

**OFFICE NETWORK MANAGEMENT SYSTEM BASED ON COMMAND
LINE INTERFACE ENVIRONMENT**

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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 “**Office Network Management System Based on Command Line Interface Environment**”, Submitted by Md. Anamul Haque, ID NO: 152-15-5857 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 took place in 7th December 2019.

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DECLARATION

I declare that, this internship report is prepared by me, Name: Md. Anamul Haque ID No: 152-15-5857 to the department of Computer Science and Engineering, Daffodil International University. Under the supervision of **Md. Tarek Habib, Assistant Professor, Department of CSE**, Daffodil International University. I also declare that neither this internship report nor any part of this internship report has been submitted for award of any Degree or Diploma. I also declare that, I collect the information at 4K Engineering Limited, Books and Internet.

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ABSTRACT

Internet service provider (ISP) is search a company that provides Internet connections and services to individuals and organizations. ISPs are all connected to each other through network access points, public network facilities on the Internet backbone. I heard 4KEngineering Limited has gave me the opportunity for ISP and Office Management System based on Mikro-Tik & Linux platform etc. Linux is continually considered a very secure operating system. Mikro-Tik is one of the very popular platforms in digital Bangladesh. We can do almost the whole lot the usage of Mikro-Tik which include router static connection, DHCP connection, website blocks etc. In this report typically the detailed steps for configuring the Linux and Mikro-Tik has been described.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

ISP server configuration of Linux and MikroTik platform, Cisco switch, Wi-Fi router configuration & be aware of about cambium networks this is the principal aim of my internship application is to put together myself as a skilled individual in professional. So internship is very indispensable for me. I favor to attain quite specific fine to show myself. It covers superior skills for the Linux expert that. This aim consists of the capability to manipulate a running server and configuring. Linux with clear learning two of offerings to be used. It covers primary capabilities for the Linux professional. Banking depend on sever system, international card . Every business and e-commerce today has a whole lot to do with software-based conversation , internet technological know-how is additionally a very beneficial server , with the aid of the usage of this gadget we can operate a variety of sorts of services.

1.2 Motivation

My internship program influenced B.Sc. students following tiers at Computer Science, IT Directorate of Science and Technology. The internship does now not only supply experience however additionally teaches a student how to communicate, how to work properly, how to preserve authentic requirements. As an intern, I am magisterial of myself. An internship gives me widespread knowledge, big skill improvement in networking sites. An internship can make a student responsible and professional. A student can take an area ride by doing an internship. As a result, the internship grows the capacity Networking is my first choice due to the fact I am interested in computer networking and I am especially determined I desire to construct my profession as a records technological know-how engineer. Information science engineers very demandable in the first world is too excessive and statistics technology is turning into a prior challenge in our country also. If we make a robust networking system then we grant a “Digital Bangladesh” other way is not possible.

1.3 Internship objectives

The essential goal of my internship application is a perception of a contemporary prerequisite of the job market and also to put together skilled individual in a competitive job place. The internship is very fundamental for ability improvement. To attain some exclusive fantastic and real-life job experience in order to prove myself as a skilled one internship. It has a large effect on our IT sector, we will in a position to use the Internet, Software export, Call center, E-Commerce, Tele -Education, Video Conferencing more vastly. By identifying these elements we can be certain about the progressive change over our IT sector, throughout our working time in 4K Engineering we achieved a number of experiences and knowledge. Here are some objectives of the internship.

1.4 Introduction to the Company

Kartick, a civil engineering graduate from BUET started working in construction industry back in 1990. Kartick has been involved in the design, construction and delivery of many prestigious buildings across a number of sectors including textiles, Garments, Chemicals, heavy and light engineering and Sports. This balanced understanding of every aspect of a building allows Kartick to design iconic structures that meet both stringent regulations and any number of specialist requirements. He has been heavily involved in both the conceptual design and delivery of many iconic buildings and his expertise covers construction management, pre-construction engineering, and construction audit. He leads a team of 100 professionals engaged in the construction engineering and management.

Kartick's approach to the construction of buildings and other structures is very 'hands on', clients appreciate his insight and passion for delivering innovative structural solutions and exceptional leadership skills. He believes that building engineering should be a people focused, technically driven community that mixes communication, a clear understanding of building physics and creative thinking together to provide high levels of excellence.

Email Kartick at kartick@4KEngineering.com

Khaled, an electrical engineering graduate from BUET, brings considerable international business experience at 4K through his executive career with Siemens, Nokia Siemens Networks and Banglalion where he held progressively senior leadership roles in technology management, finance, operations and general management.

Over a 20 year career Khaled's willingness to involve himself and collaborate during each project phase from conceptual design to execution has continually aided his teams in achieving the highest levels of sustainability through consistently innovative solutions tailored to each project's unique challenges. Khaled's passion for taking a multidisciplinary approach to work, believing in the value that can be obtained through the collaboration and interaction between individual skills and disciplines has proved popular with clients, who realize the many benefits this brings to their projects. Fundamental to his success is his grasp of cross-disciplinary skills. He understands the value of applying a breadth of knowledge to a challenge in order to find its most ideal solution

Khaled having a degree in MBA from IBA, Dhaka University is Adjunct faculty in MBA Program at BRAC University and University of Liberal Arts.

A particular interest is the use of internet in nation building has led to Khaled becoming President of Center for Internet and Society in Bangladesh.

1.5 Report layout

Now I talk about the goal of internship, Motivation of internship and introduction to the Company in my document paper. I have portrayed the method of my internship. About the company, goal group, organizational structure. In this report, written about daily through tasks. This report, I have written about the Completion and Future opportunities. Additionally talk about the Future opportunities of records technological know-how or network administration. I talk about the conclusion and future profession in records technology. In the last pages have all the references and appendices now I am adding.

CHAPTER 2

ORGANIZATION

2.1 About the Company

A company founded and run by engineers, 4K got a vision that is grounded in reality but also soars to the sky. For any need, we find the best suitable solution, and offer it to our clients at a competitive price. Our solutions have the lowest total cost of ownership and our quality exemplifies our commitment to excellence.

4K strives to excel in Telecom, Power, Automation, Construction management, Safety and Security arena to ensure optimum values for its clients and society. 4K's leadership focused for effective engagement in creating intelligent solution for its clients. 4K generates revenue from telecom network build and maintenance, design and builds fire detection and protection solution, design and builds power solution, structural audit services and supply of telecom and IT solutions.

Our principals have over 50 years combined, global experience running and managing complex enterprises in the field of electrical, civil construction, telecommunication, SW automation, project management, Toy manufacturing and in customer engagement.

2.2 Product and Market Situation

4K works with world renowned companies like LONIX, CHECKPOINT, MOBOTIX, ISONUS Security Systems, MUSGRAVE generators, MOBOTIX, EMICON precision AC, GTEK, C&D Technologies, GE Solar, Blue Star Air Conditioning, FALCON UPS and more. We are involved in a wide spectrum of activities including Industrial Contracting, Trading & Service whether Industrial or Commercial.

4K addresses Projects with its engineering capabilities and project execution skills, provide a wide range of Electro-Mechanical Contracting services including: -

BTS /Node B/RNC/MW/IBS installation and Commissioning and Maintenance. Supply and Installation of Telecom Installation materials. Electrical Solution Contracting services on turnkey basis. Mechanical contracting services design, supply, install, commissioning of HVAC, Plumbing. IT Security Solutions, Customer Engagement Solutions, Data Analytics, Network Optimization. Structure, Electrical and Fire Audit for Industries Etc.

4K has the technical expertise, connected with trained & experienced project personnel, have access to skilled manpower, tools, equipment and logistics support through its association.

2.3 Target Group

4k engineering work on building Power, Automation, Safety and Security areas. We focused to improve people safety and comfort through our innovative solutions. We represent some of the world's finest engineering, design and program management companies - with long decades of experience in their respective fields.

Our purpose is "To create, enhance and sustain the world's built natural and social environments. " Dedicated to this promise, our company is driven by a clear set of Core Values, which define who we are, what we do and how we do it.

2.4 SWOT Analysis

SWOT evaluation is a strategic planning method that helps a character or organization become aware of the strengths, weaknesses, opportunities, and threats associated with the business competition or action planning.

- **Strength:**
- Communication between individual people through distance (at home and at work).
- We are honest and ethical in our actions.
- We keep our commitments and treat others with mutual respect and trust.
- **Weaknesses:**
- No weakness but have some Improvement - Creativity, exploration and imagination are key to our business approach. We continually look for creative, new or better ways to apply our expertise to all dimensions of our work.
- **Opportunities:**
- The age structure of the population is changing.
- Modification of the regulatory framework.
- We respect and encourage our employees' ideas, diversity and cultures.
- **Threats:**
- No threats all system are great..

2.5 Organizational Structure

Table 2.1:Employee Hierarchy of 4K Engineering

Chairman
Managing Director
General Manager
Manager
Deputy Manager
Assistance Manager
Project Engineer
Senior Officer
Officer
Officer Staff

CHAPTER 3

TASKS, EVENTS AND ACTIVITIES

3.1 Daily Tasks and Activities

Month – 1: I learned the first month of internship at 4K Engineering Limited and practiced the following:

- Introduction of Network IP address.
- Understand the basic idea of a router.
- Routing configuration and how the router works.
- Trying to know about Mikro-Tik router.
- About know different types of router.
- About Static routing configuration.
- About Dynamic routing configuration.

Month – 2: When I have completed a one-month internship learned and performed this thing:

- learn about PPPoE configuration.
- learning about NTP configure
- Learning and understanding Local ISP configuration.
- know about Bridge mood configure
- Introduction of WI-FI configure.
- Trying to know about essential two routing.

Month – 3: 4K Engineering Limited third month internship, learned and performed this tasks:

- Know about Cisco switch & router configuration.
- Learning about Network cabling system.
- Know about IPV6 fundamental and configuration.
- Know about cambium networks.

Month – 4: Last month of the Internship at 4K Engineering Limited I learned and performed the following tasks:

- Introduction of Linux addition two & Installation.
- Know about Linux system administration.
- Describe of FTP, NFS, WEB, Samba, DHC, DNS server.
- Learn about Syslog server.
- Know about Securing with IP tables.
- Introduction of NIS configuration.
- Learn RAID, LVM, Boot and Grub level.
- Learn about mounting and RPM.
- Know about Modify the partition.

3.2 Events and Activities

- Monitor Computer Systems and Network.
- Set up user accounts, and passwords.
- Correction servers and routers.
- Correction of local area networks and switches.
- Fixing network faults.
- Technical support for people using the network.
- Cell phone or physical client support ends the customer.
- Monitor daily admin and network usage fixing network faults.

3.3 Project Task and Activities

Networks:

A Network mixture of computers, servers machine many different peripherals two machine which is related every different to sharing the facts or records and so on.

Networks are five types:

1. Local area community (LAN)
2. Metropolitan area network (MAN)
3. Wide area network (WAN)
4. Wireless
5. Inter network (internet)

ISP: An web service issuer (ISP) is a machine that presents many sorts of net get entry to use or assistance provider .Internet provider vendors canbe organized in distinct types such as commercial, community owned, nonprofit, or in any other case personal ownership.

Different types of ISP connections

- Dial-up.
- Digital subscriber line (DSL).
- Cable broadband.
- Fiber optic broadband.
- Wi-Fi broadband.
- Satellite and mobile broadband.
- Dedicated leased line.

Mikro-Tik Routers That's the hardware router board OS. It can be mounted on a computer two with all fundamental feathers two to route firewall, IP address gateway DNS server, PPPoE server etc.

Router: A router is a network gadget which is forward records to computer. Router operate the traffic directing characteristic on the internet.

Wi-Fi: Wi-Fi is the wireless network technological know-how which makes use of radio waves to function high speed net and network connection.

IP Address: IP tackle which is web protocol address. Network use the IP tackle which is assign on protocol to talk and assist to records passing.

Function: IP address has two function that name host and another is network.

3.4 Mikro-Tik Router

Mikro-Tik hardware which is basically use for router. In any employer take bandwidth in primary router than it given by way of different Mikro-Tik router. It's the usage of in LAN, swap hotspot and many others for the user to data sharing.

Mikro-Tik Router Rb2011UiAS:

Mikro-Tik Router Rb2011UiAS has most features and interface from all our wireless router. It has 600MHz 70K community processor, 128mb RAM, SFP cage, 5 GB LAN ports and Ethernet ports, 2.4GHz 802.11 wireless, RJ45 serial ports and micro USB port. Figure (3.1) [2];



Figure:3.1: Image of Rb2011UiASMikrotik Router.

3.5 Router OS

The Mikro-Tik is an OS which is used for router. Any employers use it for router because of its price reachable. It at the identical time connect 10 laptop in one IP address. It can additionally using bridge, firewall, DHCP additionally the use of hotspot. It join with swap, data passing to purchaser very smoothly.

3.6 Features

Router OS helps many functions used through Internet Service Providers. For example:

- It uses a bridge or swing
- It provides PPPoE client-server.
- It creates firewall rules.
- It provides a DHCP server service.
- It provides easy administration.
- It is very easy to manage bandwidth.
- It Easy GUI interface.

3.7 How to be a Mikro -Tik Configuration:

Mikro-Tik use three layer which is bodily layer, data link layer, network layer. when Mikro-Tik install than we use win box to set up IP tackle ,gateway, DNS, NAT, bridge, Firewall and many others .Here are three types of routing there is static, DHCP, PPPoE. Mikro-Tik router the usage of quick and easy GUI in Figure (3.2) [2]

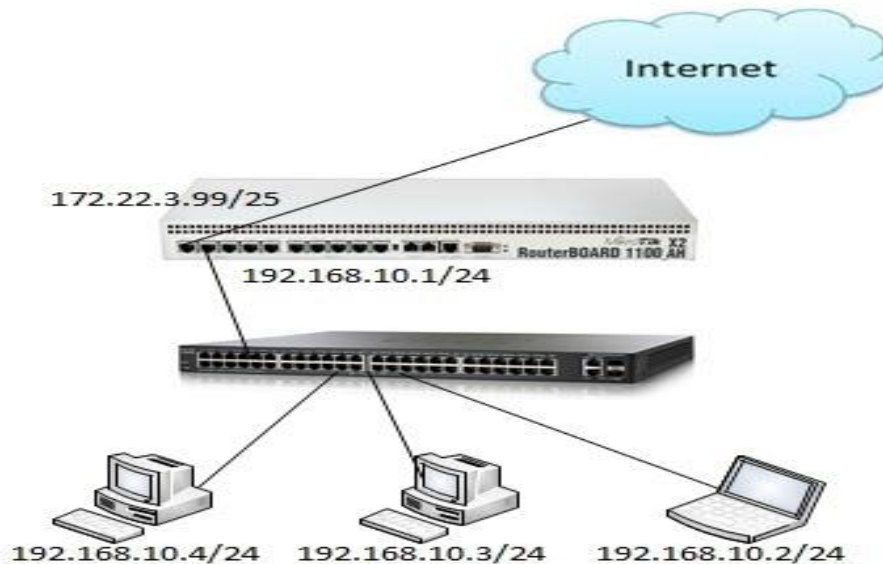


Figure. 3.2: How to works Mikro-Tik

3.8 Mikro-Tik Router Configuration:

Mikro-Tik Router OS is installed then windows Software is installed. The PC with windows running device hooked up and RJ45 cables. Then rest, Mikro-Tik router Click Mac address write “Admin” the login field don’t need to provide the password. Figure (3.3) [4].

Step 1: Ping>system reset-configuration>Enter.

```

Terminal
MMM   MMM   KKK               TTTTTTTTTT   KKK
MMM   MMM   KKK               TTTTTTTTTT   KKK
MMM MMM MMM III KKK KKK RRRRRR   000000   TTT   III KKK KKK
MMM MM  MMM III KKKKK   RRR RRR   000 000   TTT   III KKKKK
MMM   MMM   III KKK KKK RRRRRR   000 000   TTT   III KKK KKK
MMM   MMM   III KKK KKK RRR RRR   000000   TTT   III KKK KKK

MikroTik RouterOS 6.43 (c) 1999-2018      http://www.mikrotik.com/

[?]          Gives the list of available commands
command [?]  Gives help on the command and list of arguments

[Tab]       Completes the command/word. If the input is ambiguous,
            a second [Tab] gives possible options

/           Move up to base level
..         Move up one level
/command   Use command at the base level
DEVICE HACKED - ACCOUNT admin HAD UNSAFE PASSWORD
[admin@MikroTik] > system res
resource reset-configuration
[admin@MikroTik] > system reset-configuration
Dangerous! Reset anyway? [y/N]:

```

Figure.3.3: Screenshot Reset Mikro-Tik Router.

Add interface LAN & WAN .choose IP to define the LAN & WAN in Fig (3.4)

[7]

Step 2:IP>add IP apply>ok

Define IP Setting up process. Process: IP click on + IP address + (plus signalclick)

+ add IP + practice ok.

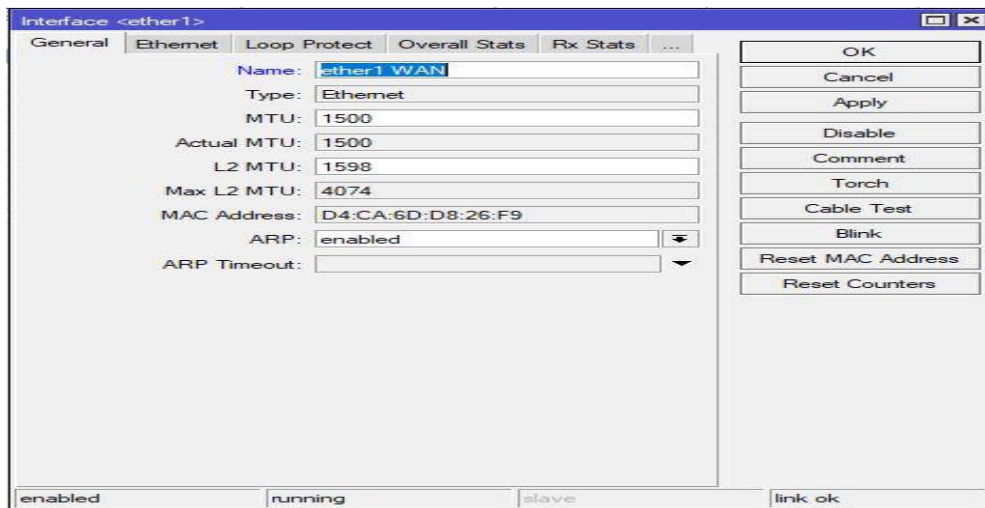


Figure. 3.4: Screenshot interface Setting.

IP address chooses category B for LAN and WAN address choose which is outline easily. Figure (3.5)

Step 3:Define the process of setting up IP. Process: IP + IP Address + Click (plus sign click) + IP + Practice OK. N.B. First select WAN port and LAN port but WAN will provide IP add, gateway and subnet mask due to WAN. IP Address Format 0.0.0.0/0 (default route).

IP>address add> address select>interface> apply>ok

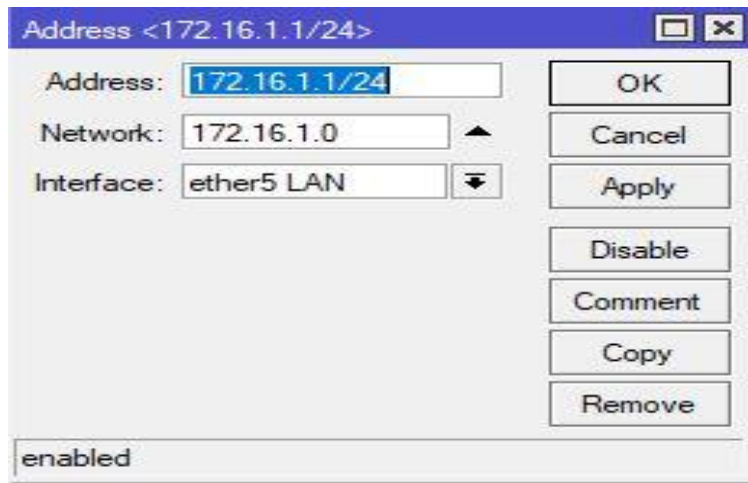


Figure. 3.5: Screenshot IP address set up LAN & WAN.

PC IP eliminates and pick IP address, gateway, DNS server, and many others. And then study to IP address. Figure (3.6) [5]

Step 4: IP>DNS IP>apply>ok

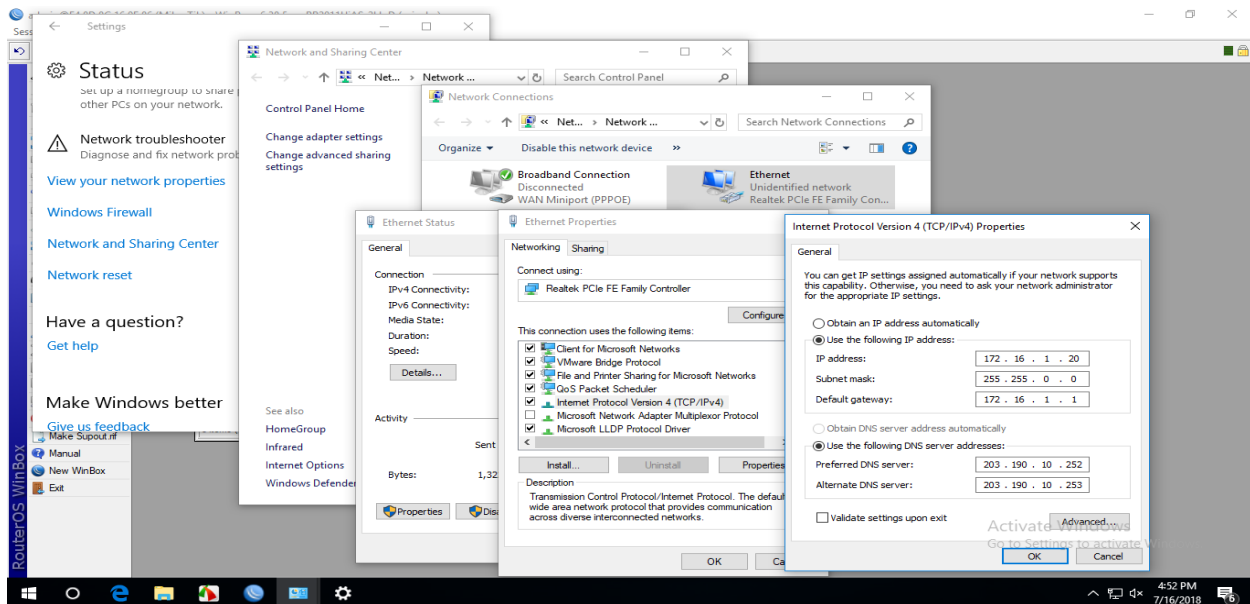


Figure. 3.6: Screenshot DNS set up.

Firewall first putting is NAT setup than two boosts replicate pre-routing and a pick out motion to masquerade in Figure (3.7)

Step 5: IP>firewall>NAT>action>masquerade>apply>ok

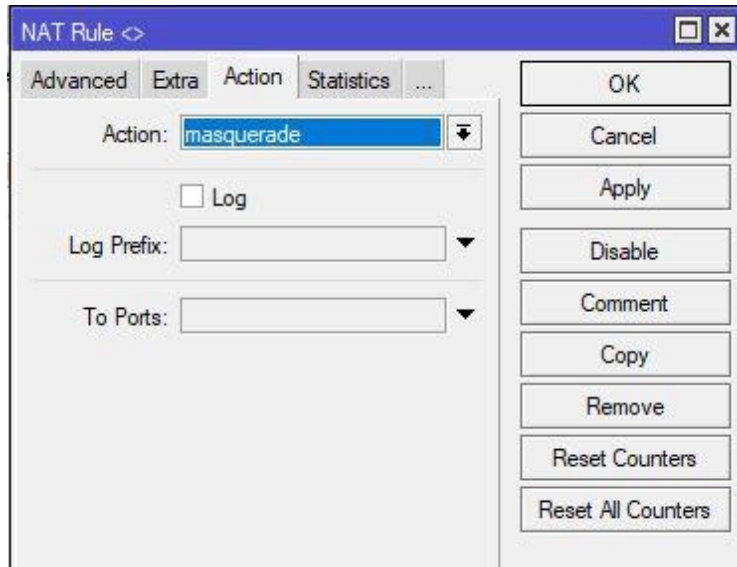


Figure. 3.7: Screenshot Firewall NAT.

Next, the gateway set up the process is assigned Figure. (3.8)

Step 6: IP>route>gateway IP>apply>ok

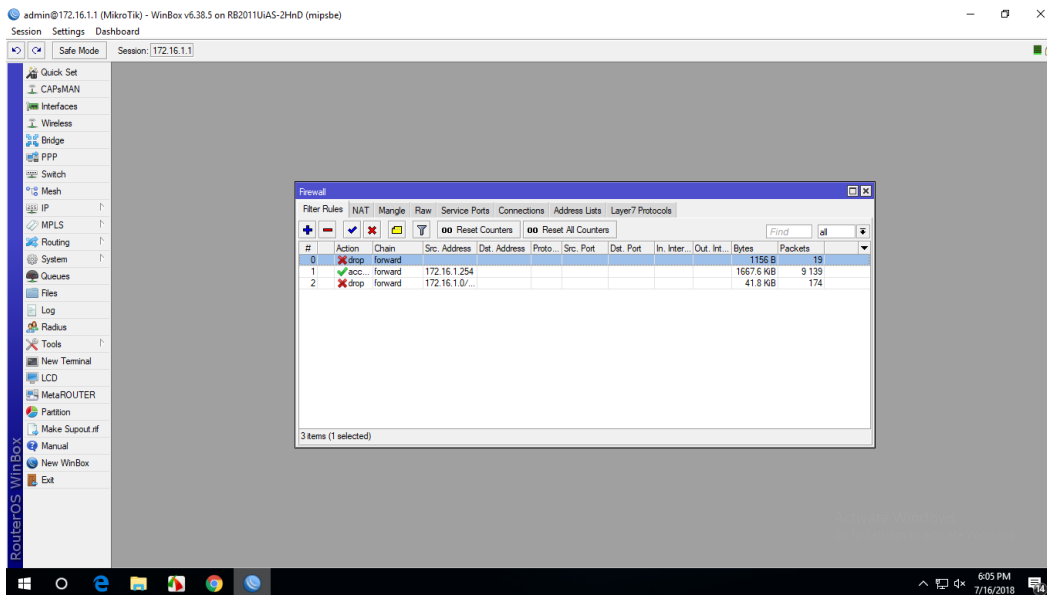


Figure. 3.8: Screenshot Gateway IP Assign.

Now create a bridge which connects two or many different laptops in completely one The IP address which without difficulty shares facts passing in the samenetwork. Figure (3.9) [9];

Step 7: Process: Bridge>Ports> “+” > (bridge n, here n=1,2,3....)> Apply>ok

IP > DHCP Server > DHCP Setup > bridge 1> following Next Option.

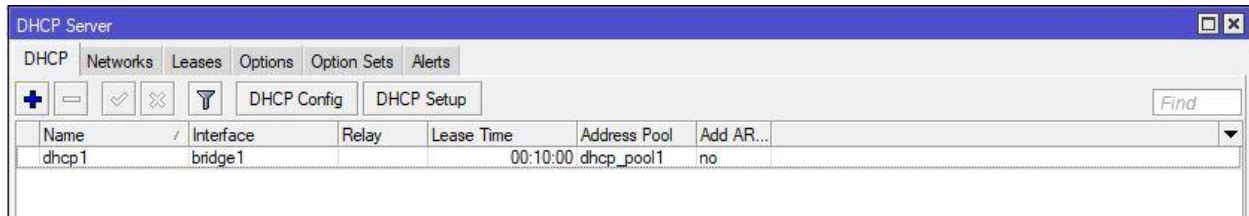


Figure. 3.9: Screenshot Bridge.

Create ports to show the two bridge.Figure (3.10) [12]

Step 8:Bridge>ports>add>ip adress >apply>ok

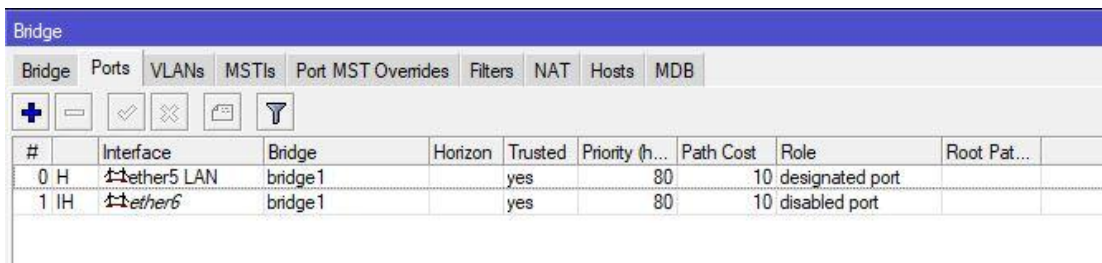


Figure. 3.10: Screenshot Create Two Bridge

Define Mangle Option to assist queue to select provide address & vacations pot address. Figure (3.11) [10]

Step 9:IP > Firewall > Mangle> Files >Address.rsc>> New Terminal > Import Address.rsc



Figure. 3.11: Screenshot set up mangle option.

To set up the net browser, rate, classifier & limit for how tons to use the data to pick out this one by way of one. Fig (3.12)

Step 10: Process IP > Firewall > Address list> Mangle>“ + “ > Action > Mask connection > New connection Mask Name (YouTube) > Advance > select the YouTube-IP > Apply > ok

General > Connection mask >YouTube> Apply > ok

Action > Mask Packet >YouTube> Apply > ok

Queues > Queue Types >“ + “ > Type Name (Download) > kind > PCQ > Select rate >

Apply > ok

Queues > Queue Types >“ + “ > Type Name (Upload) > kind > PCQ > Select rate >

Select the Classifier src. Address> Apply > ok

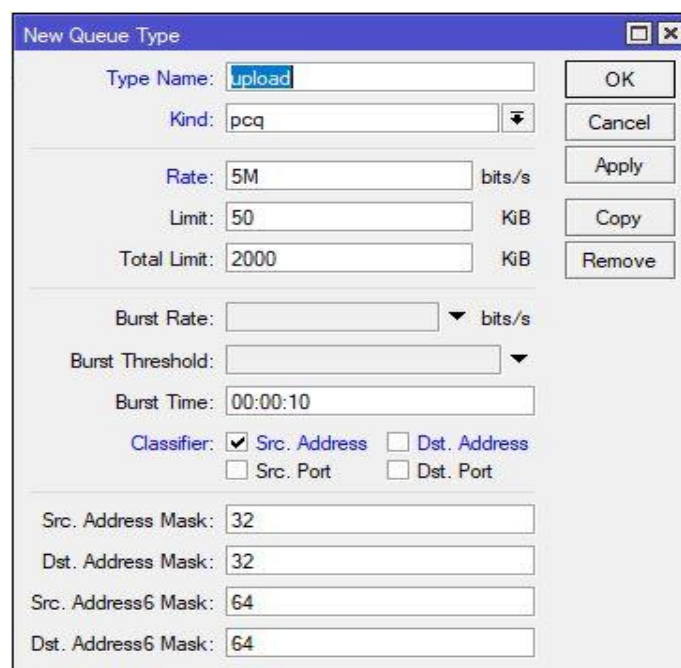


Figure. 3.12: Screenshot Queue Settings

Here we show how a lot Mbps are makes use of on YouTube browser .Figure (3.13)

Step 11: Define Upload and Download Rate

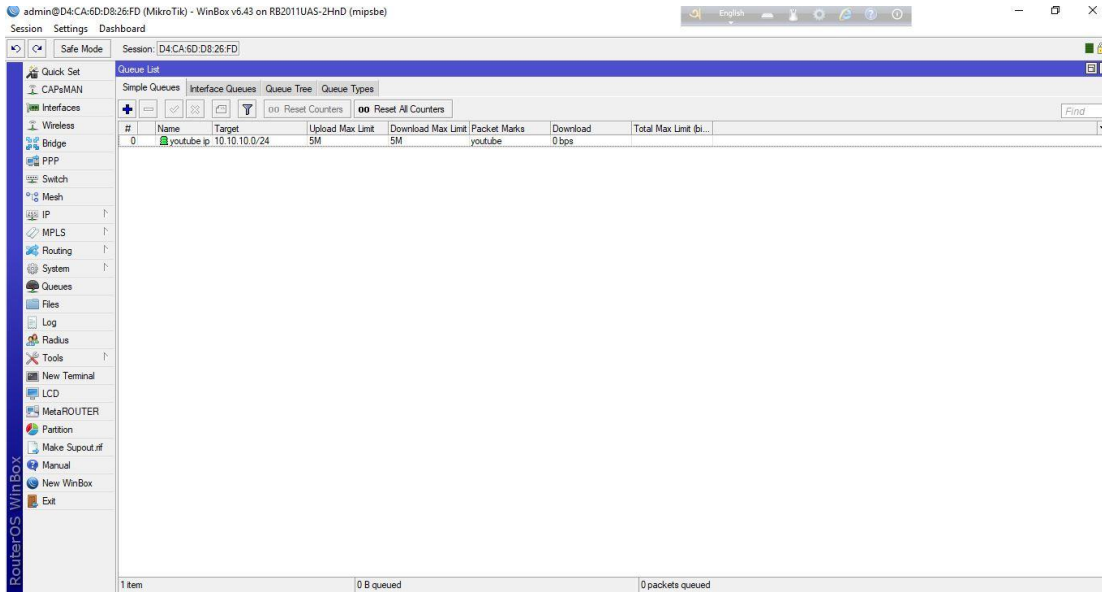


Figure 3.13: Screenshot Upload & Download rate

3.9 PPPoE

PPPoE full that capability is a thing to point protocol over Ethernet. It is an antithetic profile. It is used on the whole DSL provider the place a person is the usage of free two in over to Ethernet.

3.10: PPPoE Configuration

First, we will configure the interface that is linked to WAN. Than laptop computer, IP address deletes & choose which we pick for PPPoE. Figure (3.14) [4]

Step 1: Queue>address >queue type>apply >ok

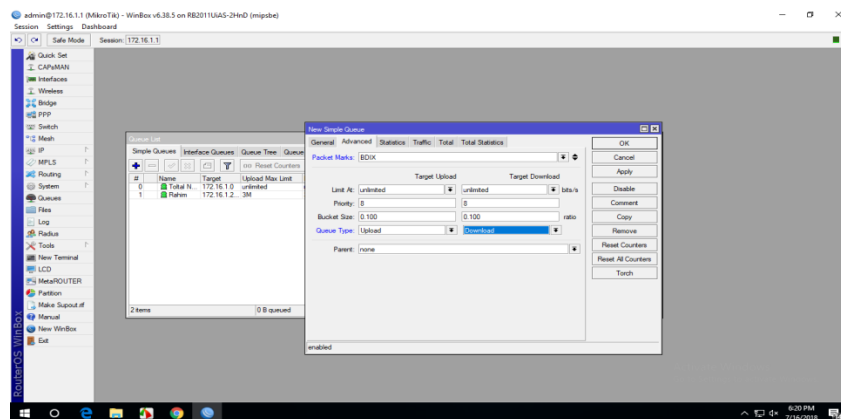


Figure. 3.14: Screenshot PPPoE WAN set up.

Now one interface is configured and linked to WAN. Now we will configure the 2nd interface for our nearby community in Figure (3.15)

Step 2: PPP>PPPoE sever binding> add> profiles>apply>ok

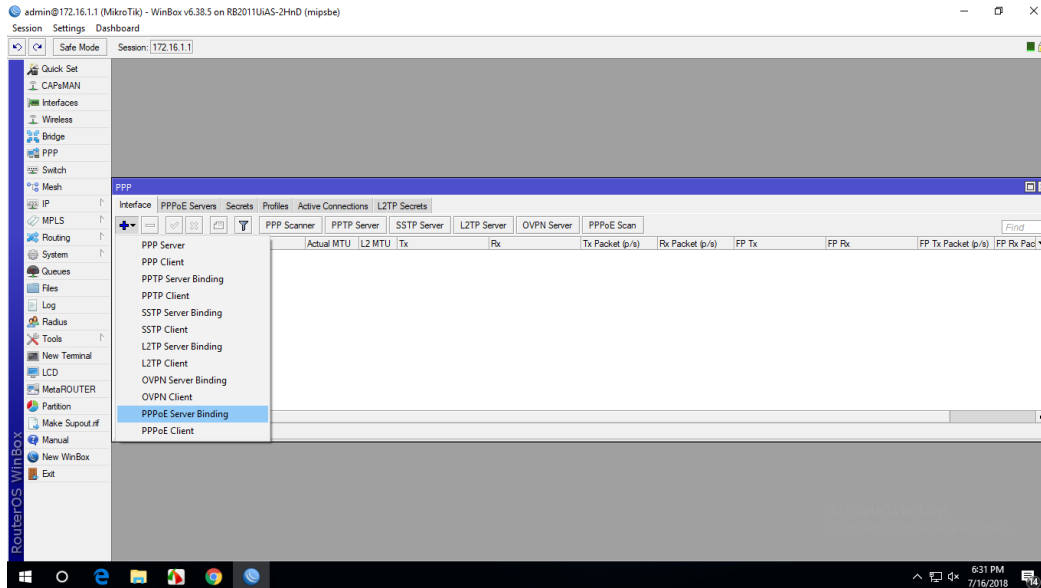


Figure. 3.15: Screen shot PPPoE server Binding.

Now we will create a profile that will be used via specific users. Go to the predominant PPP window, go to Profiles tab, right here you will see two profiles through capability of default, don't do something to these default profiles, create a new profile through capability of pressing the PLUS sign. Figure (3.16)

Step 3: FTP>name>local address >apply >ok

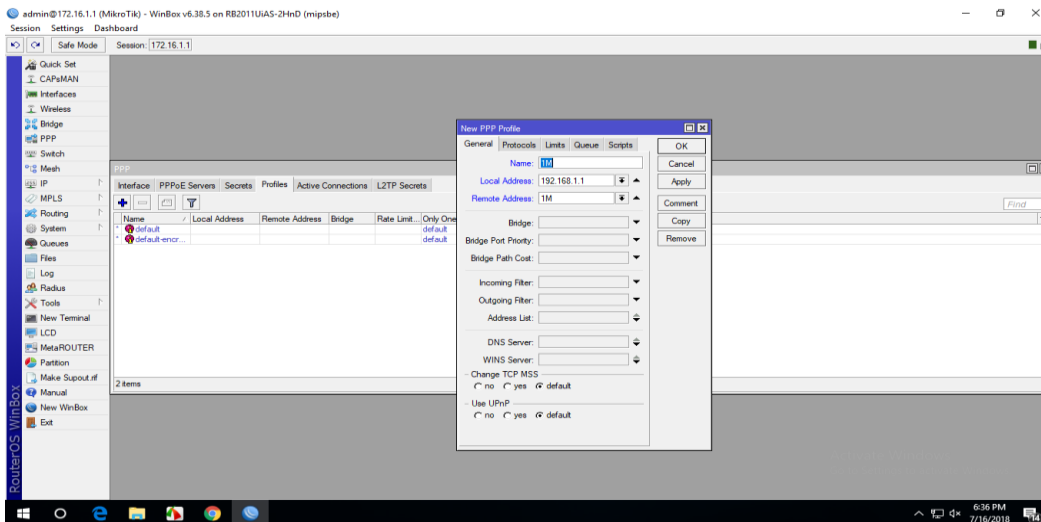


Figure. 3.16: Screenshot profile create.

My PPPoE Server Setup is complete, however, the Internet proper now will not be working at any client. Now we will set up NAT and ROUTE and DNS so that the net will also work on the clients. Figure (3.17)

Step 4: IP > Firewall. > NAT > add > FIREWALL rule > chain=srcnat ,src.address= () >action=masquerade > Apply > OK.

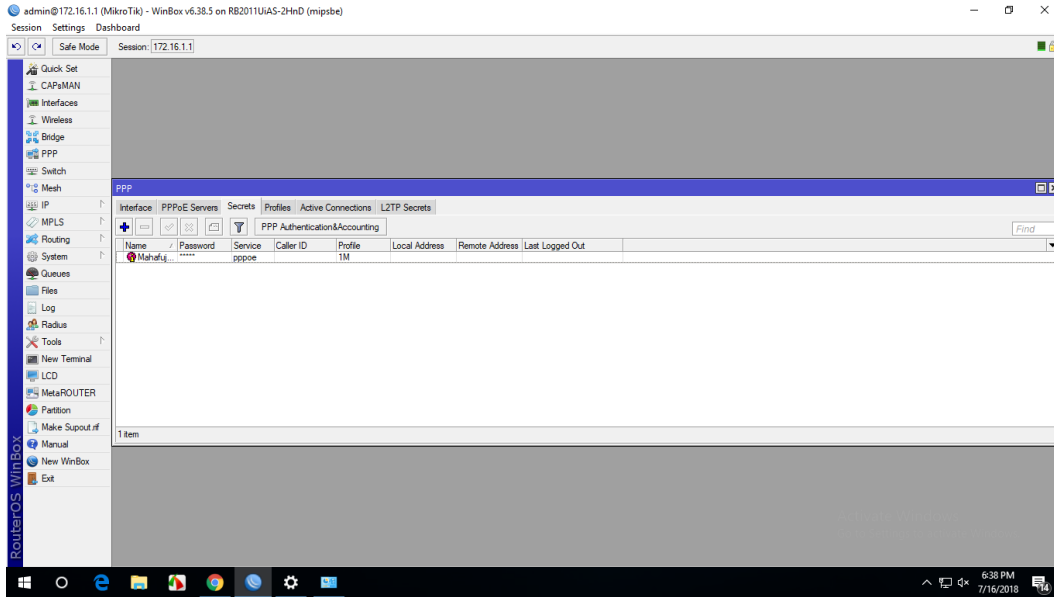


Figure. 3.17: Screenshot PPP secrets to Password.

Now the last step DNS server on Mikro-Tik router and supply by way of my ISP. Now our PPPoE server setup with profile and the whole thing will work. Figure (3.18)

Step 5: IP > DNS > settings > primary and secondary DNS Server's IP > apply > ok.

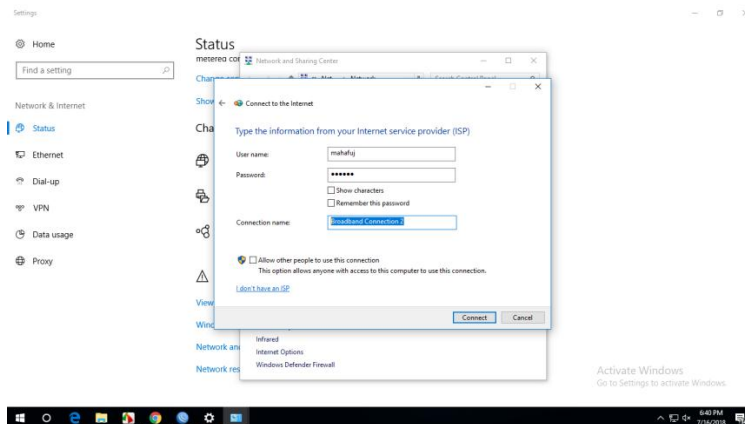


Figure. 3.18: Screenshot Connect PPPoE.

3.11 Cambium Device: Cambium networks deliver strong, high conduct, on hand Wi-Fi broadband additionally restoration statistics and resident get entry to the application. [3];

3.12 Types of Cambium networks configuration:

- AP mode
- Routing mode

AP mode: AP mode define that I have no choice to IP address. Name and password only alternate this mode. IP tackle gives in AP mode which is given in Mikro-Tik.

Routing Mode: Routing mode defines that I have a desire to IP tackle and additionally exchange title and password.

3.13 How to configuration Cambium Networks in two types:

AP: Go to putting and alternate the IP address & subnet masks than we ping the IP Address. Figure(3.19)

Step 1: Default IP > User name > password > ok

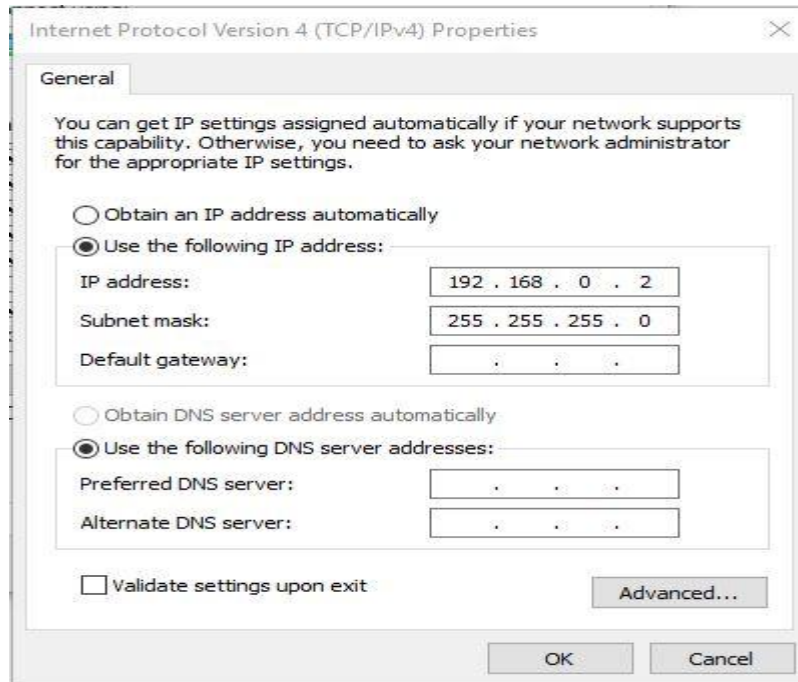
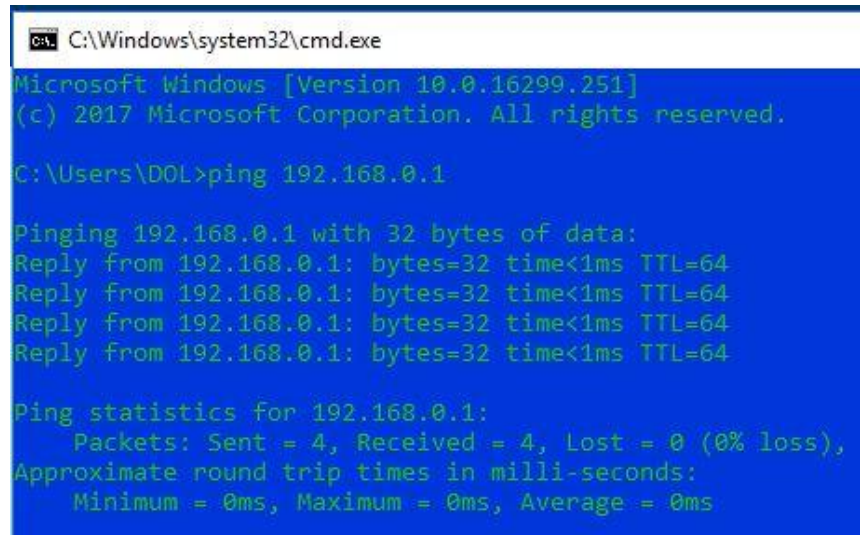


Figure. 3.19: Screenshot IP address set up

When ping IP address profitable than the ap route is configured in cambium networks.

Figure (3.20)

Step 2: Browser>pc IP>ok than ping network address >successful



```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 10.0.16299.251]
(c) 2017 Microsoft Corporation. All rights reserved.

C:\Users\DOL>ping 192.168.0.1

Pinging 192.168.0.1 with 32 bytes of data:
Reply from 192.168.0.1: bytes=32 time<1ms TTL=64
Reply from 192.168.0.1: bytes=32 time<1ms TTL=64
Reply from 192.168.0.1: bytes=32 time<1ms TTL=64
Reply from 192.168.0.1: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Figure. 3.20: Screenshot ping Network address.

Cambium network login page we log in by using admin and password and then sign in

Figure (3.21)

Step 3: admin>password>sign in



Figure. 3.21: Screenshot log in page

Define how lots customer and channel connect. And rate, limit additionally see this page.

Figure (3.22)

Step 4: Process: sign in >ok

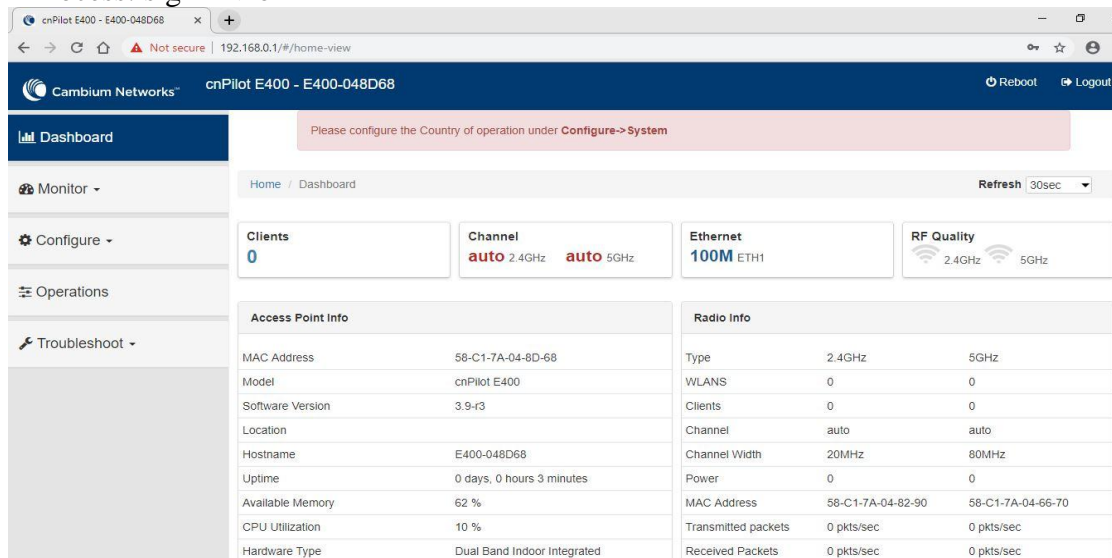


Figure. 3.22: Screenshot dashboard Cambium networks

Go to system to edit name password. Figure (3.23)

Step 5:Name>placement >indoor>password>save.

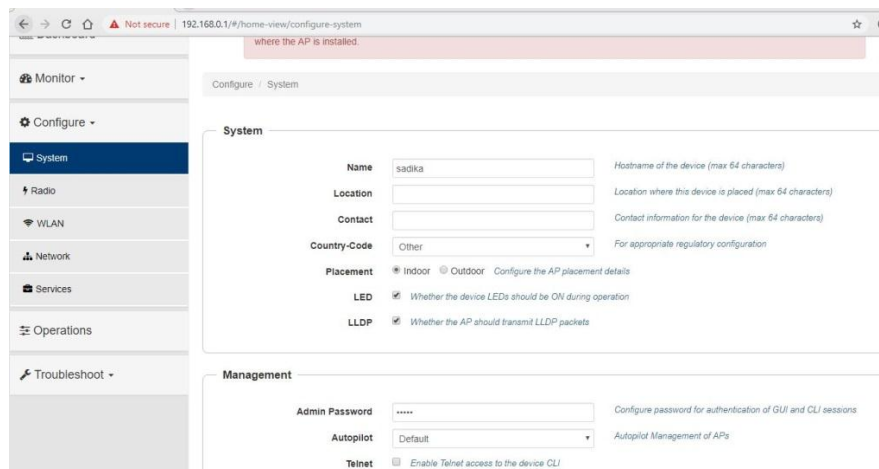


Figure. 3.23: Screenshot system configure

VLAN set up in static than set up IP address DNS server then save. Figure (3.24)

Step 6: Network >Static IP>Network mask>DNS server 1 >save

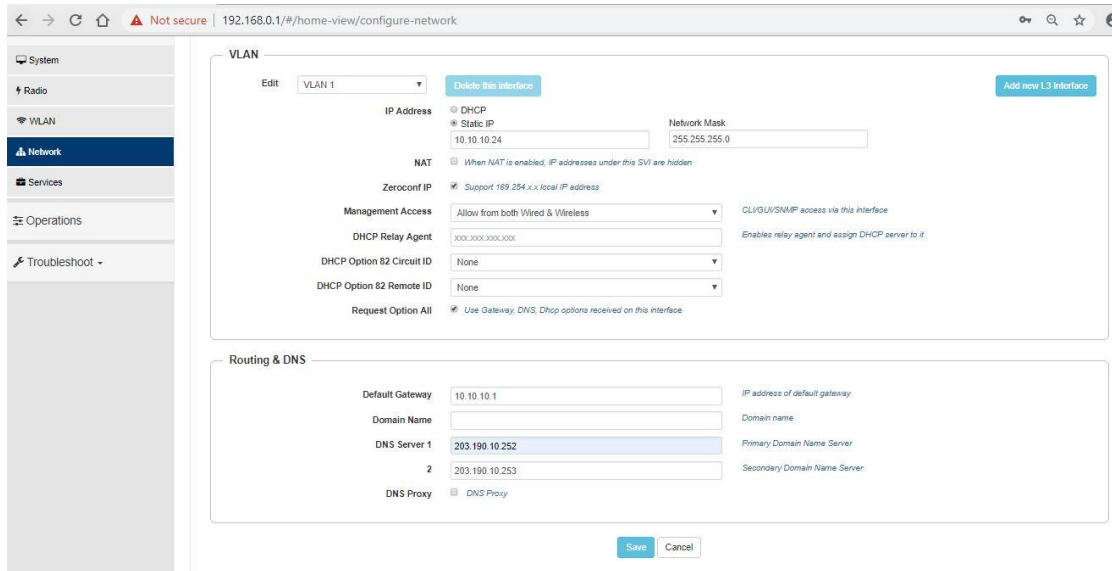


Figure. 3.24: Screenshot VLAN set up

Basic set up in AP route mode two SSID & passphrase set than Ap mode is full set up than we can browse on the internet. Figure (3.25)

Step 7: Basic >SSID>Passphrase>save .

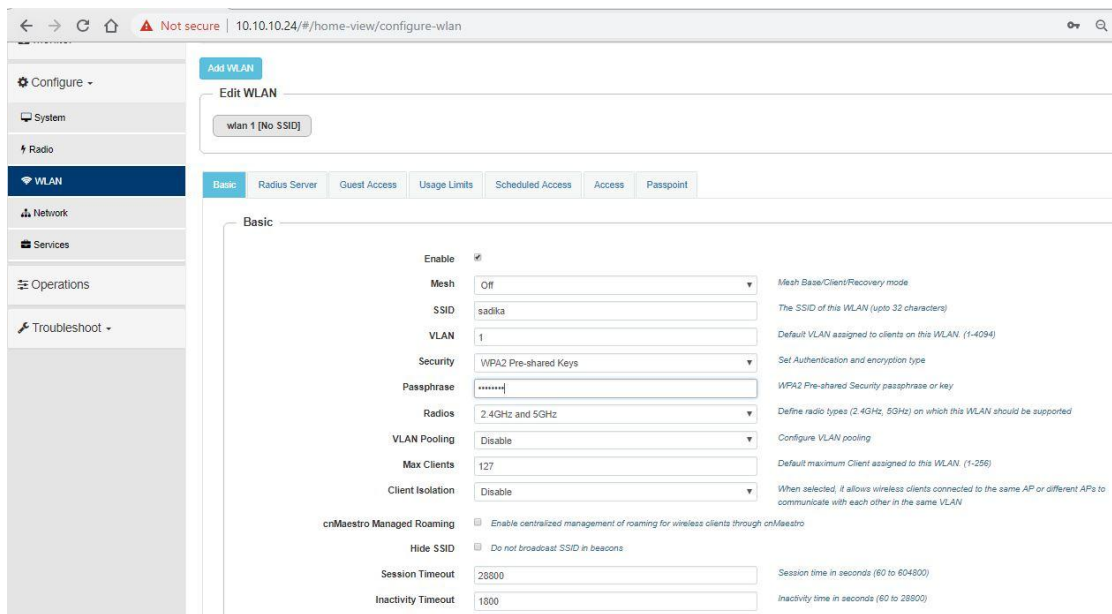


Figure. 3.25 : Screenshot edit WLAN

Routing mode :

Routing mode is now configured to set VLAN, static IP, gateway, DNS server. Figure (3.26)

Step 1: Process : Network> VLAN >Edit > VLAN 100>static ip > network ip >default gateway >DNS server 1> DNS sever 2>save

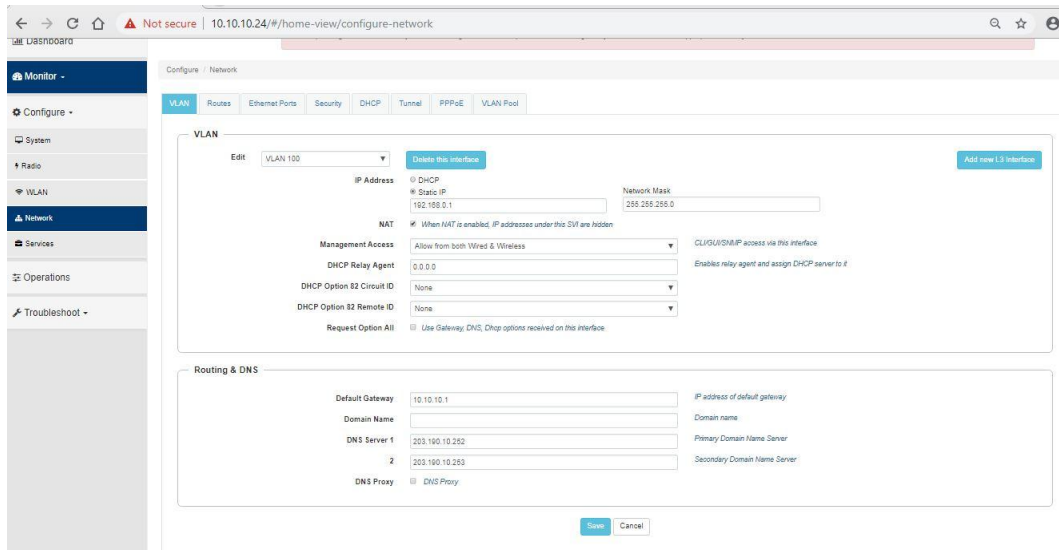


Figure 3.26: Screenshot routing mode configure.

Network icon to set up DHCP, Address range what is a restriction to shopping and DNS server. Figure (3.27)

Step 2: Network> DHCP >edit> pool 1>Address range > default router >DNS address >network >clint >network >save

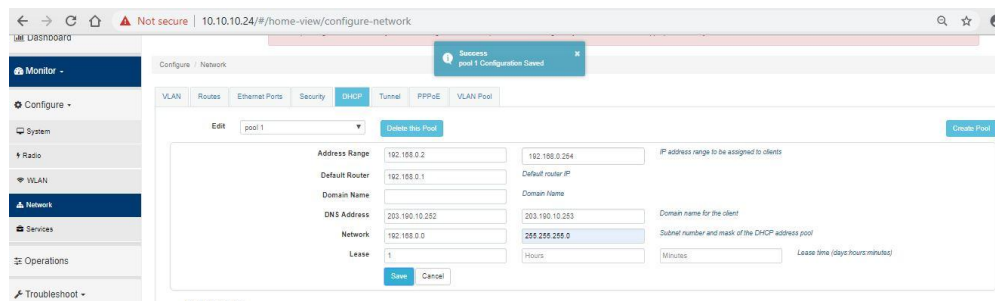


Figure 3.27: Screenshot DHCP set up

Here WLAN just edits to identify and passphrase. And configure full routing mode. now browse smoothly. Figure (3.28)

Step 3: Process: WLAN > name > passphrase >save

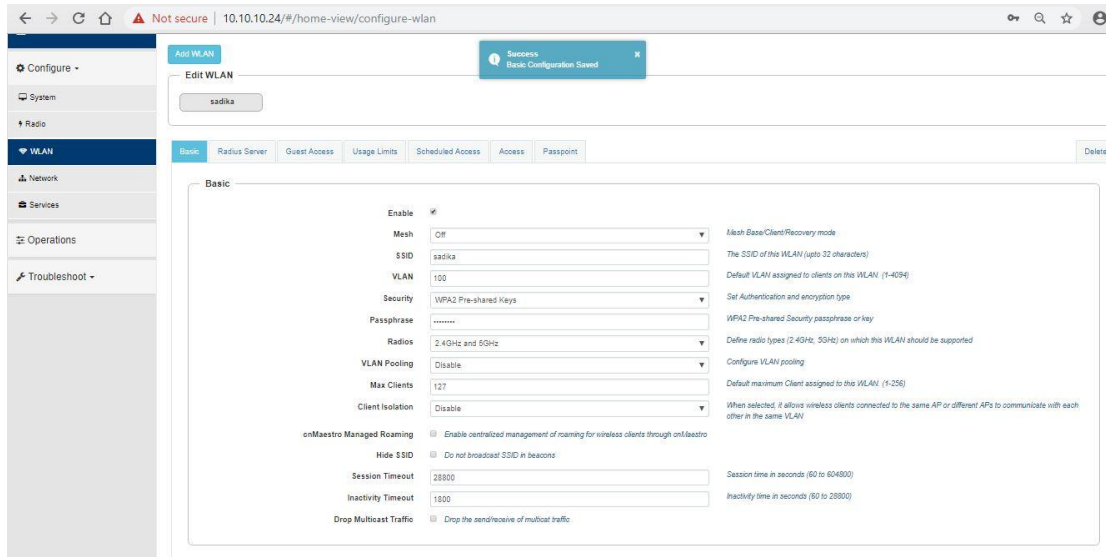


Figure. 3.28: Screenshot WLAN set up

3.14 Cisco Switch

A community change is a laptop network device that connects a system to a computer network by means of the usage of packet switching to receive, system and forward data to the gadget of a destination. To configure a swap we have to be aware of three basic modes. These modes additionally are the equal for the Router. [3];

There is a total of five modes:

1. User Execution Switch>
2. Privilege> Switch#
3. Global configuration >Switch(config)#
4. Interface> Switch(config-if)#
5. Sub-interface >Switch(config-subif)#

3.15 Linux:

Just like Windows XP, Windows 7, Windows 8, and Mac OS X, Linux is a working system. A working system is a software that manages all of the hardware sources associated with our computer or laptop. [8];

The OS is comprised of a number of pieces:

- The Boot loader.
- The kernel

- Daemons.
- The Shell
- Graphical Server
- Desktop Environment
- Applications.

Many benefits of Linux :

- The freedom to run the program, for any purpose.
- The freedom to study how the software works, and alternate it to make it do what wish.
- The freedom to redistribute copies so I can assist my neighbor.
- The freedom to distribute copies of my modified versions to others.

3.16 Installing Linux:

Download the Linux iso(desktop not server) and the free VMware Player.

Install VMware Player and run it, Select “Create a New Virtual Machine “Select “Installer disc photo file” and browse to the Linux iso I downloaded. Here we take two sorts of installation. We can take any different however I take usually because it’s convenient to laptop in as I prefer. Then next, Figure (3.29)

Step 1: Select typical>next



Figure. 3.29: Screenshot Complete the VM virtual box installation.

Here three sorts of systems however I wager that's why I without difficulty use to OS, I will installation the OS later. Than Next. Figure (3.30)

Step 2: Select > I will install the OS later >next

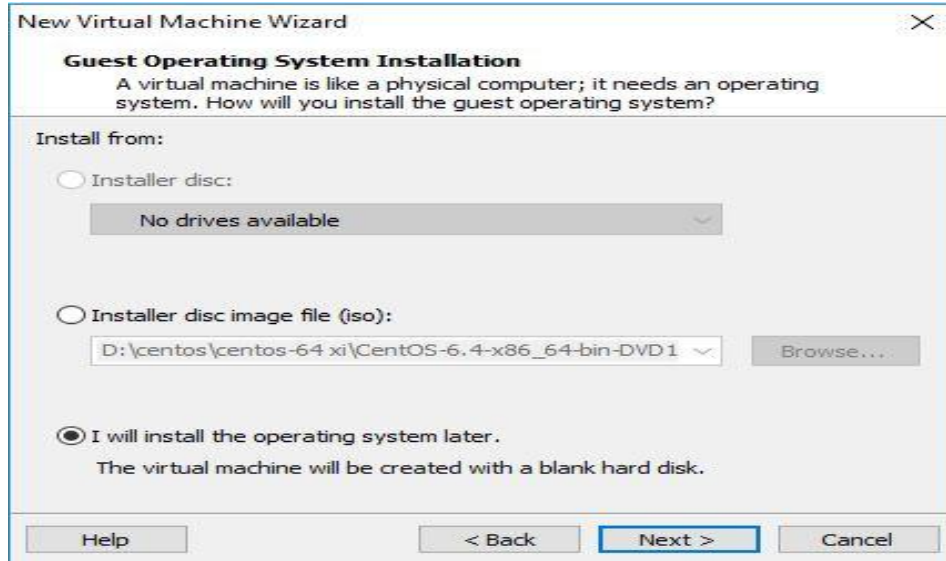


Figure.3.30: Screenshot create a virtual machine.

Here many kinds of OS however we pick Linux then model click on Cent OS 64-bit due to the fact of this version. Figure (3.31)

Step 3: Select>Linux>version>next

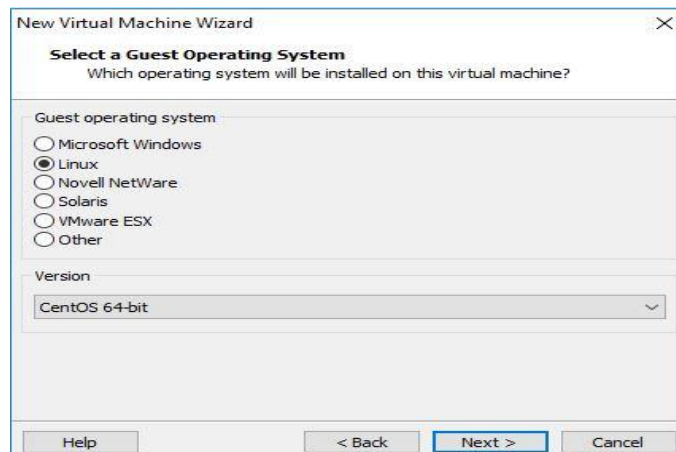


Figure. 3.31: Screenshot select Linux and CentOS 64bit

Any name select than location choose than Next. Figure (3.32)

Step 4: Select name> location> next

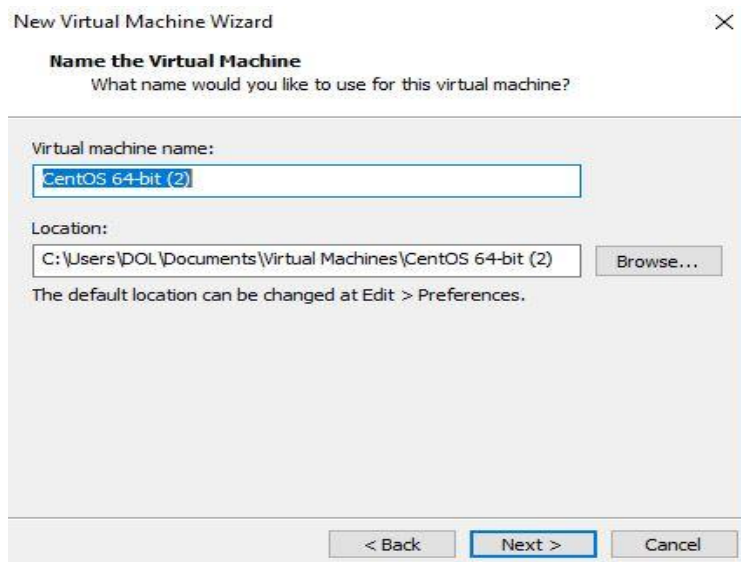


Figure. 3.32: Screenshot name and Location set up.

Customize hardware later because I pick out hardware that I want and finish. Installed Linux in virtual box Figure (3.33)

Step 5: select > finish

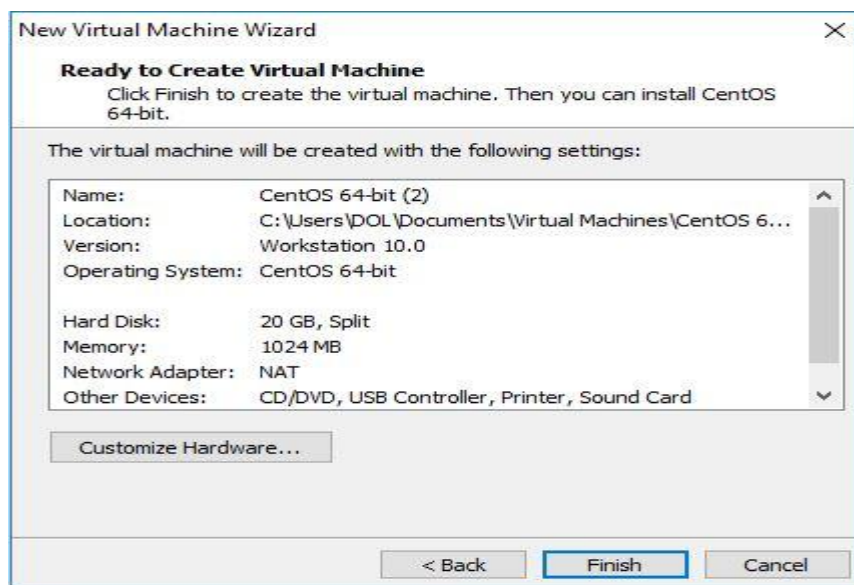


Figure. 3.33: Screenshot customize hardware.

3.17 Challenges

The challenges in the area of engineering are extraordinary weapons, if we are looking in the engineering sector, we need apprehend shrewd knowledge. But after 4 months of internship journey and sharing of friends, after listening completely joyful times I had the intern has found that there are some prevalent challenges. I assume its intern three Things are: unpaid / under, transient and they are in the strolling reap experience. Sometimes It's not Enough: I'm no longer assigned enough work. I'm bored Squeezing, jerking my finger on my desk and prompting Facebook and LinkedIn to recognize it. Excessive work: Since interns are only completely satisfied to get a foot in the door, some offices can even gain youthful employees via imparting fewer hours of meaningless repetitive work.

CHAPTER 4

COMPETENCIES AND SMART PLAN

4.1 Competencies Earned

The end result in obtaining or analyzing a opposition is to make sure what an apprentice expects. As a result of the find out about process, be in a position to know, be arrested or do. Install and Dissociation of every community and server laptop into two document views. In the lead function Linux software program implementations, for example, have been linked to LDAPHA. Studying application outcomes, topics, and internship evaluations. Collecting and Organizing Information on Internship Project Details: Participate in a redesign Linux Lab Internet site.

Learning Outcomes: Install and configure software applications and enhancements. Install, configure, and take a look at Network Employer Services. Additionally, regularly find out about results, the internship on-site supervisor will grant a direction. Related to organizational policies and procedures.

4.2 Smart Plan

Each organization must have a smart diagram to achieve success. Basically, the idea of mixing something frequently creates a smart plan.

4.3 Reflections

An intern to gain practical experience in the engineering discipline. It helps increase your journey in engineering jobs. In the Intern Period, I understand the Linux server. Linux One of the most popular working devices of the day. I'm on Linux and Security measures. This experience helps me become a strong applicant in the job market.

CHAPTER 5

CONCLUSION AND FUTURE CAREER

5.1 Discussion and Conclusion

In modern age of science and information technology, which is necessary for Improving a greater high-quality operation and administration process. In order to better serve customers, businesses want to be trained in many areas decrease time, accelerate new enterprise strategies, enhance client offering and expand skills sharing and learning. IT is basic but effective useful resource for implementing all these goals. Internships are nothing but a step forward in expert life. An internship is a bridge between theoretical data and practical knowledge. During the internship period, a variety of realistic experiences were gathered while performing tasks at one point. During the internship period, there are many obstacles. Which would have been a part-time experience for me? Three months of completing which I labored for Variations. I did my satisfactory to get accustomed to the corporate surrounding and attain every goal and every goal.

5.2 Scope for Further Career

I have been capable have a simple Linux server, but in the future, without the difficulty of securing a secure large Linux configuration, I want a large Linux server such as a data center to be able to continue and how to test a Linux server safely. I attempt to my best to analyze these for my great future. Career opportunities are accessible in various fields below Linux. The business potential in Linux is just bringing the Linux platform forward.

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