Practice Managing Internet Connection Campus Network Area (CAN)

With Firewall & Address List MikroTik Router

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Speaker Profile

- Studied Pasca Sarjana major of MIS, STMIK Nusa Mandiri, Jakarta.
- Have been working on campus Bina Sarana Informatika (BSI) since 2004.
- Lecturer in Computer Technic on BSI.
- IT Support & Maintenance on BSI.
- Using MikroTik Router OS since June 2010.

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CAN (Campus Area Network) Concept

"Computer network made up of an interconnection of local area networks (LAN's) within a limited geographical area".

- Terdiri dari interkoneksi jaringan area lokal (LAN) dalam wilayah geografis yang terbatas.
- Pengembangan jaringan LAN yang mencakup satu kampus yang lebih luas dan terintegrasi.

CAN (Campus Network) Concept

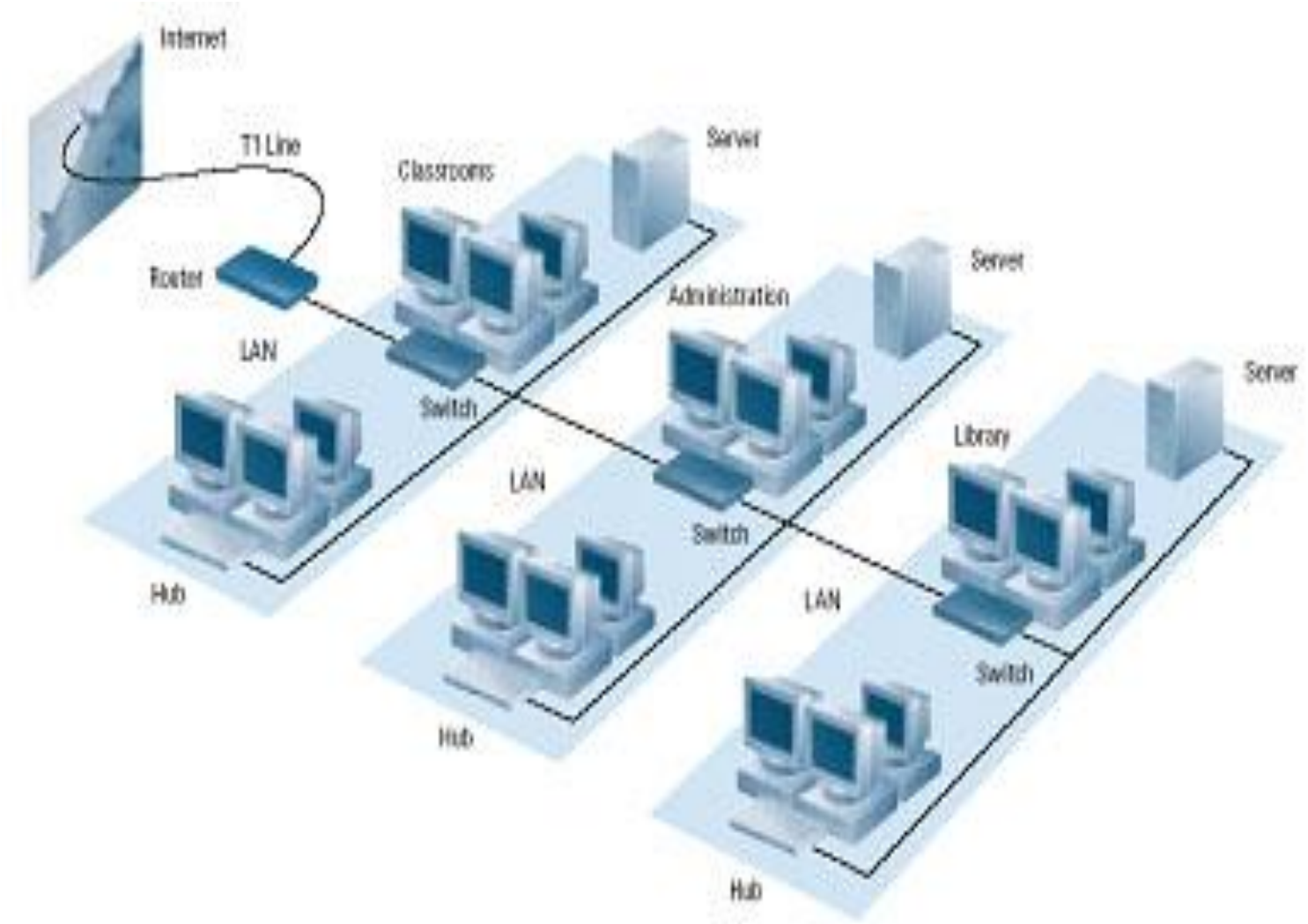
Universitas atau kampus yang berbasis networking dan memungkinkan untuk menghubungkan beberapa bangunan kampus seperti:

- Departemen / fakultas akademik.
- Perpustakaan (Library).
- Laboratorium (Lab).
- Branch (Cabang Kampus).

Characteristics of CAN

- Devices interconnected.
- Sharing of resources.
- Remote acces connection.
- Hotspot area.
- Ect.

Infrastructure Of CAN



Problem On Network Area Campus

- Troubled for maintenance.
- Free access for illegal site (porn ,sex, ect).
- Free streaming and downloading illegal video.
- Hacking the router.

How to Solve ?

Manage internet connection using ***Firewall for***:

- Drop illegal traffic.
- Restrict access to the network services.
- Protect local traffic.
- Limit access to the router with WB.

Targets

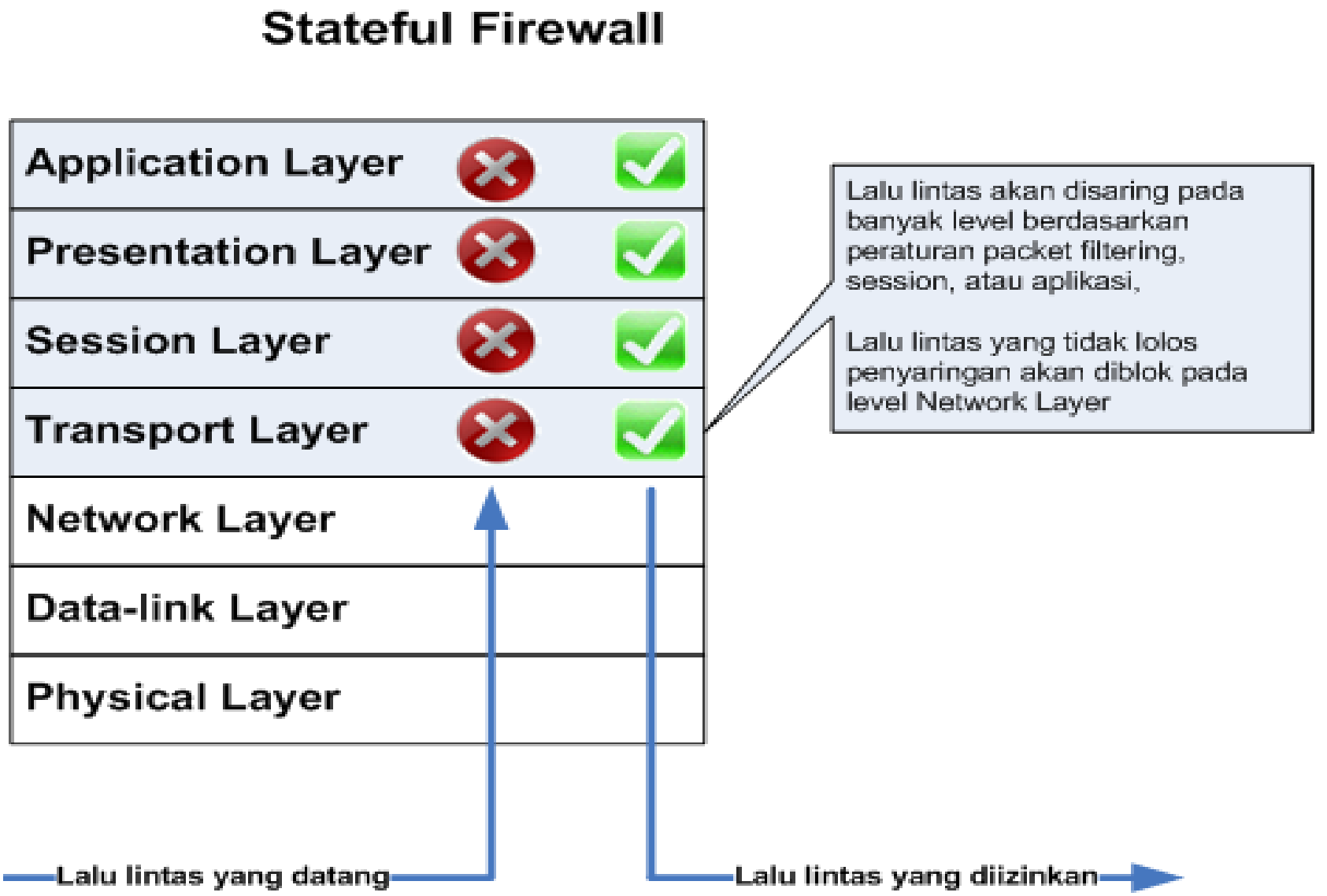
- Controlling Internet Traffic:
  - ✓Streaming and downloading.
  - ✓Social networking.
  - ➢Reducing internet bandwidth.
  - ➢Increasing router performance.
  - ➢“INSAN (Internet Sehat Dan Aman) Goes To Campus”.
  - ➢Supporting “Cloud Computing” technology.

Which firewall will be used?

MikroTik Firewall & Address List

- Easy to manage system.
- ✓ *Just 2 Action, enjoy your rule.*
- Fully optimizes your network usage.
- ✓ *Use stateful firewall.*

Stateful firewall

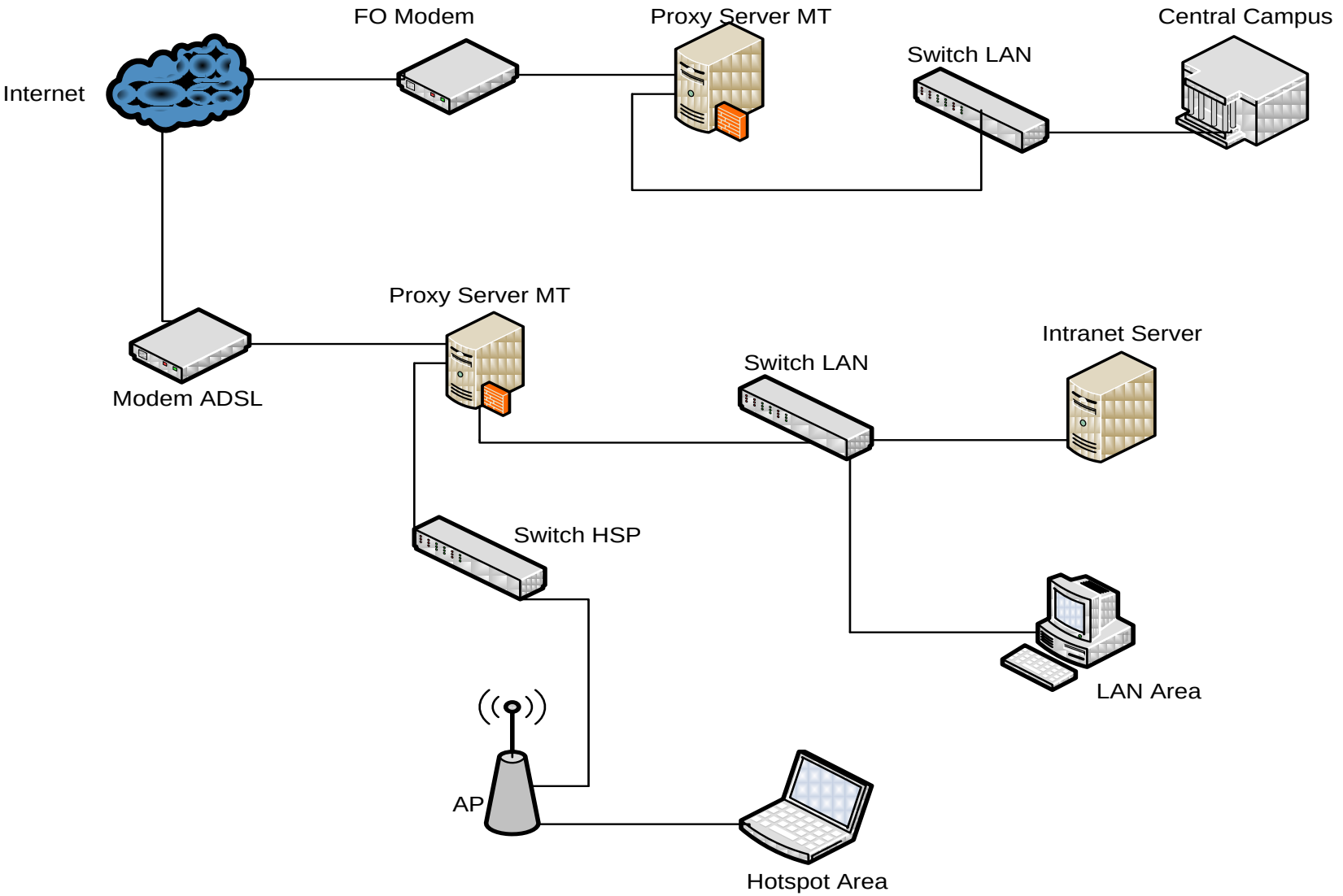


Address Lists

"Address lists was introduced to assign multiple IP addresses/ranges to the same firewall rule, in this way reducing the total number of firewall rules and increasing router performance"

"Address diperkenalkan untuk menetapkan beberapa alamat IP /range IP untuk aturan firewall yang sama, mengurangi banyaknya rule pada firewall, sehingga meningkatkan kinerja router".

Basic Network Topology



CAN (Campus Area Network)

Skenario IP Address

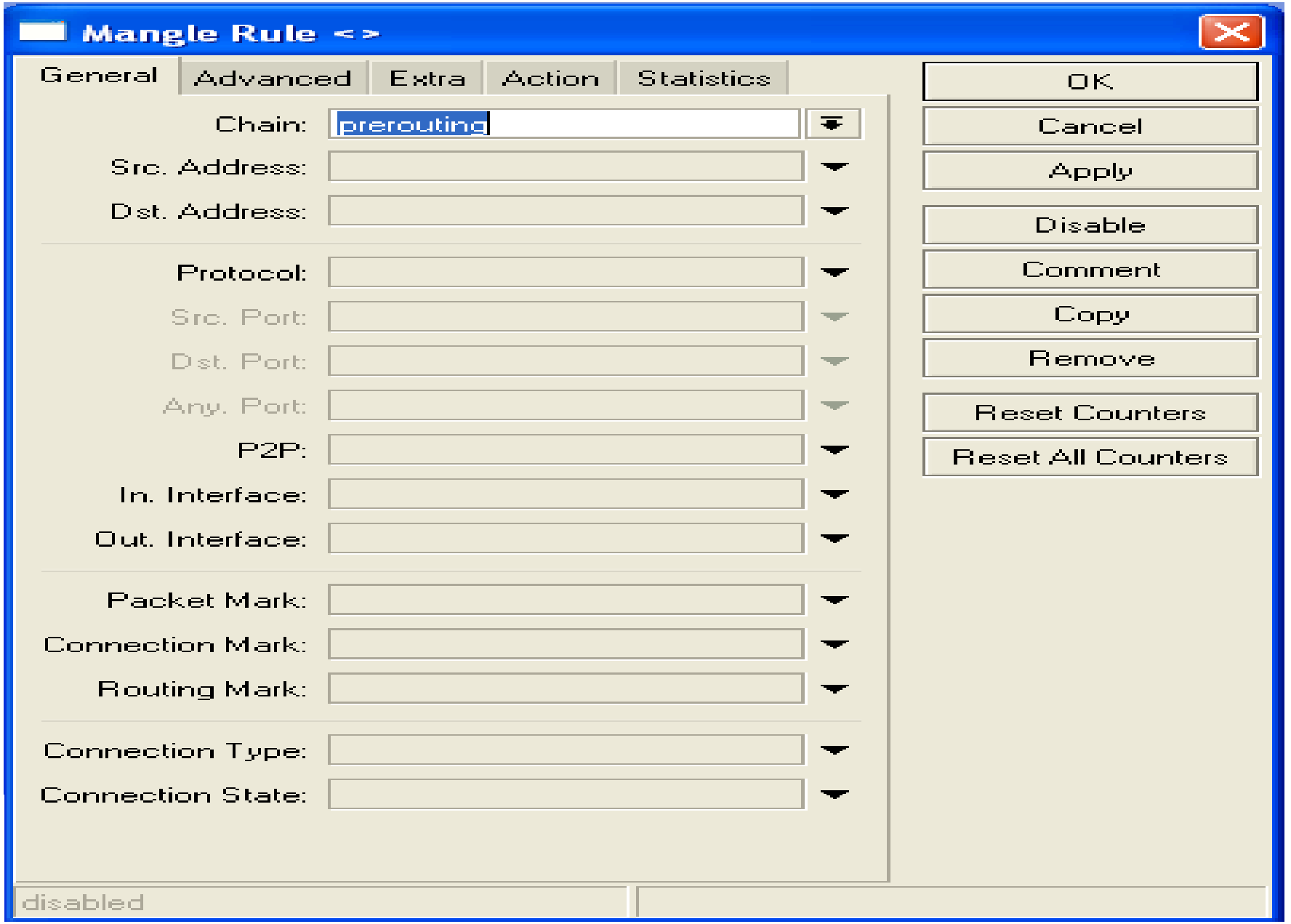
- Modem IP : (118.96.x.y)
- LAN IP : 172.16.x.0/22
- HSP IP : 10.10.y.0/24

Drop/Block site with Firewall MT using content.

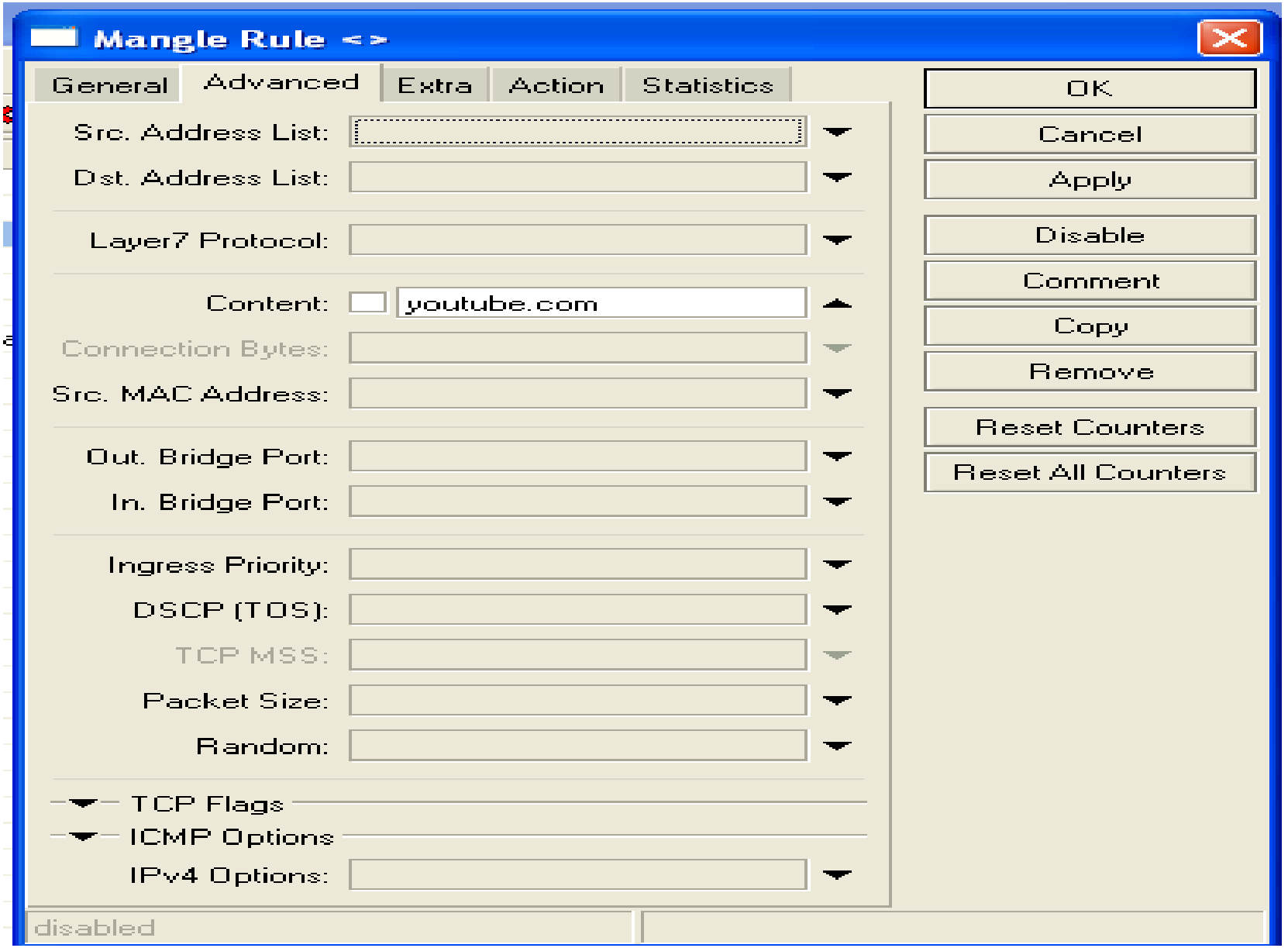
- ***Just 2 Action…***

1. ***Create Mangle.***
2. ***Drop / block with Firewall filter .***

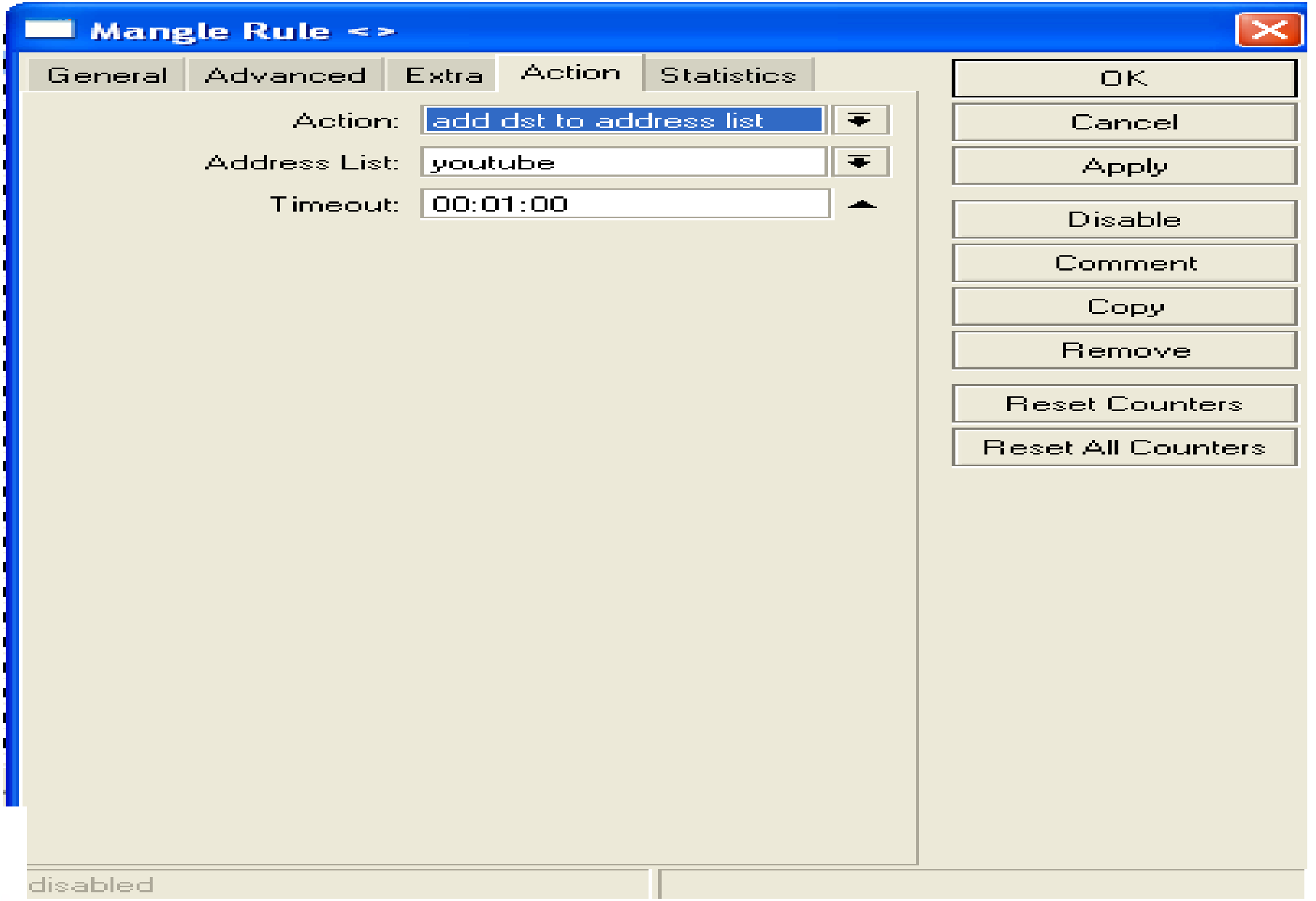
Mangle create for drop YT



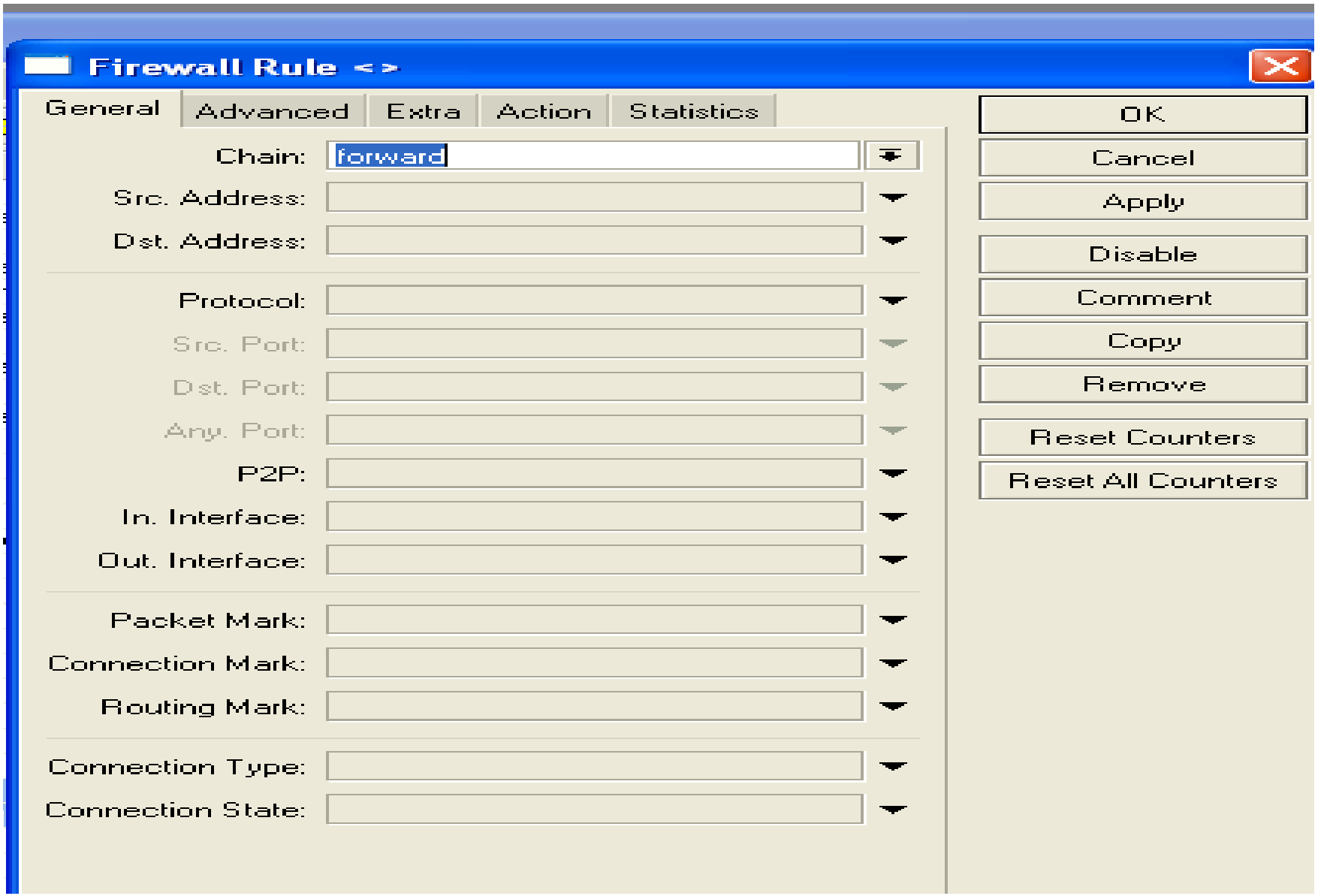
Block With Content



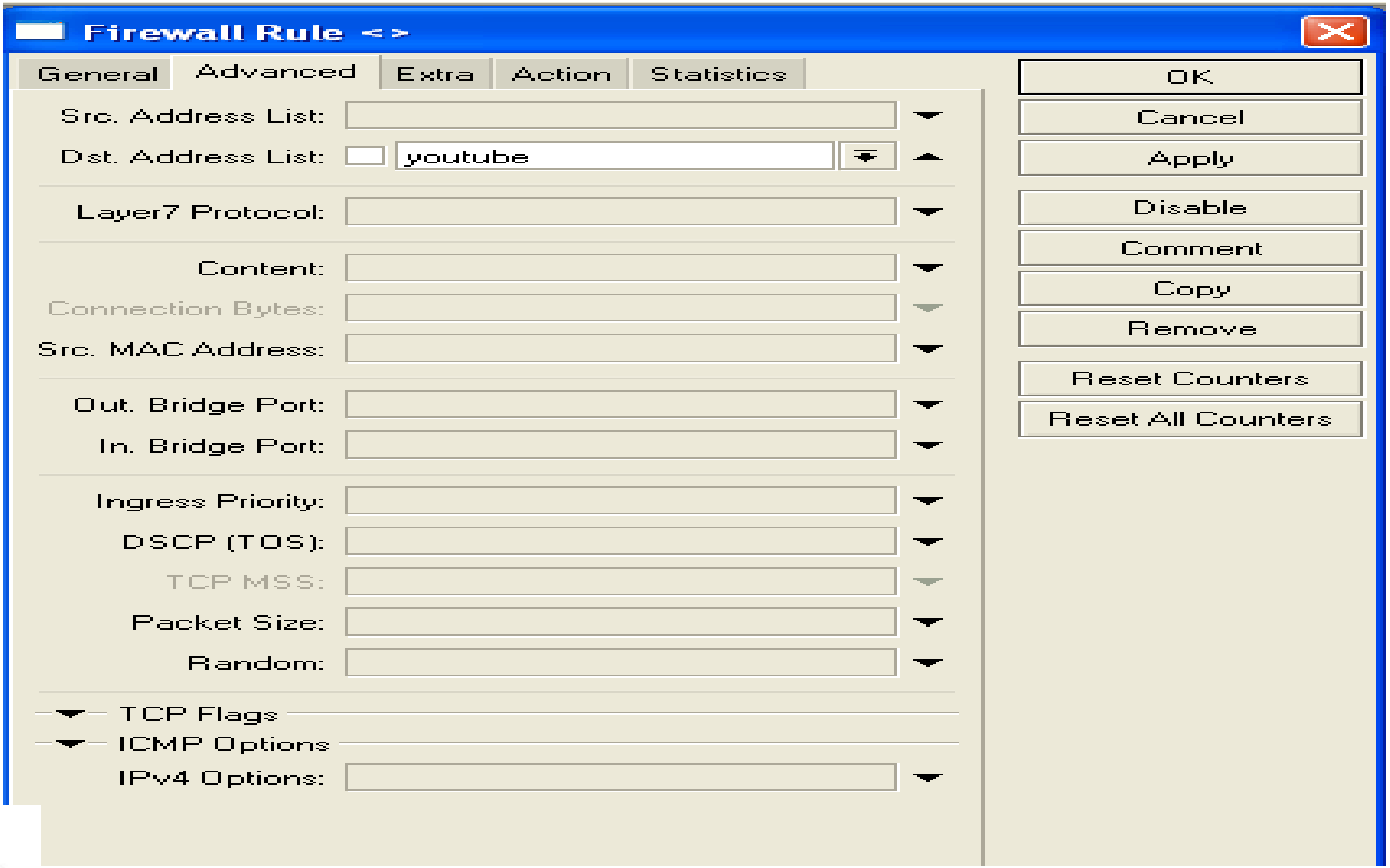
Action in mangle



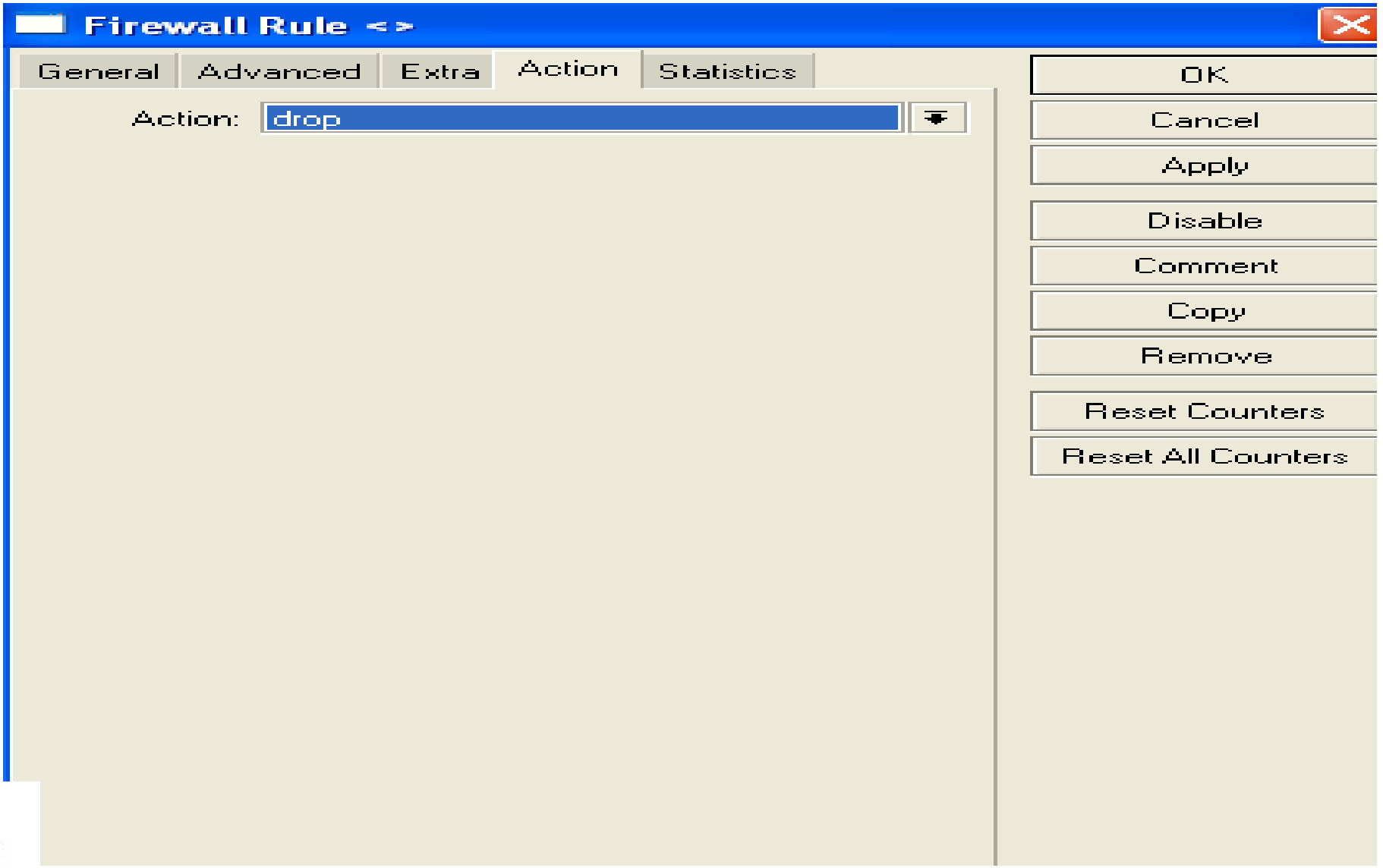
Filter rule for block YT



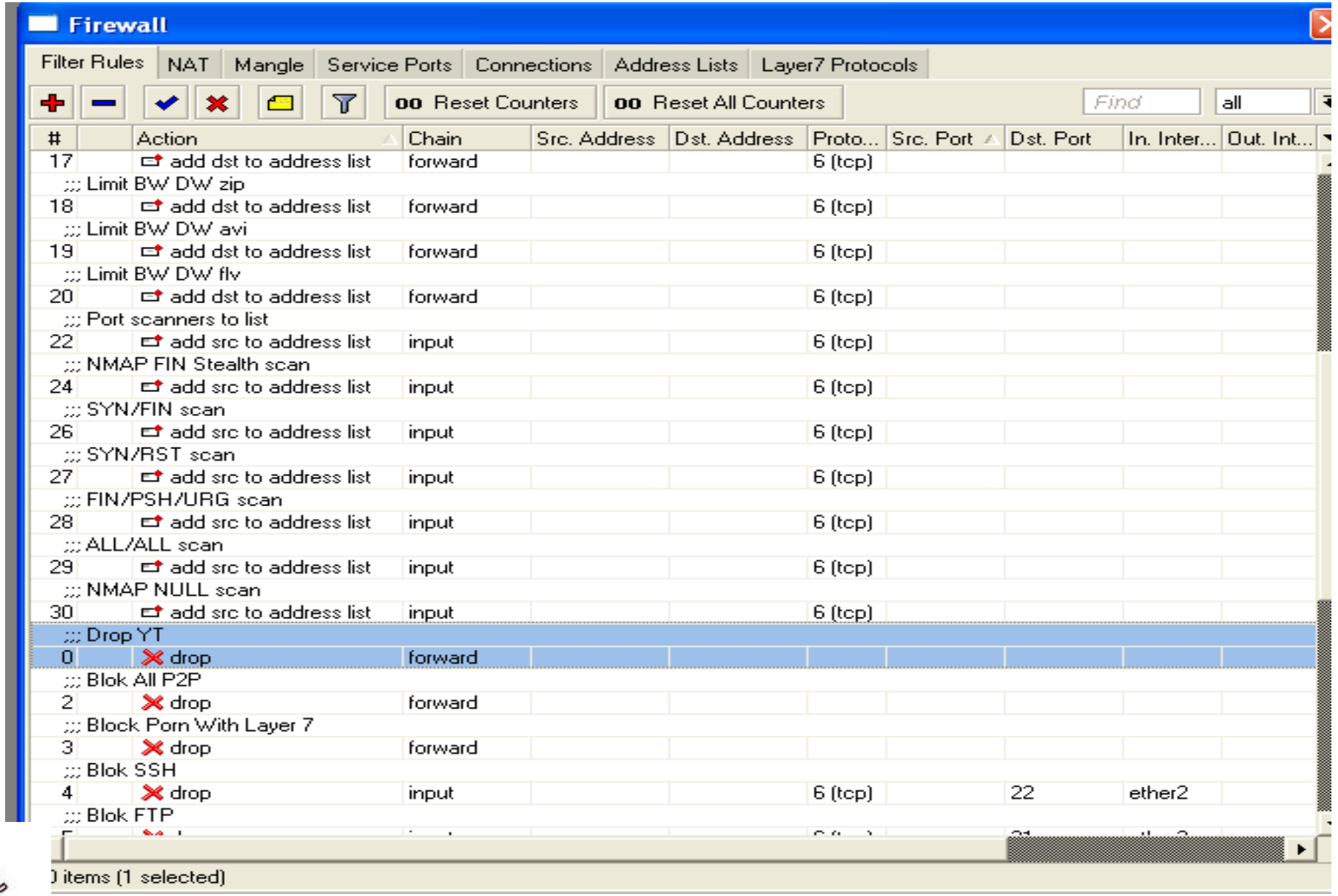
Destination address list



Action to drop youtube



Output Firewall filt rule

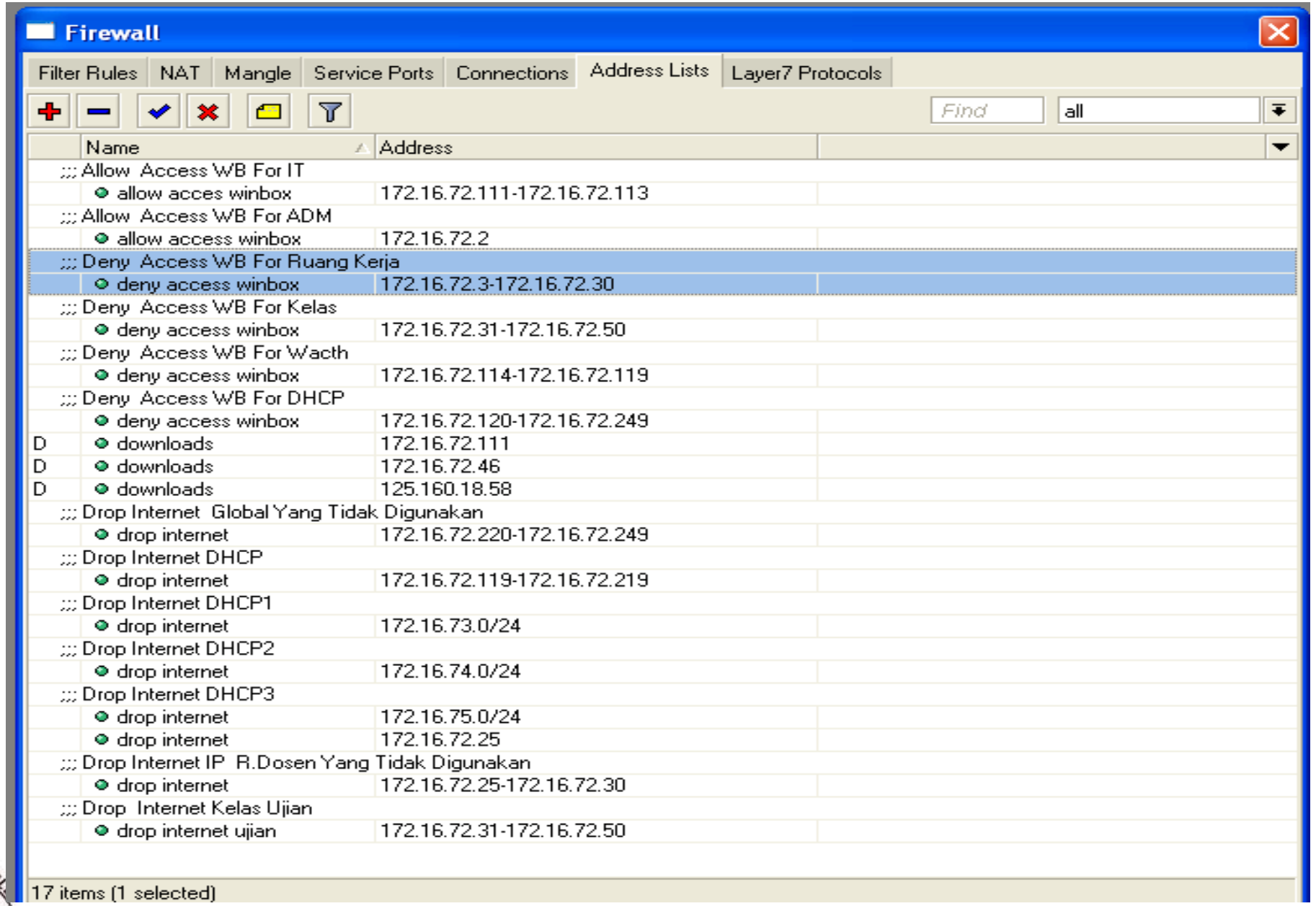


Drop/Block Acces WB With Address List

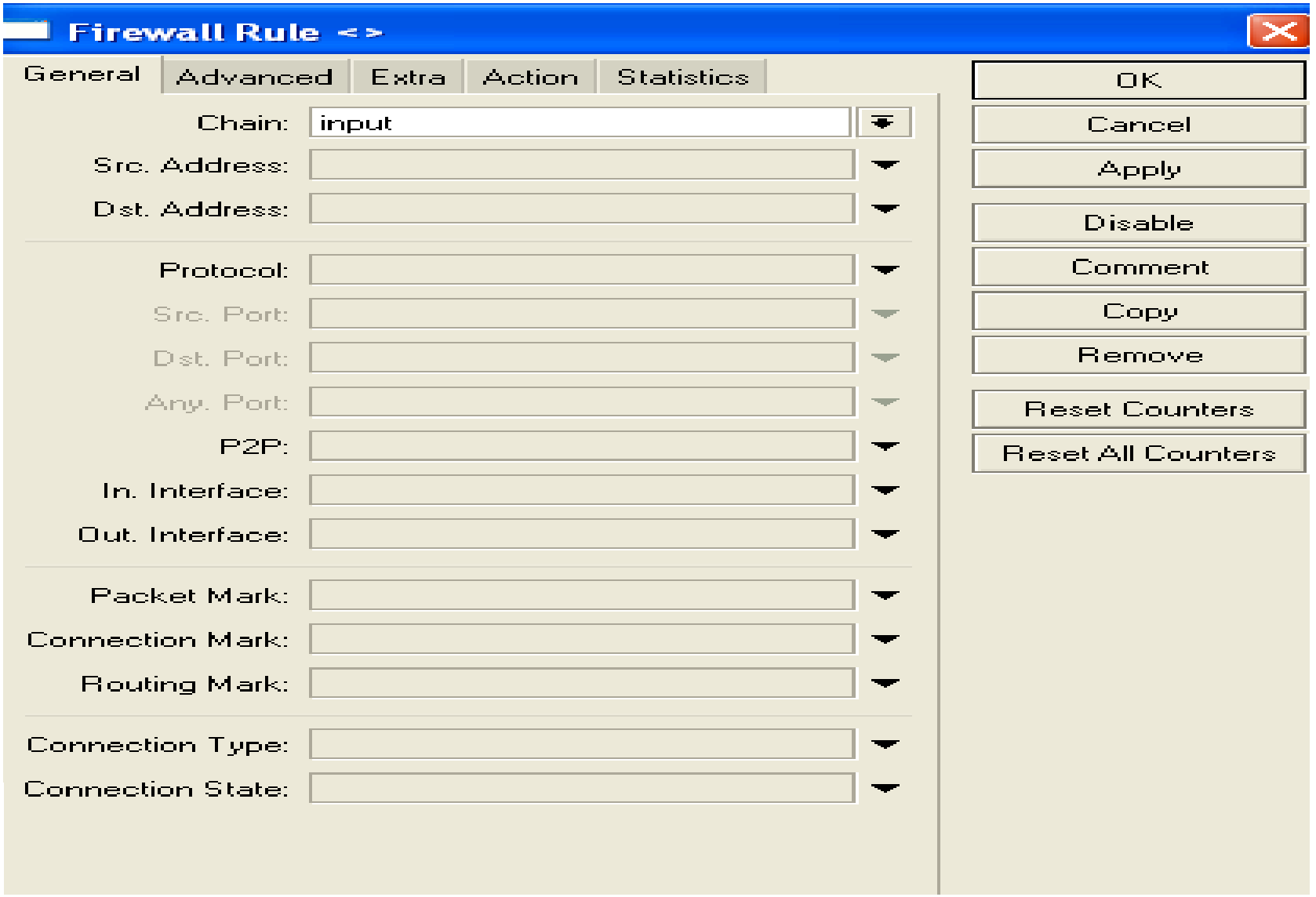
- ***Just 2 Action…***

1. ***Create Address list for block .***
2. ***Drop with Firewall filter .***

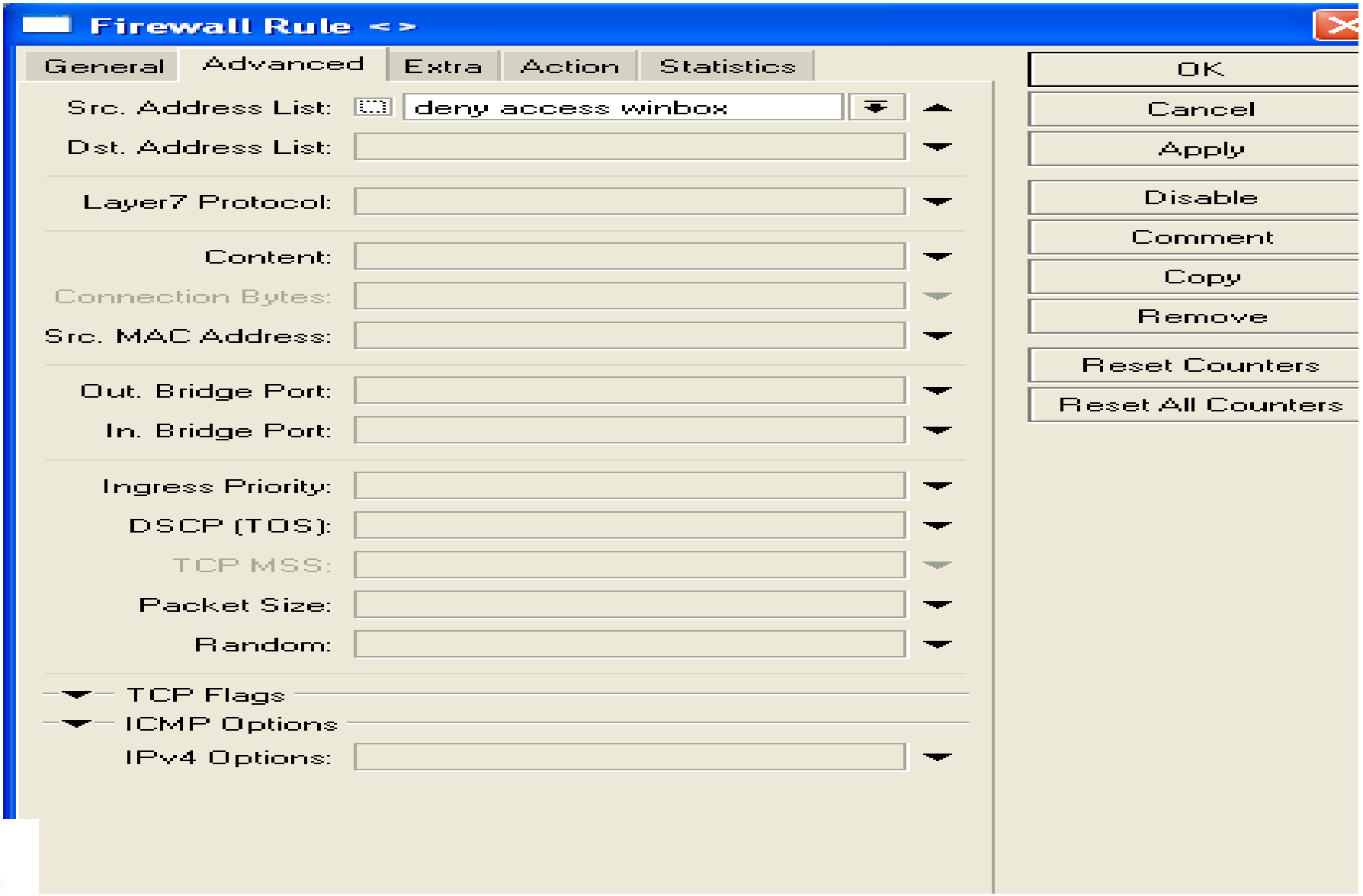
Address List



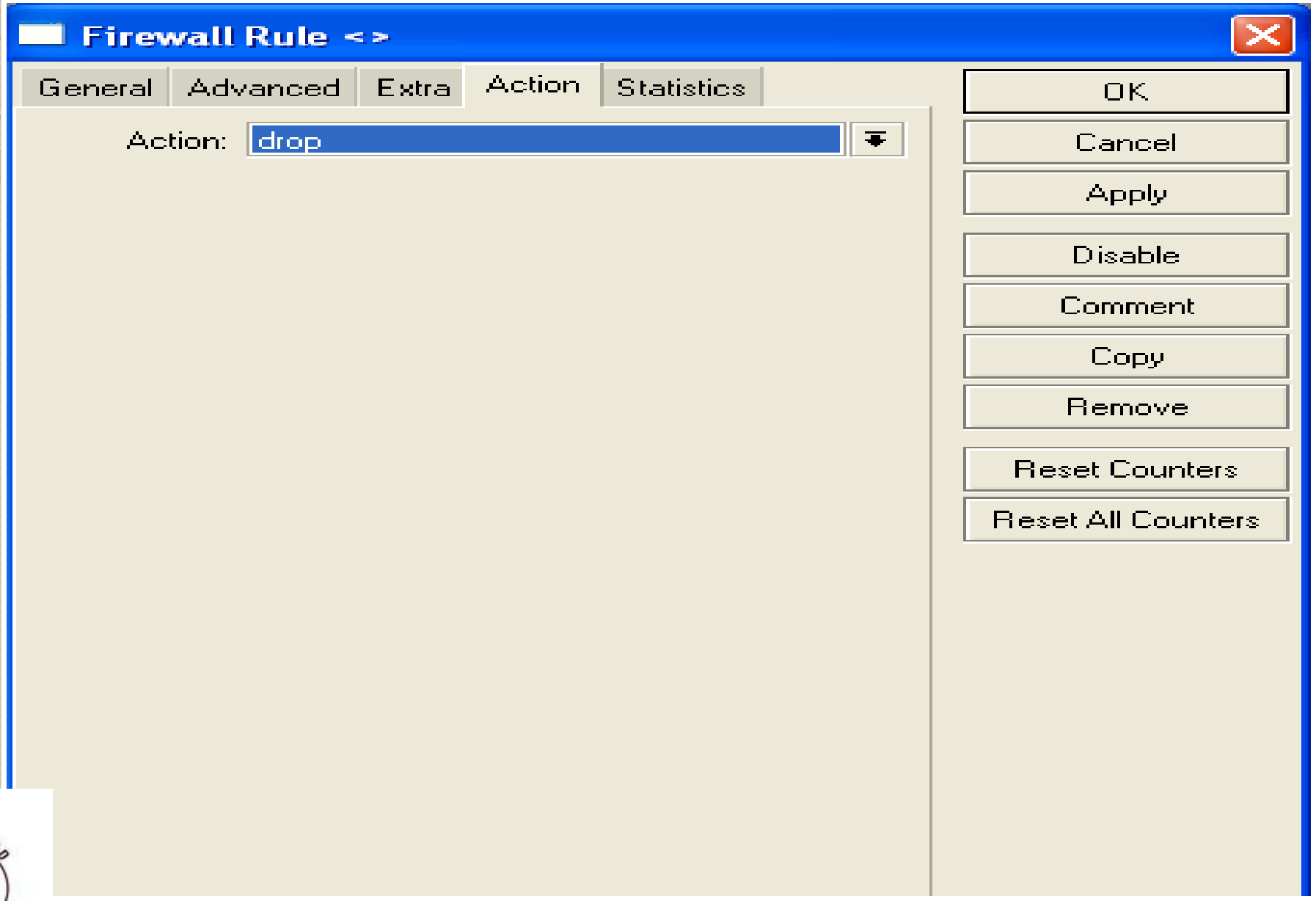
Create firewall filt for drop WB



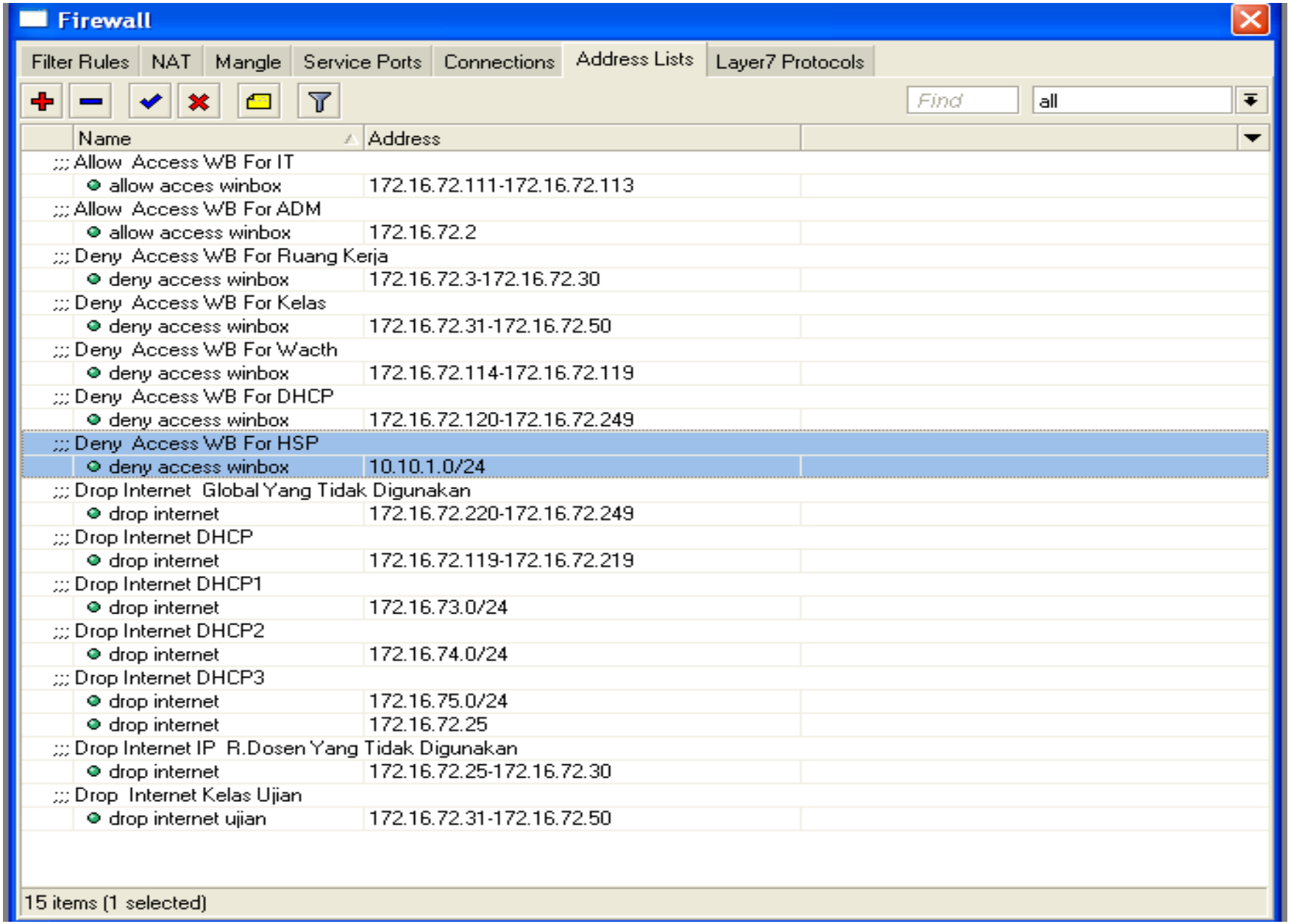
Address list “deny access winbox”



Drop access WB with firewall filt



Drop access WB from HSP



Conclusion

Mikrotik Firewall & address list, easy setup and configure.

- ✓MT Firewall is easy, simple, and practice to drop /block site (Just 2 Action, enjoy your blocking).
- ✓MT Firewall easy to protect router from ext and int network.
- ✓Another technic to block site with MT using WebProxy.

Reference

- http://www.mikrotik.com/testdocs/ros/3.0/refman3.0.pdf
- http://wiki.mikrotik.com/wiki/Dmitry_on_firewalling
- http://en.wikipedia.org/wiki/Green_computing
- http://en.wikipedia.org/wiki/Computer_network#Campus_network