# Bienvenue au CAMEROUN

# MikroTik

## FIREWALL ET GESTION DE BANDE PASSANTE

Mikrotik MUM – Yaoundé
January 26, 2018

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## FIREWALL AND BANDWIDTH MANAGEMENT

Mikrotik MUM – Yaoundé
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# ULRICK NKWEDJA LAKOUDJI

- Using MikroTik since  2013 as Technical support in CLBCNET (MTN Partner)
- 2015 – Technical Team Cordinator at SOCAPRESCO (MTN Partner)
- 2017 – Certified MTCNA , MTCRE , CCNA Instructor, …
- 2017 – NOC & SAV Engineer, SAV Supervisor at SWECOM

# SWECOM OVERVIEW

SWECOM stands for SOUTHWEST COMMUNICATION and it started as a cable distributor in Fako in 1998.

It later extended its distribution to some other regions by 2005.

However in 2008 SWECOM established an IT department and became an internet service provider (ISP) in Douala and in 2011 it extended to other regions.

Finally in 2014 it included VOD (VIDEO ON DEMAND) and IT solutions

Our activities :

HD Digital Cable Television
Video on Demand
Broadband Internet Connections
Interconnection

SWECOM is a FTTX provider

SWECOM
Always

**www.swecom.cm**

# OBJECTIVES

- Present advantages i gain by using Mikrotik in my network  enviroment;
- How to set up firewall to manage the bandwidth;
- How to set up Queues to manage the bandwidth;
- Conclusion and questions

# ADVANTAGES OF USING MIKROTIK

- Sheap
- All in one – Many feature in the same material
- Many tools in one for troubleshooting
- Easy to manage and to access
- Mikrotik make my network  administration more easier

# FIREWALL

Senario : At 9 am you are not able to browse on internet, What is wrong ?

- Internet is a crutial ressource for enterprises of today
- The high disponibility of internet will be garanty

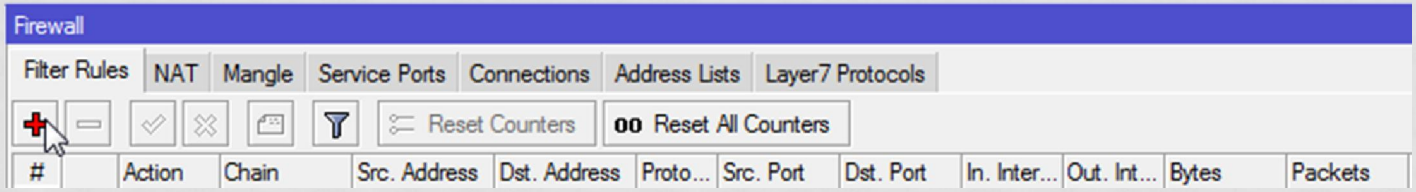
- To protect the router from unauthorized access, both originating from the WAN (Internet) or from the LAN (local).
- To protect the network that through the router.
- In MikroTik, firewall has many features that are all included in the IP Firewall menu.

# FIREWALL : HOW TO CONFIGURE

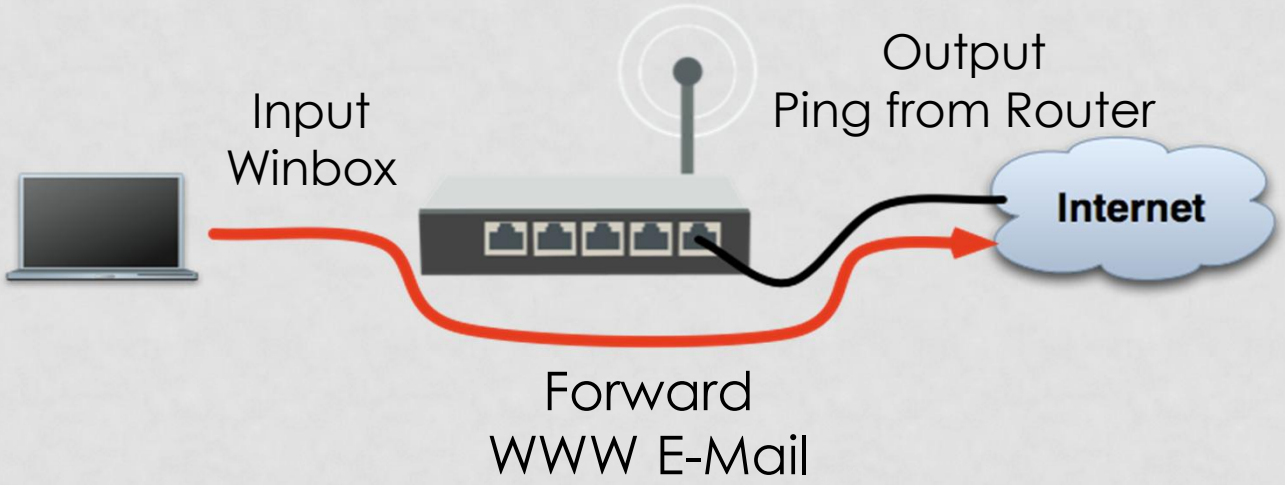
How to configure firewall in mikrotik to protect our network ?

- Basic Firewall in MikroTik configure at IP>Firewall>Filter Rule


A lot of traffic to be filtered, which one allowed (accept) and which one will be rejected (drop).



# FIREWALL : HOW TO




Chain :

**Input**
All incoming packets are checked against the rules in this chain.

**Output**
All outgoing packets are checked against the rules in this chain.

**Forward**
All packets being sent to another computer are checked against the rules in this chain.

To manage the bandwithd the chain **Forward** is the one used.

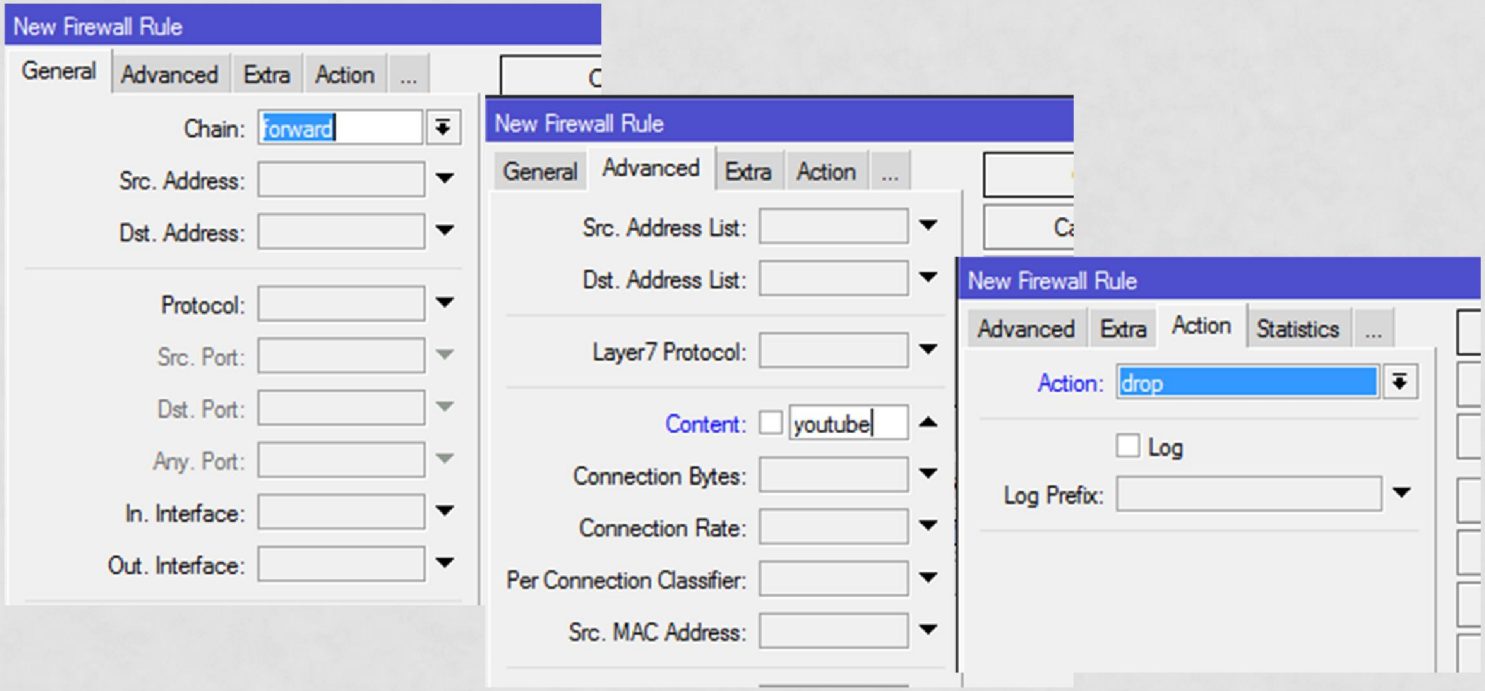
# FIREWALL : HOW TO

MikroTik has firewall feature to block content

• Block client who will access web which contain the word "porn", “youtube”, etc.

In IP>Firewall>Filter Rule

Add chain=forward, go to advanced tab content=youtube, action=drop



# FIREWALL : HOW TO

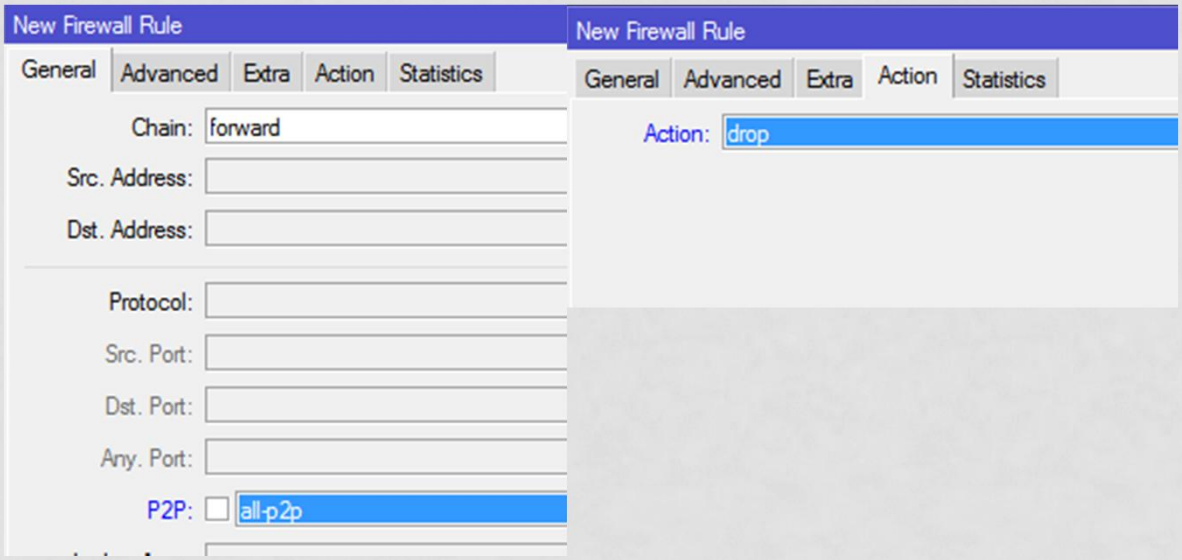
One great option in mikrotik firewall is to set time within that the rule will be active or not.

*/ip firewall filter*

*add action=drop chain=input disabled=no in-interface=LAN-ether2 protocol=icmp  time=8h-10h30m,sun,mon,tue,wed,thu,fri,sat*

Mikrotik firewall as many other advanced feature like:

- Bloking P2P to minimize bandwidht consuption

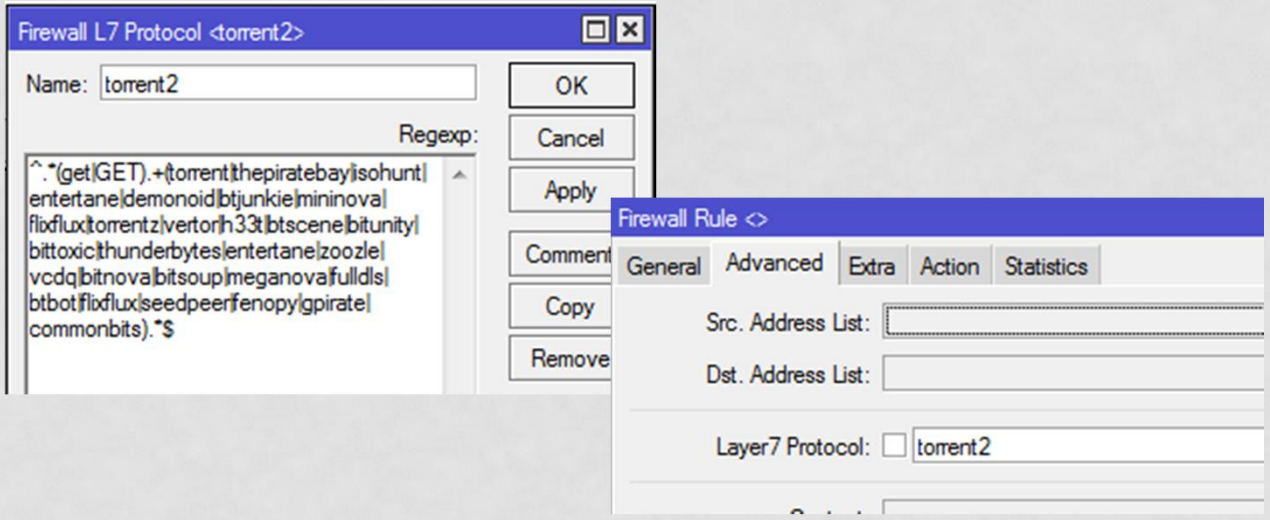


# FIREWALL : HOW TO

This option is not more available in new  Router OS

- Layer 7 Protocol  using regular expression

Exemple of blocking access to torrent site using layer 7 Protocol




We can also use firewall to save bandwidth by denying donwloading based on file extention : .mp3, .exe, .avi , etc.

# FIREWALL : END

Mikrotik firewall is a powerful and flexible tool. Easy to set and to manage.

We can use firewall to manage the bandwidth usage as well as protecting our network.

One other feature we have is the queues

# QUEUES

Queues are used to limit and prioritize traffic:

- limit data rate for certain IP addresses, subnets, protocols, ports, and other parameters
- limit peer-to-peer traffic
- prioritize some packet flows over others
- configure traffic bursts for faster web browsing
- apply different limits based on time
- share available traffic among users equally, or depending on the load of the channel

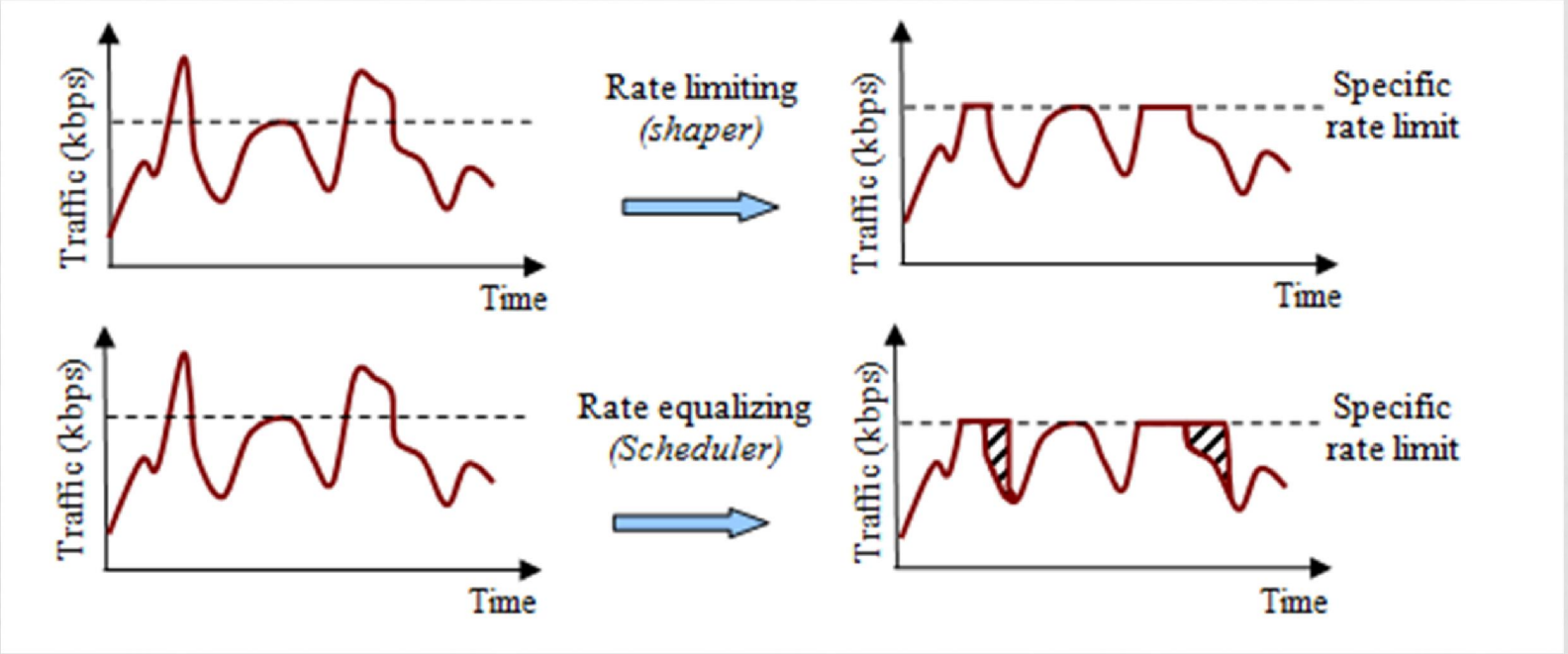
# QUEUES

There are two different ways how to configure queues in RouterOS:
**/queue simple** menu - designed to ease configuration of simple, everyday queuing tasks (such as single client upload/download limitation, p2p traffic limitation, etc.).

**/queue tree** menu - for implementing advanced queuing tasks (such as global prioritization policy, user group limitations). Requires marked packet flows from **/ip firewall mangle** facility.

Rule order is important for queue rules

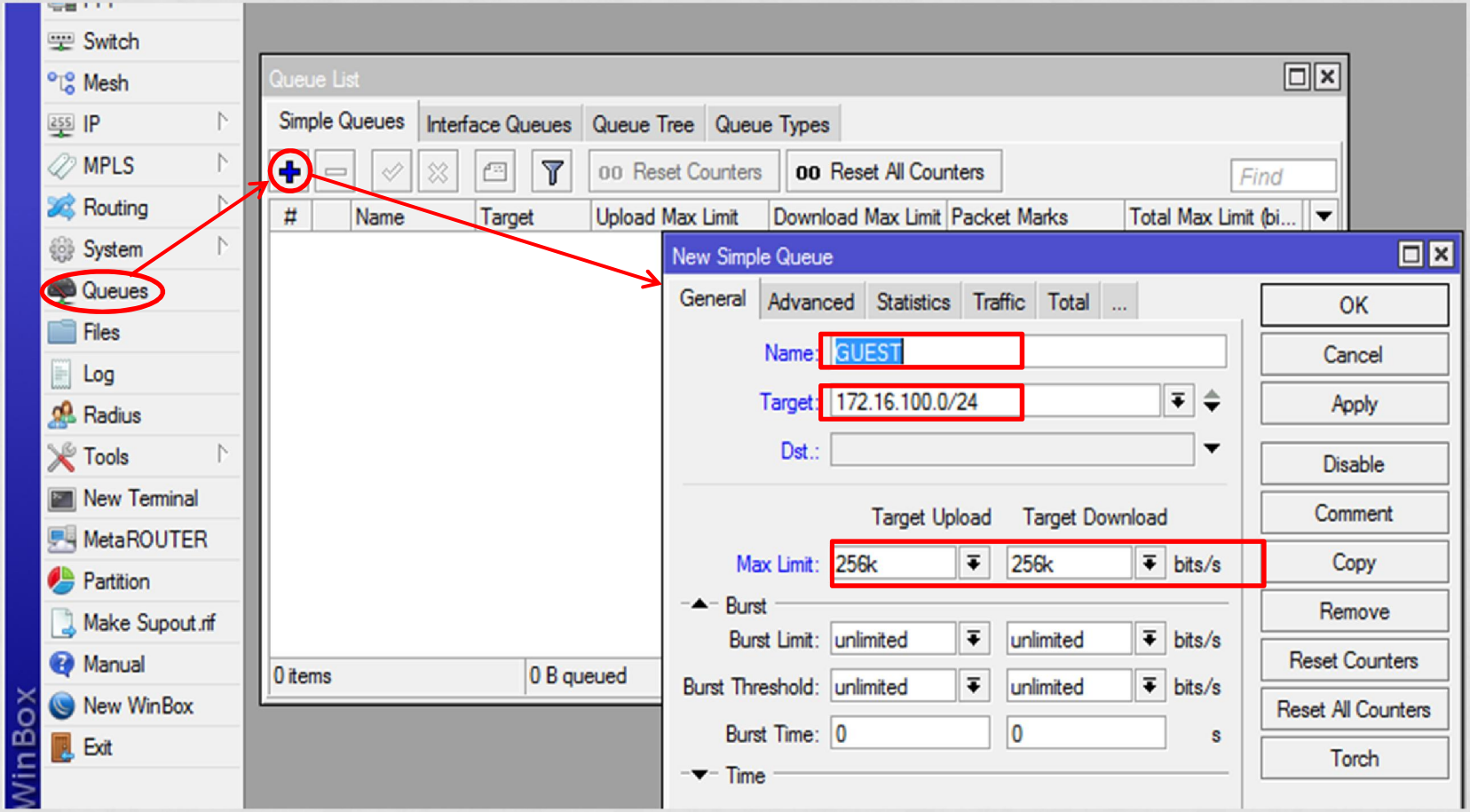
# QUEUES




Rate limiting is used to control the rate of traffic flow sent or received on a network interface.

The simplest way to limit data rate for specific IP addresses and/or subnets, is to use simple queues.

# QUEUES : HOW TO



# QUEUES : HOW TO

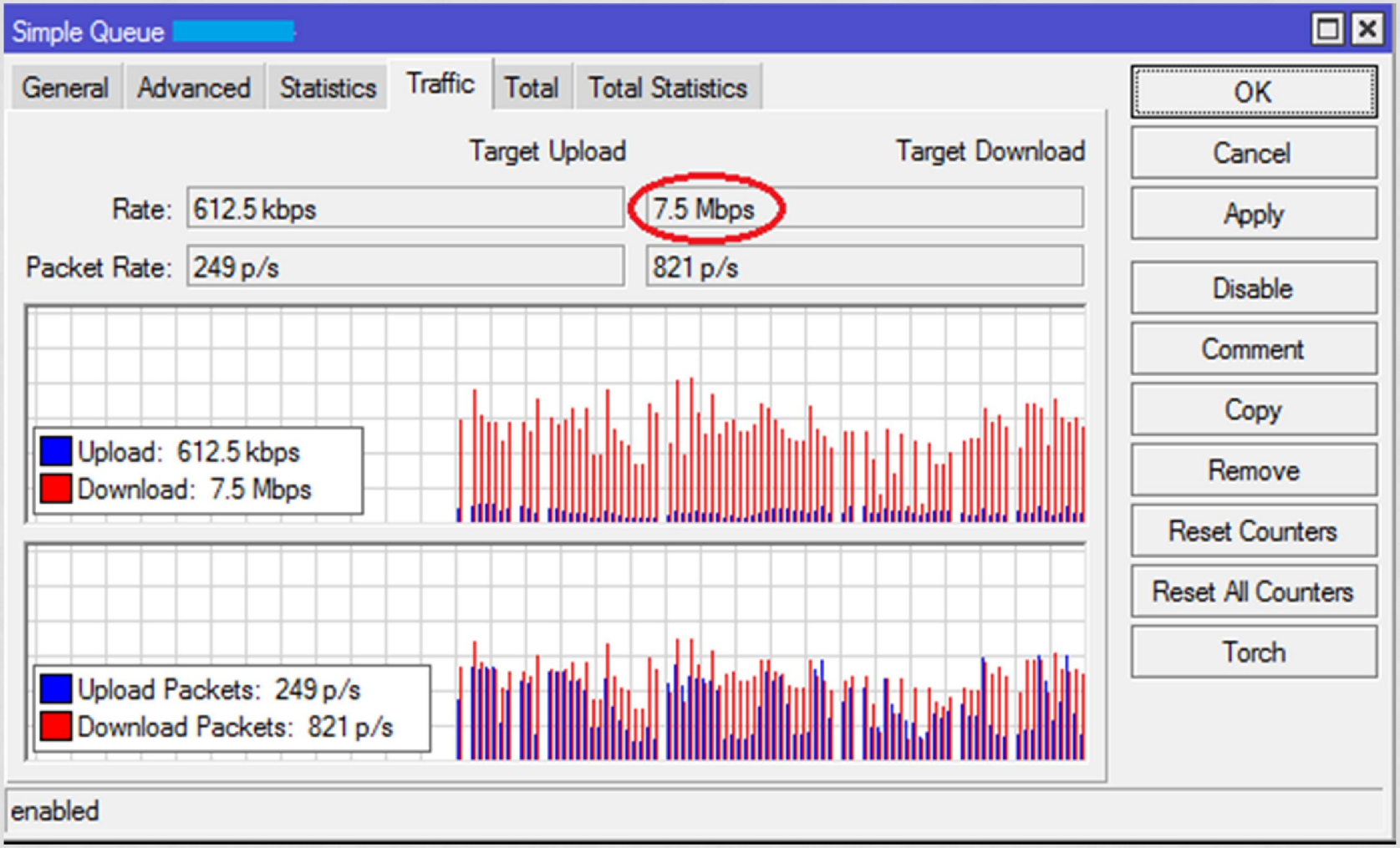
| | | | | |
|---|---|---|---|---|
| 20 | [redacted] | .7.251 | 2M | 2M |
| 21 | [redacted] | .255.35 | 8M | 8M |
| 22 | [redacted] | .4.8 | 60M | 60M |
| 23 | [redacted] | .250.250 | 40M | 40M |
| 24 | [redacted] | .5.160/30 | 10M | 10M |
| 25 | BOXTV | .5.204/30 | unlimited | unlimited |

Tells that the user traffic is less than the limit specified

Tells that the user traffic is about to reach the limit specified

Tells that the user traffic reach or exceed the limit specified

# QUEUES : END


Simple Queue
General
Advanced
Statistics
Traffic
Total
Total Statistics
OK
Cancel
Apply
Disable
Comment
Copy
Remove
Reset Counters
Reset All Counters
Torch
Target Upload
Target Download
Rate:
612.5 kbps
7.5 Mbps
Packet Rate:
249 p/s
821 p/s
Upload: 612.5 kbps
Download: 7.5 Mbps
Upload Packets: 249 p/s
Download Packets: 821 p/s
enabled

# CONCLUSION

MikroTik is  genial

## Questions & Answers