

FlashStart+MikroTik

Internet Protection with DNS Filtering

FlashStart[®]
INTERNET PROTECTION



About the Trainer

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- MikroTik Certified Trainer
- MTCNA, MTCRE, MTCINE, MTCWE, MTCTCE, MTCUME, MTCIPv6, MTCSE, MTC SWE, MTCEWE
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YouTube

Marco Boschini Corsi MikroTik

<https://www.youtube.com/corsimikrotik>

Marco Boschini Corsi MikroTik
@corsimikrotik · 599 iscritti · 56 video
Impara ad utilizzare i router MikroTik con Marco Boschini >
corsimikrotik.it
Iscriviti

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Più recenti Popolari Meno recenti

- MIKROTIK WIREGUARD**
VPN Mikrotik Wireguard site-to-site con routing dinamico BGP. Introduzione a BGP...
9:59
106 visualizzazioni · 14 ore fa
- MIKROTIK WIREGUARD**
Come configurare una VPN tra due sedi con MikroTik Wireguard.
CONFIGURAZIONE SITE-TO-SITE
11:03
173 visualizzazioni · 1 giorno fa
- VIDEORISPOSTA**
Videorisposta: domanda VLAN con MikroTik.
DOMANDA SU VLAN
10:22
133 visualizzazioni · 2 giorni fa
- DHCP CLIENT**
Come configurare DHCP Client e default route! Corso ZeroMikroTik e MikroTik...
COME CONFIGURARE DHCP CLIENT E DEFAULT ROUTE
13:19
63 visualizzazioni · 3 giorni fa

Telegram

Corsi MikroTik

t.me/corsimikrotik



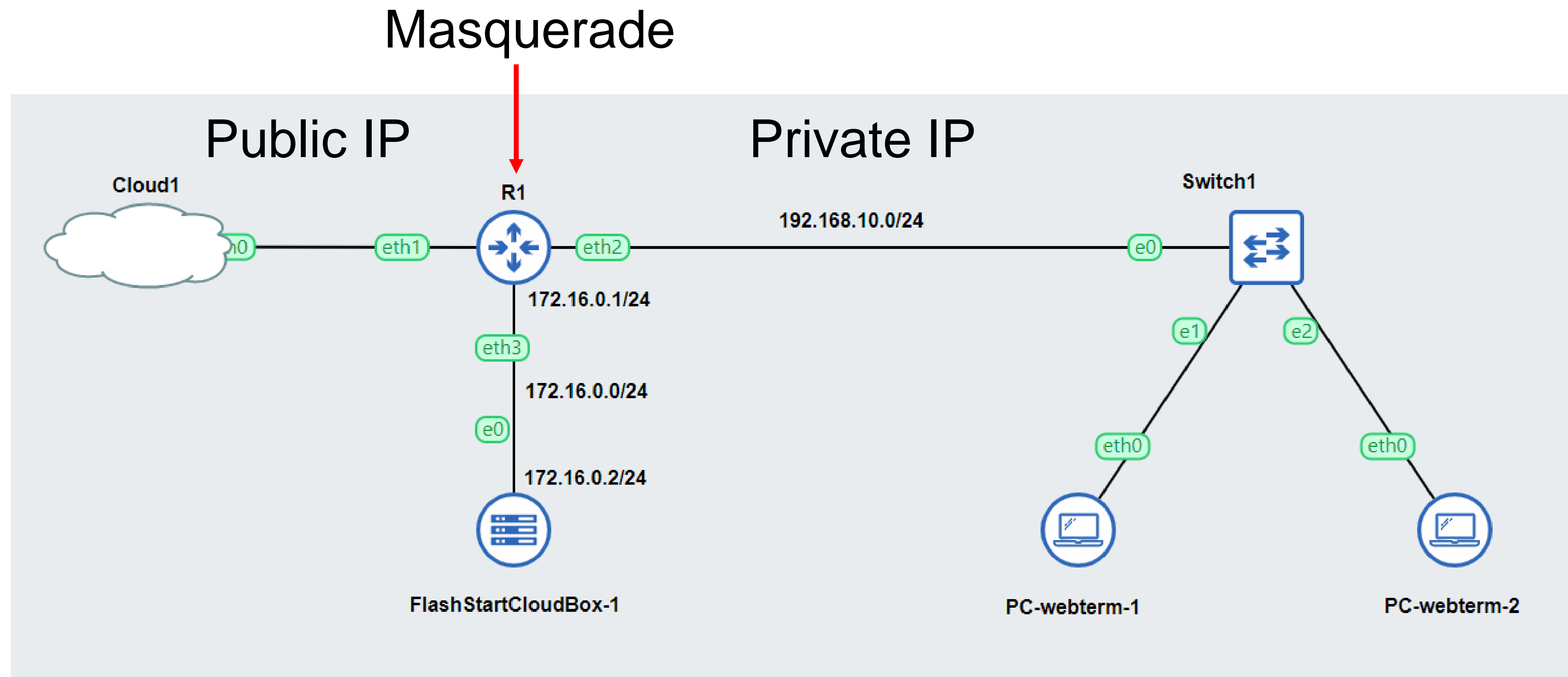
Canale Corsi MikroTik



Goals

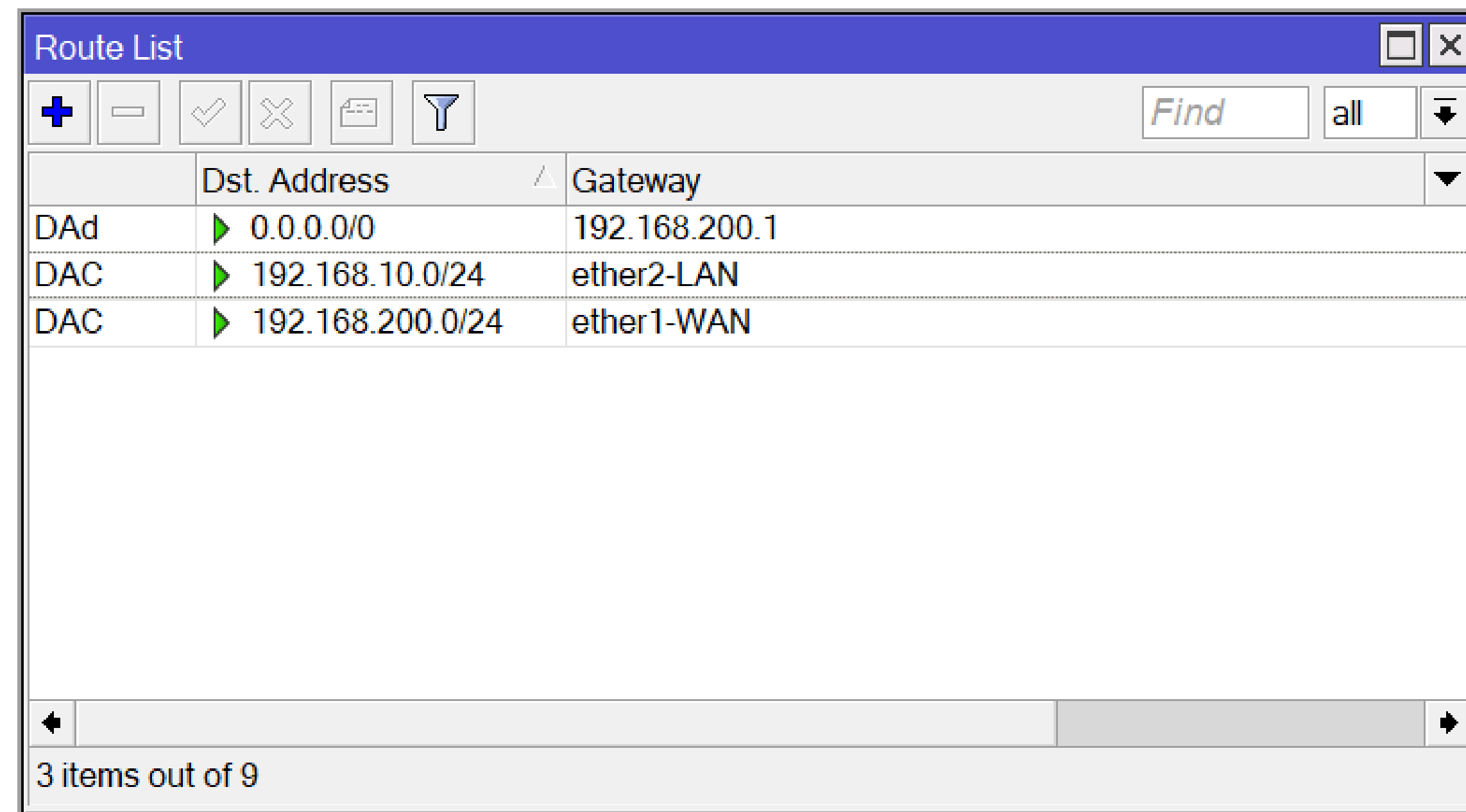
- Understand how a router works
- Understand how a PC can communicate on the internet
- Understand what DNS is for
- Understand how a DHCP Server works
- Understand how to capture a DNS request from your LAN

How a router works



Routing

- Routing uses IP addresses, not site names (e.g. google.com)

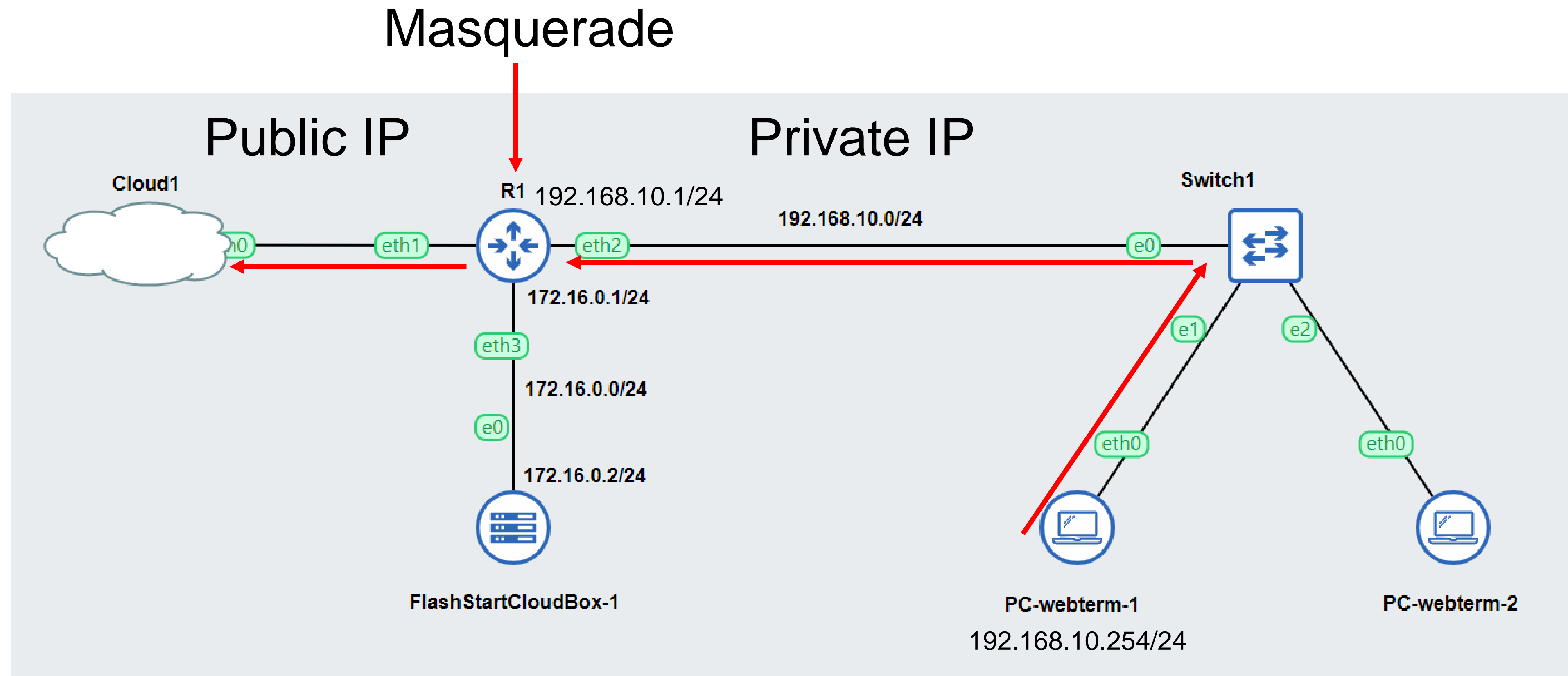


The screenshot shows the 'Route List' window in Mikrotik WinBox. The window title is 'Route List'. It contains a toolbar with icons for adding (+), deleting (-), checking (✓), unchecking (✗), refreshing (refresh), and filtering (funnel). There is a search bar with the text 'Find' and a dropdown menu showing 'all'. Below the toolbar is a table with three columns: 'Dst. Address', 'Gateway', and an empty column. The table contains three rows of data:

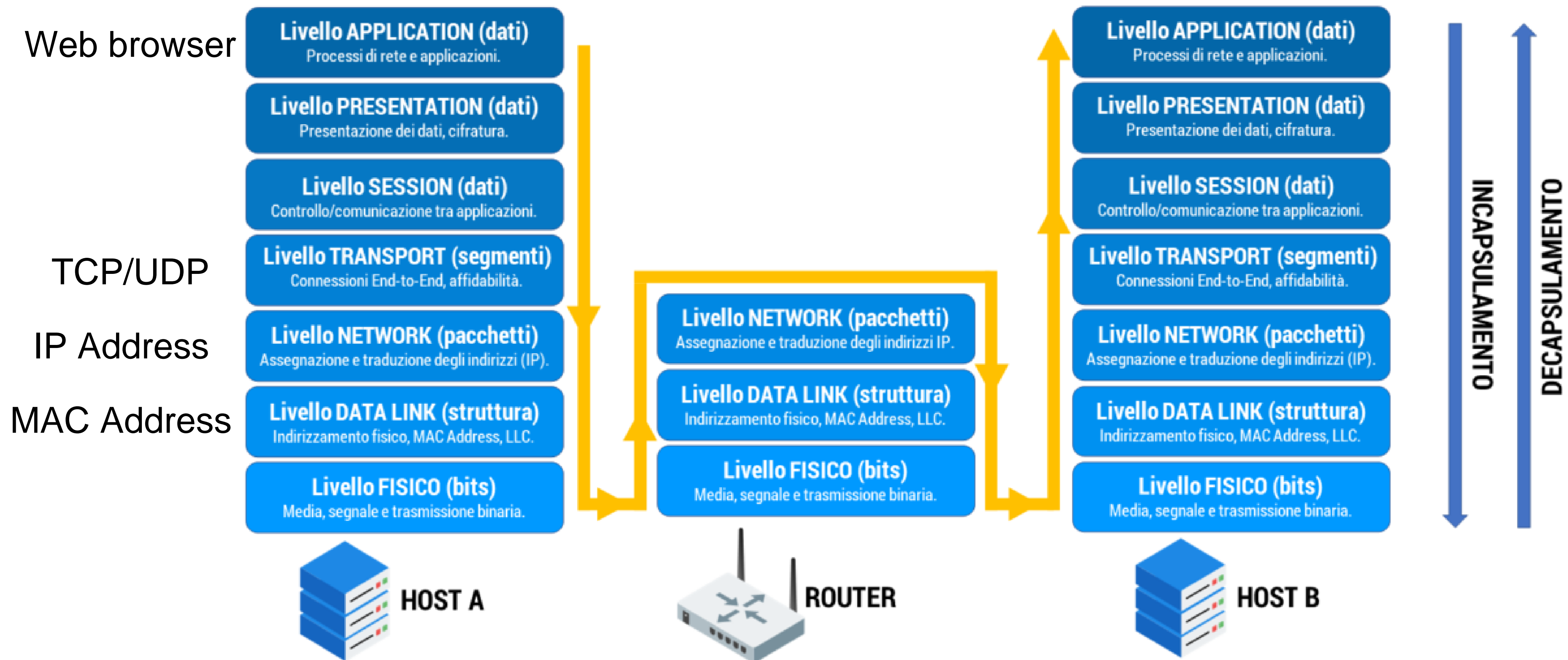
| | Dst. Address | Gateway | |
|-----|--------------------|---------------|--|
| DAd | ▶ 0.0.0.0/0 | 192.168.200.1 | |
| DAC | ▶ 192.168.10.0/24 | ether2-LAN | |
| DAC | ▶ 192.168.200.0/24 | ether1-WAN | |

At the bottom of the window, there is a status bar that reads '3 items out of 9'.

How a PC can communicate on the internet



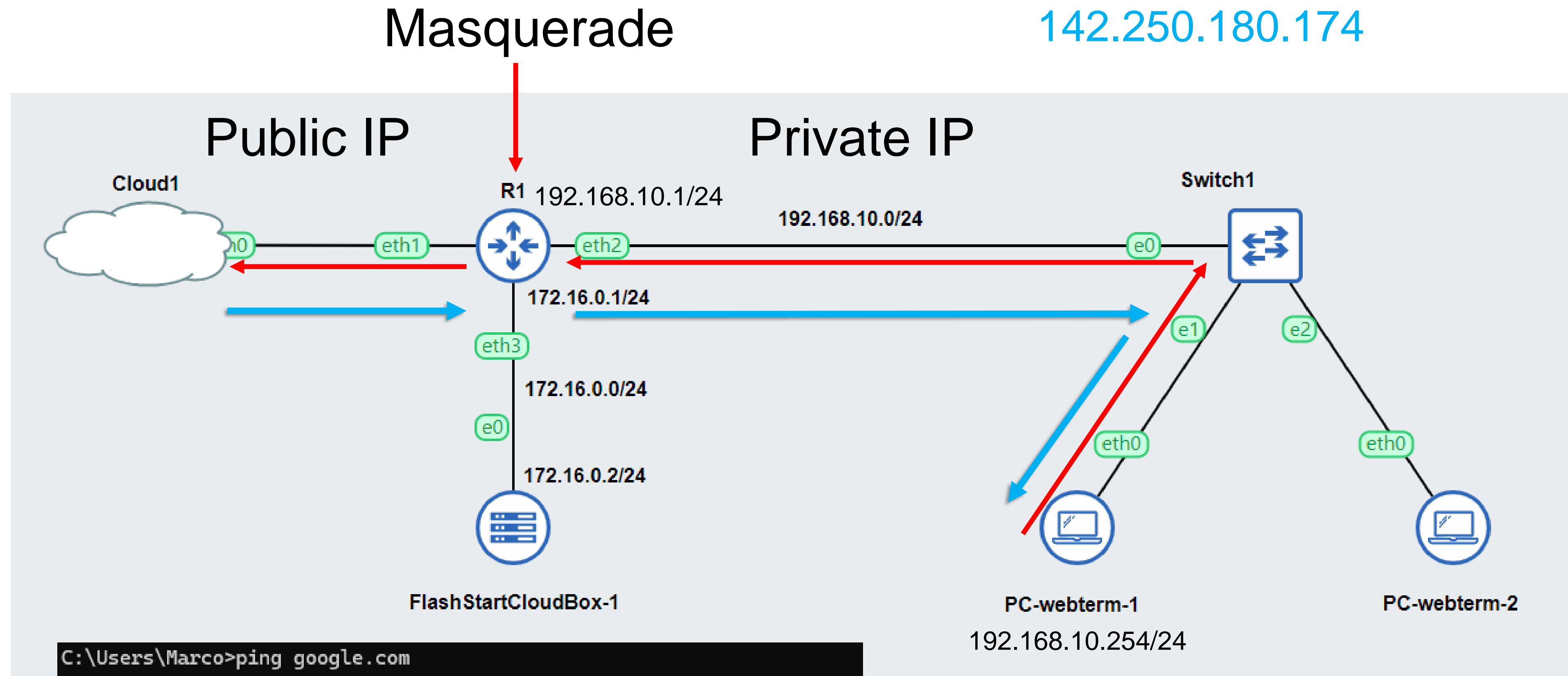
Routing



DNS

What is the IP Address of
www.google.com?

The IP Address is
142.250.180.174



```
C:\Users\Marco>ping google.com  
Esecuzione di Ping google.com [142.250.180.174] con 32 byte di dati:  
Risposta da 142.250.180.174: byte=32 durata=4ms TTL=118  
Risposta da 142.250.180.174: byte=32 durata=4ms TTL=118
```

Default route 0.0.0.0/0
gateway=192.168.10.1

How a DHCP Server works

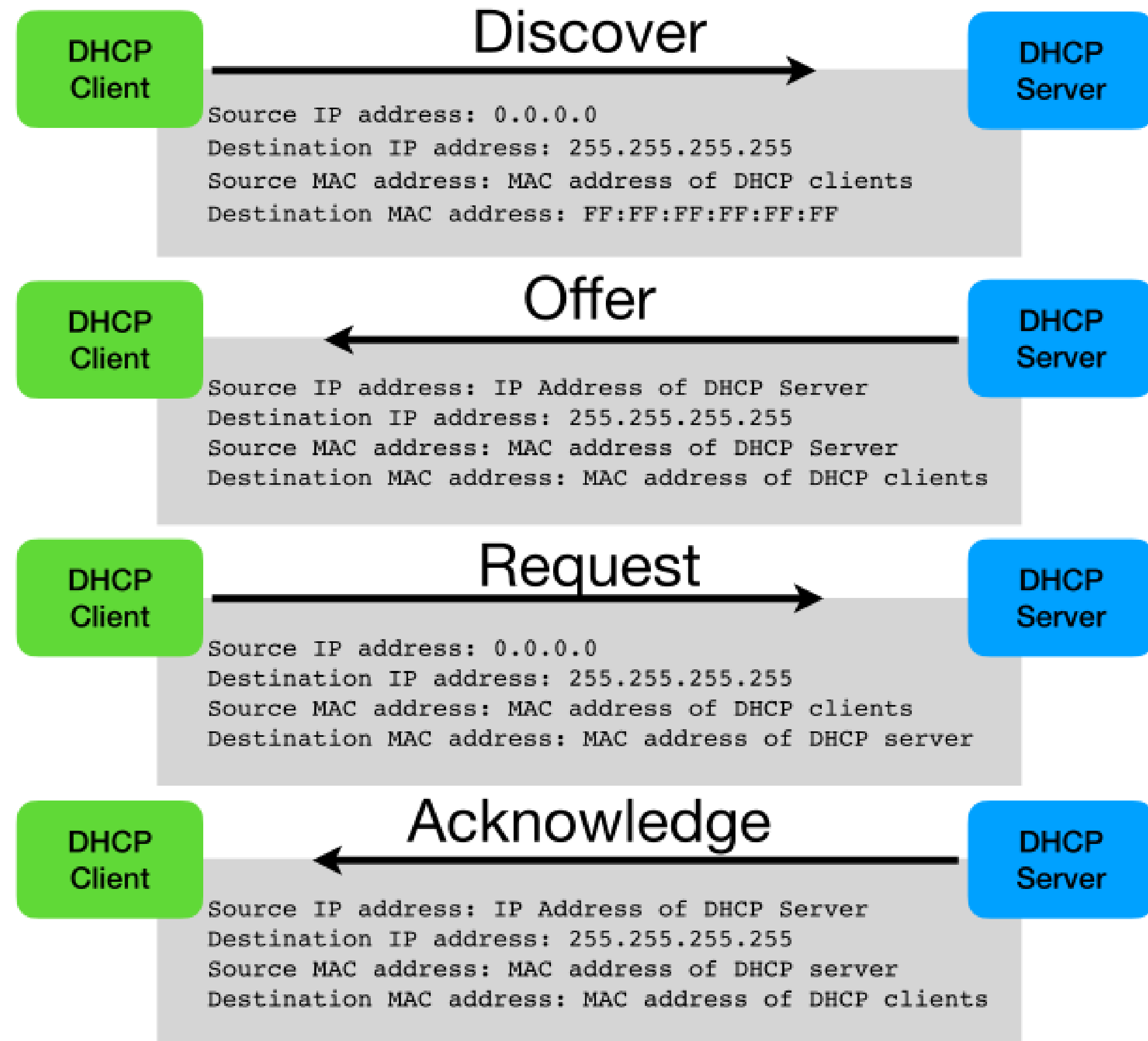
- Devices in a LAN can receive IP address, subnet mask, gateway and DNS from DHCP Server

The screenshot displays the Mikrotik WinBox DHCP configuration interface. At the top, there are tabs for DHCP, Networks, Leases, Options, Option Sets, Option Matcher, and Alerts. Below the tabs is a table with columns for Address, Gateway, DNS Servers, Domain, WINS Servers, and Next Server. The table contains one entry: Address 192.168.10.0/24, Gateway 192.168.10.1, and DNS Servers 8.8.8.8. Two dialog boxes are open. The 'DHCP Server <dhcp1>' dialog has tabs for General, Queues, and Script. The 'General' tab shows fields for Name (dhcp1), Interface (ether2-LAN), Relay, Lease Time (00:30:00), Bootp Lease Time (forever), Address Pool (dhcp_pool0), DHCP Option Set, Server Address, Delay Threshold, Authoritative (yes), and Bootp Support (static). The 'DHCP Network <192.168.10.0/24>' dialog has fields for Address (192.168.10.0/24), Gateway (192.168.10.1), Netmask, No DNS checkbox, DNS Servers (8.8.8.8), Domain, WINS Servers, NTP Servers, CAPS Managers, Next Server, Boot File Name, and DHCP Options. A red arrow points from the text on the right to the 'DNS Servers' field in the network dialog.

You can send the DNS IP Address to the clients

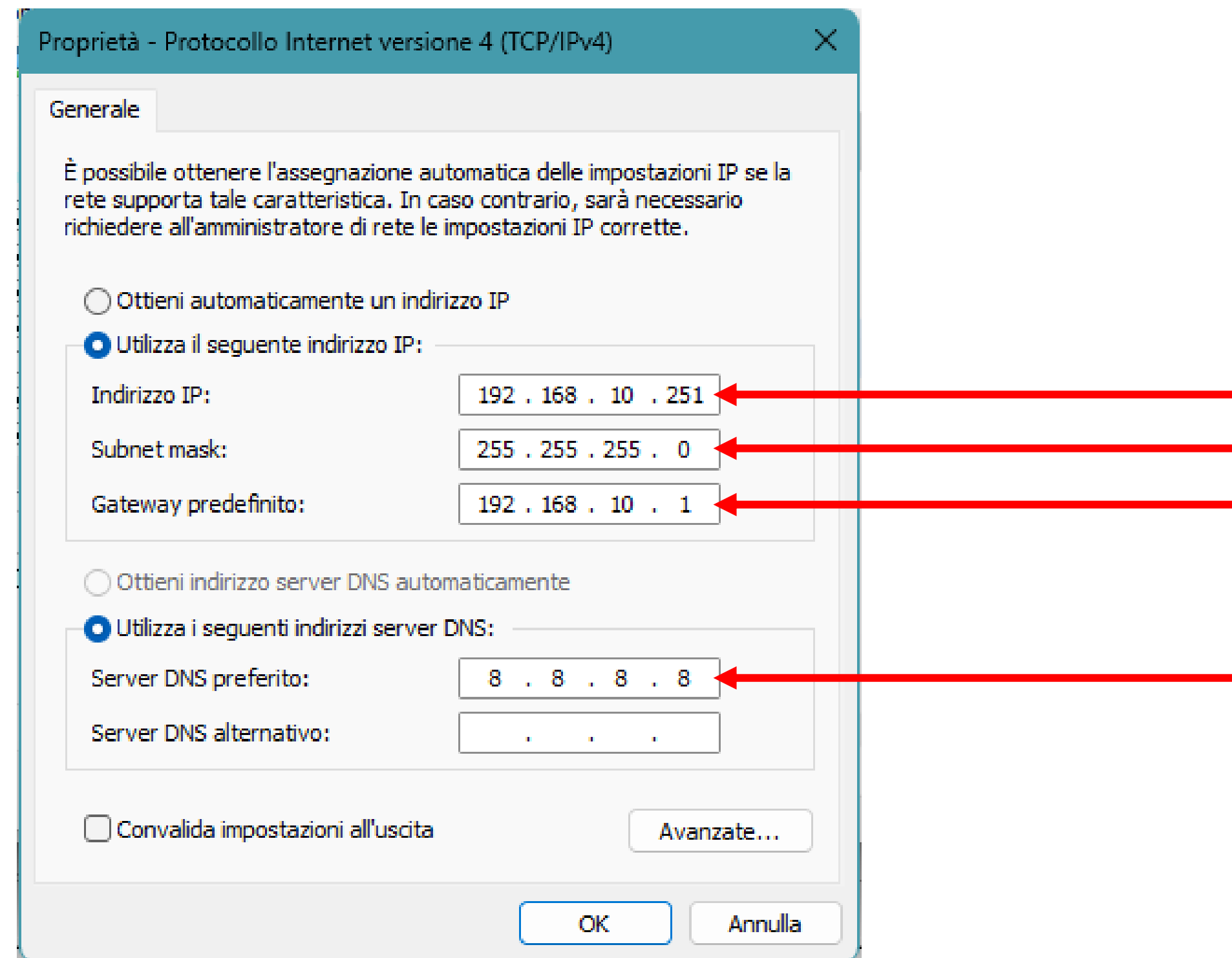
How a DHCP Server works

- DORA Process
- Discover
- Offer
- Request
- Acknowledge



How a PC can communicate on the internet

- A device in a LAN can set parameters manually



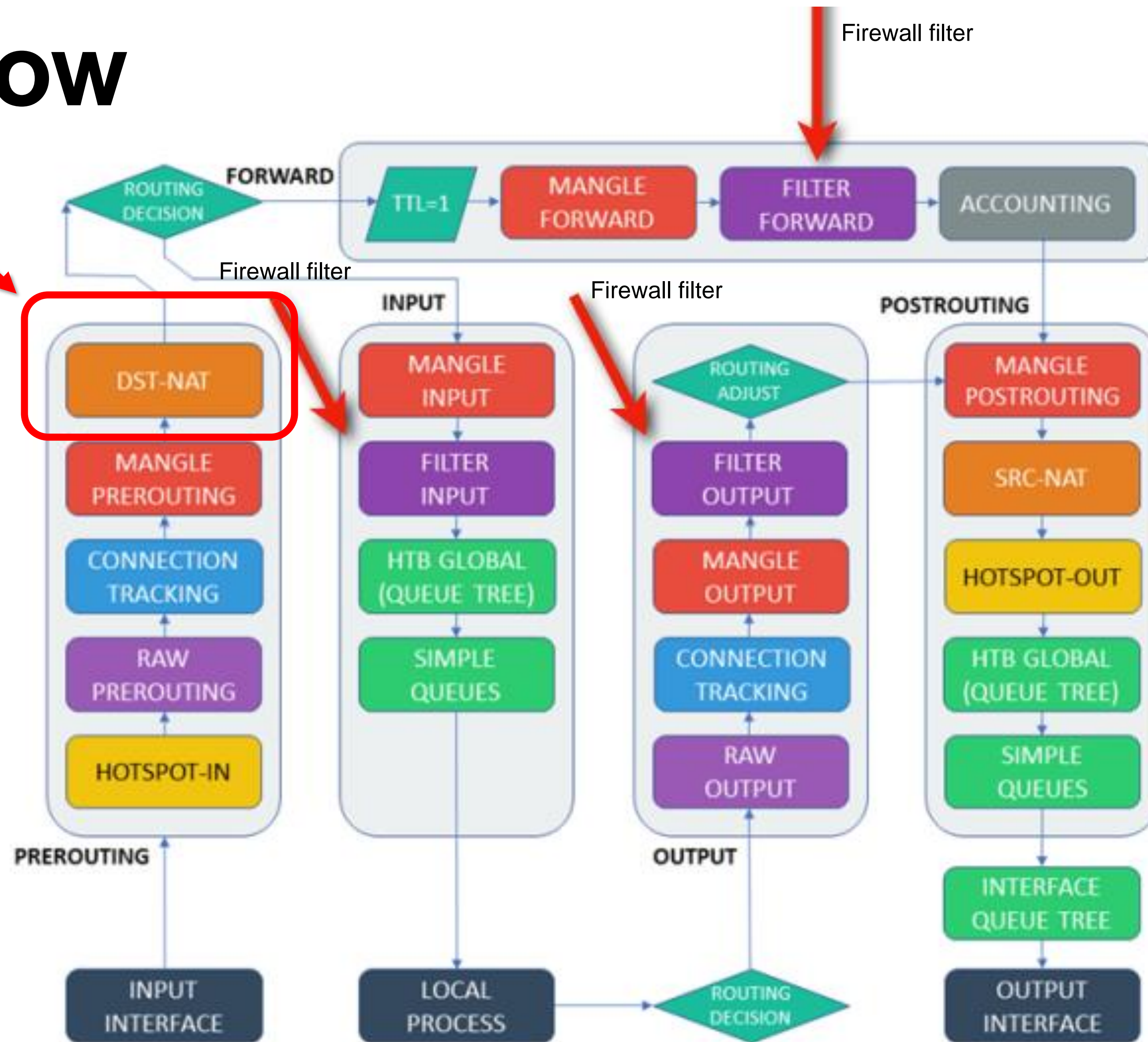
How to capture a DNS requests from your LAN

- DNS requests are transmitted using the UDP port 53 protocol, and protocol TCP port 53 if the size of the request exceed the 512 bytes.
- You can change the destination IP address of this packets and send the DNS request to FlashStart DNS Server (e.g. 185.236.104.104).
- FlashStart respond with the correct IP address only for the request that are permitted
- FlashStart respond with a “block” IP address if the request is intended for a prohibited or malicious site.

Packet Flow

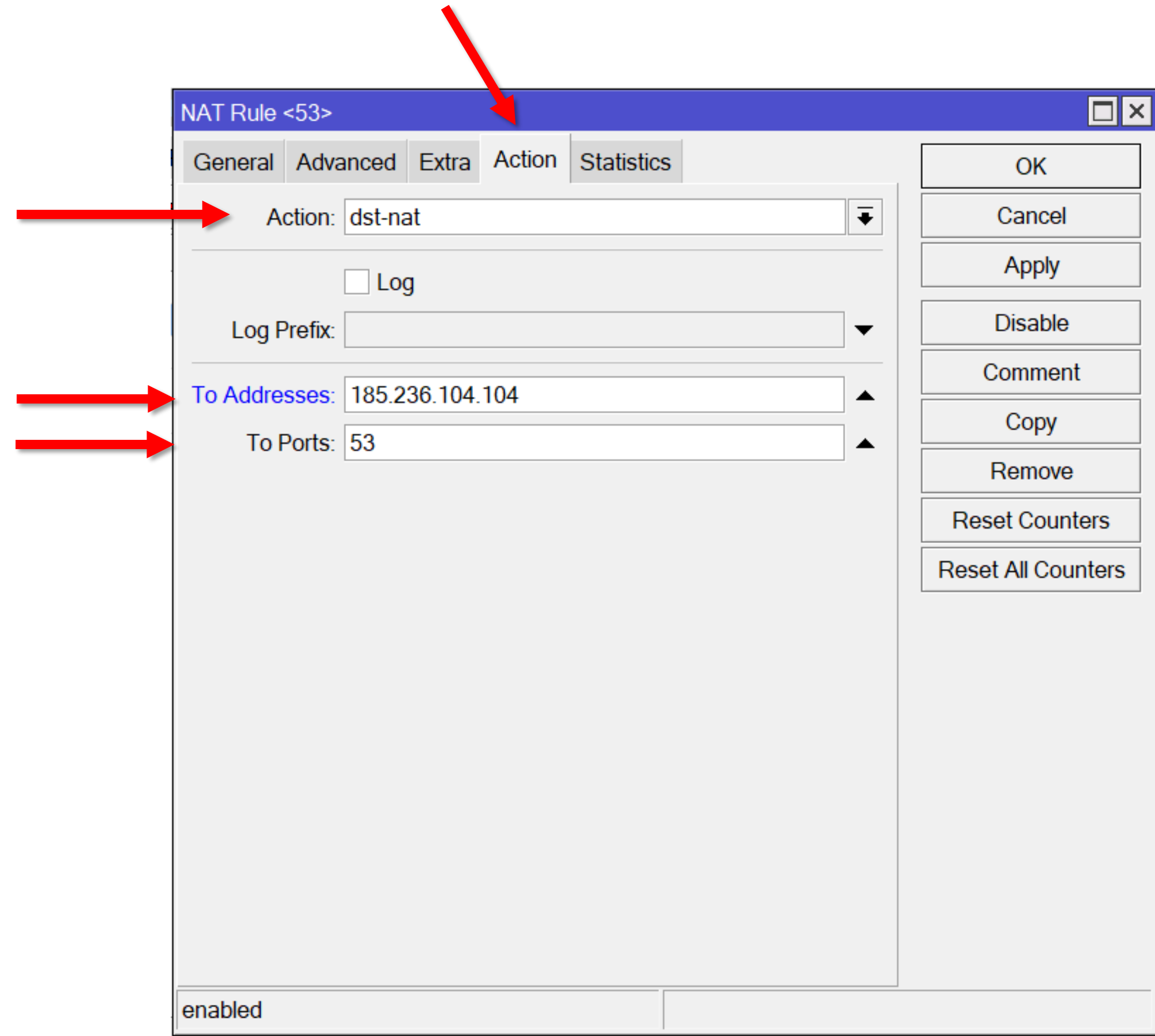
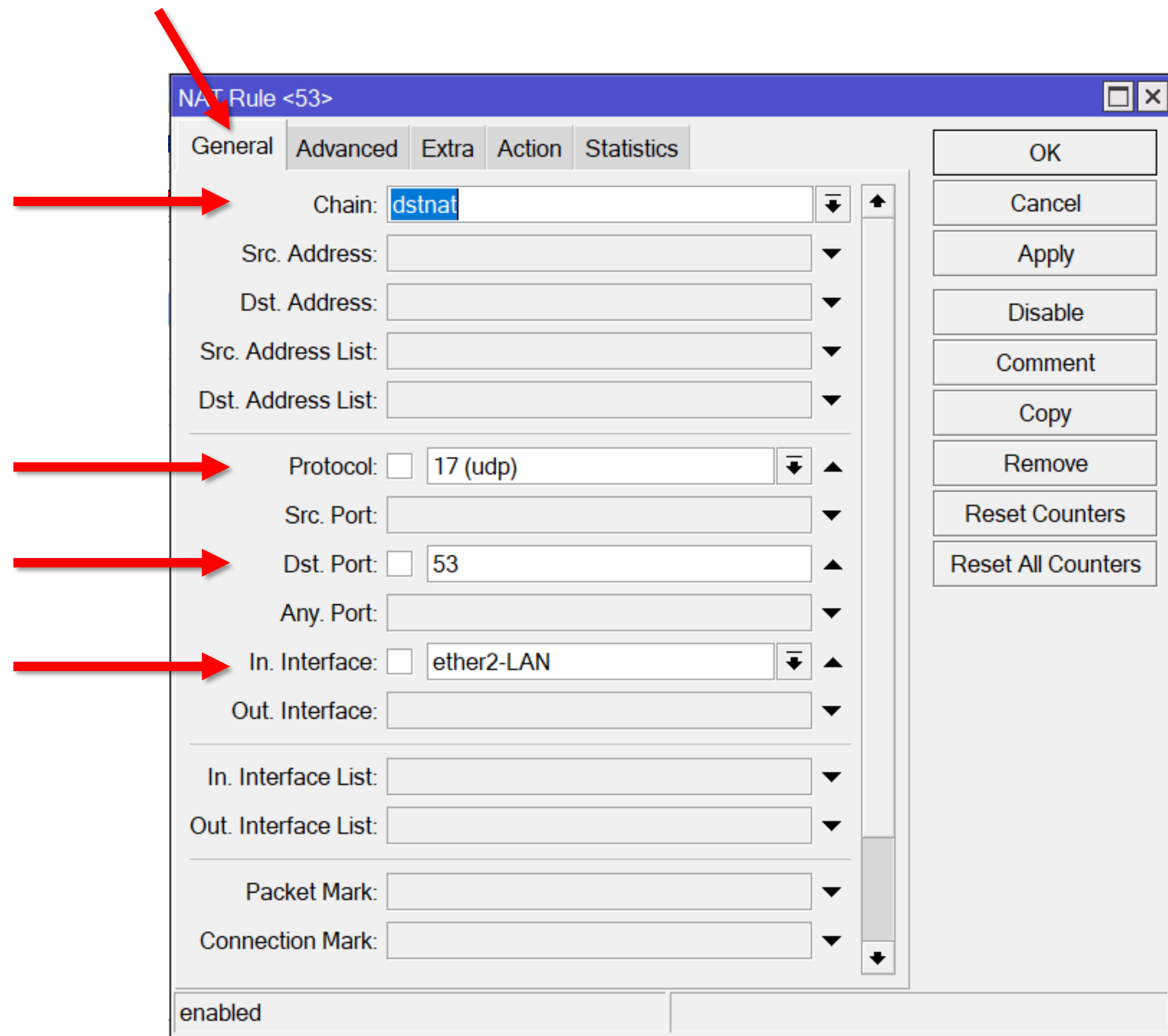
Here you can change the destination IP Address

Src 192.168.88.254
 Dst ~~8.8.8.8~~
 Dst 185.236.104.104



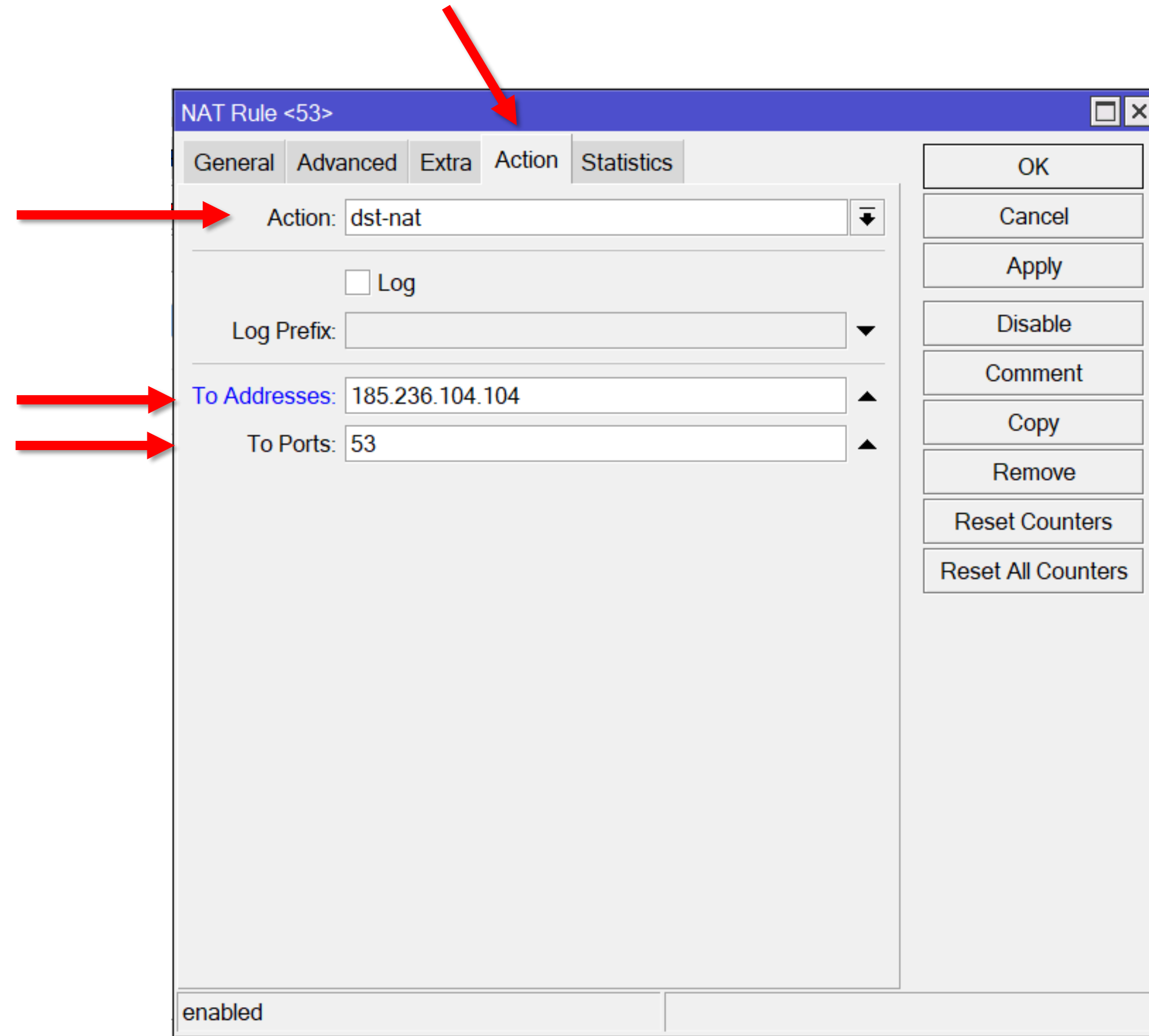
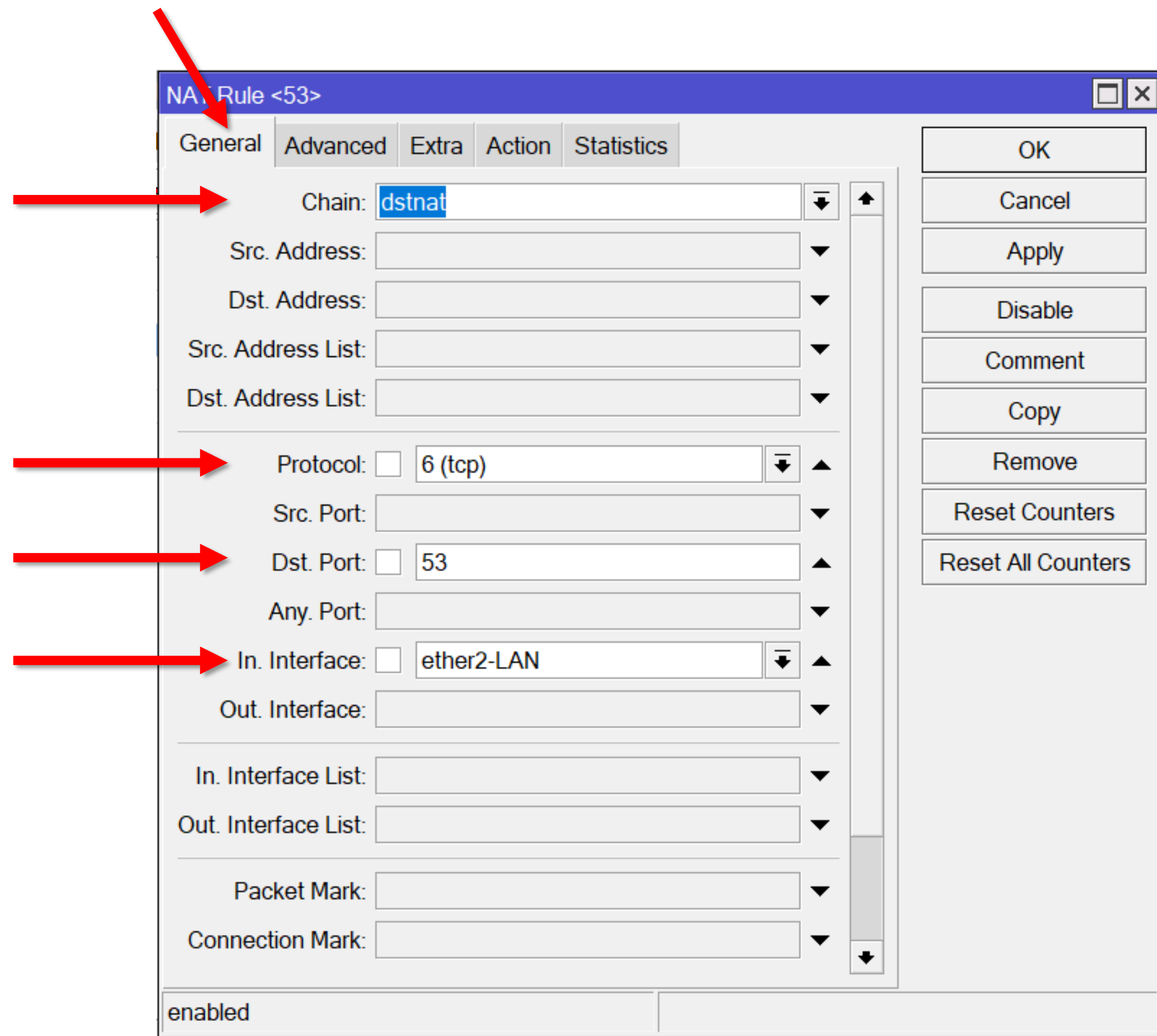
Src 192.168.88.254
 Dst 8.8.8.8

Change the destination of the DNS Requests



IP > Firewall > NAT > Add (+)

Change the destination of the DNS Requests



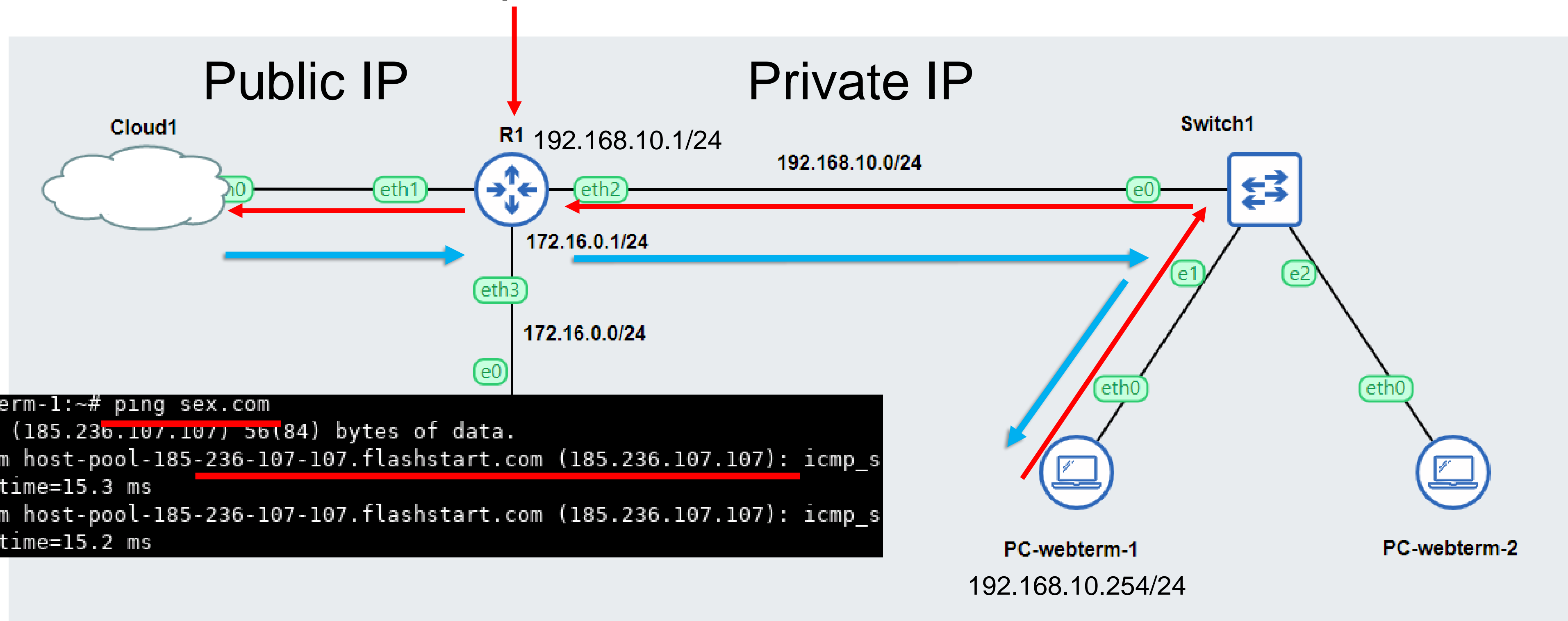
IP > Firewall > NAT > Add (+)

FlashStart

What is the IP Address of
www.sex.com?

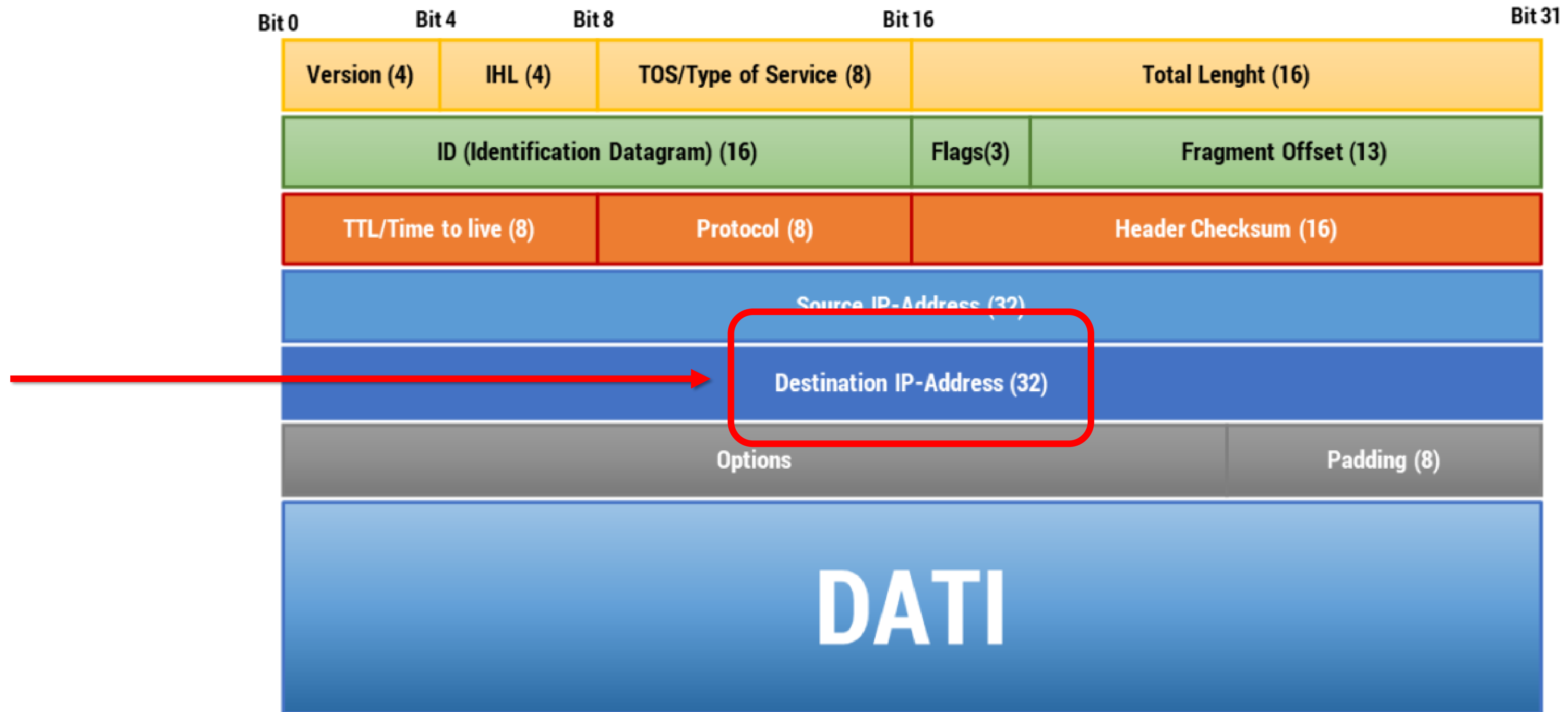
The IP Address is
185.236.107.107 (FlashStart)

Masquerade



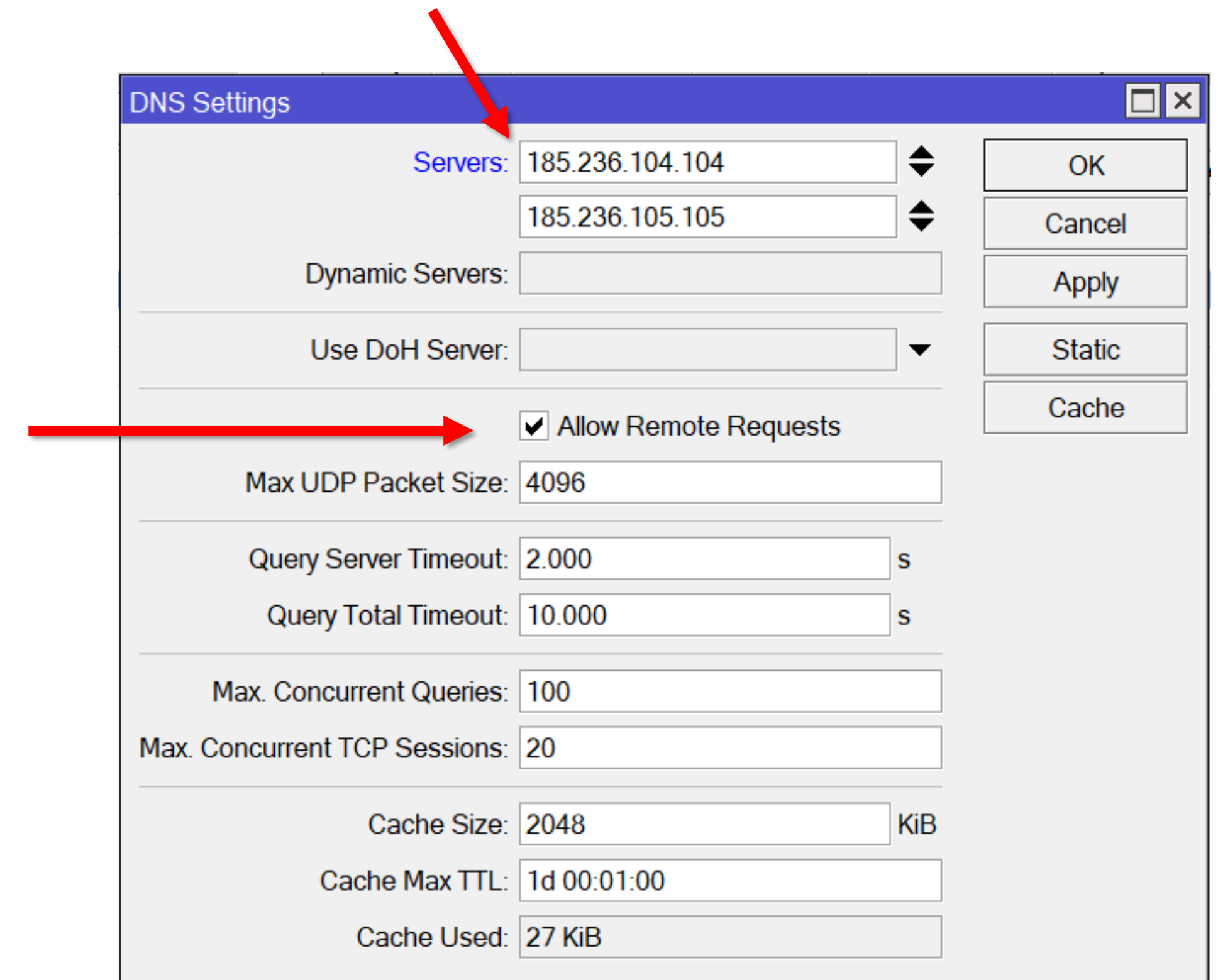
Default route 0.0.0.0/0
gateway=192.168.10.1

IP Packet



MikroTik DNS Relay

- You can use MikroTik Router as a DNS Relay
- RouterOS requests DNS from the server if it is not present in its cache
- RouterOS responds directly if the DNS request is present in its cache (speed improvement)

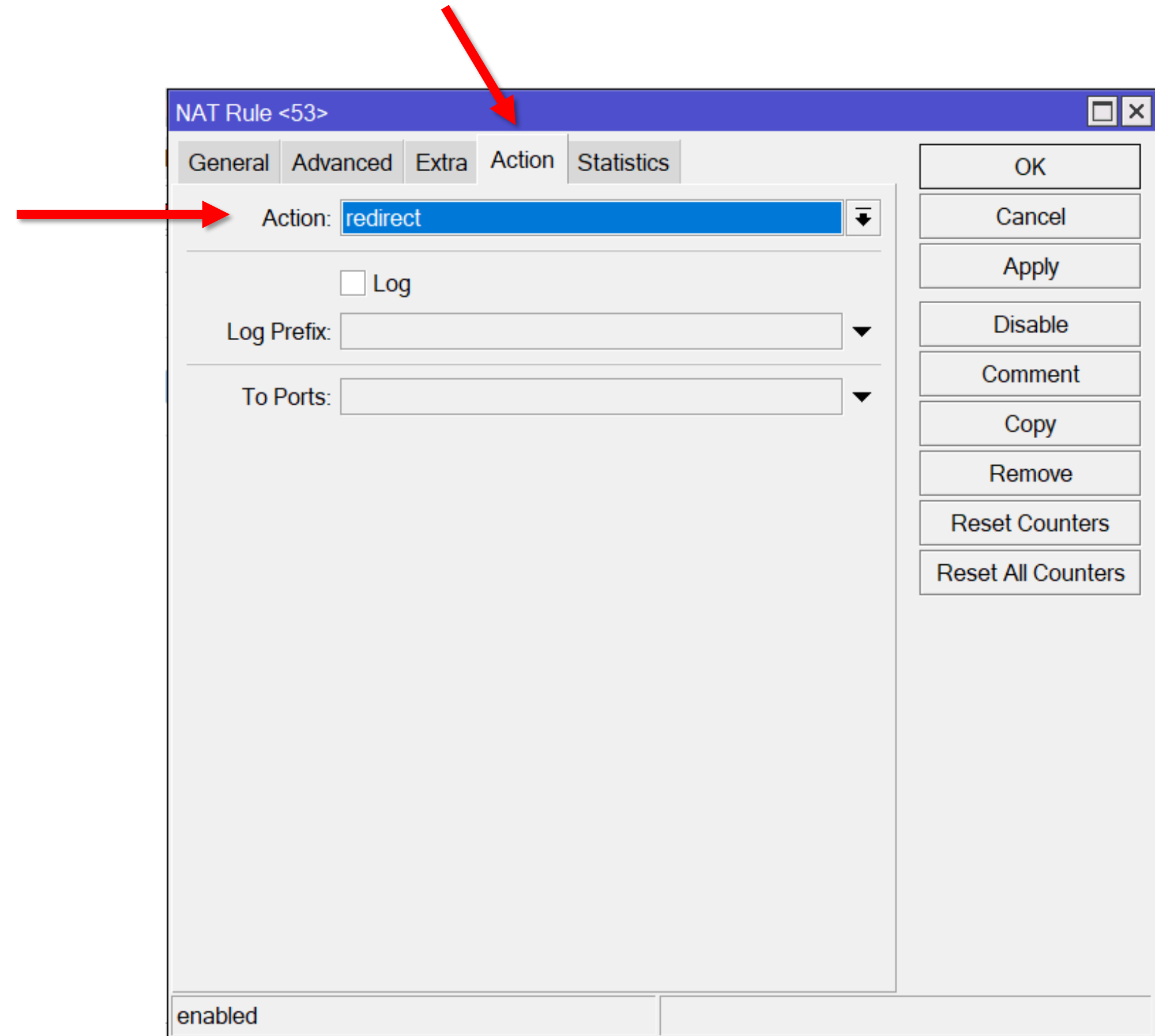
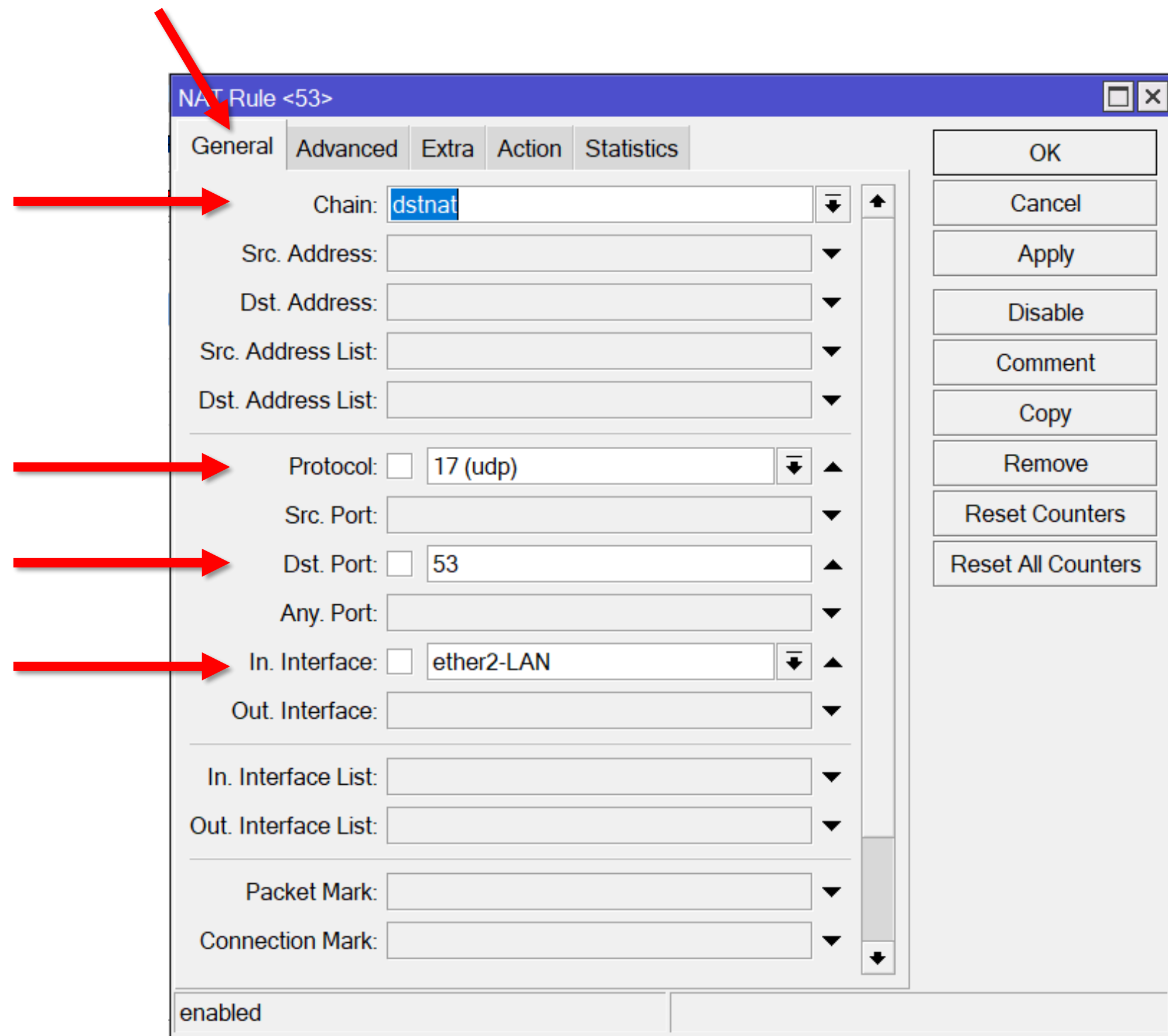


IP > DNS

Redirect

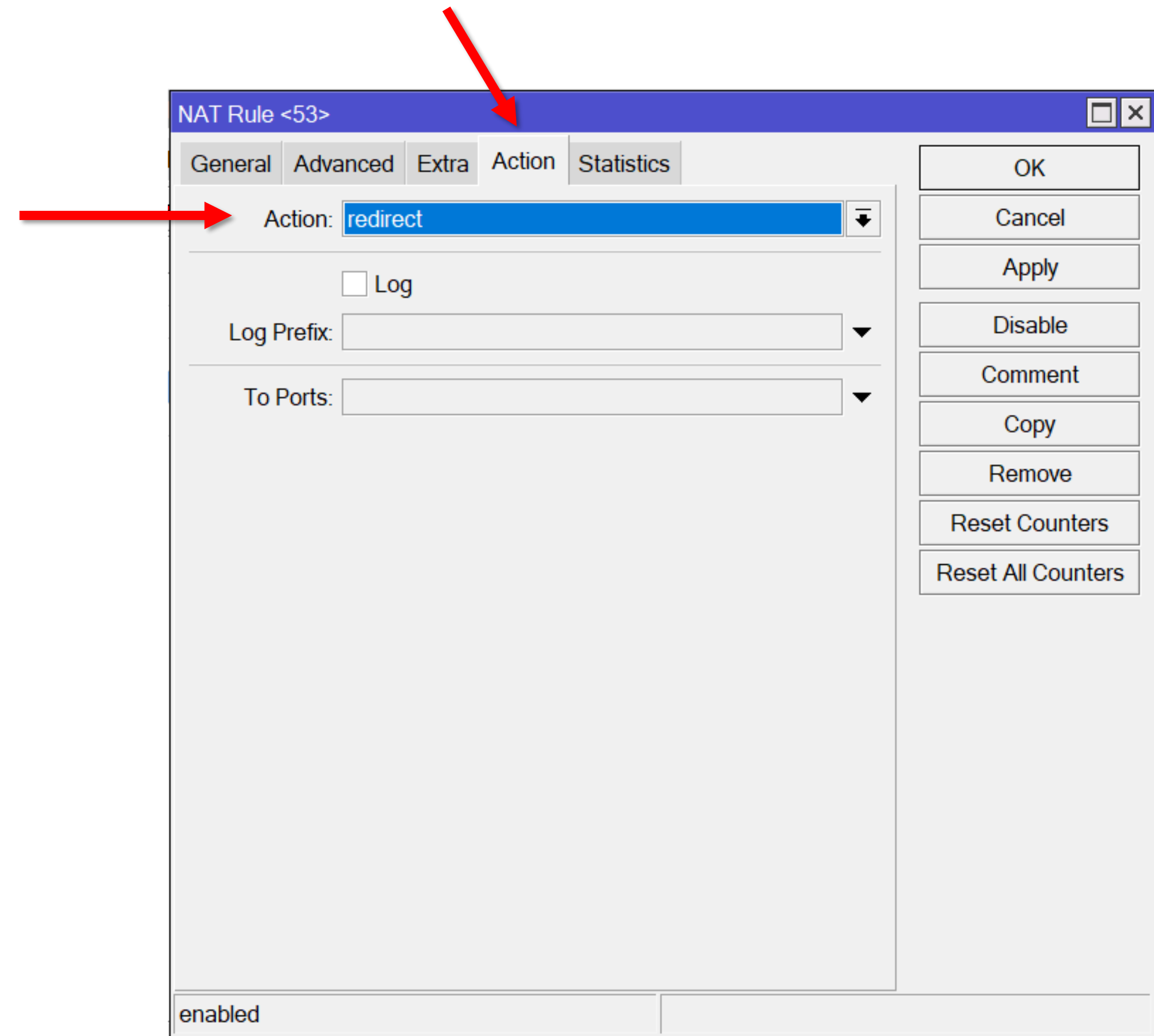
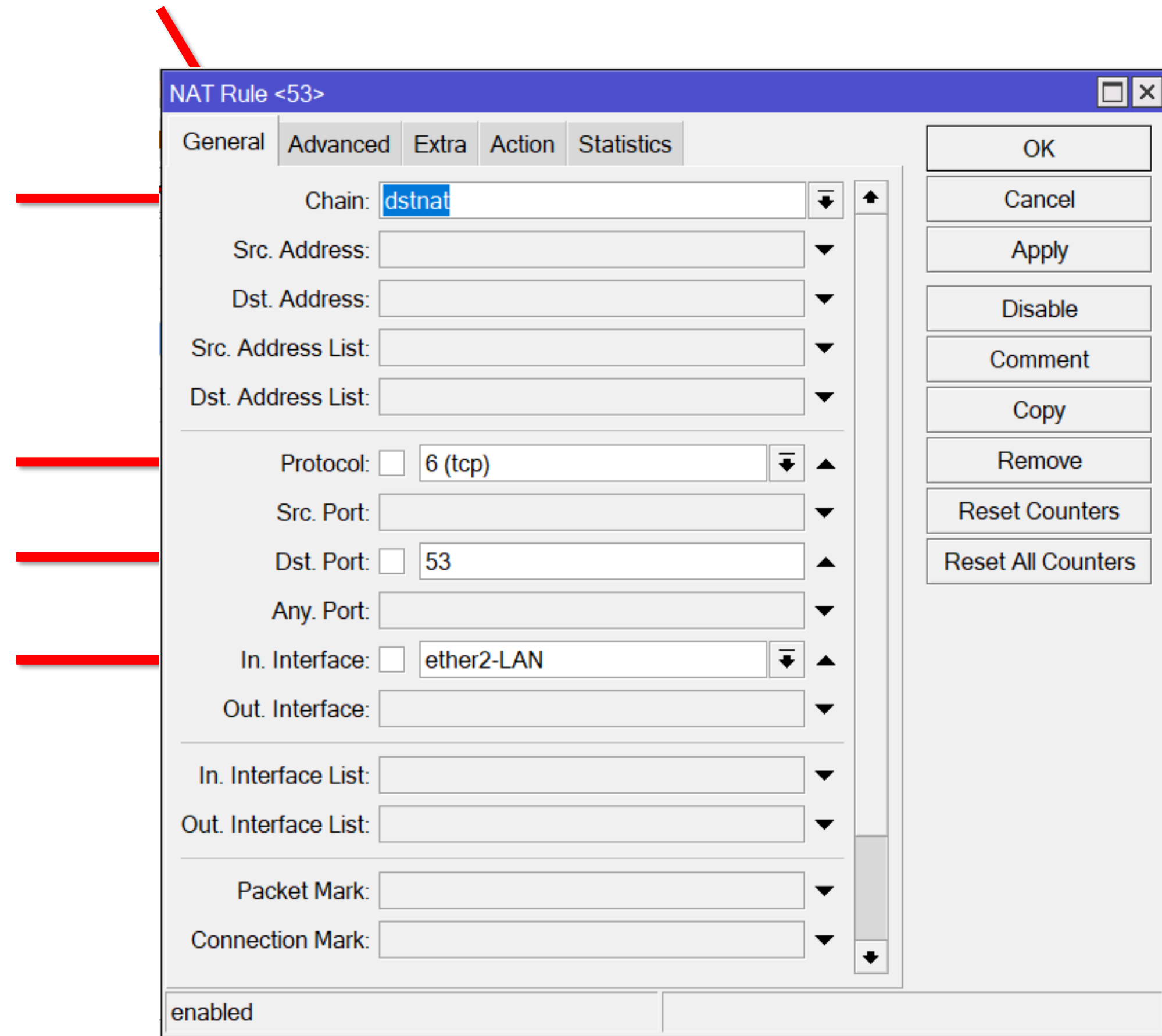
- Special DST-NAT
- Redirect packets to the router itself

Redirect



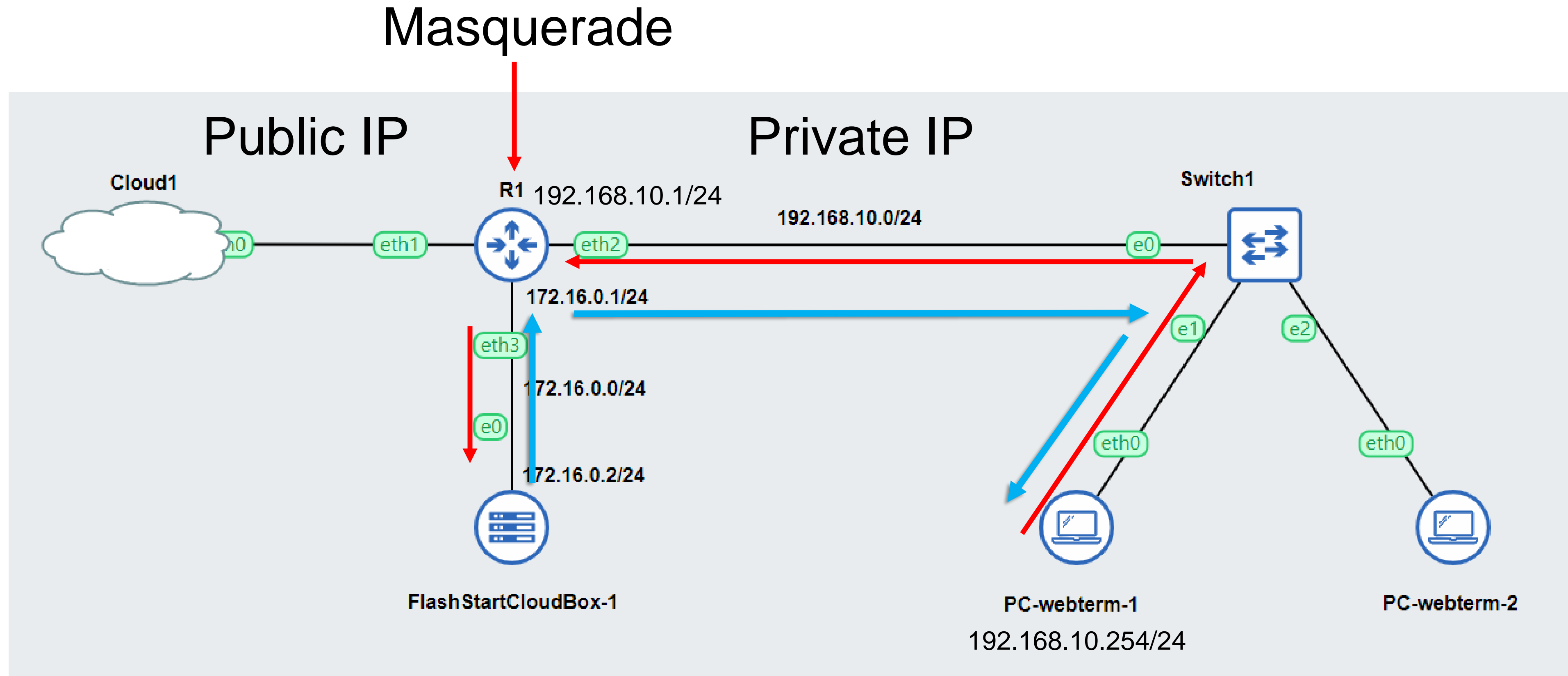
IP > Firewall > NAT > Add (+)

Redirect



IP > Firewall > NAT > Add (+)

CloudBOX

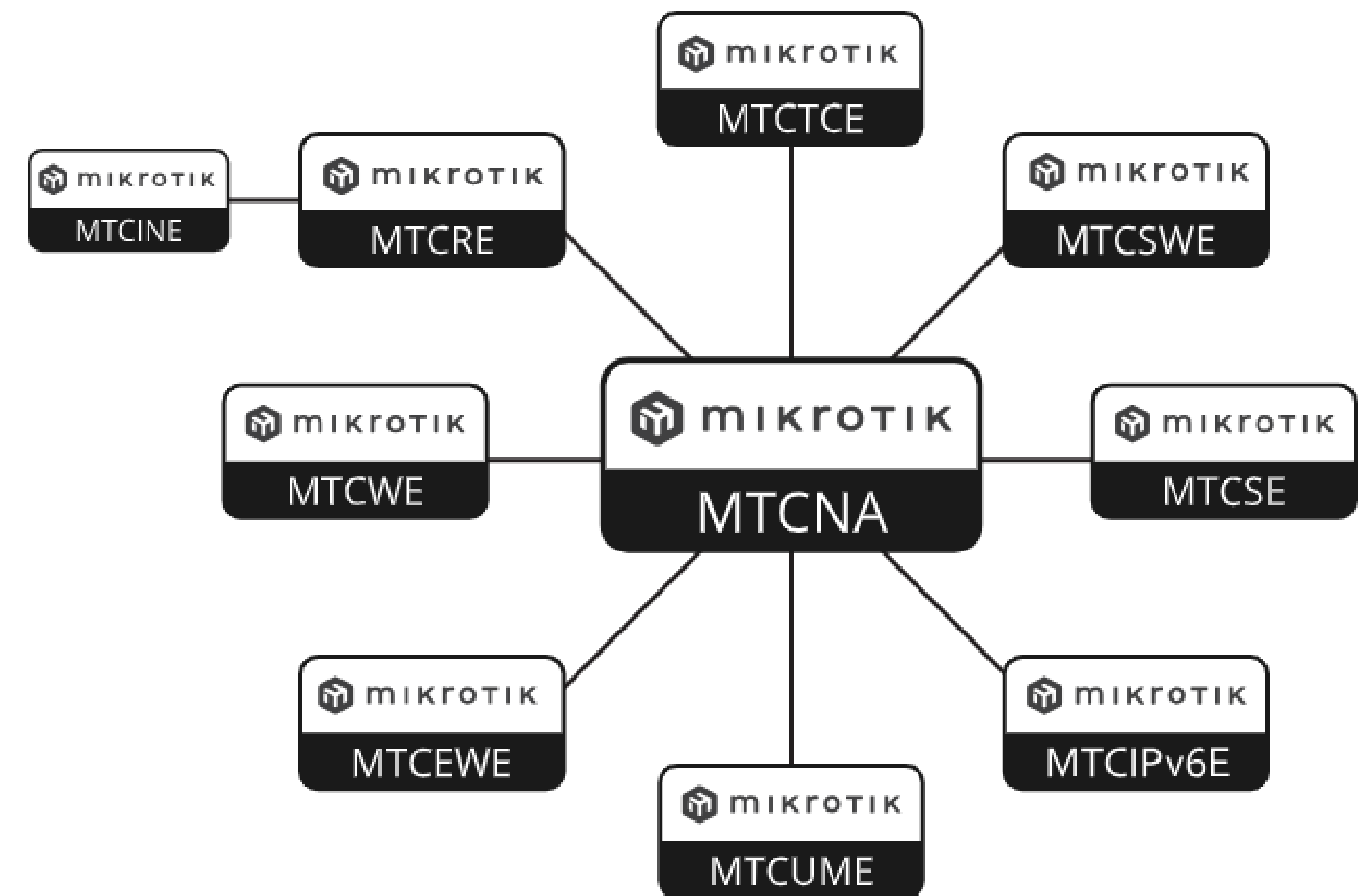


CloudBOX

- Virtual Machine (VMWare, Proxmox, Hyper-V)
- Local DNS Cache
- Multiple Profile
- Data export

MikroTik Training

- New certification
- Certifications renewal ONLINE
- <https://corsimikrotik.it/contatti>



Q&A?

- Sito Web corsimikrotik.it
- YouTube <https://youtube.com/corsimikrotik>
- [Canale telegram https://t.me/corsimikrotik](https://t.me/corsimikrotik)