

**A STUDY OF NETWORKING & CONFIGURATION**

**BY**

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

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## **APPROVAL**

This Internship titled “**Networking & Configuration,**” submitted by **Mohammad Tanbidul Islam** 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. The presentation has been held on 06 May 2018.

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## DECLARATION

I do hereby declare that, the work presented in this internship project report is done by me under the supervision of **Rezwana Sultana, Lecturer, Department of Computer Science and Engineering**, Daffodil International University. Also declare that neither this report nor any part thereof has been submitted elsewhere for the award of any degree of diploma.

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## **ABSTRACT**

**TRST Network** has to provide basic Networking services throughout the country. This company provided Internet Service Provider 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, Radio and IIG link etc. Broadband internet service is available on this company. To study and monitoring the working principle of various department of this company. I admitted myself in TRST Network as an Internship for four months. In that time my duty was shifting between technical and system divisions. I am learn Mikrotik router configuration and all Fiber link 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**

In the present world data Communication and networking is the fastest growing technologies in the world. Computer and computers networks are found in nearly every business and industry around us. And now the latest networking technology is wireless, the data transfer rate is enormous.

As a developing country Bangladesh is far behind from the developed country in technological development. The main reasons may be lack of trained people and unexpected actions from our Government. Anyway, Bangladesh has a long way to go in a very short time to enjoy the fruits of information age. It will be only possible when there will be political commitment with better IT infrastructure, internal network, country domain and above all a high speed fiber optic link to the Information Superhighway. By identifying these factors I can be sure about the revolutionary change over our IT sector, that's why I have decided to upgrade my knowledge in networking. Therefore as an internee student I choose Information Technology division of TRST Network. During my possession of work in TRST Network I got various experiences, which will be helpful in my future life.

### **1.2 Motivation**

Motivation is the driving force by which human achieve their goals. I am very interested about networking in my study. Because Bangladesh Government announced "Vision 2021" and digital Bangladesh. It is not possible to achieve our target without strong networking system, so I select my internship networking company (TRST Network), the level one ISP Company of Bangladesh. In future, I build up my carrier as a network Engineer.

### **1.3 Objectives**

The main objective of education is to acquire knowledge. I choose an internship because I wanted to benefit from the experience. I wanted a new challenge and to learn, improve and develop new sets of skills. Working as a Network Support Engineer performing duties and activities and analyzing them from different perspectives.

### **1.4 Internship Goal**

The aim of the internship program is to help me comprehend how the theoretical knowledge obtained in the degree program can be applied in practice by being affiliated with a real life business organization as an interned. The internship experience is meant to serve as bridge between the theoretical learning practical applications.

### **1.5 Report Layout**

At First Chapter contains the Objectives, Motivation and goals of my internship. Second chapter organizational overview describes the details about my internship organization. After that the concept of Networking and networking devices (Router, Cable and connector, Switch, Hub etc.) And then I discuss about MikroTik, router OS, features and MikroTik router basic configuration. Discussion and conclusion is the summarization of my report and explain the future scope by this Internship.

## **CHAPTER 2**

### **ORGANIZATIONAL OVERVIEW**

#### **2.1 About the Company**

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

#### **2.2 Branches**

Now TRST Network has two branches. TRST Network-Dhaka: 12/c (2<sup>nd</sup> Floor), 3rd colony, Bashupara, Lalkuti, Mirpur-1, Dhaka-1216, Bangladesh.

TRST Network- Sylhet: 5762/8 Forayzi Villa, 3300 Habiganj, Sylhet, Bangladesh.

#### **2.3 Company Profile**

Register Head Office

TRST Network

400 Rella Blvd, Suite 165, Suffern, New York-10901, United States Mobile: +1 (518)

460-6563 E-mail: info@trstnetwork.com Website: www.trstnetwork.com

#### **2.4 Services**

TRST Network provides different types of services. Such as:

- Office area networking with both wired & wireless in local zone.
- Setup or configure anywhere in Bangladesh local & zonal ISP. We provide best service or solution for ISP Wireless Internet Service Provider.
- Point to Point connectivity with unlimited traffic.
- Configure web & ftp server in any server operating system. Provide OS & web page also.

- Website Builder packages provide domain quality web hosting with unlimited resources.

## **2.5 Transmission Services**

- Fiber Optic Cable (Primary & Secondary link)
- Radio Link Connectivity
- Router, Switch, MC and OLT etc.

## **2.6 Summary**

In this chapter I have discussed about TRST Network. Where I have completed my internship.is the level one networking and Internet Service Provider (ISP) service company in Bangladesh. There are many service provide by TRST Network. I have got a great opportunity to work some of the regions and offices as an intern and gain lot of experiences.

# CHAPTER 3

## NETWORK INTRODUCTION & NETWORKING DEVICES

### 3.1 Networking

Networking is the practice of linking two or more computing devices together for the purpose of sharing data. Networks are built with a mix of computer hardware and computer software. A network consists of two or more computers that are linked in order to share resources (such as printers and CDs), exchange files or allow electronic communications.

### 3.2 Types of Network

- LAN (Local area network)
- MAN (Metropolitan area network)
- WAN (Wide area network)

#### 3.2.1 Local area Networking

The local area network is a network of computers located in the same building. This network's data transfer speed is 10 Mbps. The devices used in this network are Repeaters, Hub and Network Interfaces etc.



Figure 3.1: Local area Network.



### 3.2.2 Metropolitan Area Network

The interconnected interface of a few lanes in the same city is called Metropolitan Area Network. This type of network can extend up to 50-75 miles. This network's data transfer speed is Gigabit cross seconds. The devices used in this type of network are router, switches, microwave antennas etc.

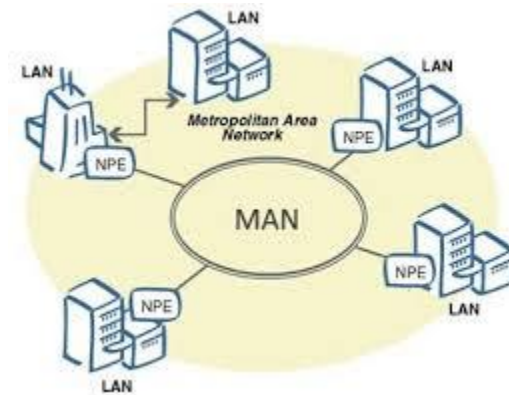


Figure 3.2: Metropolitan area Network.

### 3.2.3 Wide Area Network

The network developed with remote lanes is called wide area network. Data transfer speeds of this type of network are 56 Kbps to 1.544 Mbps. The speed of the wans is slowly changing. The devices used in this type of network are router, modem, wan switches etc.

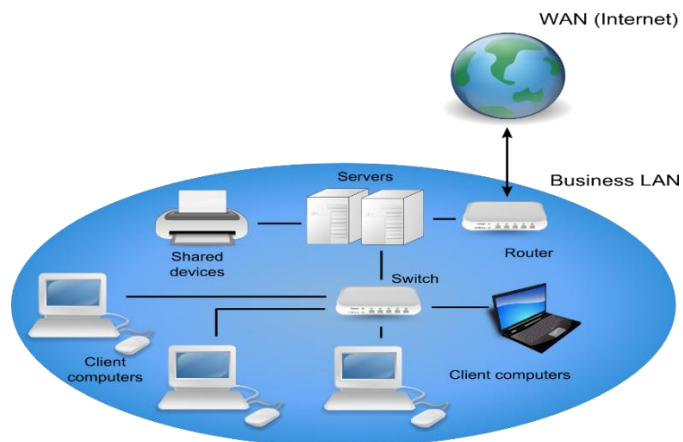


Figure 3.3: Wide area Network.

### 3.3 Types of Network Topology

- Bus topology
- Star topology
- Ring topology
- Hybrid topology

#### 3.3.1 Bus Topology

All computer connected to the network are connected to bus topology by a single cable. Generally, this topology uses co-axial cables as network media. A device wanting to communicate with another device on the network sends broadcast message onto the wire that all other devices see, but only the intended recipient actually accepts and process the message.

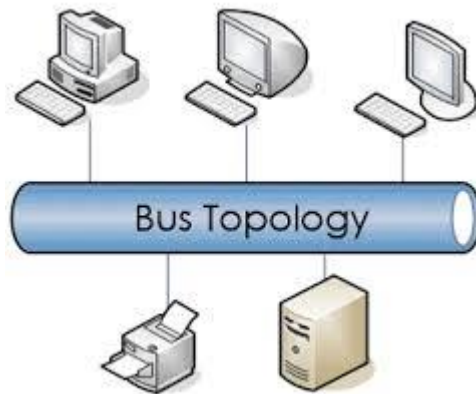


Figure 3.4: Bus topology.

#### 3.3.2 Star Topology

Star topology develop a central switch / hub in Star topology. This | If there is no computer on the network, then there will be no impact on the entire network. Through the server computer, other client computers interact with each other. If the switch or hub is closed in star topology, then the entire network will be closed. Because of communicating with the PC as a switch. It should be remembered that you have to use Straight-through Cable from PC to switch. Because switch and PC is a different device Normal switch does not have any type of configuration.

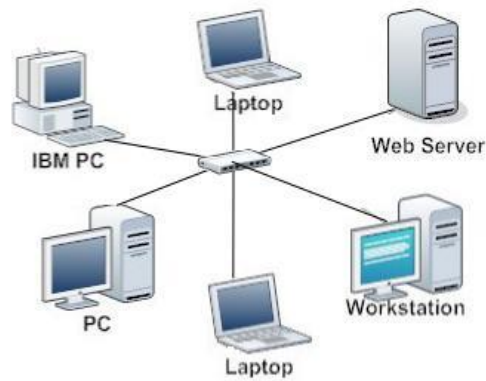


Figure 3.5: Star Topology.

### 3.3.3 Ring Topology

All computer networks in the ring topology are connected by a uniform cable to each other in the ring shape. If there is a breakdown of the cable or a computer that is networked in the network, then the entire network becomes idle. To overcome this problem, the secondary ring-cable system is placed in the ring topology.

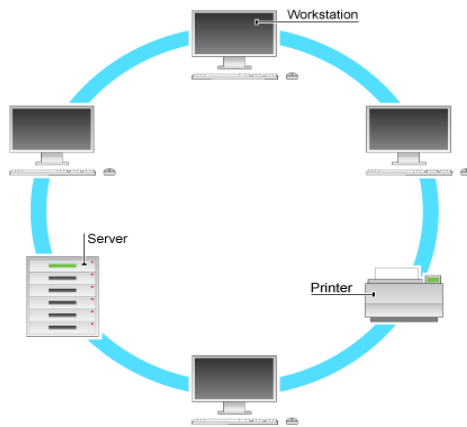


Figure 3.6: Ring Topology.

### 3.3.4 Hybrid Topology

Generally, a mixture of star, ring, bus etc. is made up of topology very large and complex in the shape. The network is called hybrid or hybrid topology.

For example, the networks of WAN, Internet etc. are usually developed in hybrid topology.

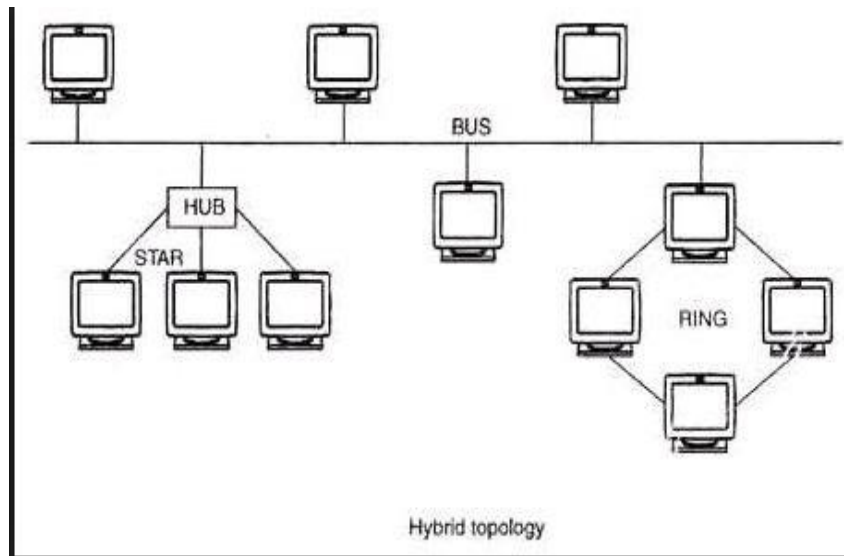


Figure 3.7: Hybrid Topology.

## 3.4 Networking Devices

### 3.4.1 Hub

The hub is a multi-port repeater. It works with electric signals. There is no headache on the network address or the network adapter's Mac address. Hubs are simple devices that direct data packets to all devices connected to the hub regardless of whether the data package is destined for the device. It also works on the OSI model's physical layer.



Figure 3.8: Hub.

### 3.4.2 Switch

Switch is a type of hardware device that enables cable to be installed on multiple computers through a cable. Switch and Hub do the same, but Switch is better than Hub. The difference between Switch and Hub is the switch's own routing table on this table, he records all the networks connected to it and connected computers connected to the network. Switch As he uses the MAC address of the LAN card when he comes to a data switch then the recipients of that data match the MAC address of the computer with its routing table. If the match is received, the sender will send the data with the penalty attached to the computer that is connected to the search. As a result, any data reaches only to the particular recipient computer. Normal quality switches can always work on a network. However, the managerial switch is done by working with VLAN (Virtual LAN) and working on multiple networks. There are currently some advanced technology and layer switches that can work directly with the IP address from the it works on the physical and data link layer, the address of the computer connected to it network layer.



Figure 3.9: Switch.

### 3.4.3 Bridge

Bridges are used to divide larger networks into smaller sections. They do this by sitting between two physical network segments and managing the flow of data between the two. It creates bridging tables for each segment to count different devices. It works on the OSI model's Data link Layer.



Figure: 3.10: Bridge.

### 3.4.4 Router

The router is a 3 layer device, that is, it can work with the OSI Layer's physical, data link and network layer. For this reason, the router can work with the IP address in the network layer. Routers usually help to create a WAN (Wide Area Network) by connecting LAN (Local Area Network). There are two types of router wired and wireless. Routing table replaces the MAC address with the IP address and all the records related to the networks associated with it, which means that it can easily indicate which way a data is going to go with or by a penalty.



Figure 3.11: Router

The router also fixes not just the connected networks, but also the way to send data to any network on the distant network. Each router updates itself after a few seconds and sends the update message to its adjacent router, which also makes updates to other routers. For example, if a network or LAN was disconnected from the router for some reason, the router will first update its own routing table and send the message to the surrounding router to inform that the lane is disconnected. There are several routing protocols for running this complete process: RIPv2, EIGRP, OSPF etc.

### **3.4.5 Media Converter**

A media converter, in the context of network hardware, is a cost-effective and flexible device intended to implement and optimize fiber links in every kind of network. Among media converters, the most often used type is a device that works as a transceiver, which converts the electrical signal utilized in copper unshielded twisted pair (UTP) network cabling to light waves used for fiber optic cabling. It is essential to have the fiber optic connectivity if the distance between two network devices is greater than the copper cabling's transmission distance.



Figure 3.12: Media Converter.

### **3.4.6 Cable**

#### **3.4.6.1 Co-axial cable**

Coaxial cable is used on some local area networks. Coaxial cables are of different types. For example, 50 ohms (RG-8, RG-11 ARG-58), 75 Ohm (RG-59) and 93-Ohm (RG-62). The price of the cable is very low. There is a problem with EMI being made of copper.

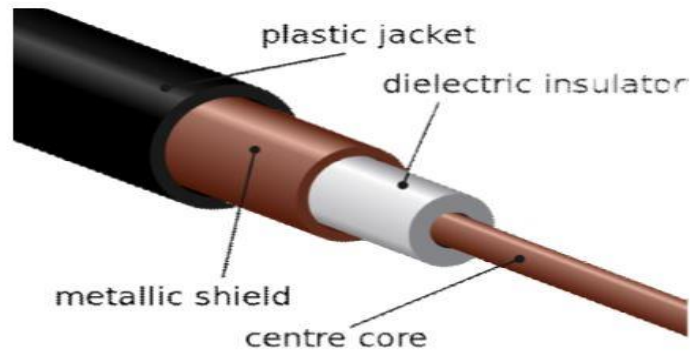


Figure 3.13: Coaxial cable

### 3.4.6.2 Twisted pair cable

- UTP
- STP

#### 3.4.6.2.1 UTP

Unshielded twisted pair has no additional shields outside the pair, except that there is a plastic jacket outside. UTP is called four pairs of wire media and each pair is separated by Color Code. UTP Cable has 8 copper loads. Each copper is covered by its insulating material. The data transfer rate of this cable is 16 MBps.

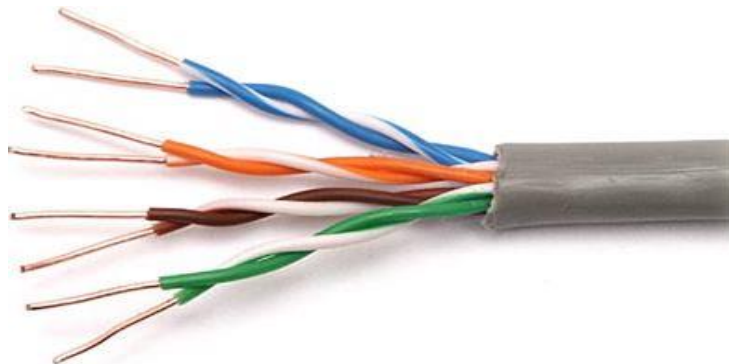


Figure 3.14: UTP cable.



### 3.4.6.2.2 STP

Shielded twisted pair cables have a pair of tweezers, one in a tight assortment. As a result the electric interface is much less. The data transfer speed of this cable is 500 Mbps.

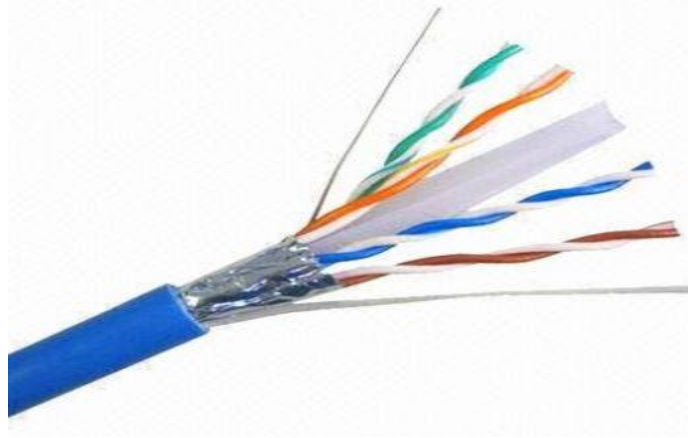


Figure 3.15: STP cable.

### 3.4.6.3 Optical fiber

This cable is used as a glass media than copper wire. As a result, electromagnetic interference is not available. This cable's data transmission speed is much higher. There are two types of fiber optic cable. Single mode fiber and multimode fiber. The main disadvantage is that the price is too high and it is difficult to install.

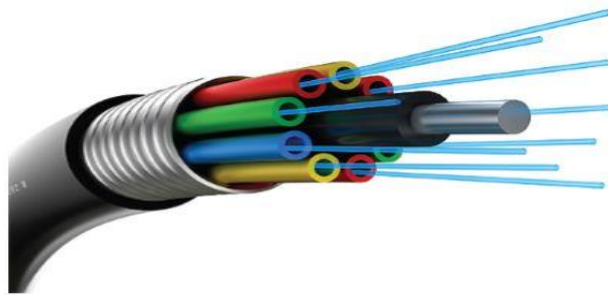


Figure 3.16: Optical fiber.

### 3.4.7 Connection Between cable and connector

There are several steps for connection steps for connection between cable and connector. Steps are given bellow:

**Step 1:** Now insert the wires into the connector making sure that each wire goes into its appropriate channel and extends all the way to the end of the connector underneath the gold crimping connectors. Sometimes we can look at the end of the connector to see the gold crimping connectors to see the copper wires if were using solid copper cable. If the wires don't extend to the end of the connector, the crimp may not make contact. Shows the figure 4.14 how to work Connection Cat5 & RJ-45 Connector.



Figure 3.17: Connection Cat5 & RJ-45 Connector.

**Step 2:** Repeat steps 1 then after successfully complete connection between cable and connector; we can use these for our computer networking. The day was the first time for me to connect a network cable with connector and also the way of connection was totally unknown for me, That is why first time I felt nervous but supervisor guide me how to complete connect connector with cable, Al last successfully complete my task.



Figure 3.18: RJ-45 Complete Connector.

### 3.4.7.1 Modular Connector and Configuration

We connect modular and Cat-5 wires to use Modular punch machine and Clamper for connection 2- jack RJ face plate. For Modular Connection the wire combination is

<b>Modular Wiring Configuration</b>		
<b>Color Code</b>	<b>A</b>	<b>B</b>
<b>White-Blue</b>	<b>5</b>	<b>5</b>
<b>Blue</b>	<b>4</b>	<b>4</b>
<b>White-Orange</b>	<b>1</b>	<b>3</b>
<b>Orange</b>	<b>2</b>	<b>6</b>
<b>White-Green</b>	<b>3</b>	<b>1</b>
<b>Green</b>	<b>6</b>	<b>2</b>
<b>White-Brown</b>	<b>7</b>	<b>7</b>
<b>Brown</b>	<b>8</b>	<b>8</b>

Table 3.1: Modular Wiring Configuration.

# **CHAPTER 4**

## **MIKROTIK ROUTER CONFIGURATION**

### **4.1 MikroTik Router**

MikroTik Ltd. Known internationally as MikroTik is a Latvian manufacturer of computer networking equipment. It sells wireless products and routers. The company was founded in 1995, with the inventor sell in the emerging wireless technology market. As of 2014, the company has more than 100 employees. The company's products are known for being low-priced alternatives to expensive routers and Ethernet radio relay lines.

### **4.2 Router OS**

MikroTik is a Linux-based operating system known as MikroTik Router OS. MikroTik Router OS is the main operating system of MikroTik Router board hardware. If anyone install Router OS on standard x86-based PC it turn the PC into a MikroTik Router with all its feature routing, firewall, bandwidth management, backhaul link, wireless access point, hotspot gateway, VPN server and more. MikroTik provides free trial version of MikroTik Router OS with its entire feature without any limitation. Just need to go to MikroTik official website [www.mikrotik.com](http://www.mikrotik.com) and download the installation CD image. But if someone wants to use licensed version it's very easy to license the using product. Again if update version of Router OS is available users may able to upgrade their product easily.

### **4.3 Features**

Router OS supports many applications used by Internet service providers. For example

- Provides DHCP Server.
- Bandwidth management is very easy
- Provides PPPoE Client and Server.
- Provides VPN Client and Server.
- Provides Firewall rules.
- Provide Wi-Fi and captive portal based Hotspot System.
- Easy administration

- Supports both IPv4 and IPv6 etc.

#### **4.4 Release history**

MikroTik has released different version of Router OS at different times. Some of them are given below.

- Router OS version 6: May 2013
- Router OS version 5: Mar 2010
- Router OS version 4: Oct 2009
- Router OS version 3: Jan 2008

#### **4.5 Router Board**

The company manufactures a series of integrated circuit boards marketed under the name Router board as well as accessory components which implement a complete hardware operating platform for Router OS. The Router board line combined with Router OS is marketed at small- to medium sized wireless Internet service providers 4.19, typically providing broadband wireless access in remote areas. Also the Router board line includes a series of Mini PCI and Mini PCI Express wireless adapters supporting a range of IEEE 802.11 protocols and designed to be used together with the router board's lineup.



Figure 4.19: MikroTik Router.

Despite the fact that in-house developed Linux kernel patches required for hardware support are not made publicly available by MikroTik many Router boards and their versions are well supported by third-party Linux-based firmware's notably Openwork.

## 4.6 Cloud Core Router

In November 2012 MikroTik released the Cloud Core Router 4.20 figure integrated unit which is based on the Tilera CPU supporting 16 to 36 CPU cores, 12 1000BaseT Ethernet interfaces and up to four SFP (Mini GBIC) interfaces as well as "fast-path" packet forwarding between interfaces (with claimed 24 million packets per second forwarding rate). This unit targets the medium-sized network providers as well as try to be a well-priced alternative to the other more well-known brands.



Figure 4.20: MikroTik Cloud Core Router

## 4.7 IP Address assign on an Interface

- IP > Address > Click (+) > Assign address > Select interface > Ok.

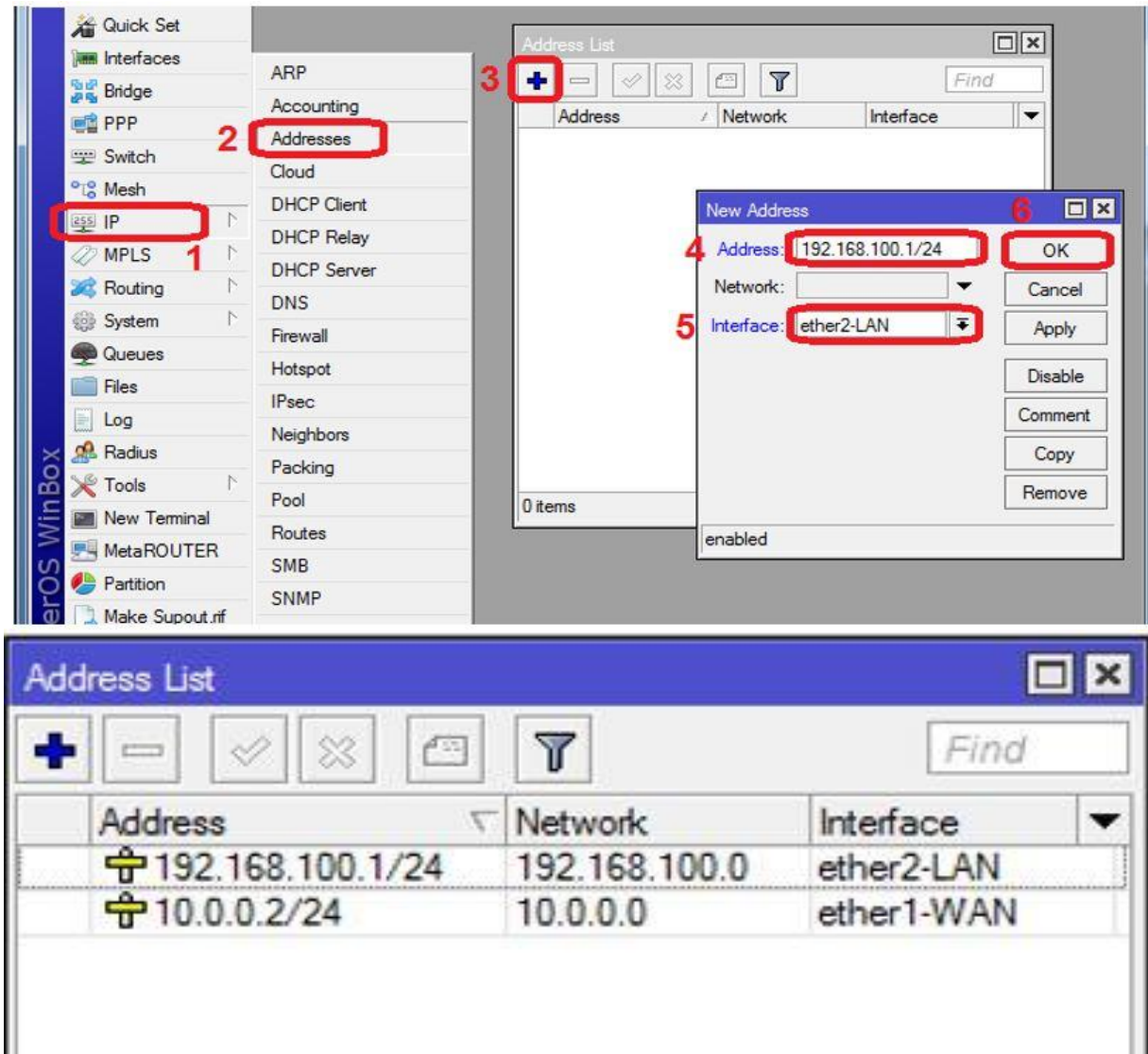


Figure 4.21: Shows Screen Print ip address on an interface.

## 4.8 Add Default Route

A Default Route is configured to forward traffic to the next-hop where destination is unspecified or unknown. Generally Default Route is used to get access to the internet.

- IP > Routes > Click(+) > General > Dst. Add > Assign gateway address > OK

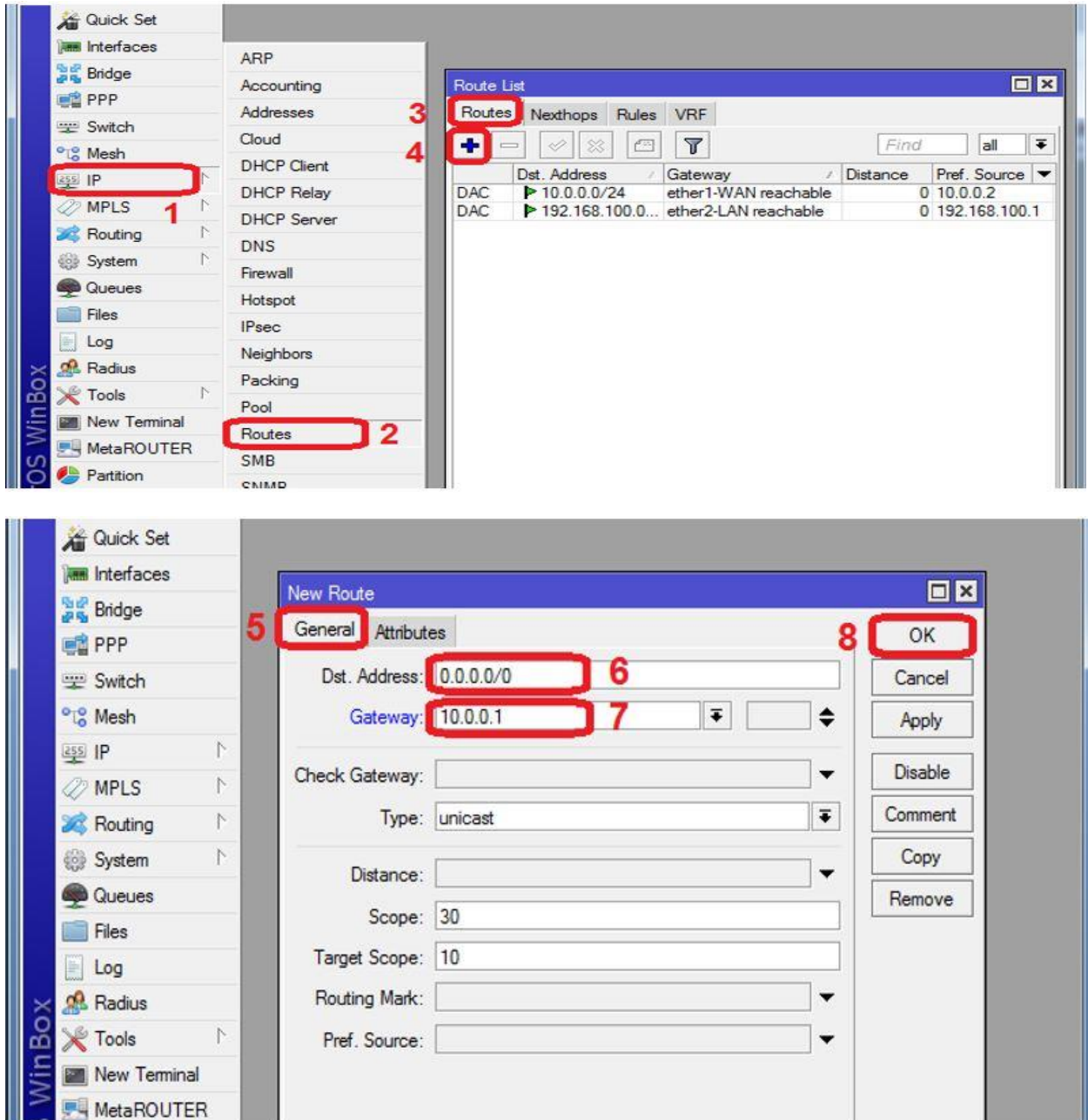


Figure 4.22: Shows Screen Print routes & gateway



## 4.8.1 Configure Network Address Translation (NAT)

- In NAT terminology, the inside network is the set of networks that is subject to translation.
- Routers are able to change the source and destination address of packets that is traversing through itself.
- It can be used to reach public network from a private network.
  - IP > Firewall > NAT > Click(+) > General > Chain(srcnat) > Src. Add> action > action(masquerade) > Ok

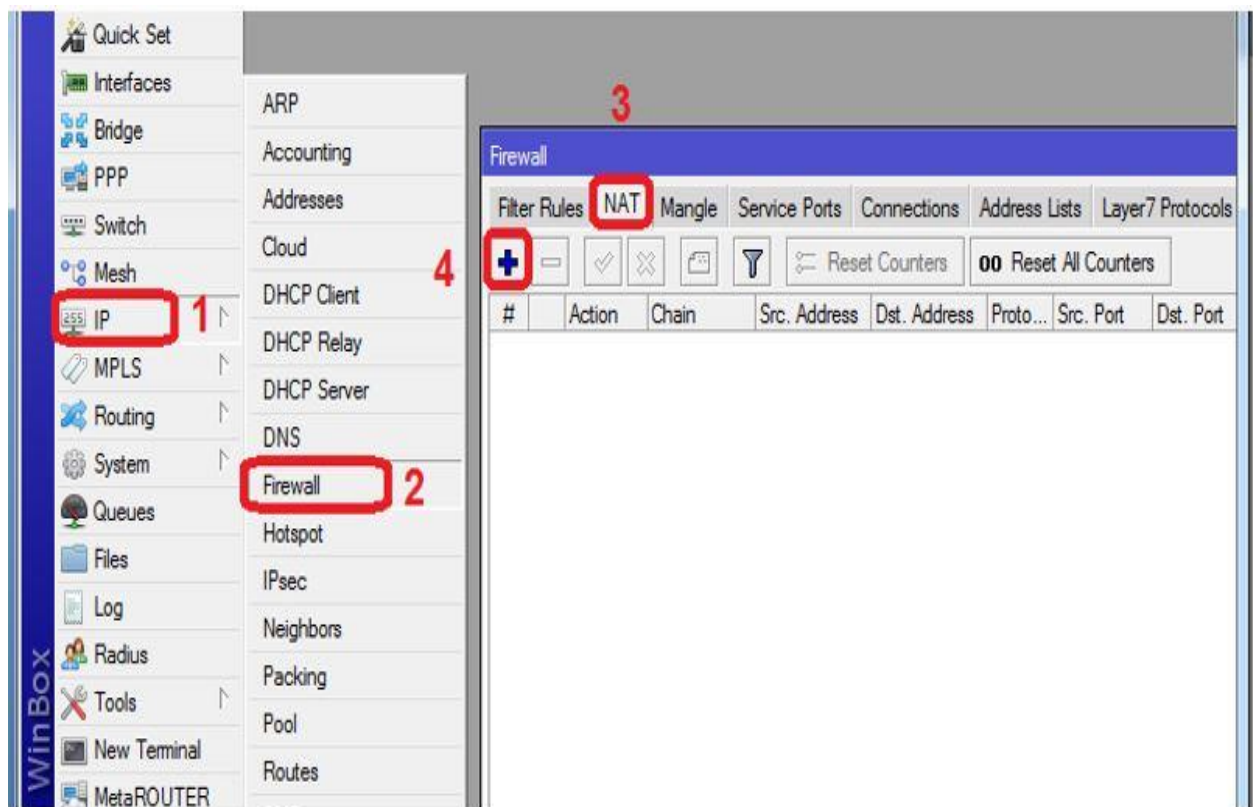


Figure 4.23: Shows Screen Print firewall

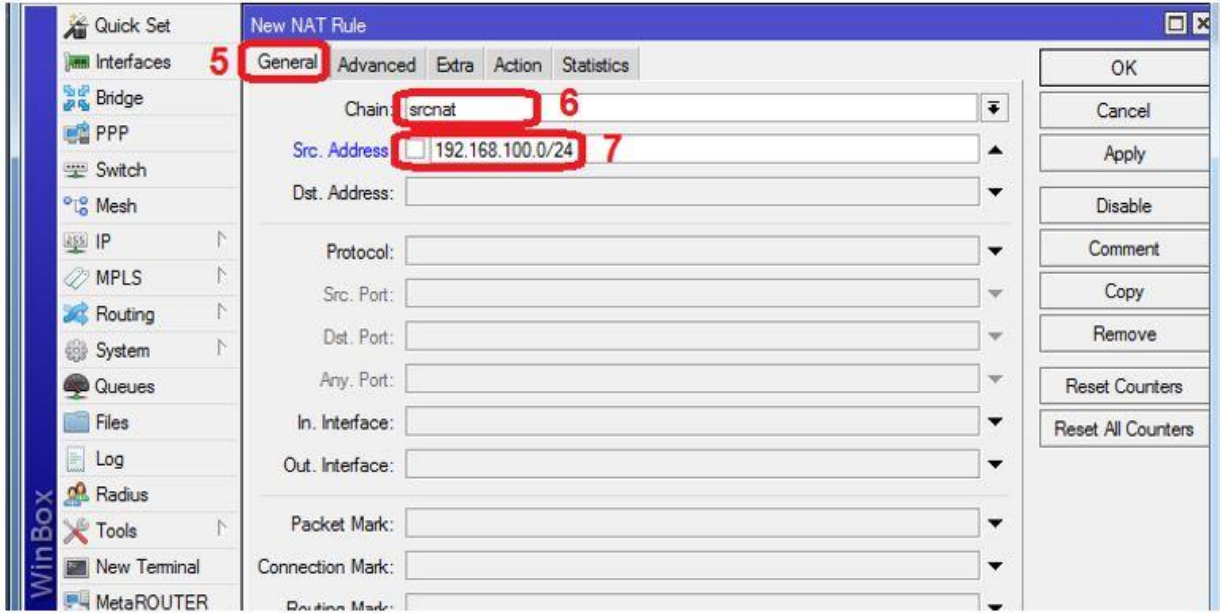


Figure 4.24: Shows Screen Print NAT rule

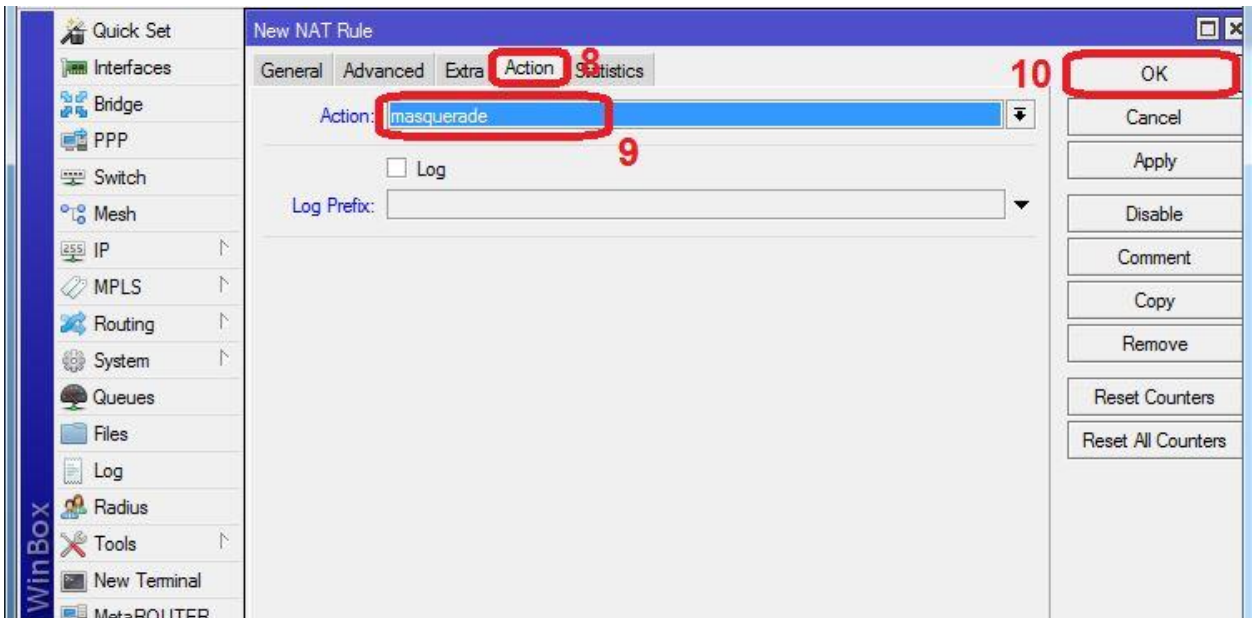


Figure 4.25: Shows Screen Print NAT rule action.

## 4.8.2 Configure DNS

- Domain Name Service (DNS) protocol is used to resolve Internet names to IP addresses.
  - IP > DNS > Setting > Servers (one or more DNS address assign) > Apply > ok

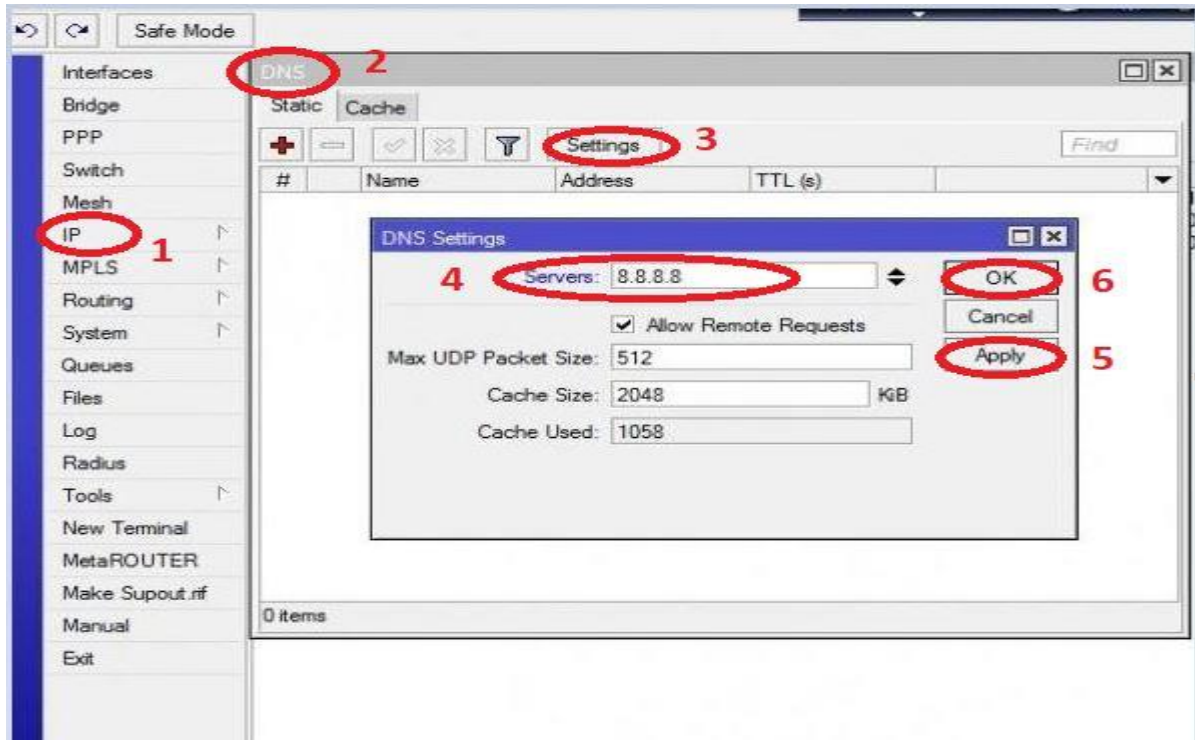


Figure 4.26: Shows Screen Print DNS

Verify connectivity between PC and ISP

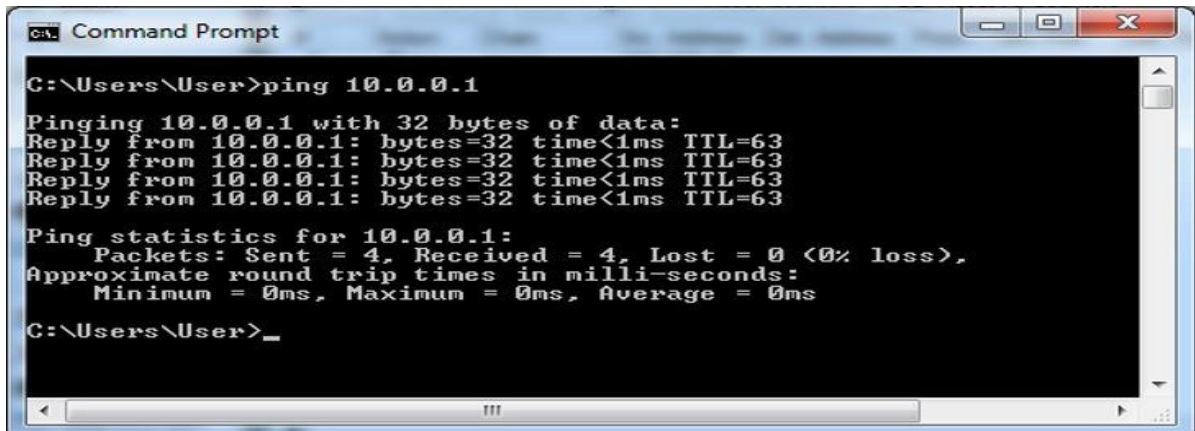


Figure 4.27: Shows Screen Print Command prompt.

## 4.9 DHCP Server

- This service automates the assignment of IP addresses, subnet masks, gateway and other IP networking parameters.
  - In order for the DHCP server to work IP pools must also be configured (do not include the DHCP server's own IP address into the pool range) and the DHCP networks.
- IP > DHCP server > DHCP > DHCP Setup > then only next and assign > OK

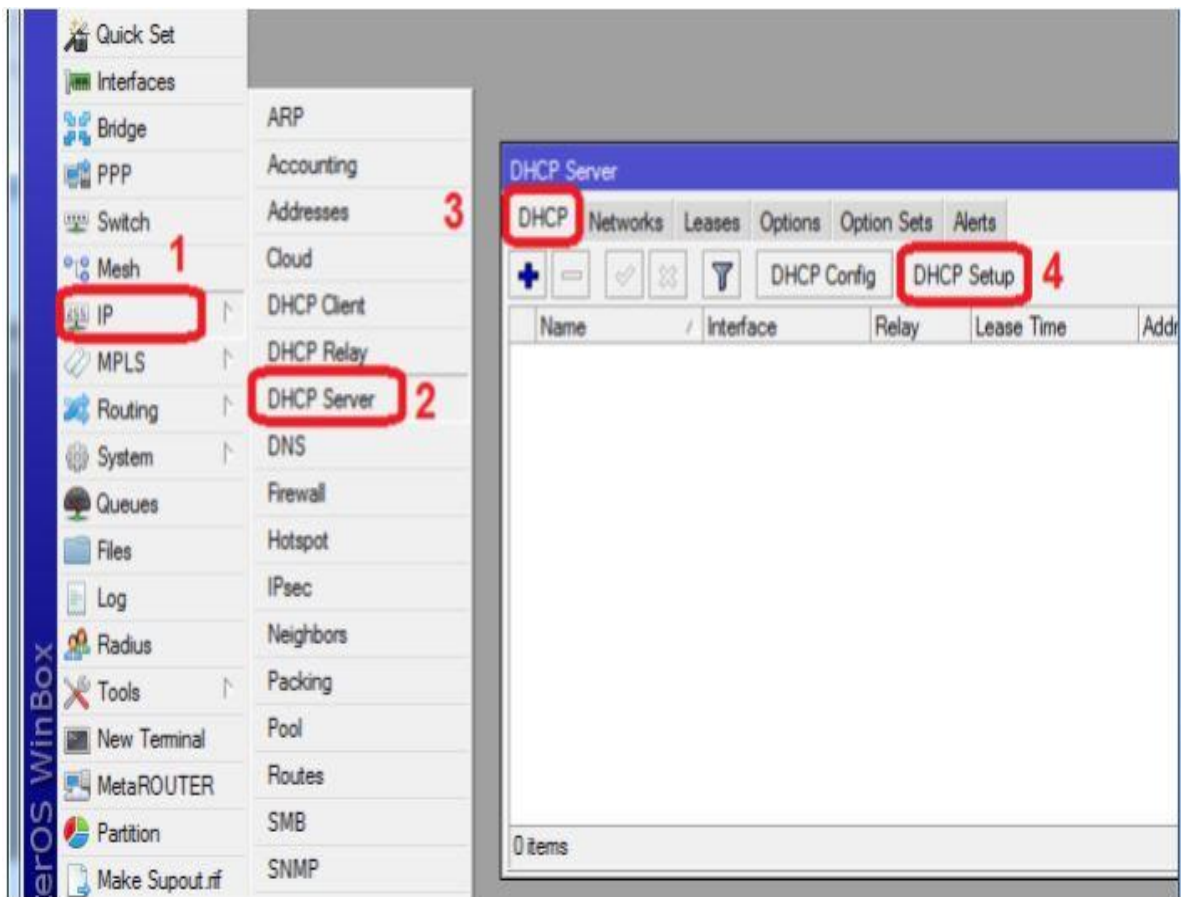


Figure 4.28: Shows Screen Print DHCP Server.

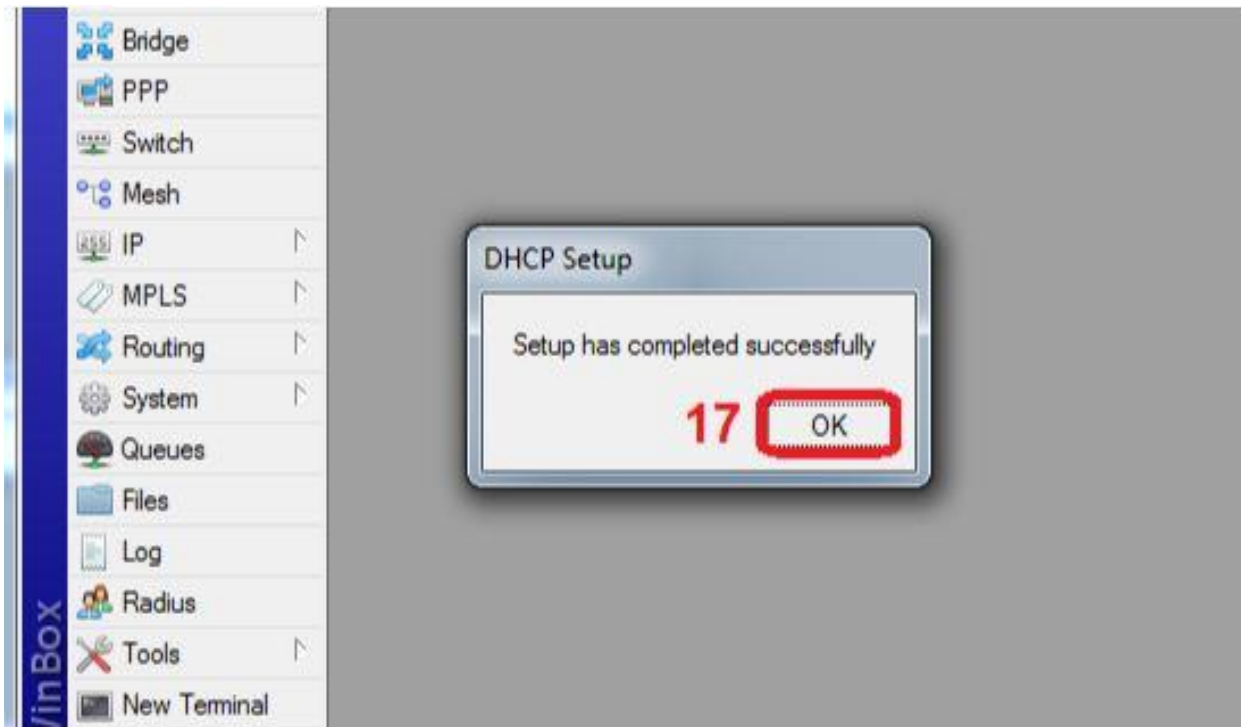
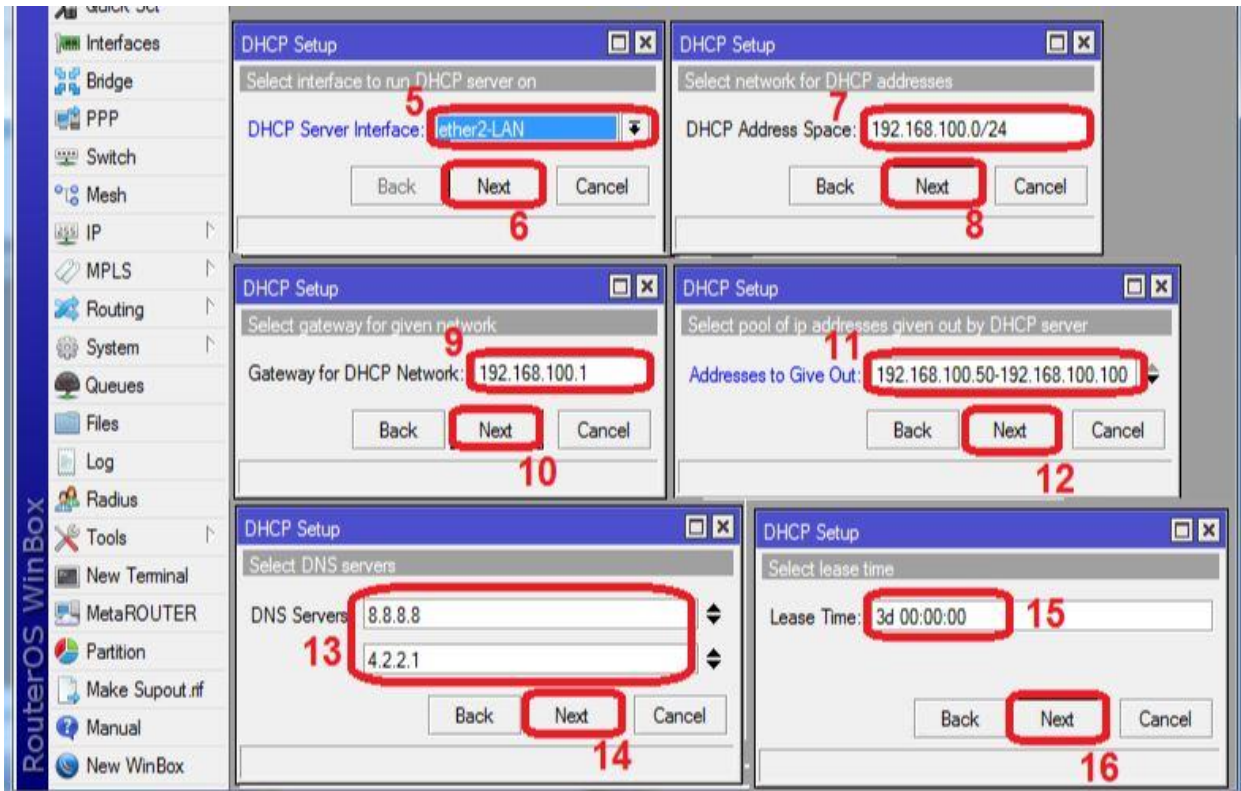


Figure 4.29: Shows Screen Print DHCP Setup.

## 4.10 Customize IP Pool

- IP > Pool > Pools > +dhcp\_pool1(double click) > Assign IP address range > OK.

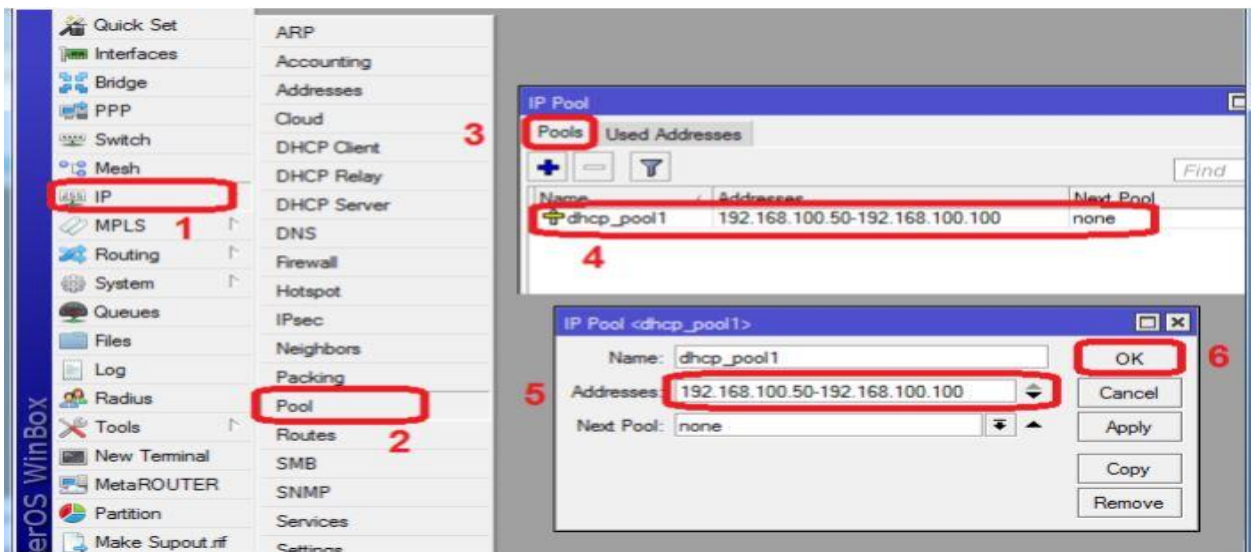


Figure 4.30: Shows Screen Print Customize IP pool.

## 4.11 Add IP Pool

- IP > Pool > Pools > Click (+) > Name > Assign IP address range > OK.

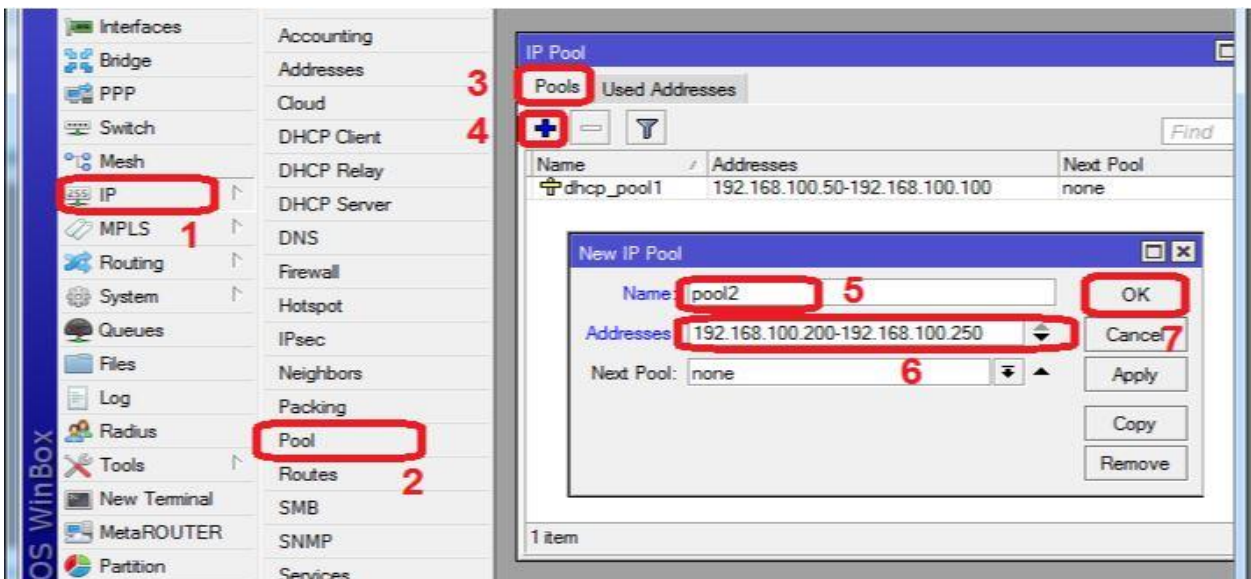


Figure 4.31: Shows Screen Print Add IP pool.

## 4.12 DHCP Client

- IP > DHCP Client > Again DHCP Client > Click (+) > DHCP > Select interface > Add default route (yes) > OK.

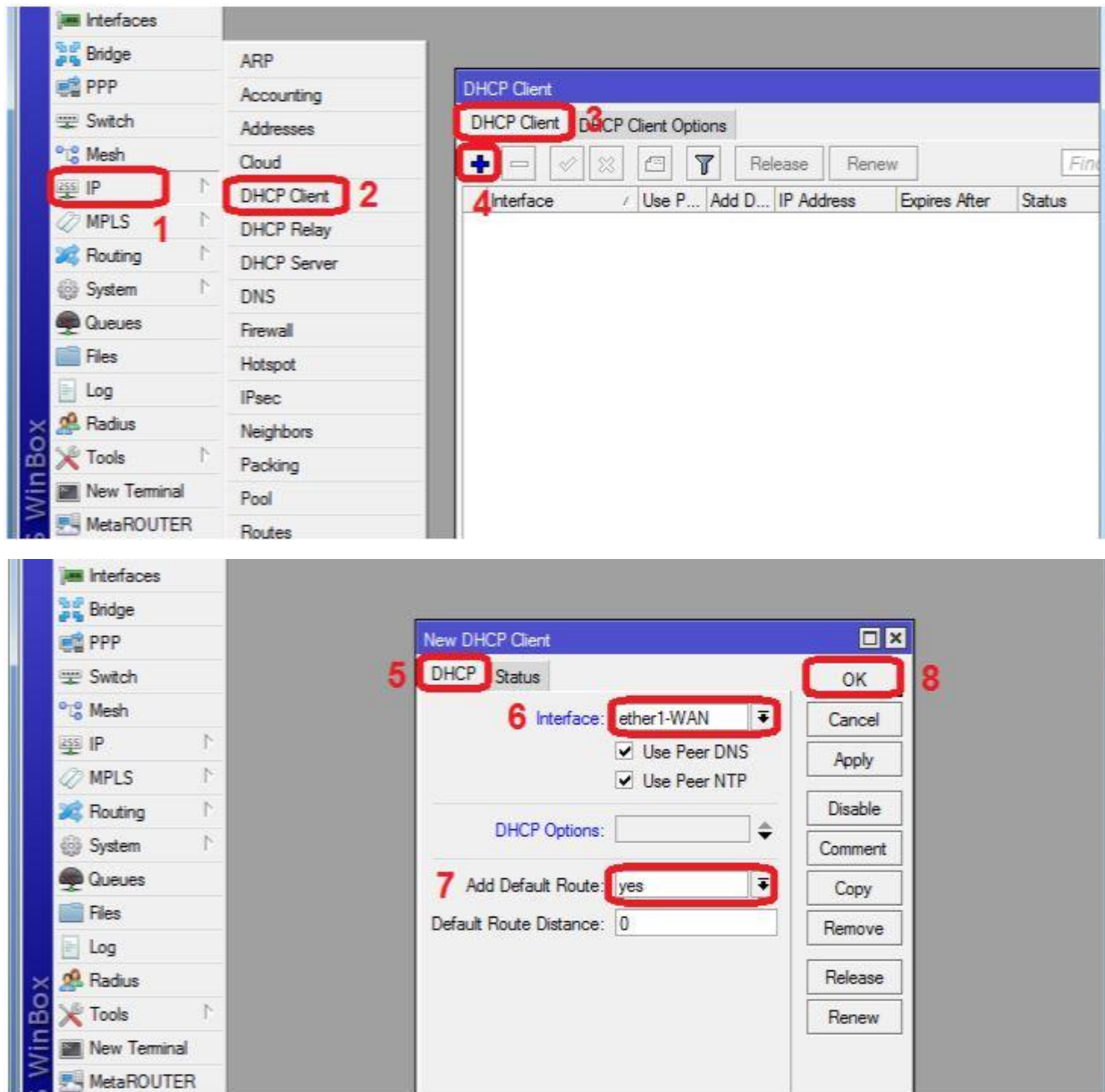


Figure 4.32: Shows Screen Print DHCP client.

### 4.13. ARP (MAC) Bonding

➤ IP > ARP > Select ip address on right button click > Make static

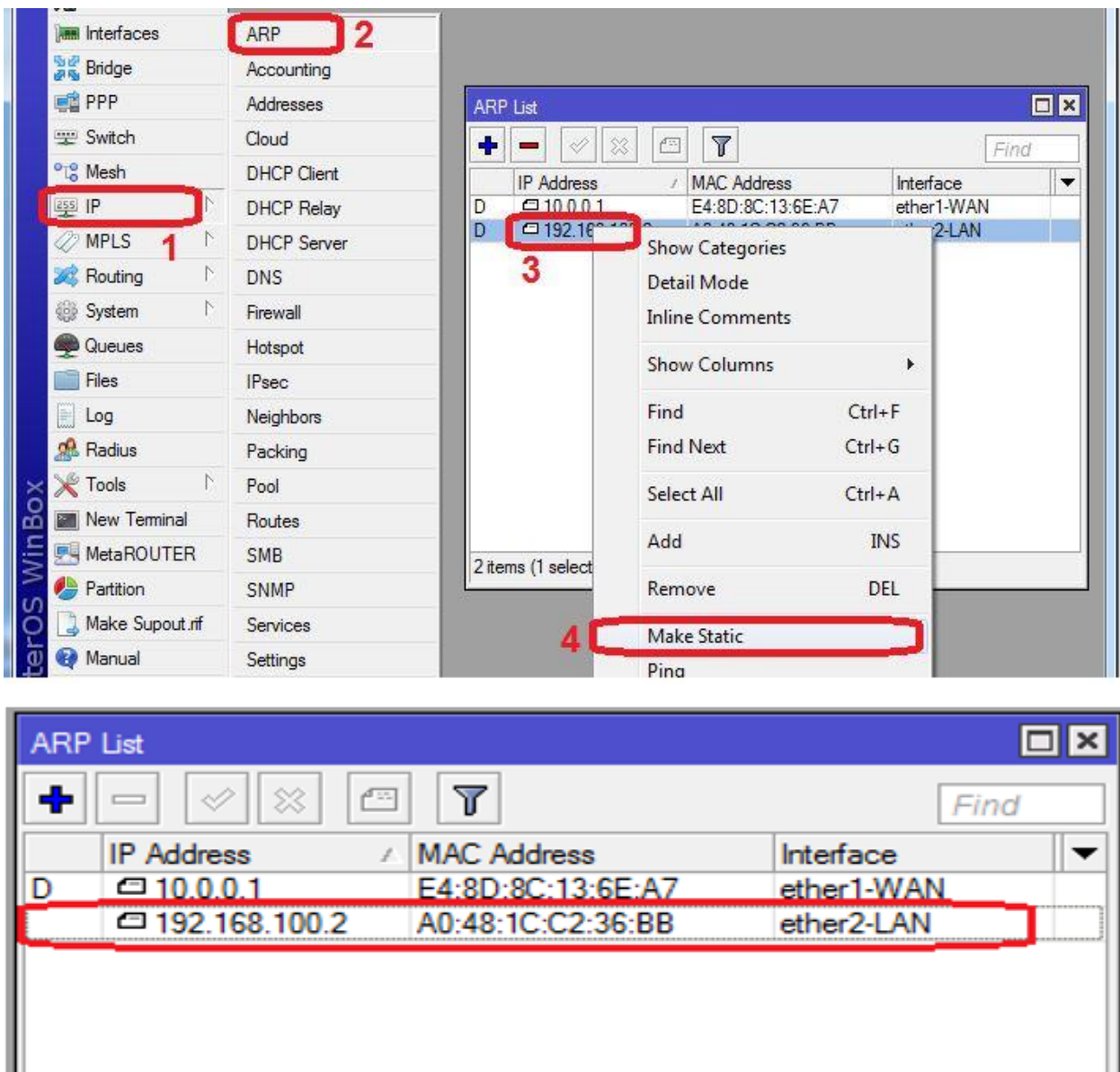
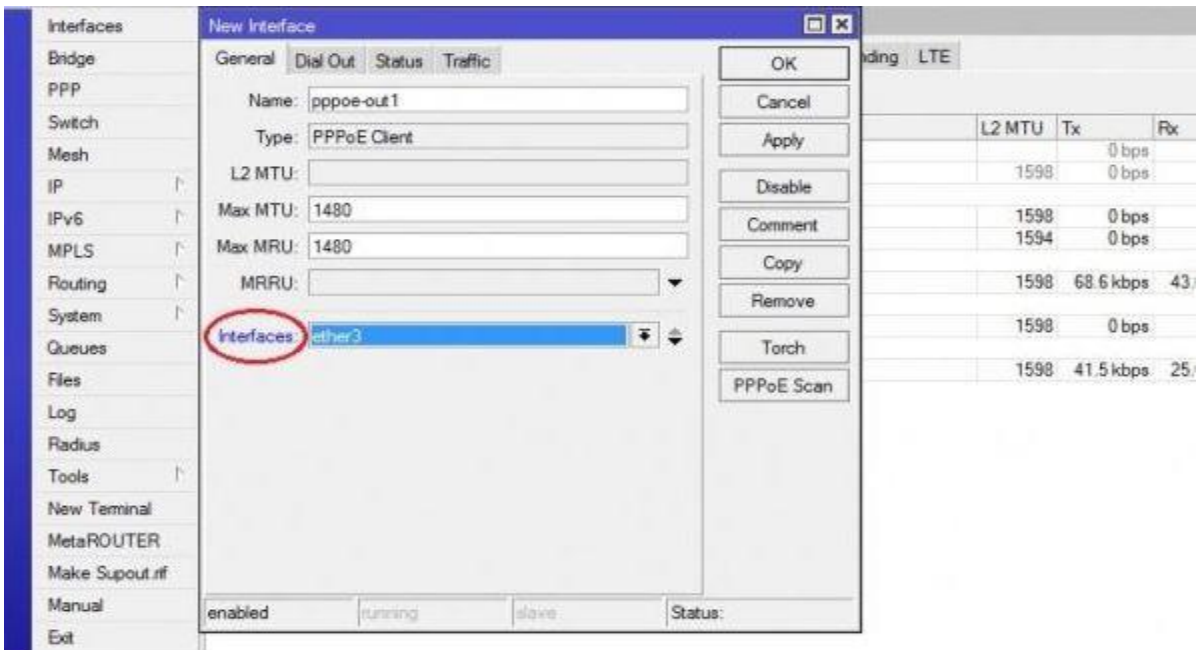
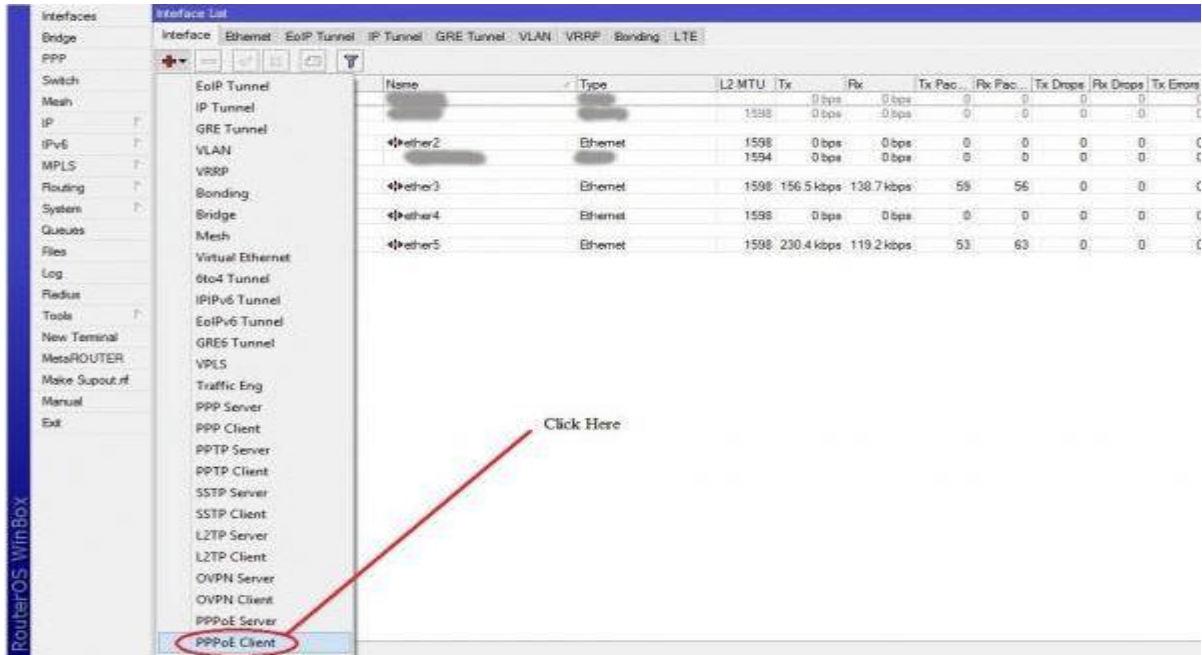


Figure 4.33: Shows Screen Print ARP.



## 4.14 PPPoE Client Configuration:

- Interface > PPPoE client > General tab > select interface > click dial out tab > set user name & password > apply > ok.



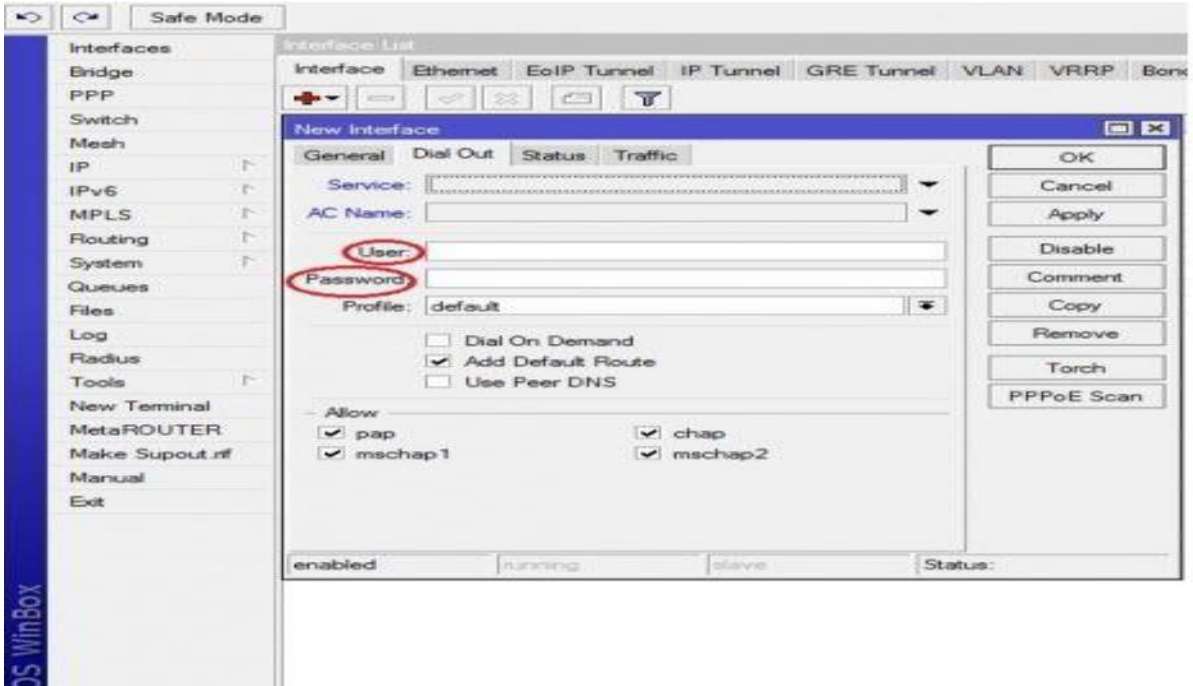


Figure 4.34: Shows Screen Print PPPoE client.

### 4.15 PPPoE Server

At first create an ip pool:

- IP > Pool > Click (+) > Assign name & ip address range > Ok

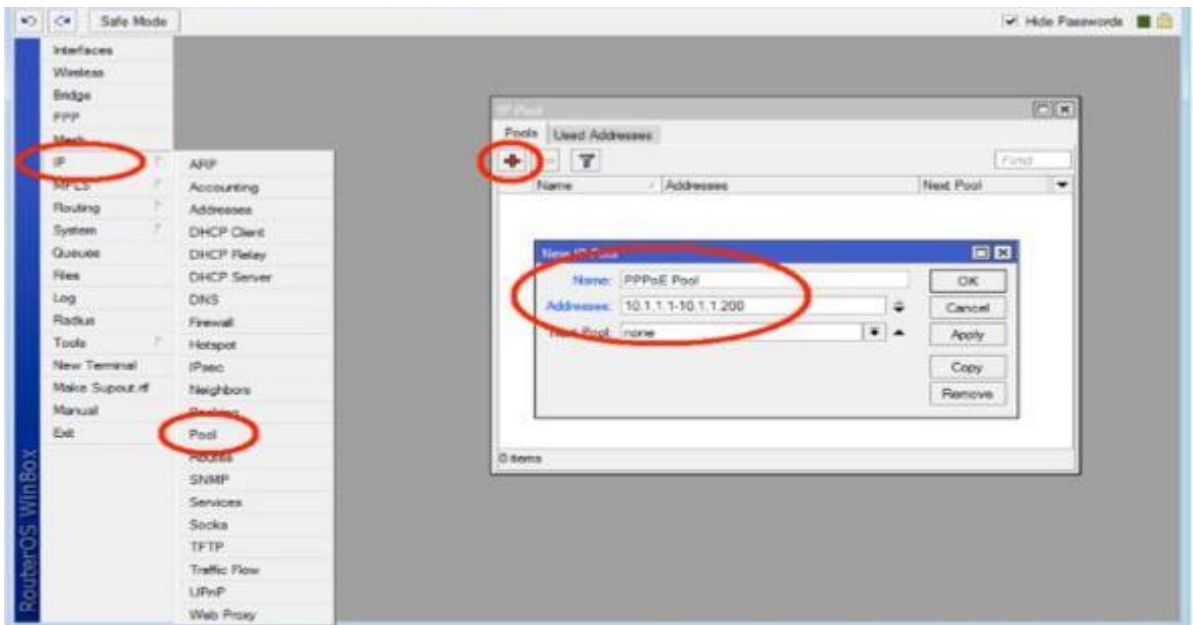


Figure 4.35: Shows Screen Print create pool.

Once I have the ip pool done, I can proceed to creating the PPPoE server. Once I have a new PPPoE server creation window open, simply choose the interface of the Mikrotik router that I would like to act as the PPPoE server, in this example I have chosen the wlan1 card.

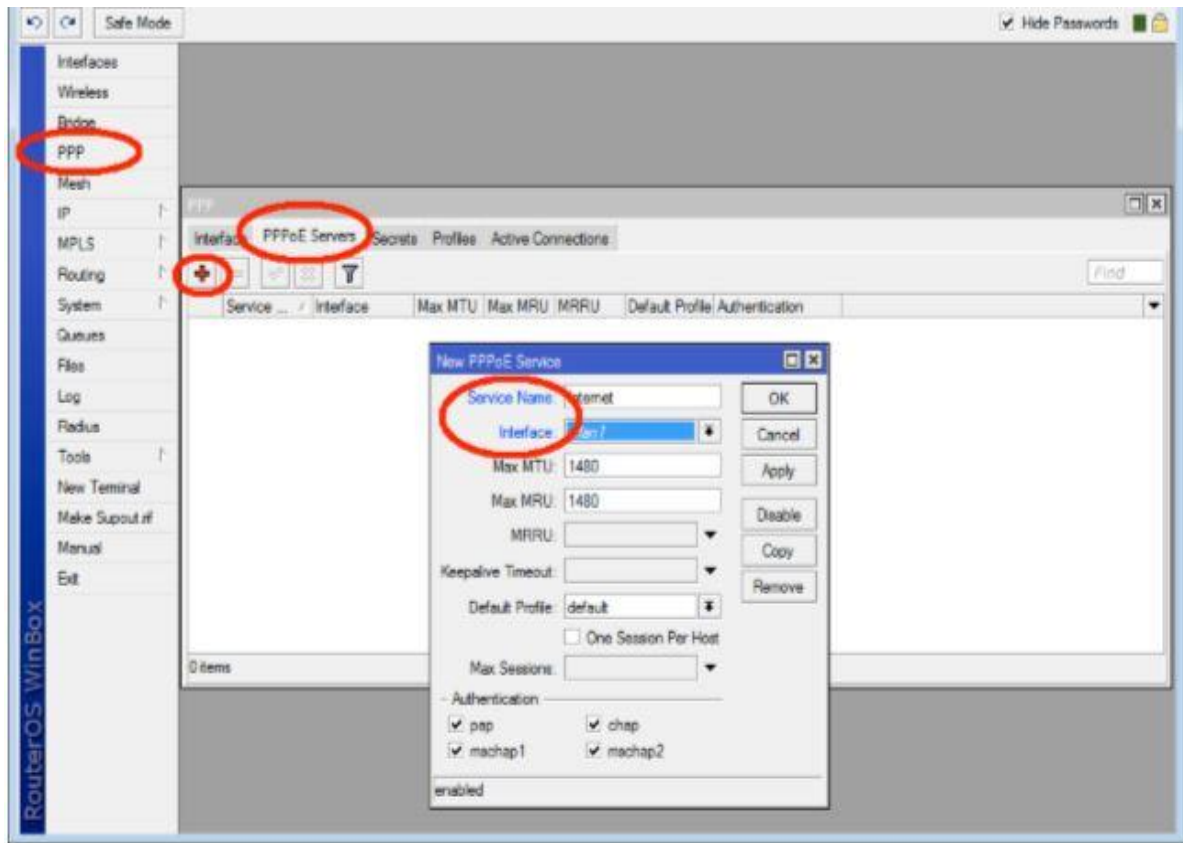


Figure 4.36: Shows Screen Print create PPPoE Server.

I can now create a profile for the PPPoE server to use. This profile is where I will do some basic bandwidth management. This is also where I will specify the use of the ip pool I created earlier. I can create as many profiles as I like, all with different bandwidth restrictions and simply apply them to the relevant users.

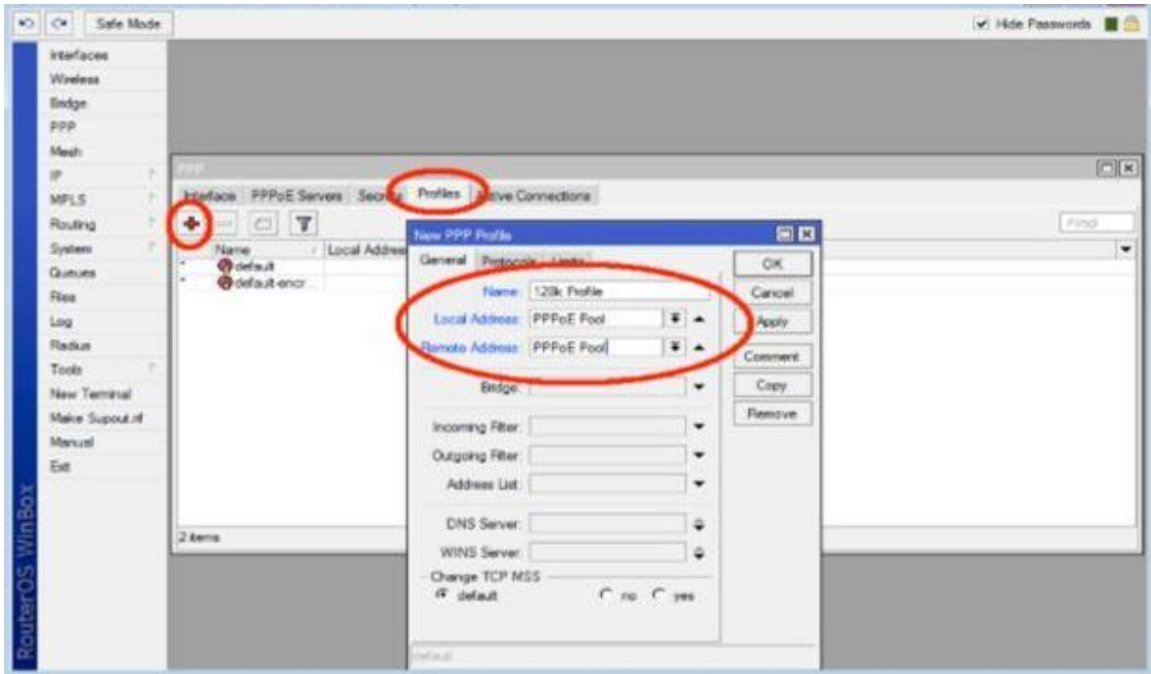


Figure 4.37: Shows Screen Print create a profile.

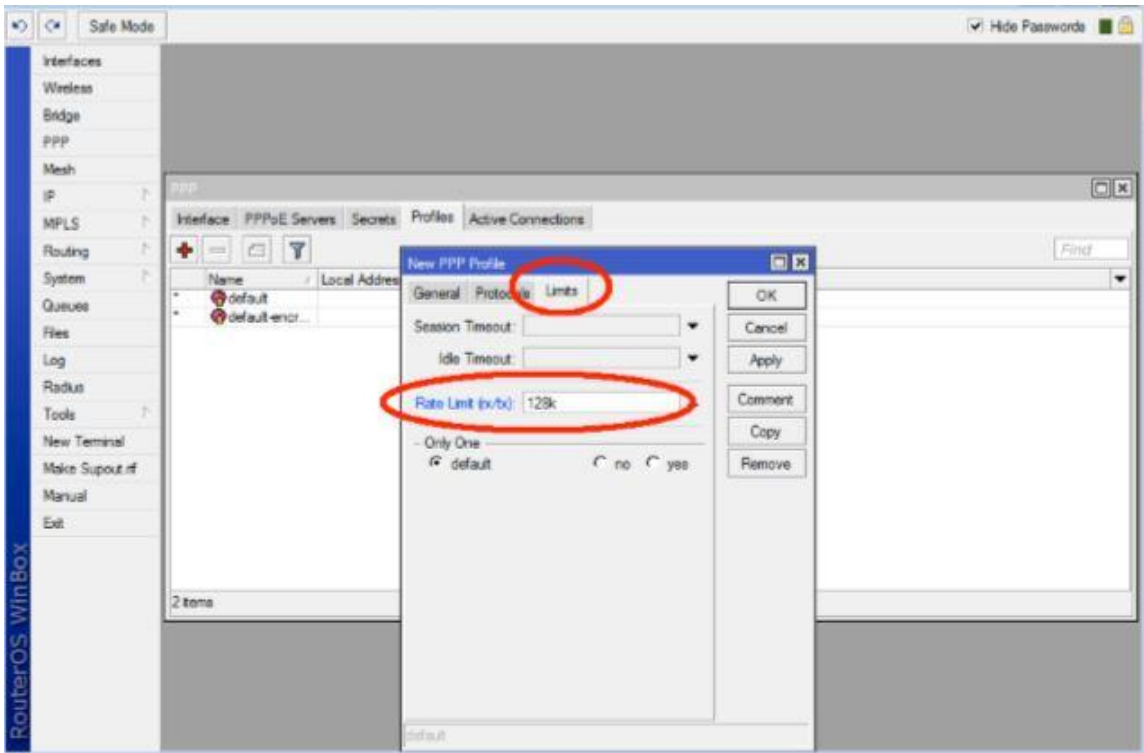


Figure 4.38: Shows Screen Print create a PPP profile for limits.

Once the profile has been created I can proceed to creating some users. This is done in the “Secrets” tab. Simply choose the username and password I like to dedicate to my client select the profile that was created and I ready to go. I may creating many users as I wish. My client can now dial up to this PPPoE server by creating a PPPoE client.

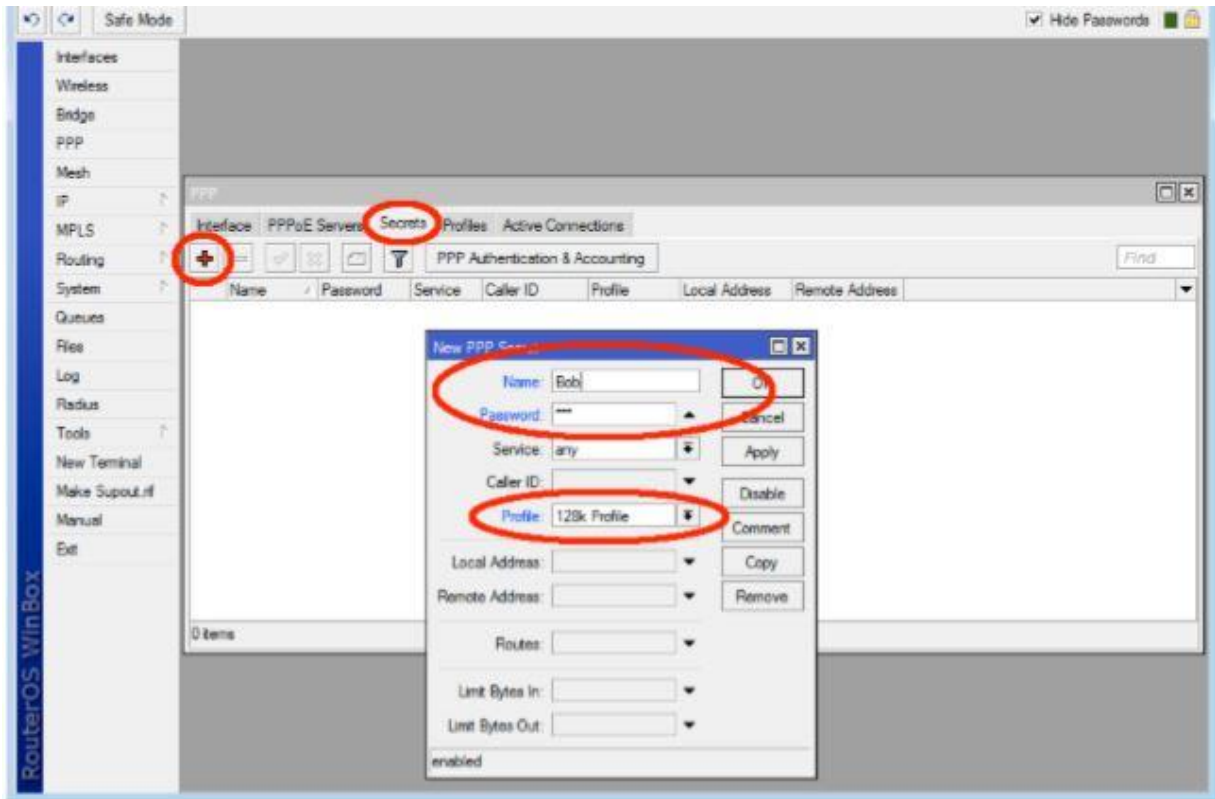


Figure 4.39: Shows Screen Print PPPoE server.

## 4.16 Bandwidth Management

### 4.16.1 Simple Queue

- Queues > simple queues > click (+) > general > name assign > Target address > Max limit (Target upload, Target download) > OK.

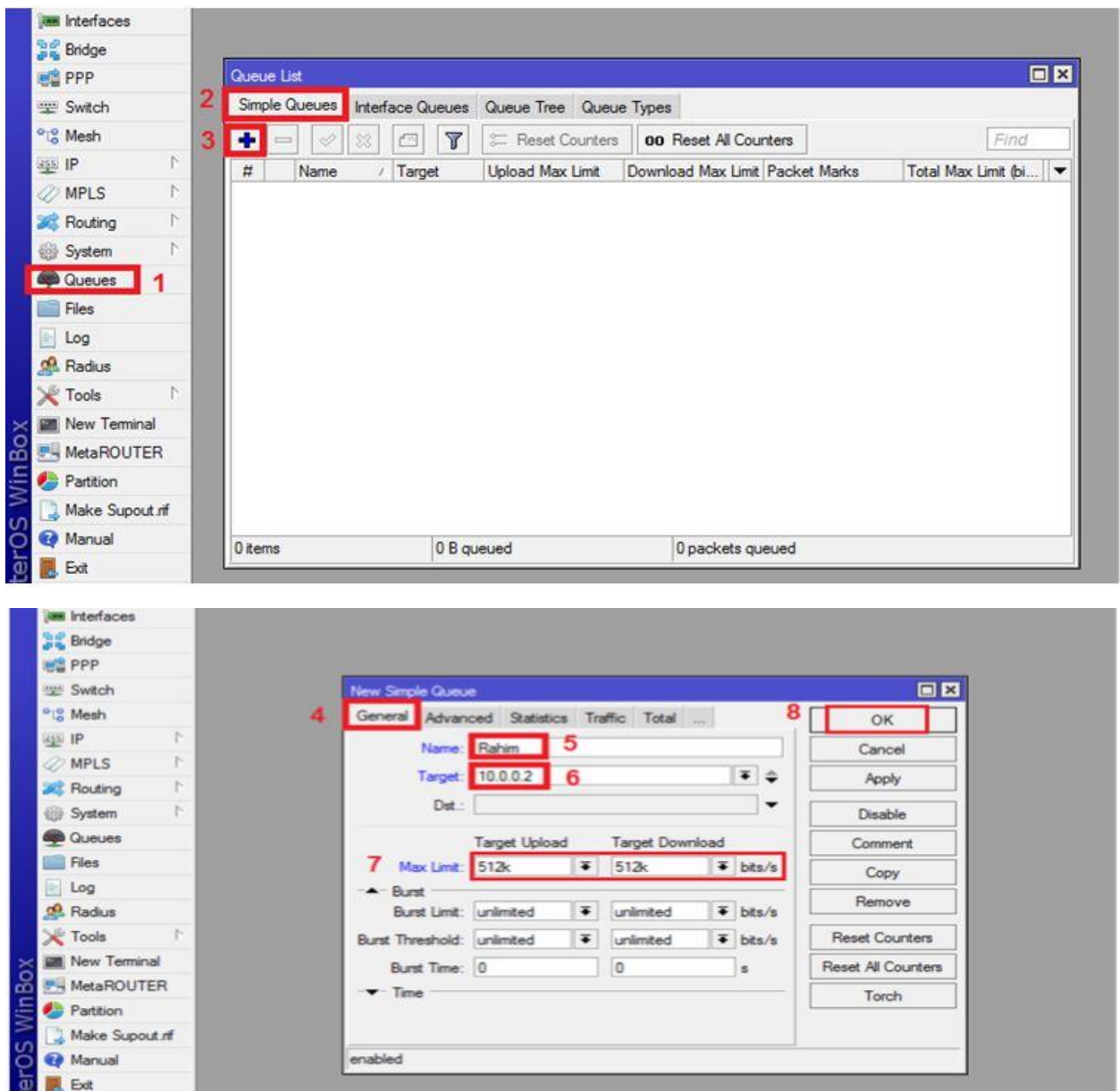


Figure 4.40: Shows Screen Print simple queue.

## 4.16.2 Limit Different Bandwidth In Day and Night

### Step: 01

#### Day:

/queue simple

name="DAY" target-addresses=192.168.1.0/24 dst-address=0.0.0.0/0

interface=all direction=both priority=8

queue=default-small/default-small limit-at=256k/256k

max-limit=256k/256k total-queue=default-small

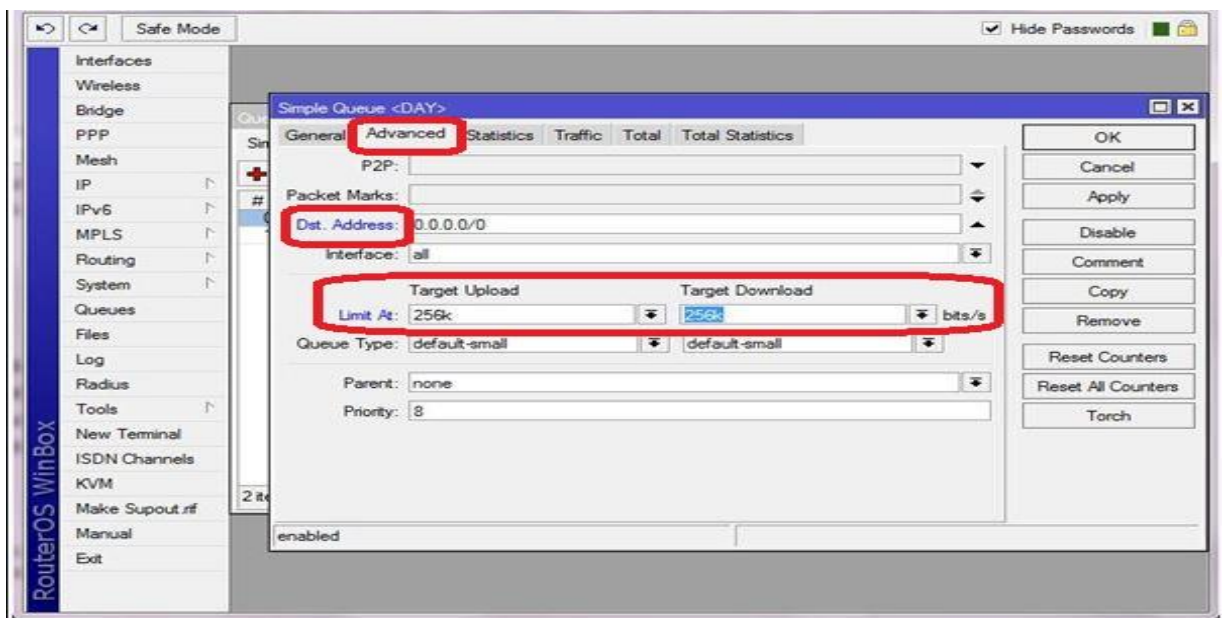
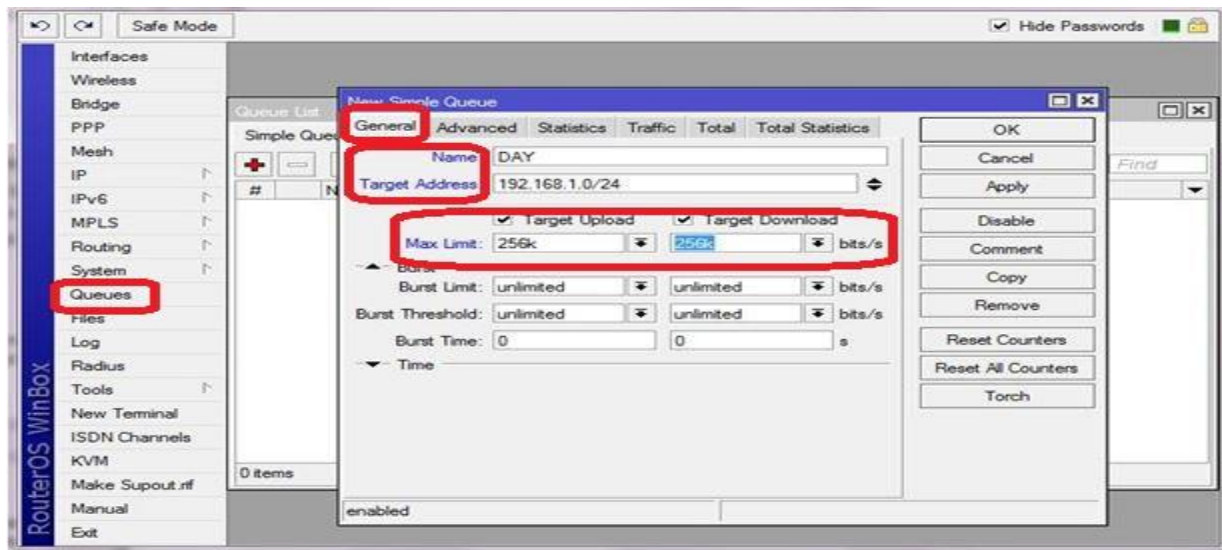


Figure 4.41: Shows Screen Print simple queue for day.

## Night:

/queue simple

name="NIGHT" target-addresses=192.168.1.0/24 dst-address=0.0.0.0/0

interface=all direction=both priority=8

queue=default-small/default-small limit-at=512k/512k

max-limit=512k/512k total-queue=default-small

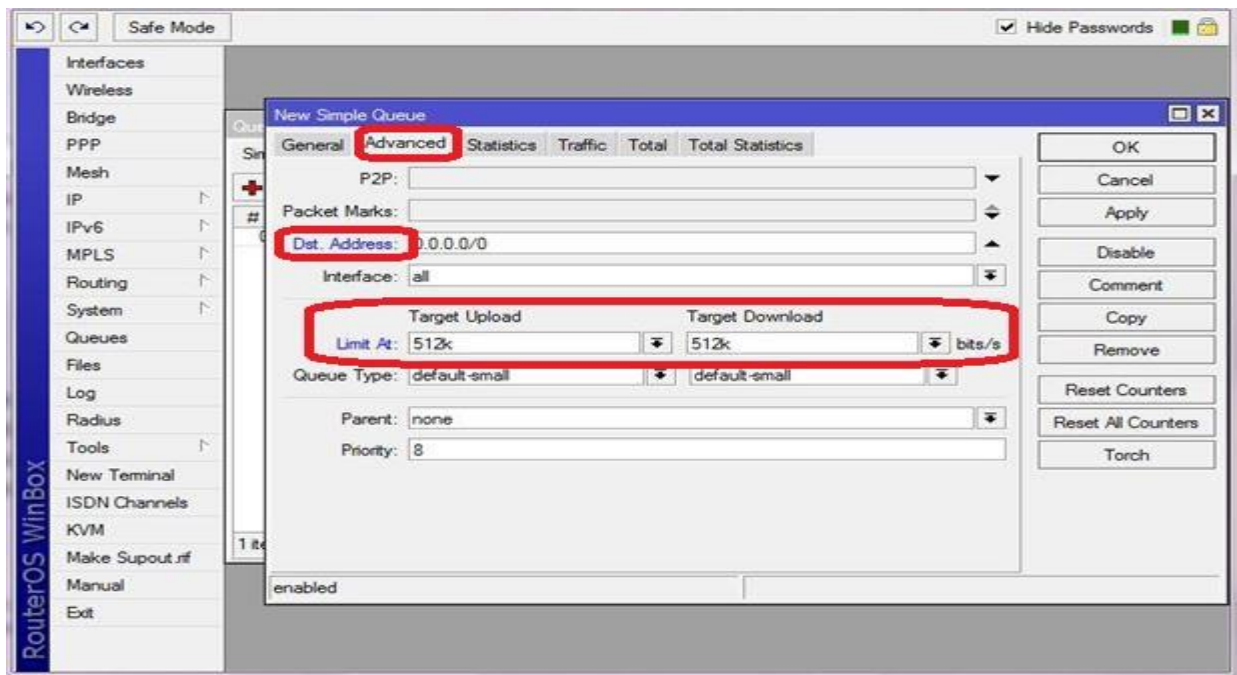
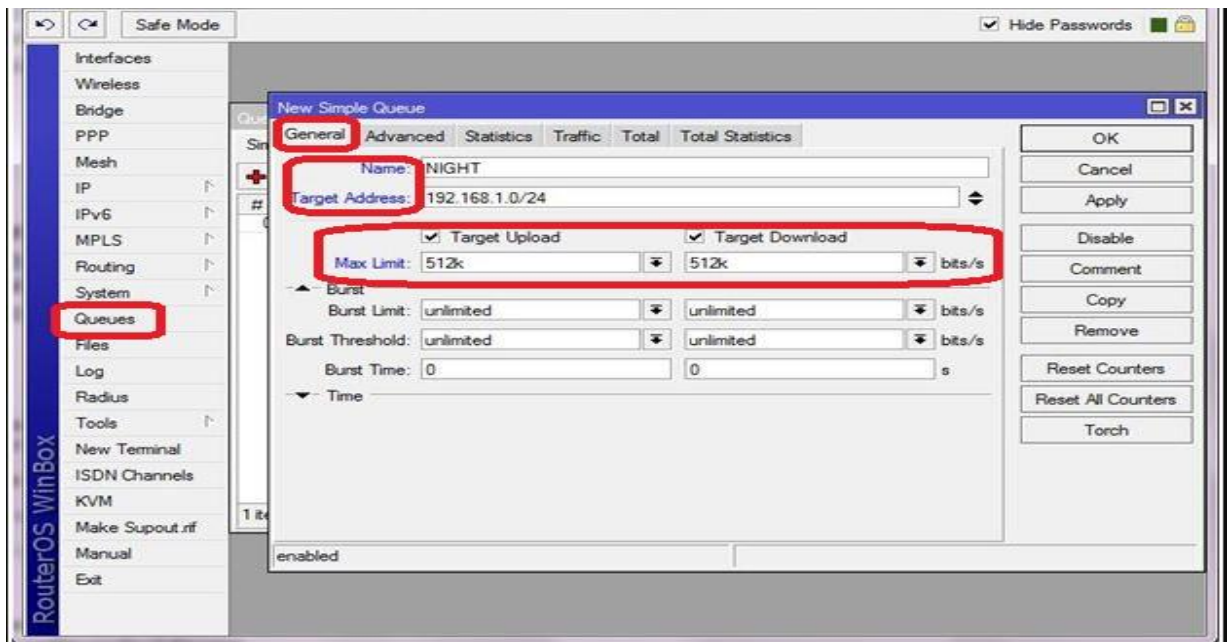


Figure 4.42: Shows Screen Print simple queue for night.



## Step: 02

System > Script > click (+) add name=DAY source="/queue simple enable DAY; /queue simple disable NIGHT"

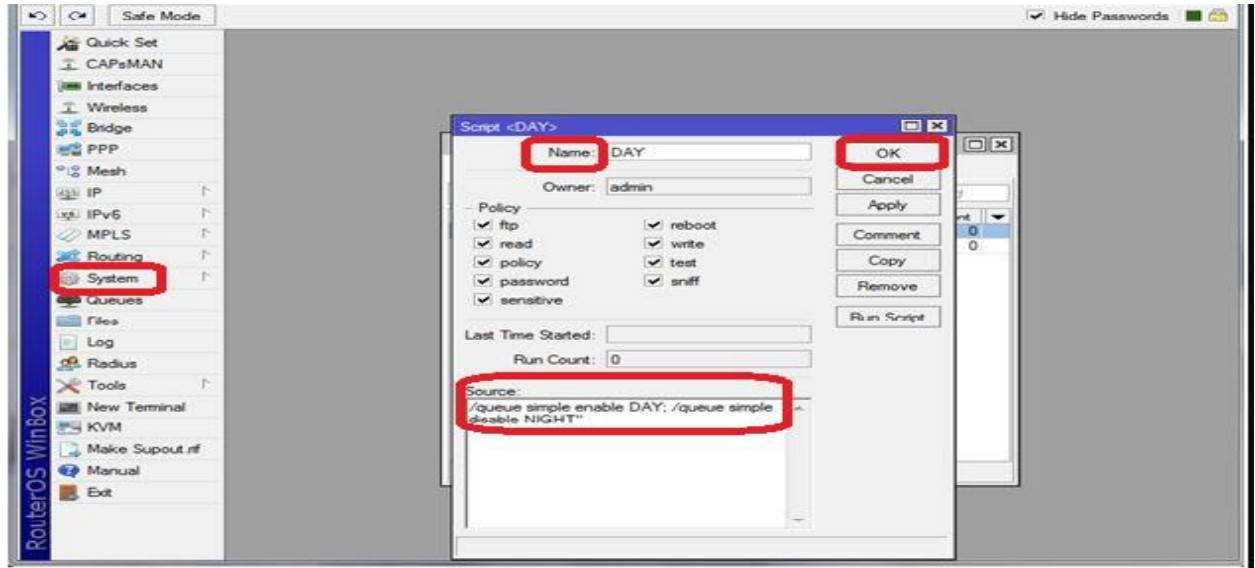


Figure 4.43: Shows Screen Print script for day.

- add name=NIGHT source="/queue simple enable NIGHT; /queue simple disable DAY"

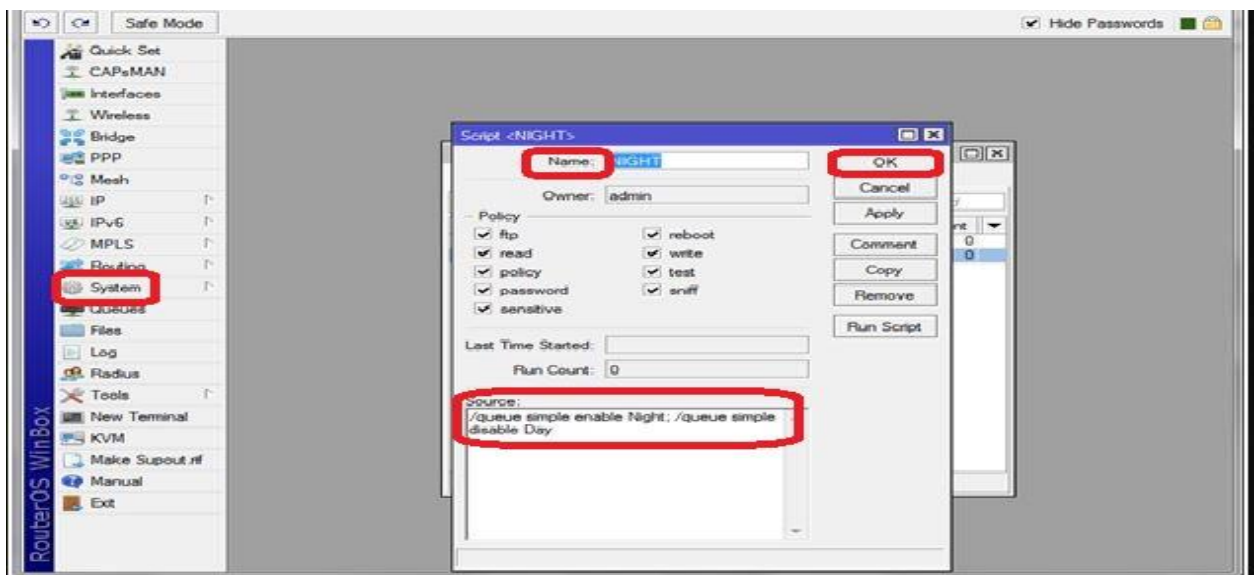


Figure 4.44: Shows Screen Print script for night.

### Step: 03

#### Create Scheduler for day:

- Add name=DAY > on-event=DAY > policy=read, write start-date=Oct/25/2017 start-time=06:00:00 interval=24:00:00 > ok

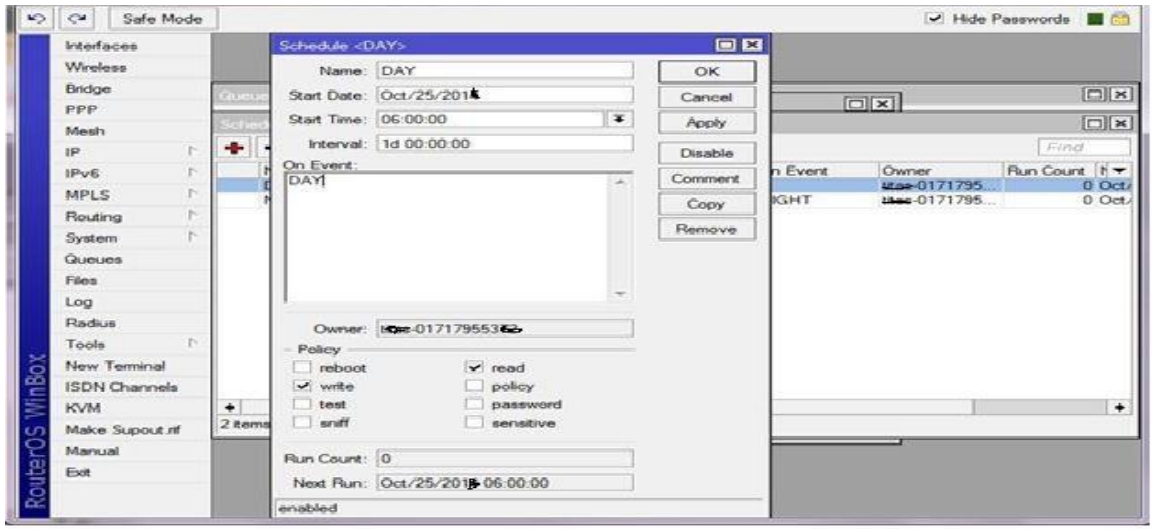


Figure 4.45: Shows Screen Print scheduler for day.

#### Create Scheduler for Night:

- Add name=NIGHT > on-event=NIGHT > policy=read, write > start-date=Mar/25/2018 start-time=18:00:00 interval=24:00:00 > ok

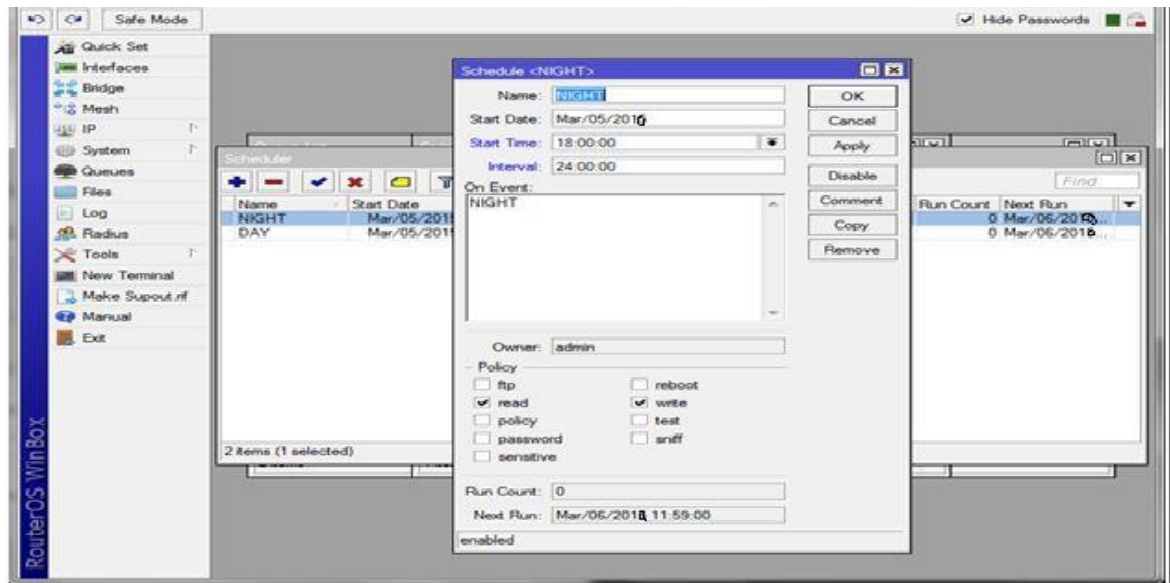


Figure 4.46: Shows Screen Print scheduler for night.

## 4.17 Firewall

Assume that, I want to allow only source IP 192.168.100.10 to get access to the internet, all other source IPs from this subnet are restricted.

- IP > Firewall > Filter rules > click (+) > General > chain (forward) > src. Add assign > click action tab > action (accept) > OK.

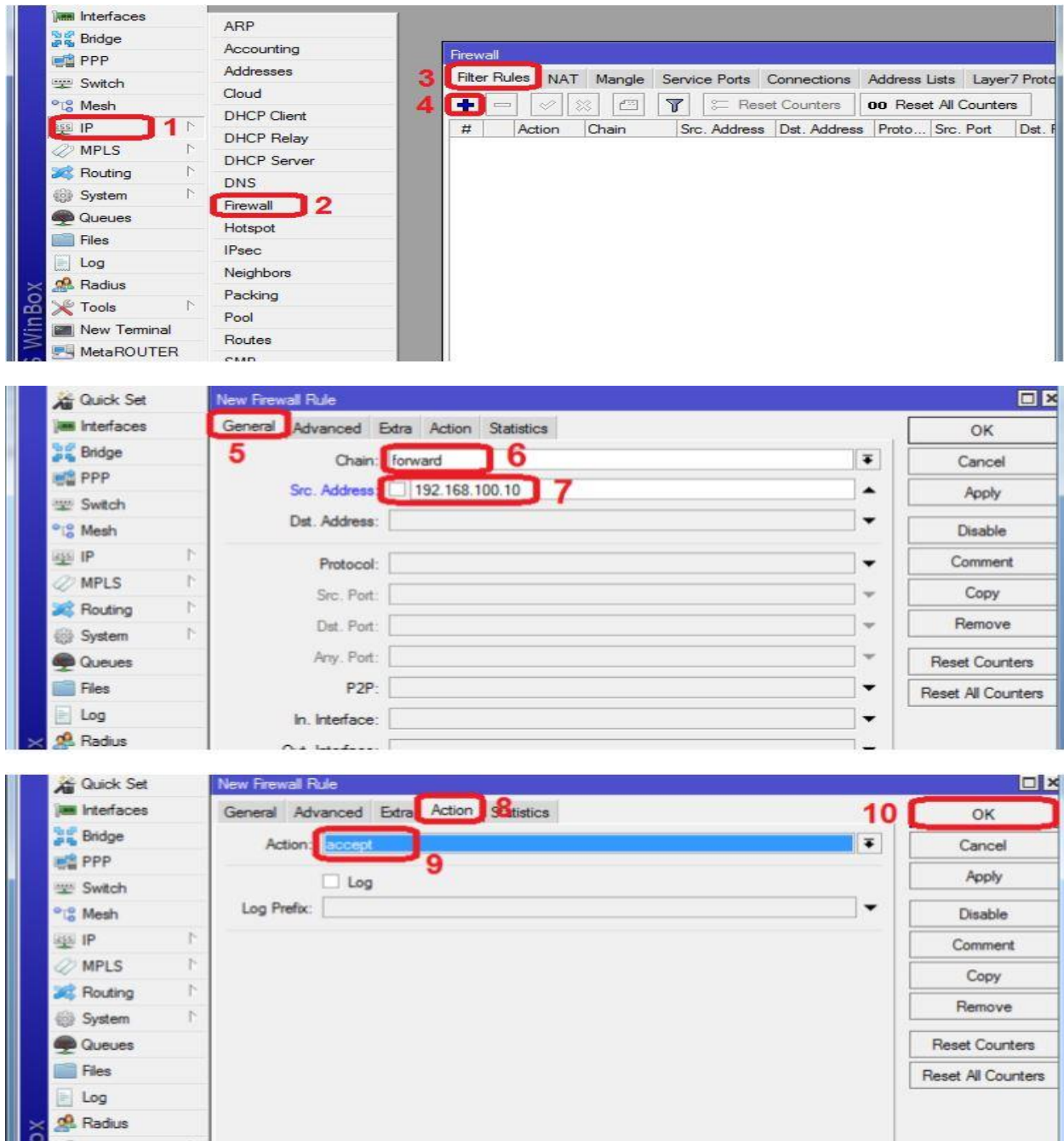


Figure 4.47: Shows Screen Print limit filter rules

### 4.17.1 Address List

The concept of Address List is to gather some IP addresses or some IP blocks randomly which to be used as source or destination in configuring filtering rules, routes etc. later on. I can add multiple IPs or IP blocks in an Address List.

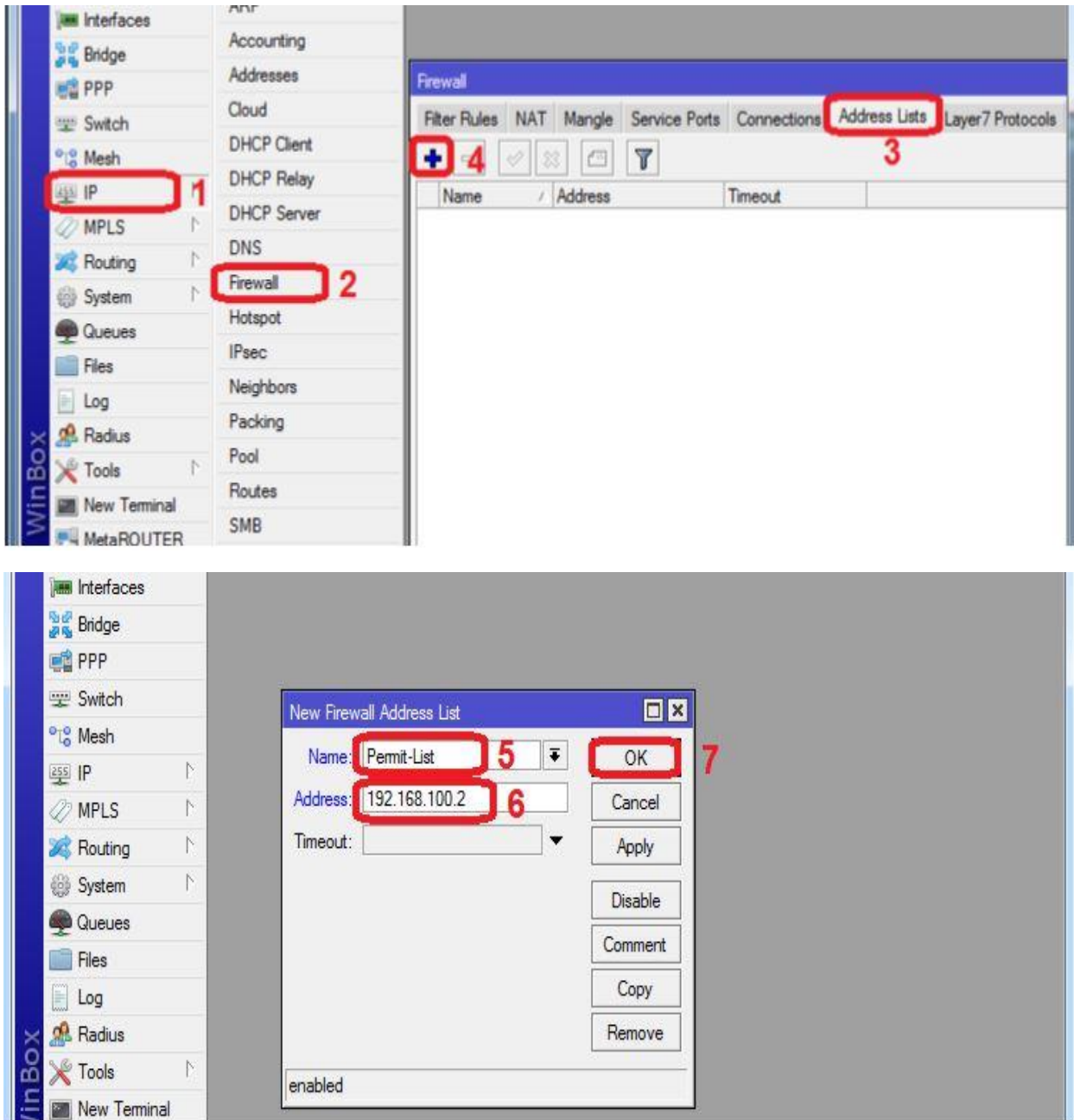


Figure 4.48: Shows Screen Print address list.

After creating an Address List I can use it in a filter rules to specify source or destination.

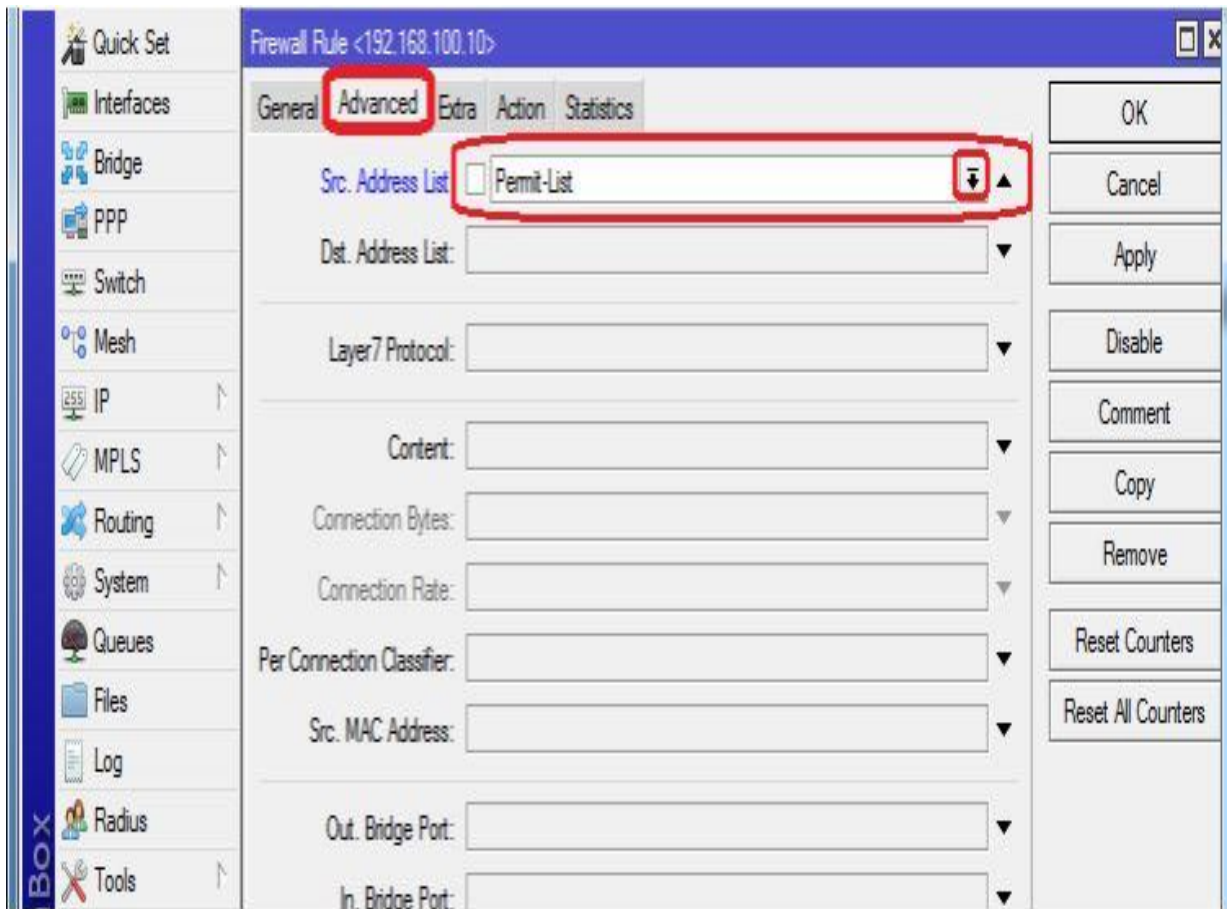


Figure 4.49: Shows Screen Print Firewall Rule advance.

## 4.17.2 Website Filter

- IP > Firewall > Filter rules > click (+) > General > chain (forward) > Src. Add assign > advanced > content (facebook.com) > action tab > action (select drop) > OK.

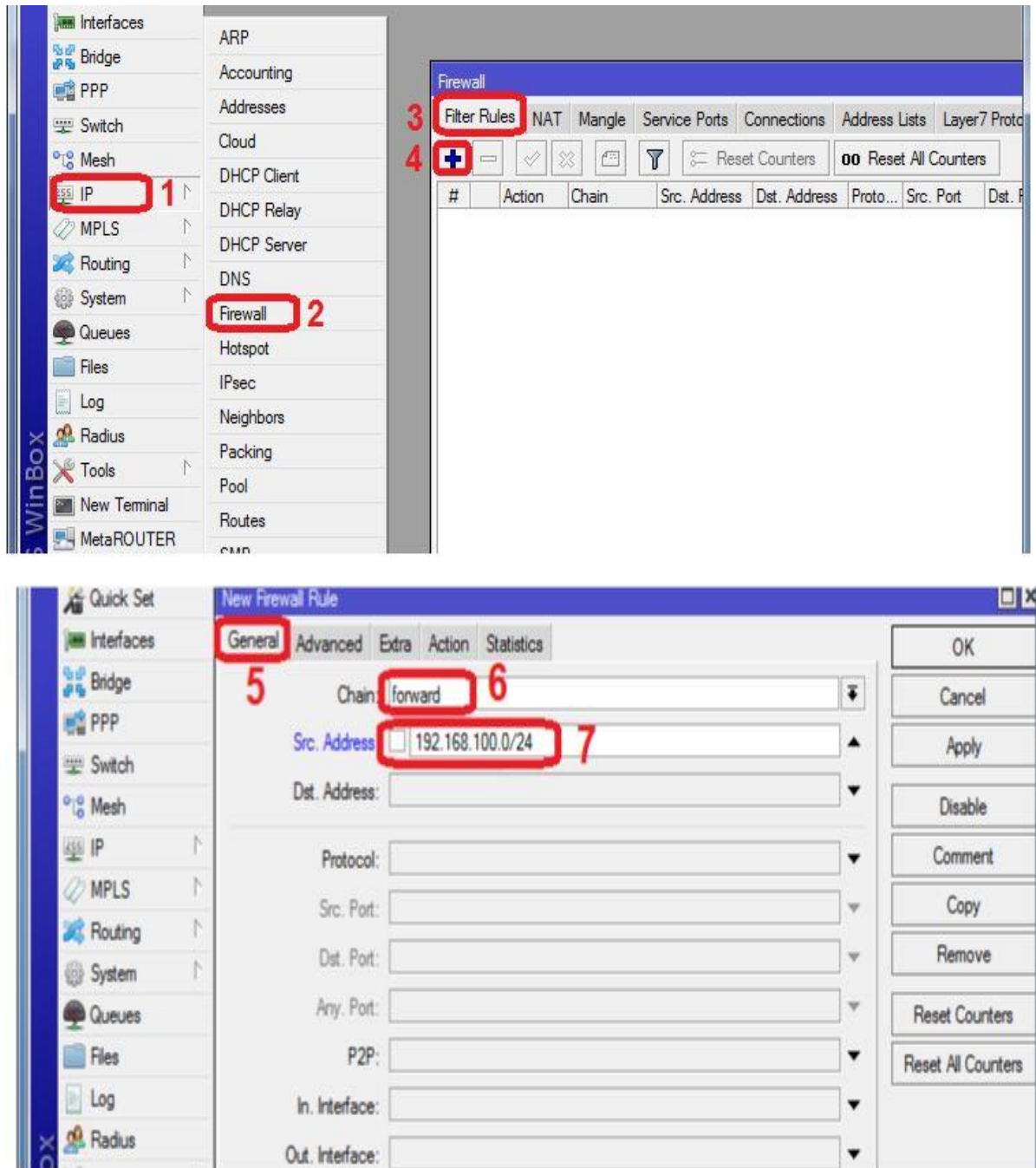


Figure 4.50: Shows Screen Print Firewall filter Rule & general option.

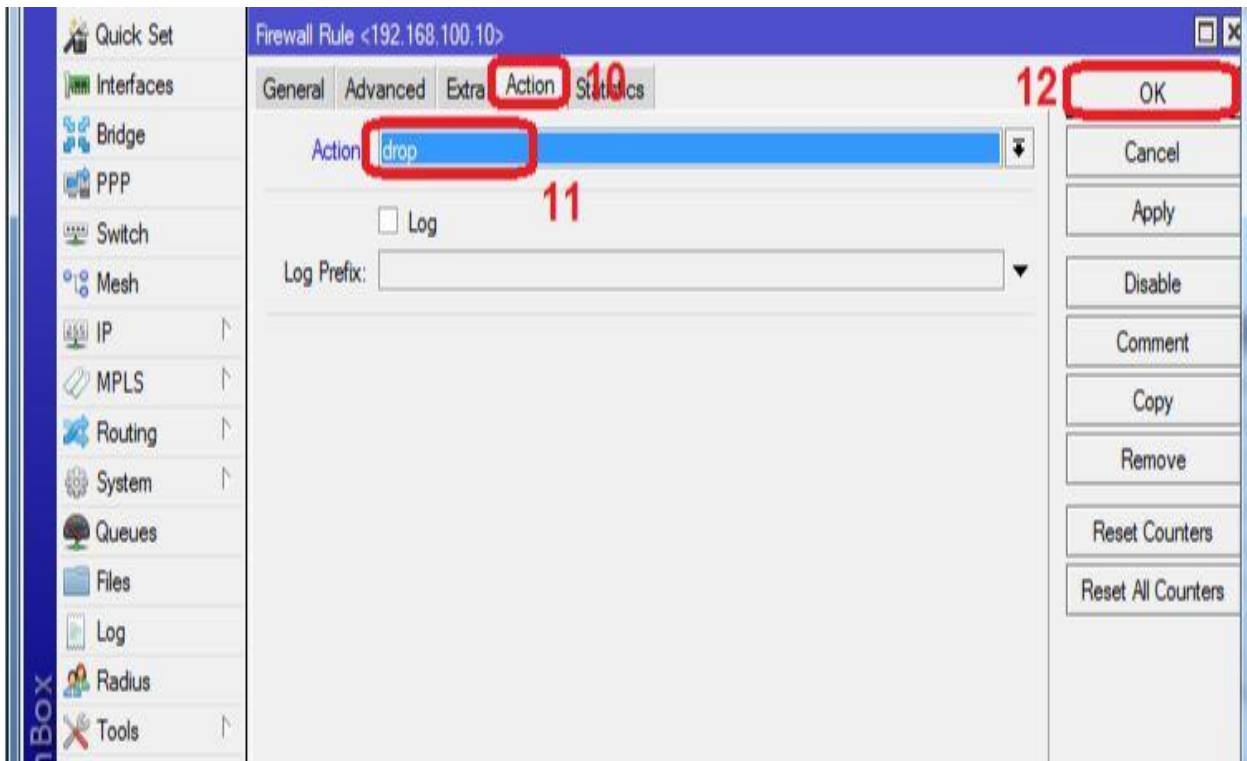
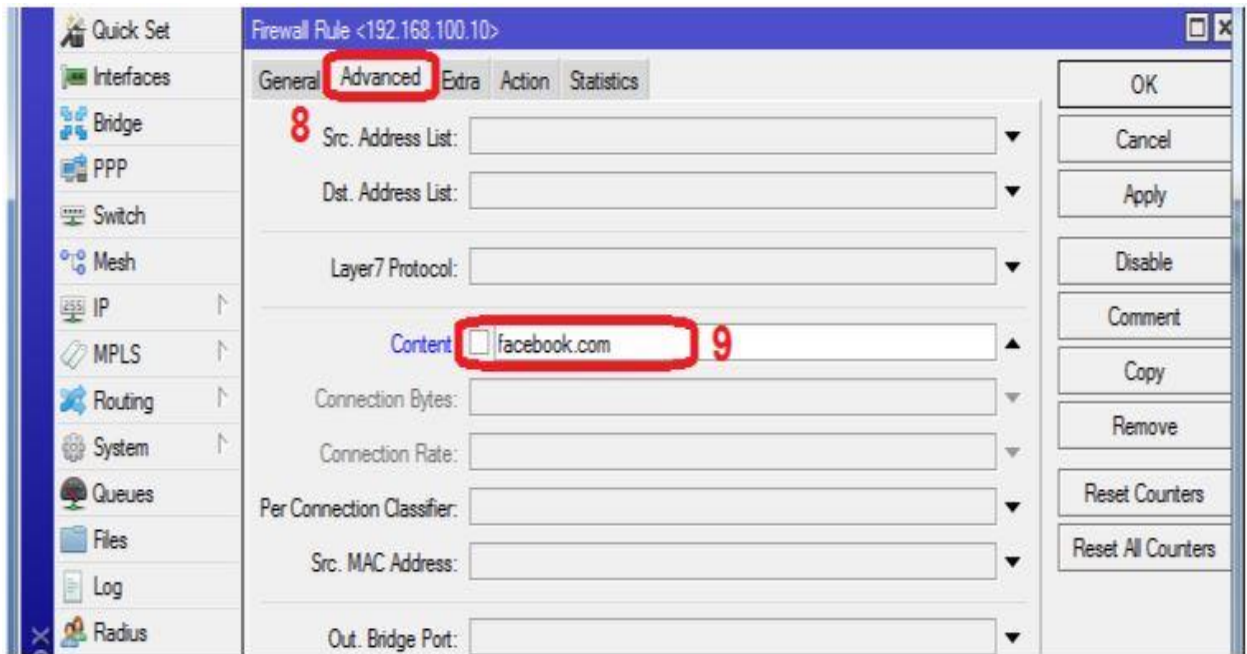


Figure 4.51: Shows Screen Print Advance & action option.

## **CHAPTER 5**

### **CONCLUSION AND FUTURE SCOPE**

#### **5.1 Discussion and Conclusion**

Review this internship has been a wonderful and rewarding experience. I have seen the future and I will be able to help me with the opportunity to network with a lot of people have been able to confirm that. Through this internship, I have learned that one of the main issues and time management skills as well as self-motivation. When I first started I was eight hours a day, six days a week is going to be able to sit in an office and did not think that. Once I realized what I had to do my hours of overlapping is not broken so I organize my day job. Organized and it was the right time, when I get a response prepared for questions that need to be learned. This internship and time management of the office for many hours, I had to learn how to motivate yourself through. I'm still looking for using the company came up with the various proposals and ideas. I'm still keeping my options open to new opportunities, however are continuing to work for the University of Bangladesh in the world. I'm enjoying this line of work. I continue to work hard for my position and hope to continue to learn about the industry and meet new people will. It was a wonderful experience and I hope the other intern got a lot out of it.

#### **5.2 Future Scope**

In this digital era, everything is related with networking. I think it is a great opportunity for me to get a job. There are many ISP companies in our country and also in abroad. So I have a lot of options. The plus point is, I have also learned something about networking and configurations. In this era, every major company needs IT support to keep its networks running smoothly. Within IT departments, there are a variety of jobs. The benefits of entering this career field are numerous. There's no career field hotter than information technology. With huge advances in technology over the past few decades, companies need professionals who can help keep their computer networks working and improving them with the times. So i think it is a great opportunity for me to get a job.



## APPENDIX

LAN	Local Area Network
MAN	Metropolitan Area Network
WAN	Wide Area Network
MAC	Media Access Control
NAT	Network address translator
RJ	Registered Jack
STP	Shielded Twisted Pair
UTP	Unshielded Twisted Pair
DNS	Domain Name Server
DHCP	Dynamic Host Configuration Protocol
IP	Internet Protocol
ISP	Internet Service Provider
ARP	Address Resolution Protocol
VLAN	Virtual Local Area Network

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- [11] Get Concept about Cloud Core Router, <<<https://goo.gl/z3aGFp>>>, sample page last Accessed Date: 18/03/18

# PLAGIARISM REPORT

