

# ΑΝΑΦΟΡΑ ΓΙΑ ΤΟ 3<sup>ο</sup> ΕΡΓΑΣΤΗΡΙΟ ΣΤΑ ΔΙΚΤΥΑ

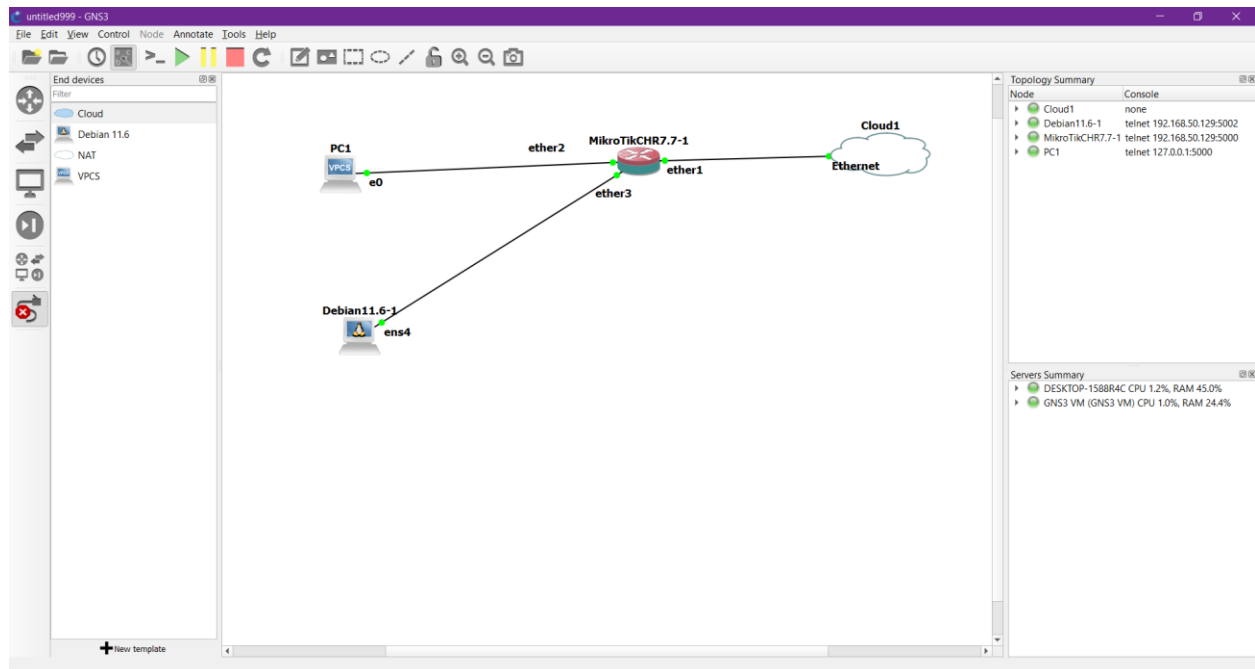
## ΥΠΟΛΟΓΙΣΤΩΝ

ΑΜ = 1070263

Ον/μο = ΣΠΥΡΟ ΣΟΥΛΙ

Έτος = 6<sup>ο</sup>

### Υλοποίηση



## Παραμετροποίηση Mikrotik

```
MMM      MMM      KKK      TTTTTTTTTT      KKK
MMMM     MMMM     KKK      TTTTTTTTTT      KKK
MMMM MMMM MMMM III KKK KKK RRRRRR 000000 TTT III KKK KKK
MMM MM MMMM III KKKKK RRR RRR 000 000 TTT III KKKKK
MMM MMMM III KKK KKK RRRRRR 000 000 TTT III KKK KKK
MMM MMMM III KKK KKK RRR RRR 000000 TTT III KKK KKK

Mikrotik RouterOS 7.7 (c) 1999-2023      https://www.mikrotik.com/

Do you want to see the software license? [Y/n]: n

Press F1 for help

Change your password
new password> *****
repeat new password> *****

Password changed
[admin@Mikrotik] > █
```

Επειδή το AM μου είναι 1070263 η διεύθυνση πρέπει να είναι της μορφής 107.2.63.1/24  
ώστε να την δεχτεί το mikrotik επιβεβαίωση με ip/address/print

```
apr/23/2023 14:44:31 system,error,critical router was rebooted without proper shutdown

[admin@Mikrotik] > ip address print
Columns: ADDRESS, NETWORK, INTERFACE
# ADDRESS      NETWORK      INTERFACE
0 107.11.13.1/24 107.11.13.0 ether2
1 107.11.63.1/24 107.11.63.0 ether2
[admin@Mikrotik] > /ip
[admin@Mikrotik] /ip> address
[admin@Mikrotik] /ip/address> remove
numbers: 0
[admin@Mikrotik] /ip/address> print
Columns: ADDRESS, NETWORK, INTERFACE
# ADDRESS      NETWORK      INTERFACE
0 107.11.63.1/24 107.11.63.0 ether2
[admin@Mikrotik] /ip/address> remove
numbers: 1
Script Error: action cancelled
[admin@Mikrotik] /ip/address> remove
numbers: 0
[admin@Mikrotik] /ip/address> print
[admin@Mikrotik] /ip/address> /ip address add address=107.2.63.1/24 interface=ether2
[admin@Mikrotik] /ip/address> /ip address add address=107.2.64.1/24 interface=ether3
[admin@Mikrotik] /ip/address> print
Columns: ADDRESS, NETWORK, INTERFACE
# ADDRESS      NETWORK      INTERFACE
0 107.2.63.1/24 107.2.63.0 ether2
1 107.2.64.1/24 107.2.64.0 ether3
[admin@Mikrotik] /ip/address> █
```

## /ip/dhcp-server/print και επιβεβαίωση

```
[admin@Mikrotik] > ip/107.2.63.1/setup
syntax error (line 1 column 14)
[admin@Mikrotik] > ip/dhcp-server/setup
Select interface to run DHCP server on

dhcp server interface: 107.2.63.1
input does not match any value of interface
dhcp server interface: ether2
Select network for DHCP addresses

dhcp address space: 107.2.63.0/24
Select gateway for given network

gateway for dhcp network: 107.2.63.1
Select pool of ip addresses given out by DHCP server

addresses to give out: 107.2.63.2-107.2.63.254
Select DNS servers

dns servers:
Select lease time

lease time: 10m
[admin@Mikrotik] > ip/dhcp-server/setup
Select interface to run DHCP server on

dhcp server interface: ether3
Select network for DHCP addresses

dhcp address space: 107.2.64.0/24
Select gateway for given network

gateway for dhcp network: 107.2.64.1
Select pool of ip addresses given out by DHCP server

addresses to give out: 107.2.64.2-107.2.64.254
Select DNS servers

dns servers:
Select lease time

lease time: 10m
[admin@Mikrotik] > /ip/dhcp-server/print
Columns: NAME, INTERFACE, ADDRESS-POOL, LEASE-TIME
# NAME    INTERFACE ADDRESS-POOL LEASE-TIME
0 dhcp1   ether2     dhcp_pool0   10m
1 dhcp2   ether3     dhcp_pool1   10m
[admin@Mikrotik] >
```

# 1<sup>ο</sup> Ερώτημα

Όλα τα ερωτήματα φαίνονται παρακάτω

```
lease time: 10m
[admin@MikroTik] > /ip/dhcp-server/print
Columns: NAME, INTERFACE, ADDRESS-POOL, LEASE-TIME
# NAME    INTERFACE ADDRESS-POOL LEASE-TIME
0 dhcp1   ether2     dhcp_pool0   10m
1 dhcp2   ether3     dhcp_pool1   10m
[admin@MikroTik] > ip/address/print
Columns: ADDRESS, NETWORK, INTERFACE
# ADDRESS    NETWORK    INTERFACE
0 107.2.63.1/24 107.2.63.0 ether2
1 107.2.64.1/24 107.2.64.0 ether3
[admin@MikroTik] > ip/route/print
Flags: D - DYNAMIC; A - ACTIVE; c, y - COPY
Columns: DST-ADDRESS, GATEWAY, DISTANCE
DST-ADDRESS GATEWAY DISTANCE
DAc 107.2.63.0/24 ether2      0
DAc 107.2.64.0/24 ether3      0
[admin@MikroTik] > ip/dhcp-client/print
Columns: INTERFACE, USE-PEER-DNS, ADD-DEFAULT-ROUTE, STATUS
# INTERFACE USE-PEER-DNS ADD-DEFAULT-ROUTE STATUS
0 ether1    yes          yes             searching...
[admin@MikroTik] >
[admin@MikroTik] > /ip/dhcp-server/print
Columns: NAME, INTERFACE, ADDRESS-POOL, LEASE-TIME
# NAME    INTERFACE ADDRESS-POOL LEASE-TIME
0 dhcp1   ether2     dhcp_pool0   10m
1 dhcp2   ether3     dhcp_pool1   10m
[admin@MikroTik] > ping 8.8.8.8.
invalid value for argument address:
  invalid value of mac-address, mac address required
  invalid value for argument ipv6-address
  while resolving ip-address: could not get answer from dns server
[admin@MikroTik] > /tool/traceroute 8.8.8.8
Columns: LOSS, SENT, LAST
# LOSS SENT LAST
1 100% 32 timeout
2 100% 32 timeout
3 100% 32 timeout
4 100% 32 timeout
5 100% 31 timeout

[admin@MikroTik] > /tool/traceroute
address: 8.8.8.8 protocol-icmp
Script Error: action cancelled
[admin@MikroTik] > /tool/traceroute
address: 8.8.8.8 protocol-icmp
Script Error: action cancelled
[admin@MikroTik] > █
```

## Παραμετροποίηση PC1

```
Welcome to Virtual PC Simulator, version 0.6.2
Dedicated to Daling.
Build time: Apr 10 2019 02:42:20
Copyright (c) 2007-2014, Paul Meng (mirnshi@gmail.com)
All rights reserved.

VPCS is free software, distributed under the terms of the "BSD" licence.
Source code and license can be found at vpcs.sf.net.
For more information, please visit wiki.freecode.com.cn.

Press '?' to get help.

Executing the startup file

PC1> show ip

NAME       : PC1[1]
IP/MASK     : 0.0.0.0/0
GATEWAY     : 0.0.0.0
DNS         :
MAC         : 00:50:79:66:68:00
LPORT      : 10002
RHOST:PORT  : 127.0.0.1:10003
MTU         : 1500

PC1> dhcp
DORA IP 107.2.63.254/24 GW 107.2.63.1

PC1> save
Saving startup configuration to startup.vpc
. done

PC1> █
```

## 2<sup>ο</sup> Ερώτημα

Όλα τα ερωτήματα φαίνονται παρακάτω

```
PC1> show ip

NAME       : PC1[1]
IP/MASK    : 107.2.63.254/24
GATEWAY    : 107.2.63.1
DNS        :
DHCP SERVER : 107.2.63.1
DHCP LEASE  : 425, 600/300/525
MAC        : 00:50:79:66:68:00
LPORT      : 10002
RHOST:PORT  : 127.0.0.1:10003
MTU        : 1500

PC1> ping 107.2.63.1
84 bytes from 107.2.63.1 icmp_seq=1 ttl=64 time=1.271 ms
84 bytes from 107.2.63.1 icmp_seq=2 ttl=64 time=0.814 ms
84 bytes from 107.2.63.1 icmp_seq=3 ttl=64 time=1.118 ms
84 bytes from 107.2.63.1 icmp_seq=4 ttl=64 time=0.830 ms
84 bytes from 107.2.63.1 icmp_seq=5 ttl=64 time=1.147 ms

PC1> ping 107.2.64.1
84 bytes from 107.2.64.1 icmp_seq=1 ttl=64 time=1.197 ms
84 bytes from 107.2.64.1 icmp_seq=2 ttl=64 time=1.054 ms
84 bytes from 107.2.64.1 icmp_seq=3 ttl=64 time=1.008 ms
84 bytes from 107.2.64.1 icmp_seq=4 ttl=64 time=1.119 ms
84 bytes from 107.2.64.1 icmp_seq=5 ttl=64 time=1.136 ms

PC1> ping 192.168.122.67
*107.2.63.1 icmp_seq=1 ttl=64 time=1.165 ms (ICMP type:3, code:0, Destination network unreachable)
*107.2.63.1 icmp_seq=2 ttl=64 time=0.904 ms (ICMP type:3, code:0, Destination network unreachable)
*107.2.63.1 icmp_seq=3 ttl=64 time=0.855 ms (ICMP type:3, code:0, Destination network unreachable)
*107.2.63.1 icmp_seq=4 ttl=64 time=1.015 ms (ICMP type:3, code:0, Destination network unreachable)
*107.2.63.1 icmp_seq=5 ttl=64 time=1.125 ms (ICMP type:3, code:0, Destination network unreachable)

PC1> ping 8.8.8.8
*107.2.63.1 icmp_seq=1 ttl=64 time=1.300 ms (ICMP type:3, code:0, Destination network unreachable)
*107.2.63.1 icmp_seq=2 ttl=64 time=0.890 ms (ICMP type:3, code:0, Destination network unreachable)
*107.2.63.1 icmp_seq=3 ttl=64 time=1.054 ms (ICMP type:3, code:0, Destination network unreachable)
*107.2.63.1 icmp_seq=4 ttl=64 time=1.133 ms (ICMP type:3, code:0, Destination network unreachable)
*107.2.63.1 icmp_seq=5 ttl=64 time=0.951 ms (ICMP type:3, code:0, Destination network unreachable)

PC1> ping 192.168.2.1
*107.2.63.1 icmp_seq=1 ttl=64 time=1.362 ms (ICMP type:3, code:0, Destination network unreachable)
*107.2.63.1 icmp_seq=2 ttl=64 time=0.894 ms (ICMP type:3, code:0, Destination network unreachable)
*107.2.63.1 icmp_seq=3 ttl=64 time=0.658 ms (ICMP type:3, code:0, Destination network unreachable)
*107.2.63.1 icmp_seq=4 ttl=64 time=1.082 ms (ICMP type:3, code:0, Destination network unreachable)
*107.2.63.1 icmp_seq=5 ttl=64 time=1.421 ms (ICMP type:3, code:0, Destination network unreachable)
```

Χρειαζόμαστε αυτήν την εντολή

```
/ip firewall nat add chain=srcnat action=masquerade out-  
interface=Public
```

. Δεν θα είναι δυνατή η πρόσβαση από το Διαδίκτυο στις Τοπικές διευθύνσεις. Εάν θέλετε να επιτρέψετε συνδέσεις με τον διακομιστή στο τοπικό δίκτυο, θα πρέπει να χρησιμοποιήσετε τη Μετάφραση Διεύθυνσης Δικτύου προορισμού (NAT).

## 3<sup>ο</sup> Ερώτημα

ip a

ping 8.8.8.8

sudo traceroute 8.8.8.8

```
debian login: debian
Password:

Login incorrect
debian login: debian
Password:
Linux debian 5.10.0-20-cloud-amd64 #1 SMP Debian 5.10.158-2 (2022-12-13) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
debian@debian:~$ sudo -s
root@debian:/home/debian# ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: ens4: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
    link/ether 0c:0b:5f:f9:00:00 brd ff:ff:ff:ff:ff:ff
    altname enp0s4
    inet 107.2.64.254/24 brd 107.2.64.255 scope global dynamic ens4
        valid_lft 494sec preferred_lft 494sec
    inet6 fe80::e0b:5fff:fef9:0/64 scope link
        valid_lft forever preferred_lft forever
root@debian:/home/debian# ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
From 107.2.64.1 icmp_seq=1 Destination Net Unreachable
From 107.2.64.1 icmp_seq=2 Destination Net Unreachable
From 107.2.64.1 icmp_seq=3 Destination Net Unreachable
From 107.2.64.1 icmp_seq=4 Destination Net Unreachable
From 107.2.64.1 icmp_seq=5 Destination Net Unreachable
From 107.2.64.1 icmp_seq=6 Destination Net Unreachable
From 107.2.64.1 icmp_seq=7 Destination Net Unreachable
From 107.2.64.1 icmp_seq=9 Destination Net Unreachable
From 107.2.64.1 icmp_seq=11 Destination Net Unreachable
From 107.2.64.1 icmp_seq=12 Destination Net Unreachable
^Z
[1]+  Stopped                  ping 8.8.8.8
root@debian:/home/debian# sudo traceroute 8.8.8.8
traceroute to 8.8.8.8 (8.8.8.8), 30 hops max, 60 byte packets
 1 107.2.64.1 (107.2.64.1) 1.362 ms !N * *
```

Εκτελέστε: `ssh admin@` και επιβεβαιώστε και πάλι τα συνθηματικά σας.

```
Failed to fetch http://deb.debian.org/debian/dists/bullseye/InRelease Temporary failure resolving 'deb.debian.org'
: Failed to fetch http://security.debian.org/debian-security/dists/bullseye-security/InRelease Temporary failure resolving 'security.debian.org'

root@debian:/home/debian# sudo apt-get install telnet
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
E: Unable to locate package telnet
root@debian:/home/debian# telnet 192.168.50.129
bash: telnet: command not found
root@debian:/home/debian# telnet 192.168.50.1
bash: telnet: command not found
root@debian:/home/debian# ssh admin@<IP address>
bash: IP: No such file or directory
root@debian:/home/debian# mikrotik>ssh admin@107.2.63.1
bash: mikrotik: command not found
root@debian:/home/debian# mikrotik>ssh admin@<107.2.63.1>
bash: syntax error near unexpected token `newline'
root@debian:/home/debian# ssh admin@<107.2.63.1>
bash: syntax error near unexpected token `newline'
root@debian:/home/debian# ssh admin@107.2.63.1
The authenticity of host '107.2.63.1 (107.2.63.1)' can't be established.
RSA key fingerprint is SHA256:U1StqJQry/vfpa8zOE6SmMlx/DFdJN4eqArs7lT0SPo.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '107.2.63.1' (RSA) to the list of known hosts.
admin@107.2.63.1's password:

MMM      MMM      KKK                      TTTTTTTTTT      KKK
MMMMM    MMMM    KKK                      TTTTTTTTTT      KKK
MMM MMMM MMM III  KKK KKK RRRRRR      000000      TTT      III KKK KKK
MMM MM  MMM III  KKKKK  RRR RRR 000 000      TTT      III KKKKK
MMM MM  MMM III  KKK KKK RRRRRR      000 000      TTT      III KKK KKK
MMM      MMM III  KKK KKK RRR RRR      000000      TTT      III KKK KKK

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Press F1 for help

[admin@MikroTik] > █
```