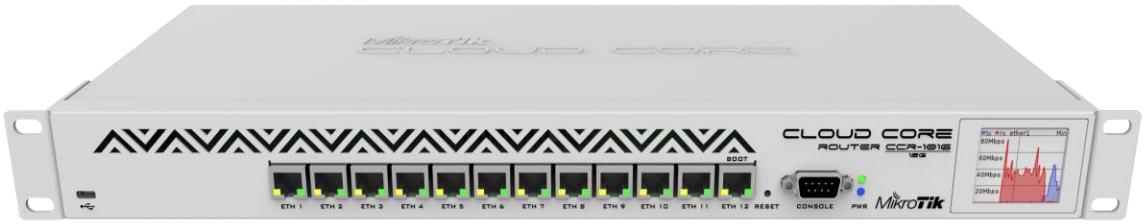

Figure-2.2: MikroTik Router [6]

OLT:

An optical line termination (OLT), also called an optical line terminal, is a device which serves as the service provider endpoint of a passive optical network (PON).

It provides two main functions:

1. Converting the standard signals used by a Fiber Optic Service (FiOS) service provider to the frequency and framing used by the PON system.

2. Coordinating the multiplexing between the conversion devices on the other end of that network (called either optical network terminals or optical network units). [7]

Figure-2.3: Optical Line Termination (OLT). [8]

Switch:

A switch is a device in a computer network that connects together other devices. Multiple data cables are plugged into a switch to enable communication between different networked devices.

Figure-2.4: Switch [9]

MC:

The full meaning of MC is Media Converter. MC is a networking device that makes it possible to connect two dissimilar media types such as twisted pair with fiber optic cabling. That means it use to convert light waves into Ethernet signal or Ethernet signal into light waves.

Figure-2.5: Media Converter (MC) [10]

ONU:

The full meaning of ONU is Optical Network Unit. ONU is a sample networking device like MC. It also used to convert light waves into Ethernet signal or Ethernet signal into light waves.

Figure-2.6: Optical Network Unit (ONU) [11]

2.4 Services

Amber IT provides different type of services. Such as-

- Internet Connectivity: Amber IT provides internet connectivity to their client using fiber optic cable or radio link or both as primary & secondary link.

- Data Connectivity
- IP Telephony
- Web Hosting & Design

2.5 Internet Connectivity to the User Using Media Converter (MC)

Amber IT provides some internet connectivity to their client using Media Converter (MC). The network diagram of the Internet Connectivity to the user using MC is given below:

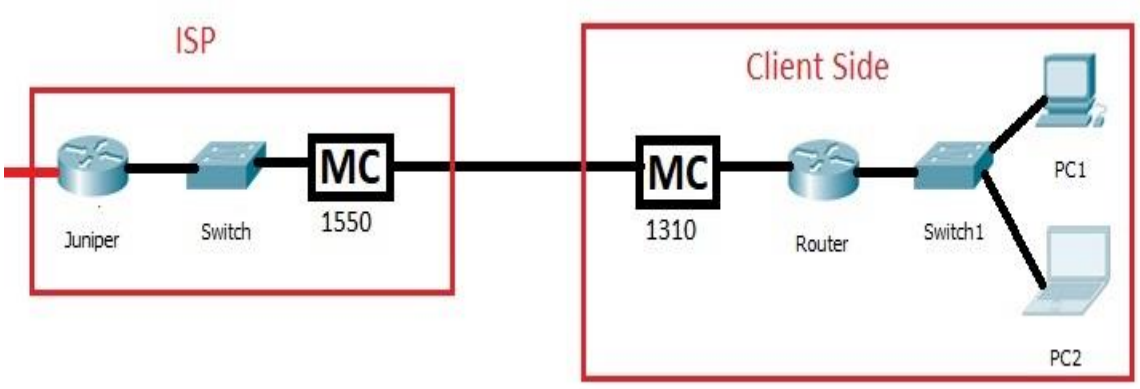

Figure-2.7: Diagram of Internet Connectivity to the User Using Media Converter (MC).

2.6 Internet Connectivity to the User Using FTTX Technology

Amber IT provides most of the internet connectivity to their client using FTTX technology. FTTX means Fiber to the X. Where X is a variable. It can be Home, Office etc. Amber IT use Optical Line Termination (OLT) and Optical Network Unit (ONU) for provide FTTX connectivity. The network diagram of the Internet Connectivity to the user using FTTX is given below:

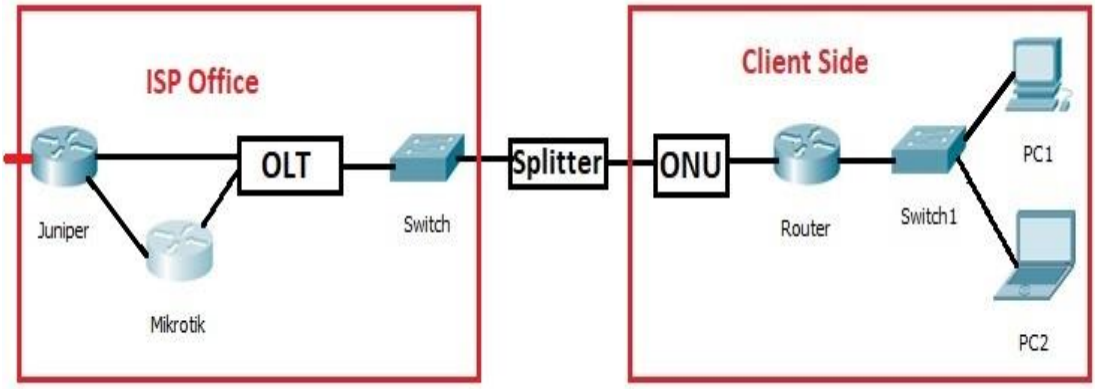

Figure-2.8: Diagram of Internet Connectivity to the User Using FTTX Technology.

CHAPTER 3: NETWORK SYSTEM OVERVIEW

3.1 Introduction

The networking system of Amber IT Limited is Transmission medium service like Fiber optic and Radio transmission.

3.2 Network Topology

A network topology is the arrangement of a network, including it's nodes & connecting lines. Amber IT use Hybrid topology. They are mostly use Ring topology. [12]

Types of network topology are given below:

- Bus Topology
- Star Topology
- Ring Topology
- Mesh Topology

Bus Topology: In this topology, every computer is connected to a main cable. Each computer is directly connected to every other computer in the network. It's simple, low cost topology, but it's single point of failure presents a risk. The diagram of bus topology is given below:

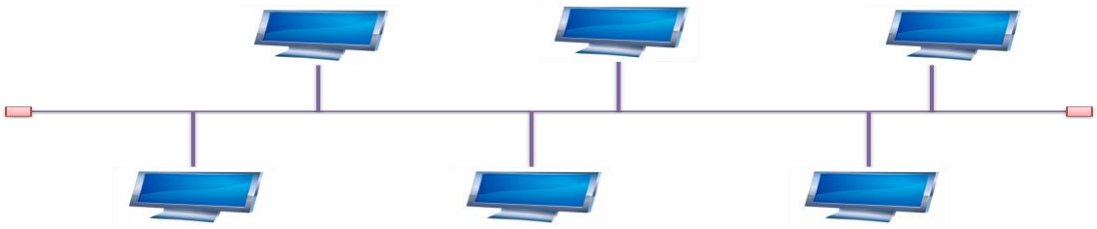

Figure-3.1: Bus topology [13]

Star Topology: In this topology, there is a central server and every computer are directly connected with this server computer. The failure of a central device can be down the whole network. The diagram of star topology is given below:

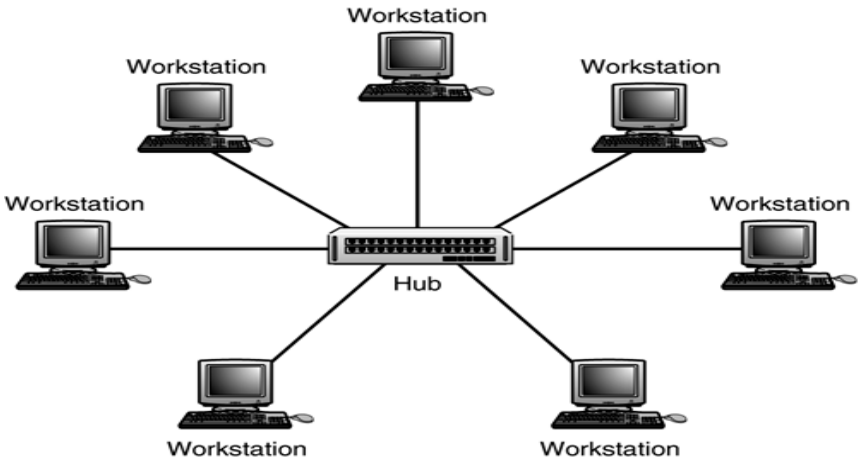

Figure-3.2: Star topology [14]

Ring Topology: All network devices are connected sequentially to a backbone as a ring. The diagram of ring topology is given below:

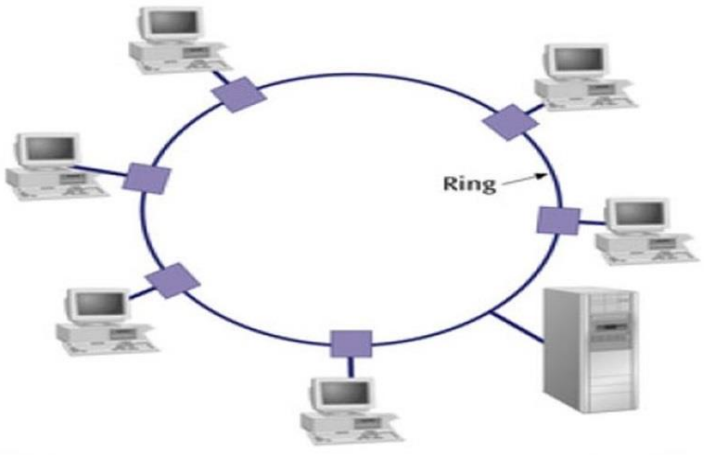

Figure-3.3: Ring Topology [15]

Mesh Topology: There are two types of mesh topology one full mesh and another partial or half- mesh topology.

In full mesh topology, each computer is connected directly to each of the others computer. The diagram of ring topology is given below:

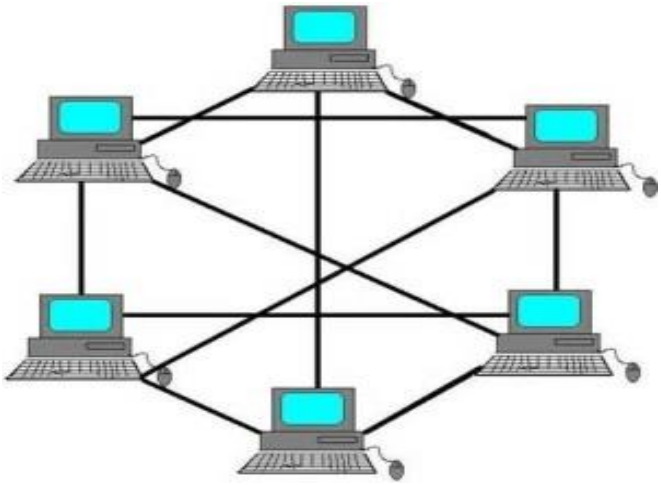

Figure-3.4: Full Mesh Topology [16]

In partial mesh topology, all computers are not directly connected to each other. They are indirectly connected to each other. The diagram of mesh topology is given below:

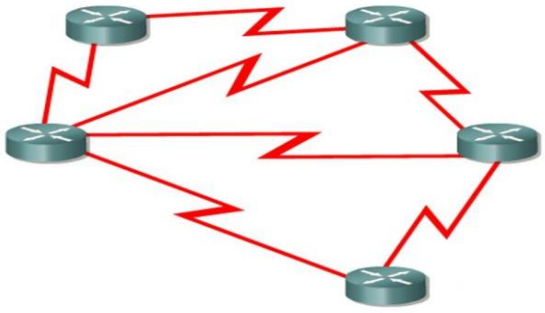

Figure-3.5: Partial Mesh Topology [17]

3.3 OSI/TCP Layer

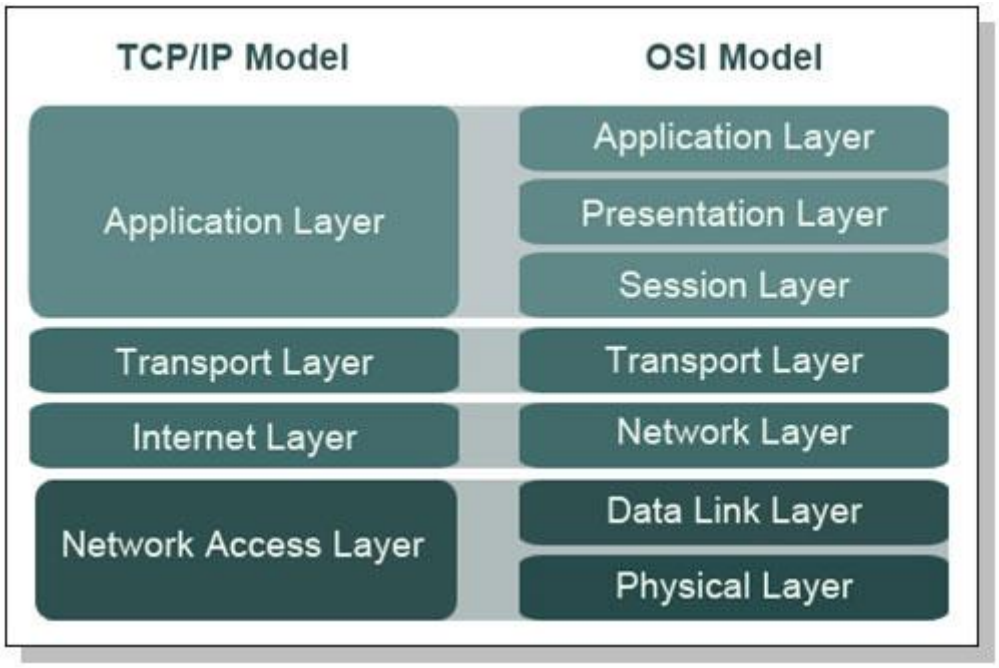

Figure-3.6: OSI/TCP Layer [18]

Physical Layer: Physical layer responsible for bit by bit data transmit. Hubs, Repeaters and Cables are work in this layer.

Data Link Layer: Data link layer take data from physical layer & make it error free for network layer. Switch, Bridge are work in this layer.

Network Layer: This layer is responsible for providing best path for deliver packets from source to destination. Logical IP address work on this layer. Router is a network layer device.

Transport Layer: This layer is responsible for point to point data delivery.

Session Layer: Session layer is responsible for establishing, maintaining and end session.

Presentation Layer: Presentation layer is responsible for data representation into standard format like ASSCII, JPEG, MP3, MPEG etc.

Application Layer: It's work as a user interface which allow access to network resources. [19]

3.4 Fiber Optics Cable

A technology that uses glass or plastic to transmit data. A fiber optic cable consists of single or multiple cores, each of which is capable of transmitting messages using light waves.

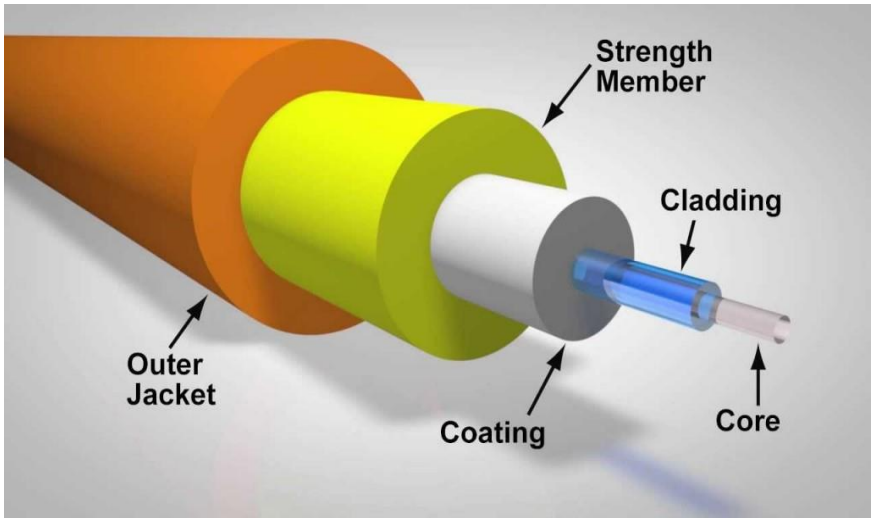

Figure-3.7: Optical Fiber Cable [20]

3.5 Types of Optical Fiber

There are three types of fiber optic cable which are commonly used for physical installation of a network.

1. Single mode
2. Multimode

3. Plastic optical fiber

3.6 Optical Fiber Color Code

Color Code (Amber IT):

- Blue
- Orange
- Green
- Water
- Brown
- Ash
- Violet
- Yellow
- Black
- Pink
- Red
- White

Color Code (International):

- Blue
- Orange
- Green

- Brown
- Slate
- White
- Red
- Black
- Yellow
- Violet
- Pink
- Aqua

3.7 Uses Equipment for Physical Installation

Splice Machine, Cleaver Machine, Cutting Plus, Fiber Optic Cable, Sleeve, Bamboo Box, TJ Box, Splitter, Patch Cord etc.

CHAPTER 4: TASKS, PROJECT AND ACTIVITIES

4.1 Introduction

Doing an internship with a company which is well established is a brilliant source of experience and knowledge. Firstly, I will be able to physically see and experience the concepts that I have learned throughout my B.Sc. course. This provides me a chance to reflect on what I have learned in the past. On the other hand, I will be able to gain some very important insights of working with seniors officials in reality.

In the Network Operation Center, I have done some tasks and I learned a lot from that. In this chapter, I will discuss about my tasks and experiences in Amber IT NOC and my learning from that tasks.

4.2 Learning

By working with the NOC team in Amber IT I have learned a lot. First I saw them doing something then they instructed me how to do that and what I need to know to do that.

4.3 Customer Handling

Customer service is the act of taking care of the customer's needs by providing and delivering professional, helpful, high quality service and assistance before, during and after the customer's requirements are met. We are liable to our customer to provide good quality of service. We communicate over mail and phone for their query.

4.4 Providing onsite Technical Support to the Client End

I provide onsite technical support to the client end. When client facing line down, I physically check the problem and find out the problem then I solve the problem. If I face any problem to solve the issue, I take help from the support team. I also configure Access Point, Wireless and MikroTik router to the new and existent client.

When I go to provide onsite support to the client for router configuration. I follow the configuration concept.

Configuration concept is most important to easily understand the process of router configuration. So, at first need to clear the configuration concept. The configuration concepts are given below:

- At first assign the ISP provided IP address, Subnet Mask, Default Gateway and DNS for WAN side.
- Then assign a private IP or IP Block to LAN side.
- Then need to NAT for assigns a public address inside a private network.

4.4.1 Wi-Fi Router Configuration (TP- Link)

1. At first, open the browser.
2. Browse with the Default IP address (192.168.0.1)
3. Login with Default user name admin and password admin.

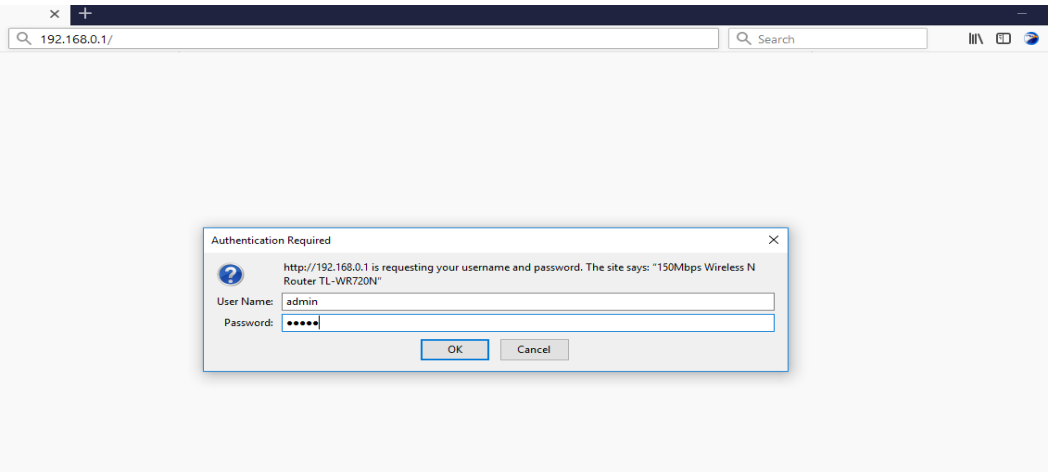

Figure-4.1: Login Page of TP-Link Router.

4. After showing the home page.

- Click on Wireless.
- Select Wireless Settings.
- Then assign S SID/ Wi-Fi name and apply save button

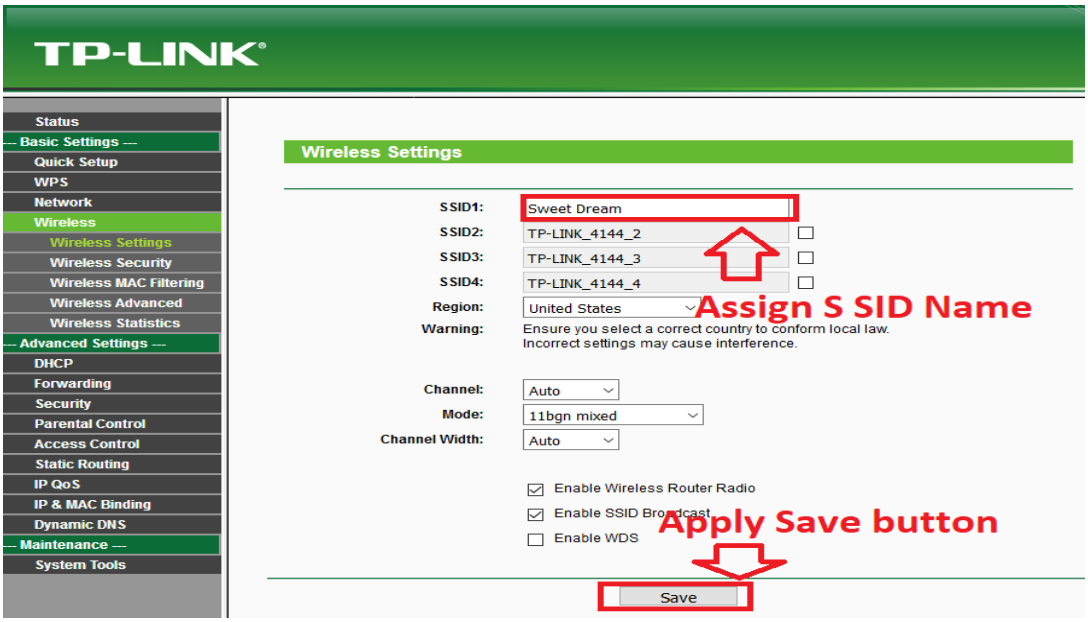

Figure-4.2: Wireless Settings Page of the TP-Link Router.

4. After saving the Wireless settings again go to Wireless.

- Select Wireless Security.
- Then select WPA-PSK/WPA2-PSK.
- Now assign Wi-Fi password and apply save button.

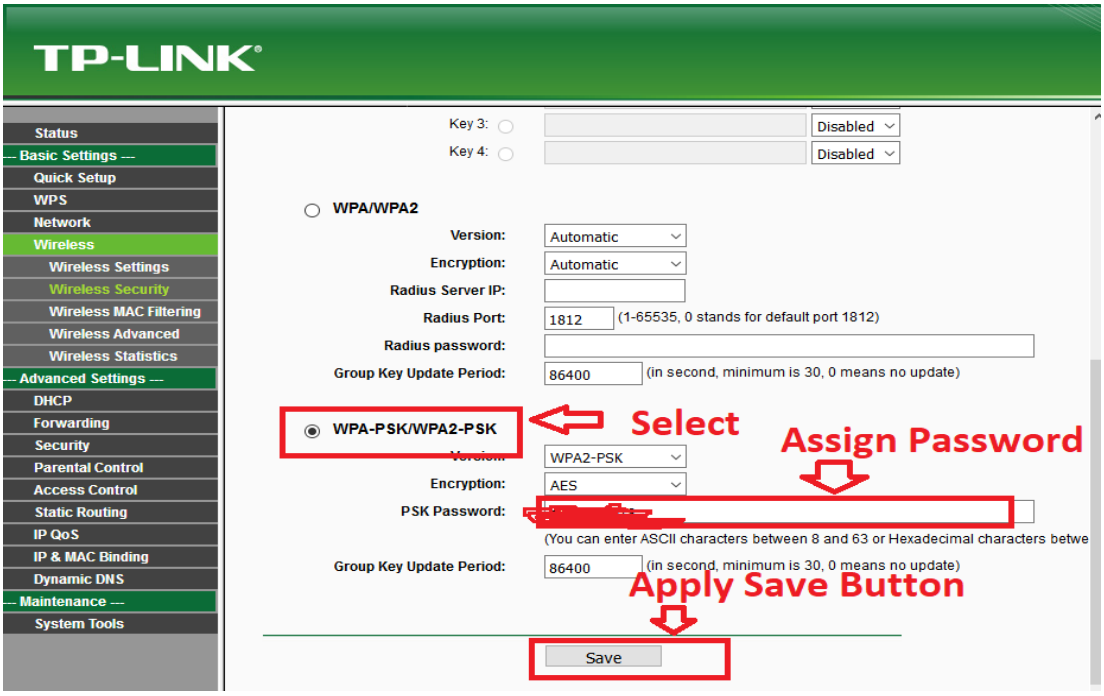

Figure-4.3: Wireless Security Page of the TP-Link Router.

5. For assigns WAN IP:

- Click on Network
- Then go to WAN
- Select WAN connection type → Static IP
- Then assigns ISP provided IP address, Subnet Mask, Default Gateway and DNS.

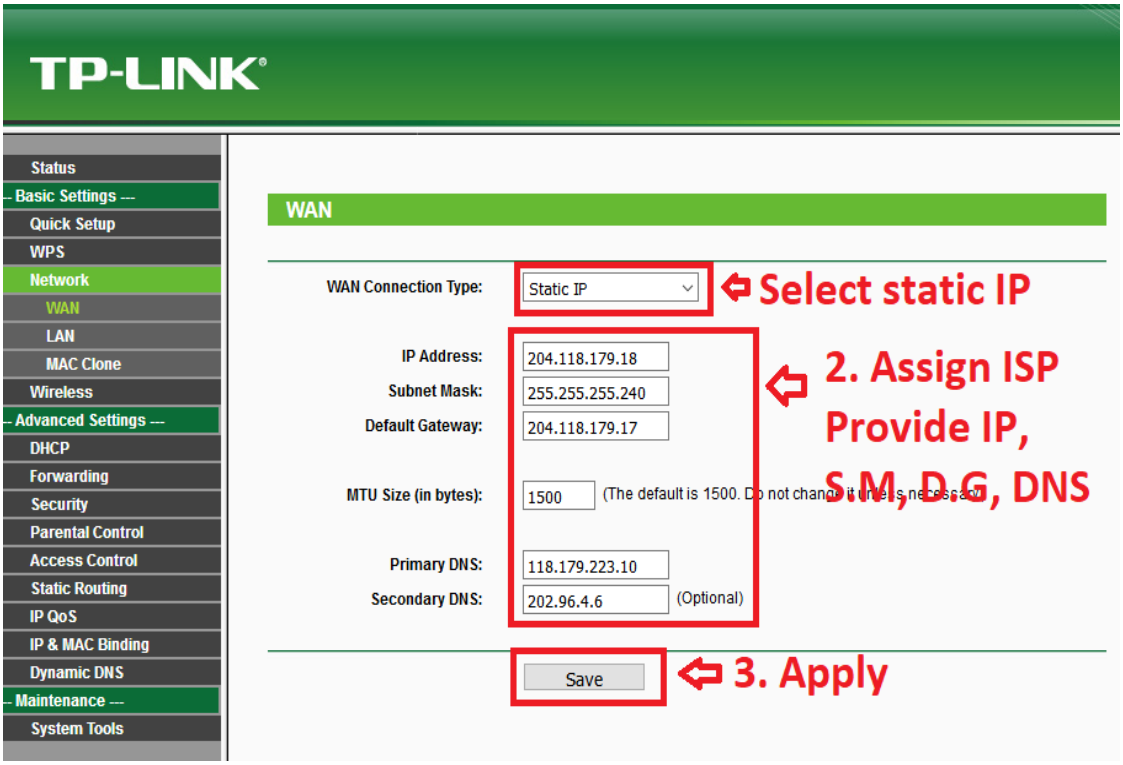

Figure-4.4: WAN Side Configuration Page of the TP-Link Router.

After complete the above steps need to reboot the router.

4.4.2 Access Point Configuration

Login to the router at the same way (Step 1 to 3) of 4.3.1 Wi-Fi Router Configuration (TP-Link).

Change LAN IP:

- Click on Network.
- Go to LAN.
- Then change existing LAN IP (192.168.0.1) with another private IP (Exp.- 192.168.0.2) and then apply save button.

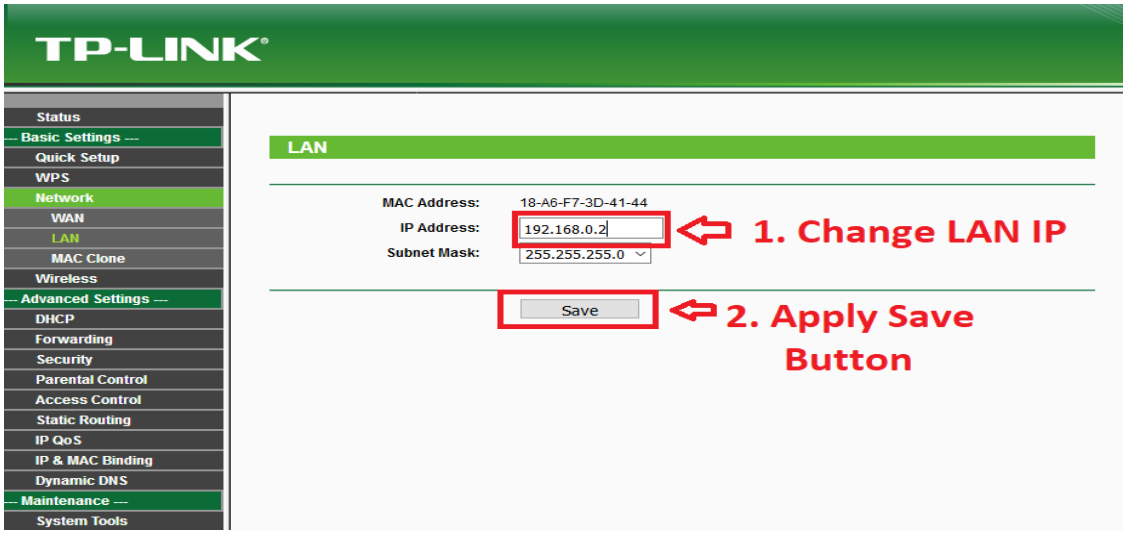

Figure-4.2: LAN Page of TP-Link Router.

Disable DHCP Server:

- Click on Advance settings
- Select DHCP
- Then go to DHCP Setting
- Now check DHCP Server Disable then apply save button.

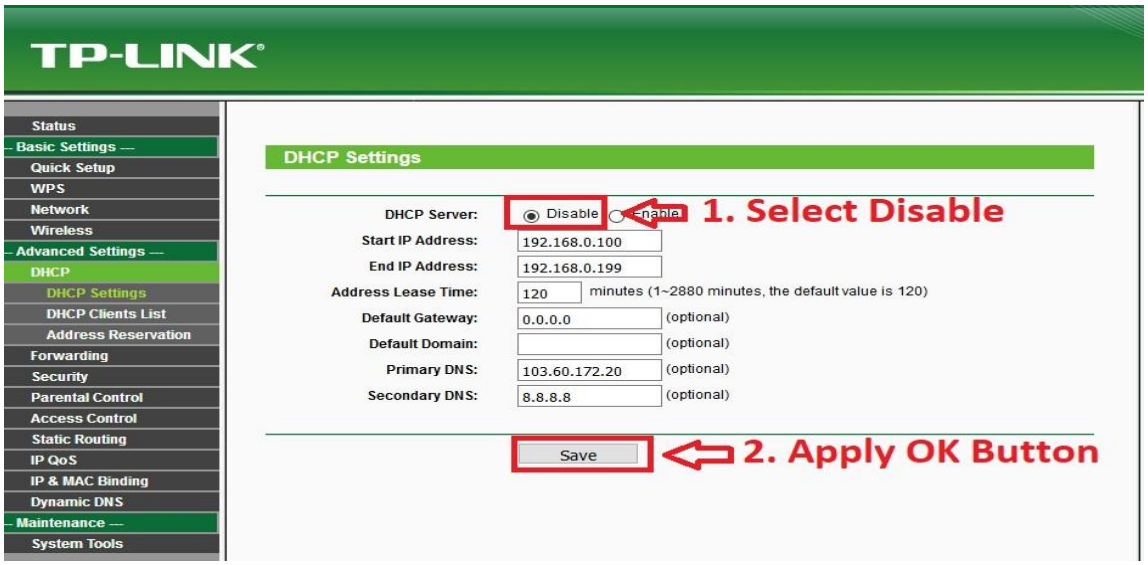

Figure-4.3: DHCP Server Settings Page of TP-Link Router.

After complete the above steps need to reboot the router.

4.4.3 MikroTik Router Configuration

MikroTik router is an intelligent router. MikroTik router can be used as a normal router. It has some special feature than a normal wireless router.

The configuration processes are given below:

- Firstly, need to download the winbox software and run it.
- After power ON the MikroTik router, connect it to the PC using Ethernet cable.
- Open winbox and select neighbors then click on Mac address.
- Now put login user name admin (Password remain blank) and click the connect button.
- After login at first, need to reset the MikroTik router for remove default configuration.

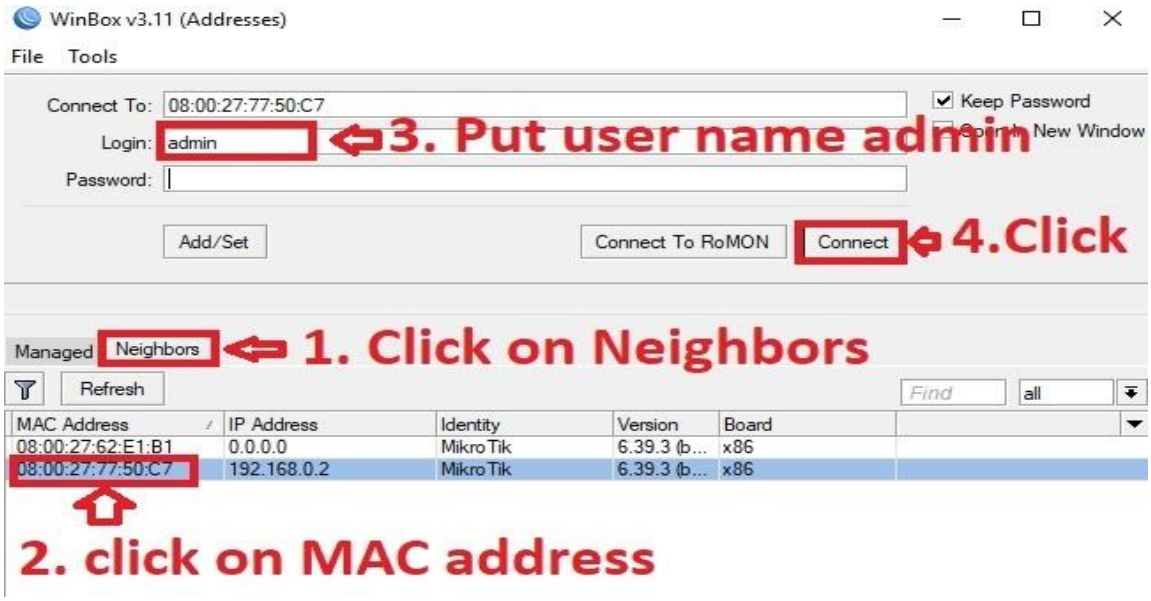

Figure-4.4: Shown Screen Print of Login to Mikrotik Router using WinBox.

4.4.3.1 Assigns WAN IP

- Click on IP.
- Go to Address.
- Now click on + (Add) symbol.
- Set WAN IP (ISP provided IP) 192.168.0.2/24 to the address box.
- Select interface ethern2.
- Click on Comment (It's not mandatory).
- Write WAN to the comment for New Address box and Apply OK.
- Now Apply OK button.

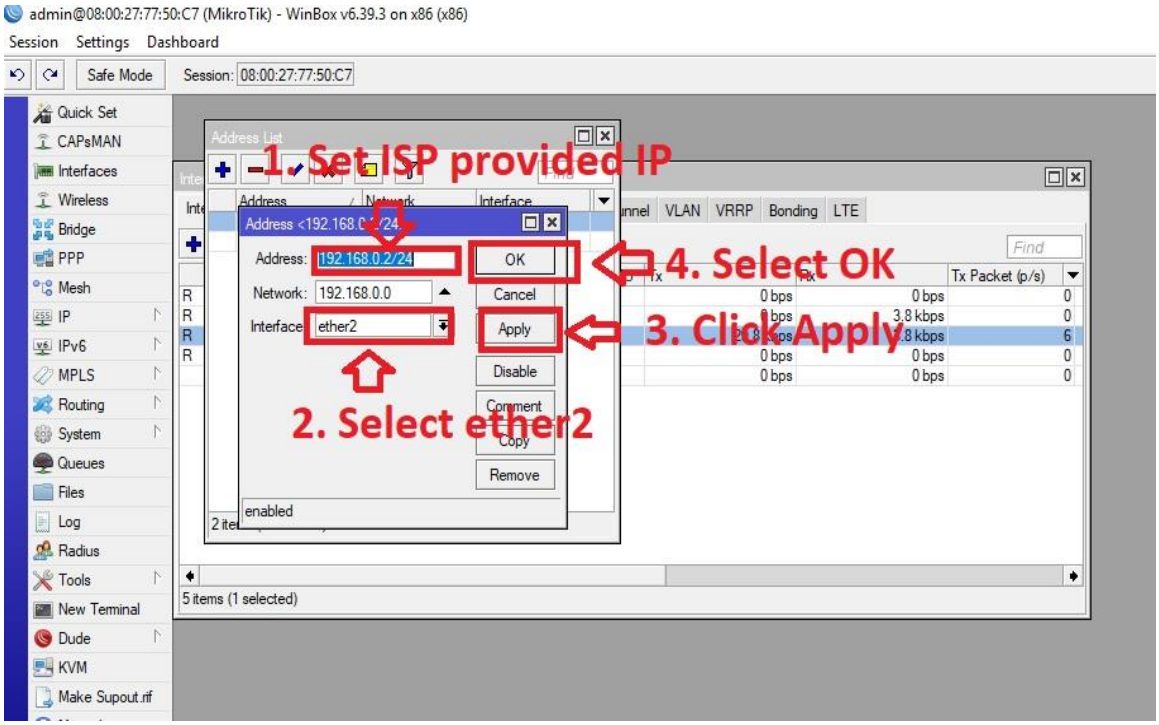

Figure-4.5: Shown Screen Print of Assigns WAN IP.

4.4.3.2 Assigns Gateway Address

- Click on IP
- Go to Routes
- Now click on + (Add) symbol.
- Set Gateway Address (ISP provided Gateway Address) (Exp.-192.168.0.1) to the Gateway box and apply OK button.

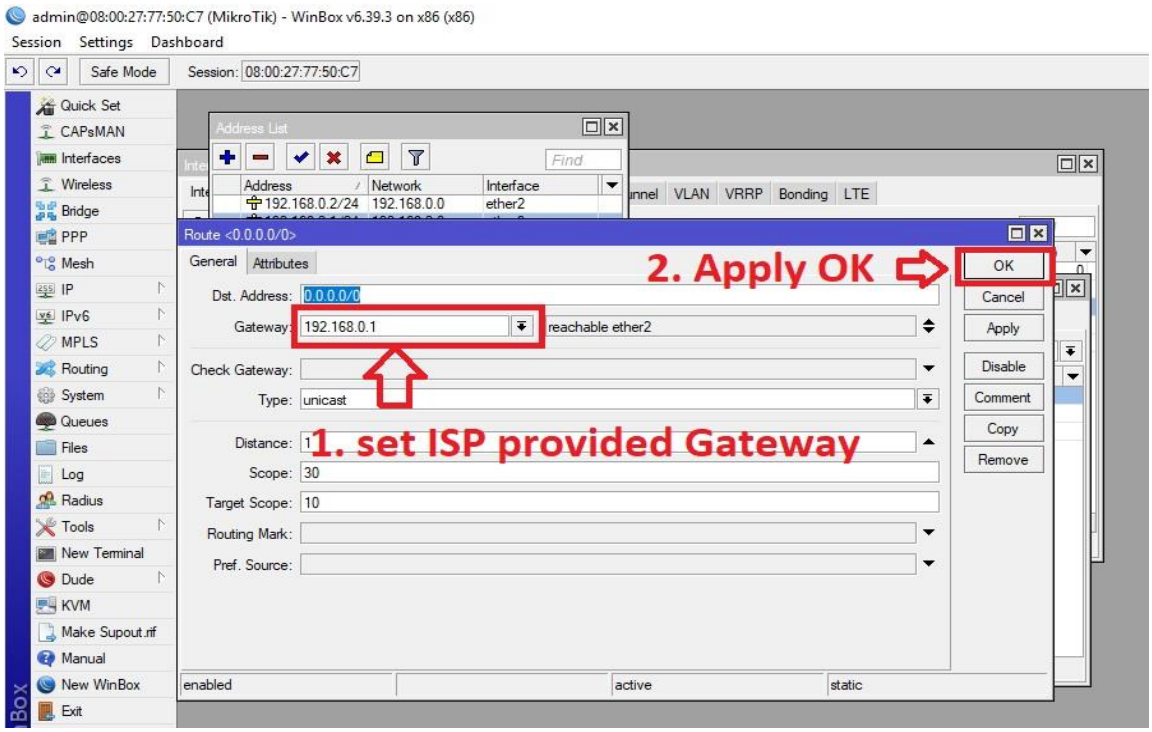

Figure-4.6: Shown Screen Print of Assigns Gateway Address.

4.4.3.3 Assigns Primary and Secondary DNS Address

- Click on IP
- Go to DNS
- Set ISP provided primary & secondary DNS (Exp.- 8.8.8.8 & 8.8.4.4) and Apply OK.

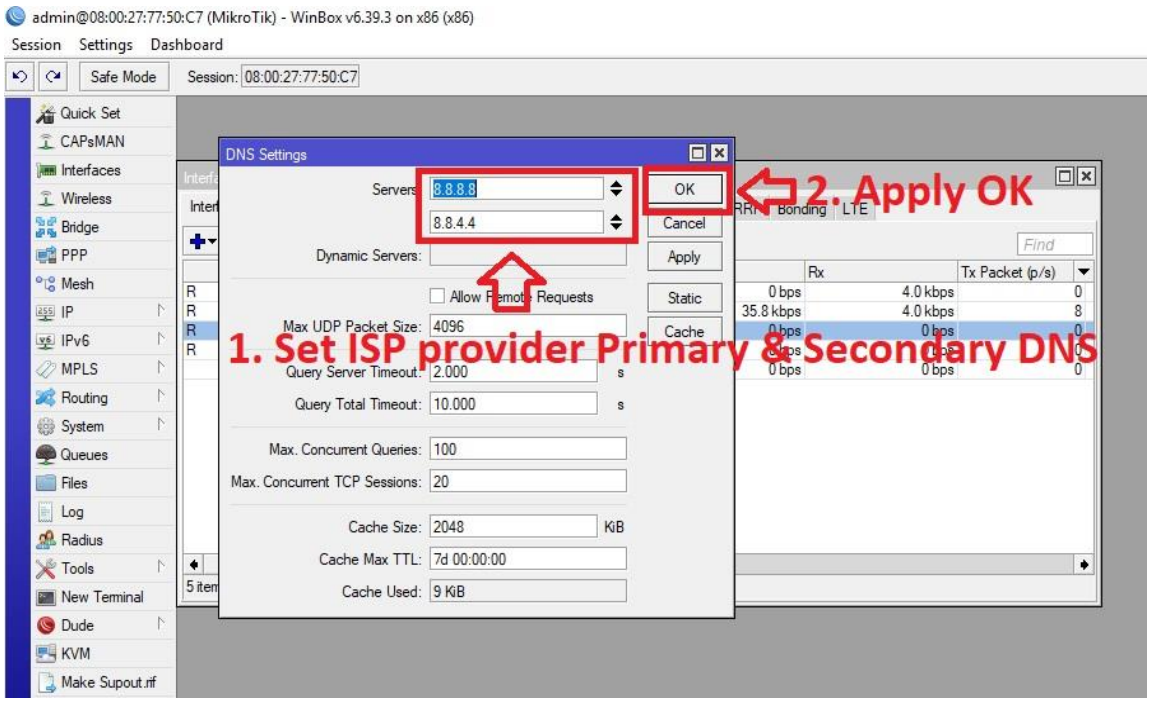

Figure-4.7: Shown Screen Print of Assigns Primary and Secondary DNS Address.

4.4.3.4 Assigns LAN IP

- Click on IP
- Go to Address
- Now click on + (Add) symbol.
- Set LAN IP (Private IP) 192.168.2.1/24
- Select interface ethern3
- Write LAN to the comment for New Address box and Apply OK.
- Now Apply OK button.

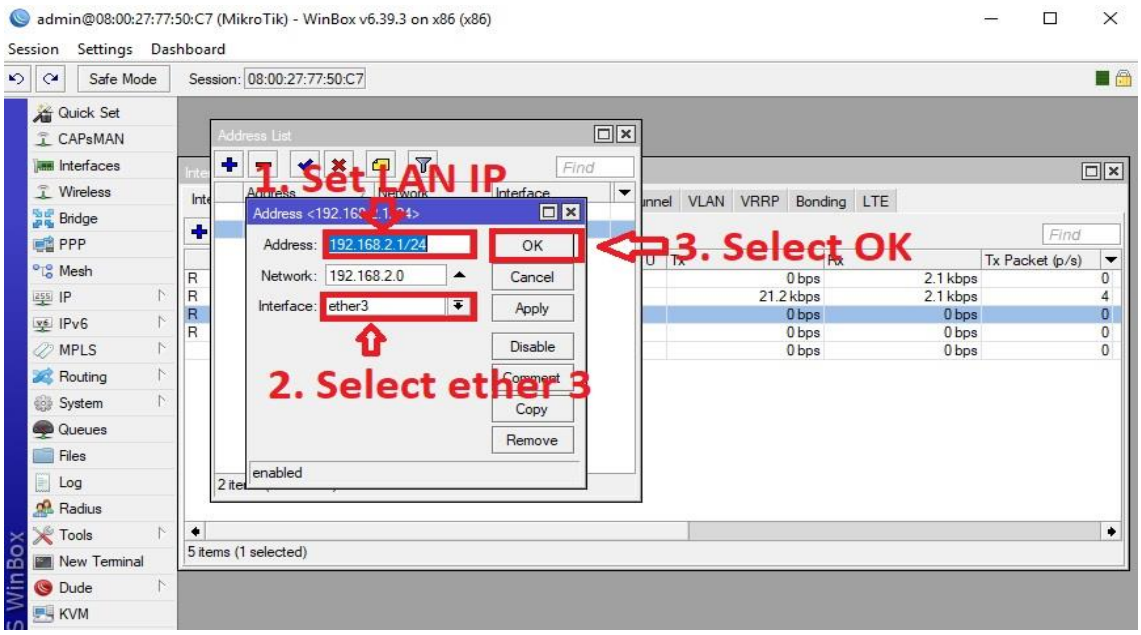

Figure-4.8: Shown Screen Print of Assigns LAN IP.

4.4.3.5 Configuring Network Address Translation (NAT)

- Click on IP
- Go to Firewall
- Select NAT
- Now click on + (Add) symbol.
- Click on General.
- Select Chain srcnat.
- Assign Src. Address 192.168.2.0/24 (Network address of LAN).
- Click on Action
- Select Action masquerade.
- Apply OK.

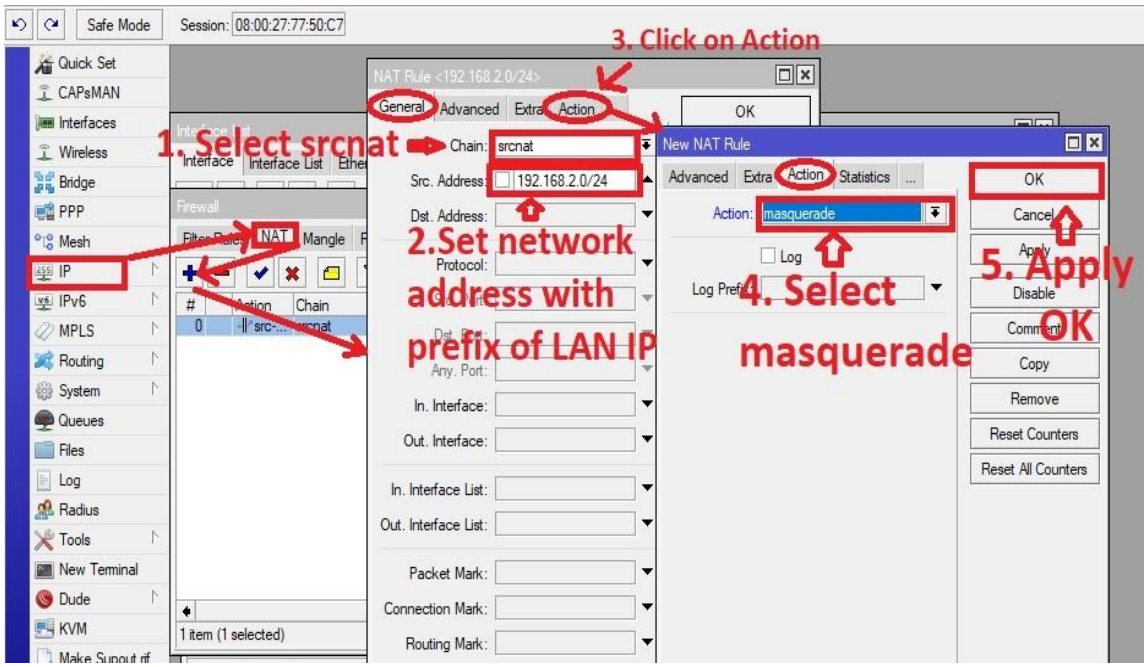

Figure-4.9: Configuration process of NAT (Network Address Translation).

4.4.3.6 DHCP Server Setup

Step-1:

Pool Create:

- Click on IP
- Go to Pool.
- Now click on + (Add) symbol.
- Insert pool name to the name box
- Insert useable IP range of LAN to the address box.
- Apply OK.

Figure-4.10: Shown Screen Print of Pool Create.

Step-2:

- Click on IP
- Go to DHCP Server
- Click on DHCP
- Now click on + (Add) symbol.
- Insert DHCP server name to the Name box.
- Select LAN interface ether3.
- Select created Address Pool for DHCP server.
- Apply OK.

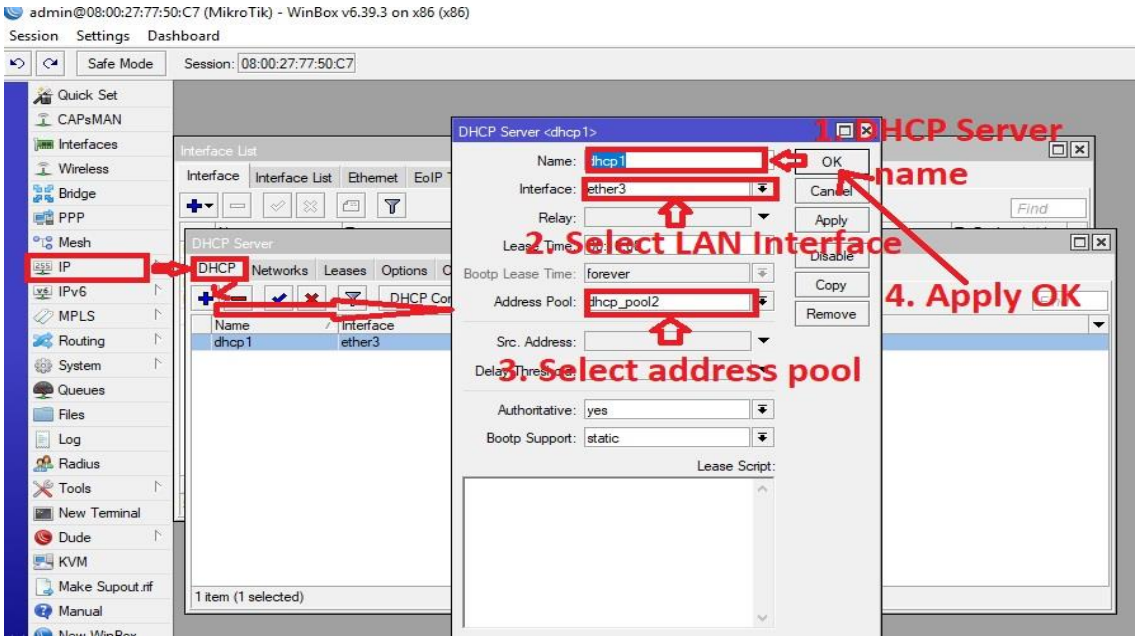

Figure-4.11: Shown Screen Print of DHCP Server Setup.

Step-3:

- Click on IP
- Go to DHCP Server
- Click on Networks.
- Now click on + (Add) symbol.
- Assigns Network address of LAN IP with prefix to the Address box.
- Assigns Gateway to the Gateway box in which declare in LAN.
- Assigns primary & secondary DNS to the DNS box.
- Apply OK.

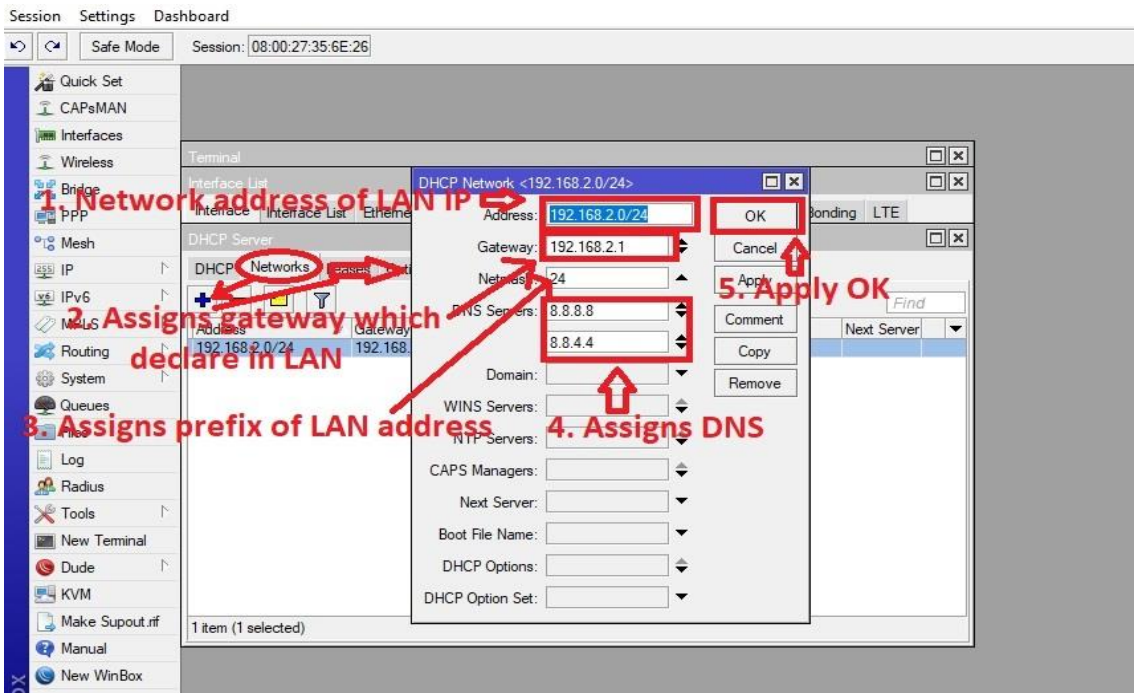

Figure-4.12: Shown Screen Print of DHCP Networks Setup.

4.4.3.7 BRIDGE Configure

Step-1:

- Click on Bridge
- Select Bridge.
- Now click on + (Add) symbol.
- Click on General.
- Insert bridge name (Exp. Bridge_LAN) to the Name box.
- Apply OK.

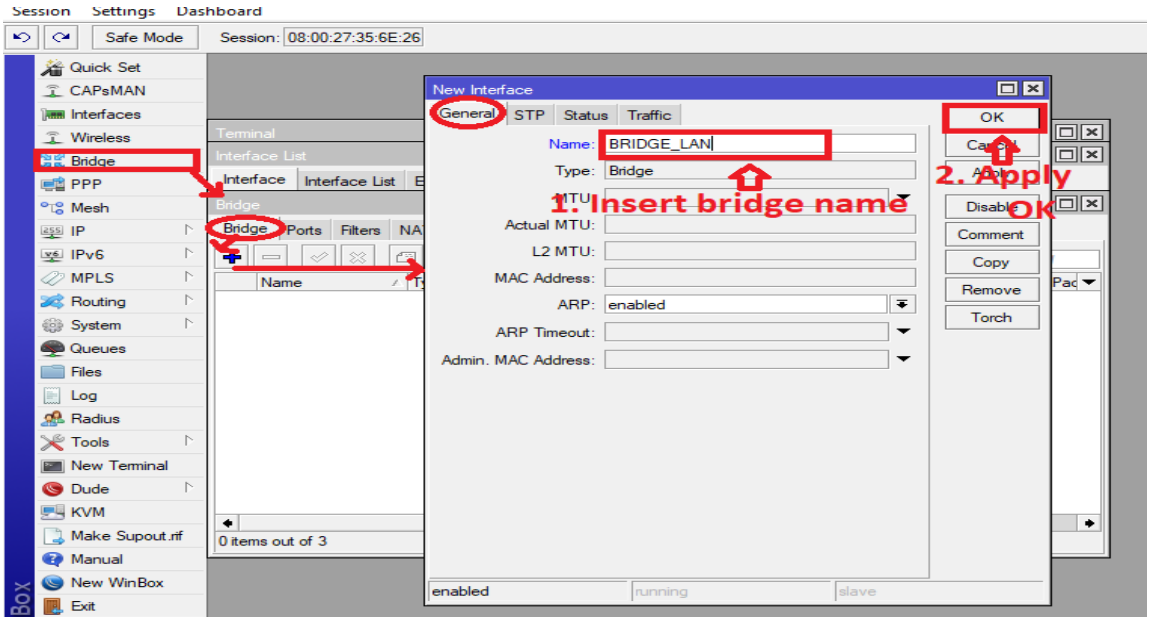

Figure-4.13: Shown Screen Print of Create Bridge.

Step-2:

- Click on Bridge.
- Select Ports.
- Now click on + (Add) symbol.
- Click on General.
- Select interface ether1.
- Select Bridge BRIDGE_LAN.
- Apply OK.

Using this procedure (Step-2) we can add necessary interface.

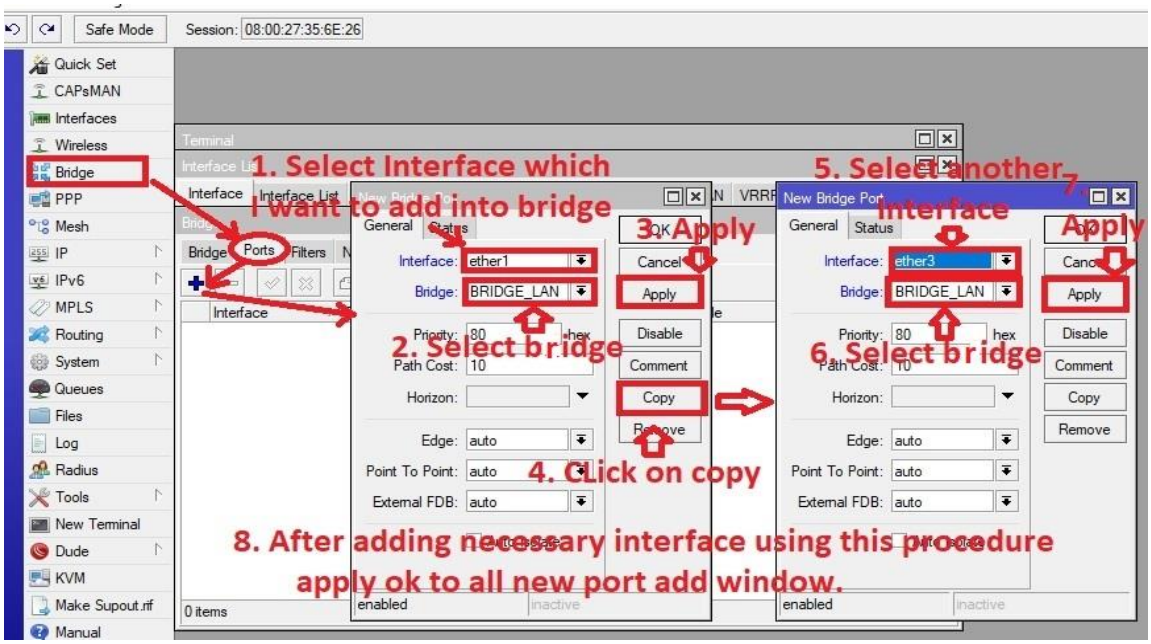

Figure-4.14: Shown Screen Print of Add Interface into the Bridge.

4.4.3.8 User Management

- Click on System.
- Go to users.
- Now click on + (Add) symbol.
- Insert user name into the Name box.
- Select user access permission type (full/ write/ read) to the Group.
- Insert password to the Password box.
- Retype password to the Confirm Password box.
- Apply OK.

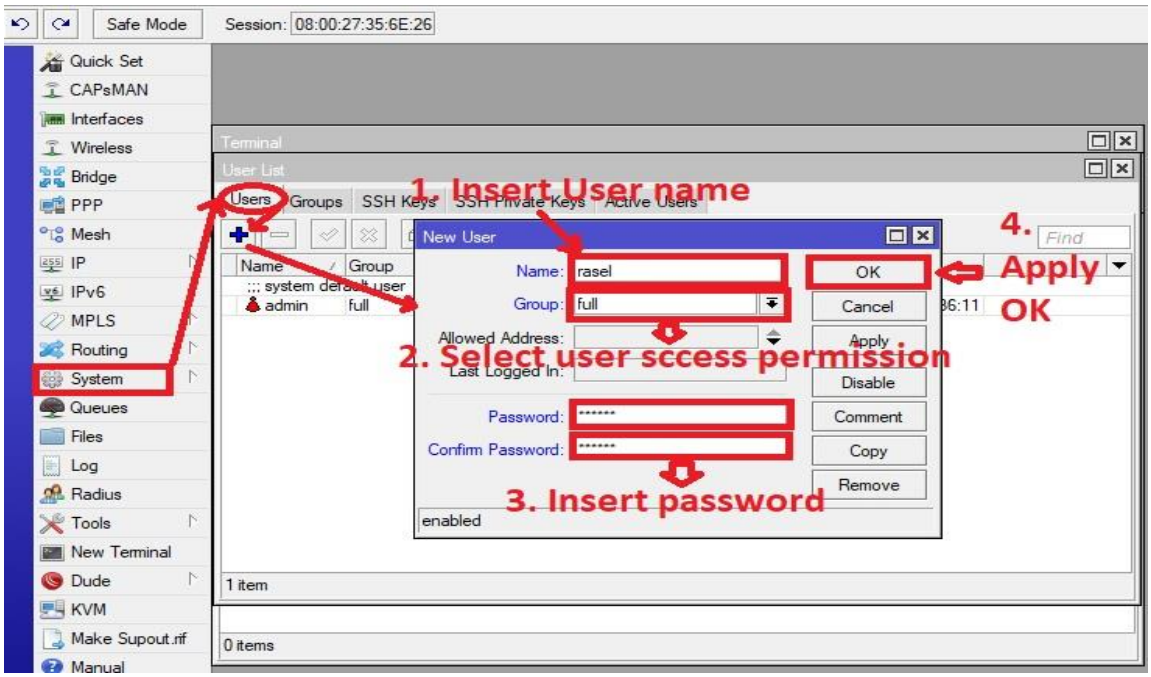

Figure-4.15: Shown Screen Print of User Management.

4.4.3.9 Bandwidth Management

Using Simple Queue:

- Click on Queues
- Select Simple Queues.
- Now click on + (Add) symbol.
- Insert client name into the Name box.
- Insert client IP to the Target box.
- Select upload & download speed.
- Apply OK.

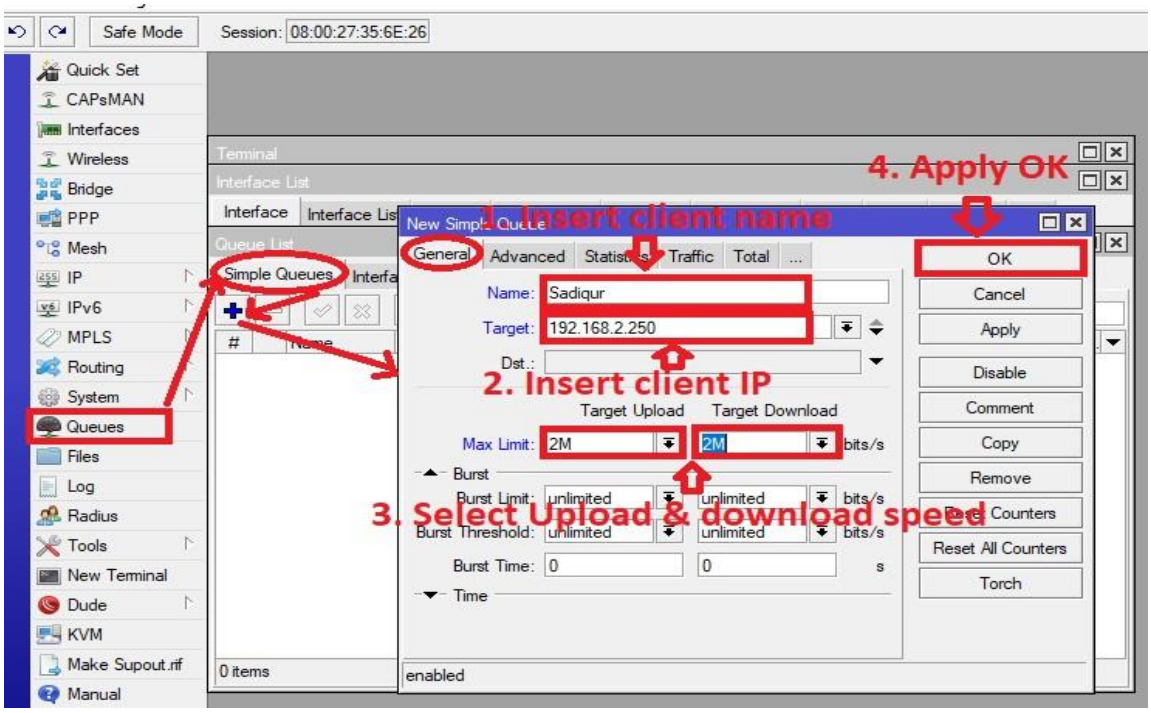

Figure-4.16: Shown Screen Print of Bandwidth Management Using Simple Queue.

CHAPTER 5: CONCLUSION AND FUTURE CAREER

5.1 Discussion and Conclusion

I would like to thank Daffodil International University and my advisor Md. Rakib Hasan and my internship company Amber IT Limited all technical person. During this internship, I have learned a great deal about how to operate a big ISP company and so many networking work information, monitoring and support.

The whole experience of working at Amber IT Limited was great. This organization has a super work culture, great mind and top quality of work. I have practical knowledge, skills and met many new environment of networking level. I achieved several of my learning goals. I have got professional practice and learned the different facets of working within ISP Company.

At last, I want to say that this internship makes me confident and inspired to grow up my carrier with networking. I think that every IT background student should go for some practical training or internship that can enlarge his practical knowledge and sharper technical and managerial skill.

5.2 Future Scope

We know, there are a huge number of telecom companies in our country and they recruit a lot number of Network Professionals. Every large company or Govt. Organization also recruits a number of network professional for maintaining their Enterprise Network System. Mikro-Tik based networks are more reliable and popular to them.

So I think this internship gives a promising future to me and help to betterment my professional carrier in future.

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APPENDICES

- **Appendix A: Internship Reflection**

The primary goal of the internship is to develop my skill with this track and improve the understanding how the theoretical knowledge obtained in the degree program can be applied in a real life business organization as an interned. This internship gives me the opportunity to translate the academic knowledge into practical experience. There are lots of topics and protocols about networking are covered in our previous academic syllabus but practical knowledge is also important for build-up carrier. I want to gain the maximum practical knowledge about my internship subject. I have also the aim to discover the present job market original scenario and demands. Because that help me more to build my skill at right track and analysis the effective technology for increasing the demand for job market. Internship also helps to understand the working environment of an organization or company.

- **Appendix B: Company Detail**

Head Office

Name	Amber IT Limited.
Address	AmberIT Ltd. Navana Tower (7th Floor), 45 Gulshan South C/A, Circle-1
Telephone	02-8819252, 09611123123
Fax	+88 02 8819221
E-mail	info@amberit.com.bd
Website	http://www.amberit.com.bd
Type of Organization	Nationwide Internet Service Provider (ISP)
Employees	500