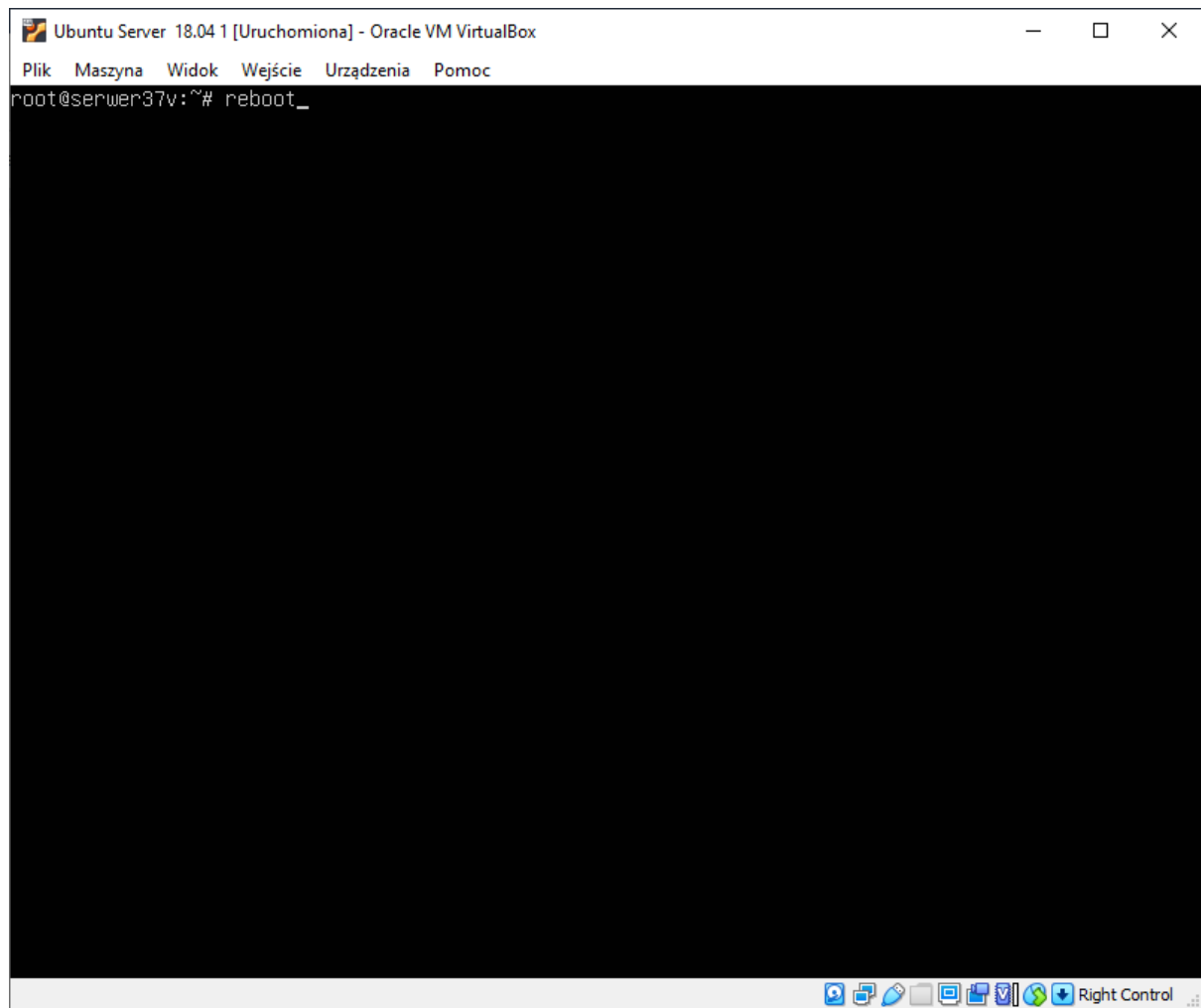


## Konfiguracja przed instalacją

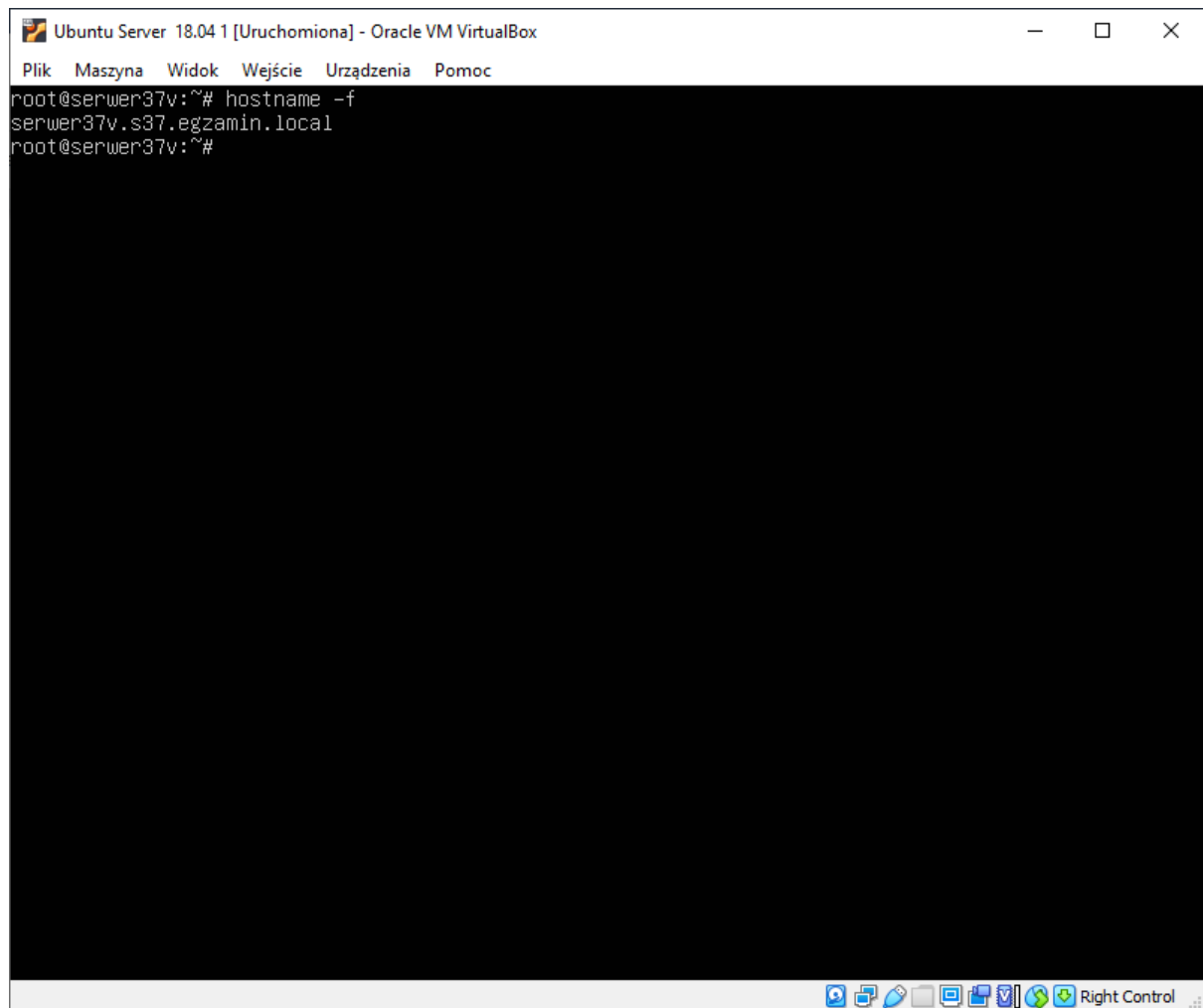
Najpierw ustawiam nazwę serwera na **s37.egzamin.local** w pliku **/etc/hosts** korzystając z edytora **vim**

[illegible]

Następnie restartuje serwer poleceniem *reboot*



Następnie sprawdzam nazwę hosta poleceniem *hostname -f*

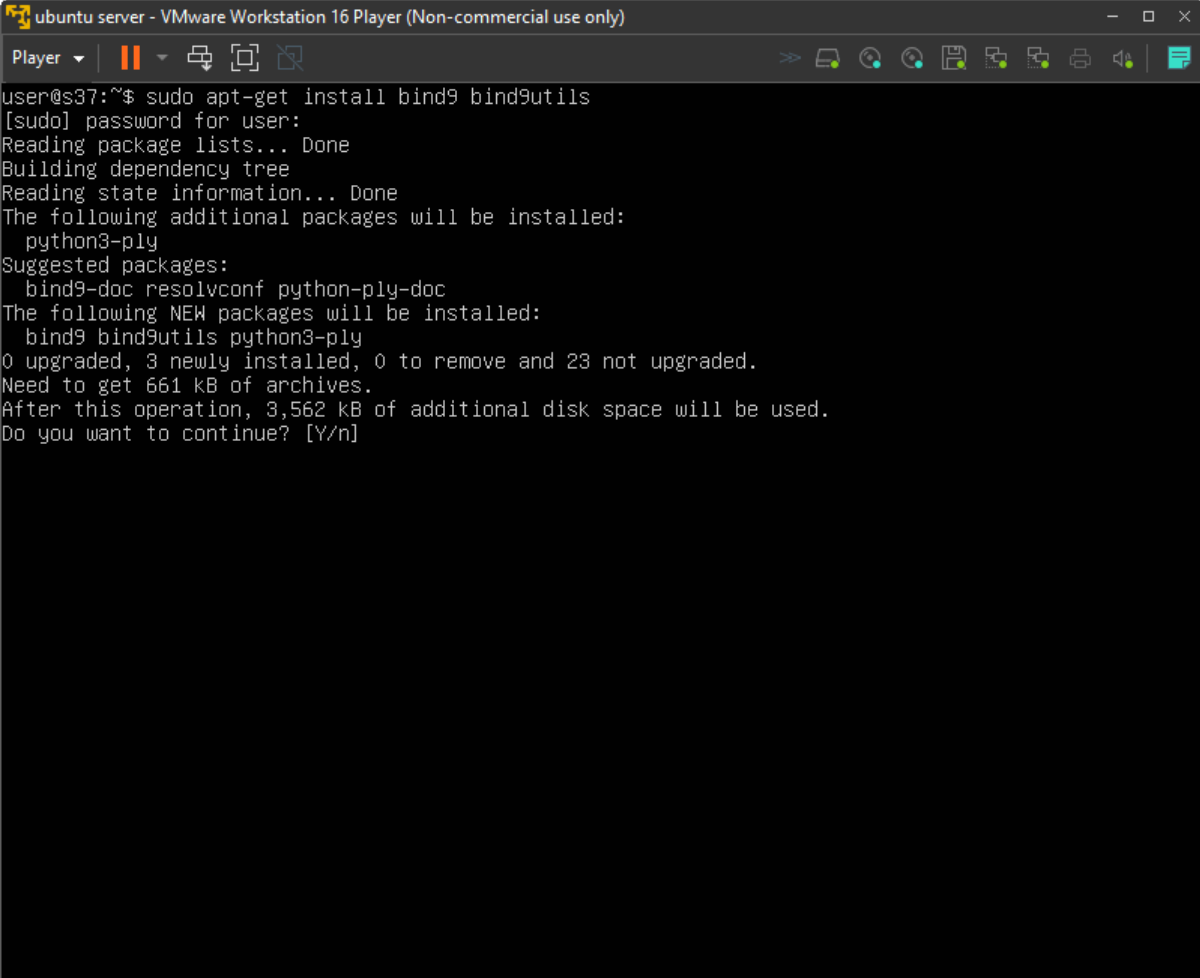


The image shows a terminal window titled "Ubuntu Server 18.04 1 [Uruchomiona] - Oracle VM VirtualBox". The window has a menu bar with "Plik", "Maszyna", "Widok", "Wejście", "Urządzenia", and "Pomoc". The terminal content shows the user 'root' at 'serwer37v' with a tilde prompt. The command 'hostname -f' is entered, and the output is 'serwer37v.s37.egzamin.local'. The prompt returns to 'root@serwer37v:~#'. The bottom of the window shows a taskbar with various icons and a 'Right Control' button.

```
root@serwer37v:~# hostname -f
serwer37v.s37.egzamin.local
root@serwer37v:~#
```

## Instalacja serwera DNS

Serwer instaluje poleceniem `apt-get install bind9 bind9utils` i klikam y



```
ubuntu server - VMware Workstation 16 Player (Non-commercial use only)
Player ▾ | [Icons: Run, Stop, Suspend, Snapshot, Full Screen, Help]
user@s37:~$ sudo apt-get install bind9 bind9utils
[sudo] password for user:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  python3-ply
Suggested packages:
  bind9-doc resolvconf python-ply-doc
The following NEW packages will be installed:
  bind9 bind9utils python3-ply
0 upgraded, 3 newly installed, 0 to remove and 23 not upgraded.
Need to get 661 kB of archives.
After this operation, 3,562 kB of additional disk space will be used.
Do you want to continue? [Y/n]
```

## Konfiguracja serwera DNS

Najpierw wypisuje zawartość folderu /etc/bind

```
ubuntu server - VMware Workstation 16 Player (Non-commercial use only)
Player ▾ | [Icons]
user@s37:~$ sudo ls -l /etc/bind
total 52
-rw-r--r-- 1 root root 2761 Mar 15 14:14 bind.keys
-rw-r--r-- 1 root root 237 Sep 30 2019 db.0
-rw-r--r-- 1 root root 271 Sep 30 2019 db.127
-rw-r--r-- 1 root root 237 Sep 30 2019 db.255
-rw-r--r-- 1 root root 353 Sep 30 2019 db.empty
-rw-r--r-- 1 root root 270 Sep 30 2019 db.local
-rw-r--r-- 1 root root 3171 Sep 30 2019 db.root
-rw-r--r-- 1 root bind 463 Sep 30 2019 named.conf
-rw-r--r-- 1 root bind 490 Sep 30 2019 named.conf.default-zones
-rw-r--r-- 1 root bind 165 Sep 30 2019 named.conf.local
-rw-r--r-- 1 root bind 890 Sep 30 2019 named.conf.options
-rw-r----- 1 bind bind 77 Apr 3 15:46 rndc.key
-rw-r--r-- 1 root root 1317 Sep 30 2019 zones.rfc1918
user@s37:~$ _
```

Następnie edytuje plik */etc/bind/named.conf.options* dodając *forwarders 8.8.8.8*



```
Ubuntu Server 18.04.1 [Uruchomiona] - Oracle VM VirtualBox
Plik Maszyna Widok Wejście Urządzenia Pomoc
root@serwer37v:~# systemctl status bind9
● bind9.service - BIND Domain Name Server
   Loaded: loaded (/lib/systemd/system/bind9.service; enabled; vendor preset: enabled)
   Active: active (running) since Thu 2022-04-07 10:41:50 UTC; 10min ago
     Docs: man:named(8)
    Main PID: 3757 (named)
      Tasks: 5 (limit: 4652)
    CGroup: /system.slice/bind9.service
            └─3757 /usr/sbin/named -f -u bind

Apr 07 10:48:56 serwer37v named[3757]: network unreachable resolving 'tm1.dns-tm.com/AAAA/IN': 2620:
Apr 07 10:48:56 serwer37v named[3757]: network unreachable resolving 'tm1.dns-tm.com/AAAA/IN': 2620:
Apr 07 10:48:56 serwer37v named[3757]: network unreachable resolving 'tm1.dns-tm.com/AAAA/IN': 2603:
Apr 07 10:50:01 serwer37v named[3757]: network unreachable resolving 'onedscolprdwus02.westus.clouda
Apr 07 10:50:03 serwer37v named[3757]: network unreachable resolving 'ns4-02.azure-dns.info/AAAA/IN'
Apr 07 10:50:04 serwer37v named[3757]: network unreachable resolving 'ns4-02.azure-dns.info/AAAA/IN'
Apr 07 10:50:04 serwer37v named[3757]: network unreachable resolving 'ns4-02.azure-dns.info/AAAA/IN'
Apr 07 10:50:04 serwer37v named[3757]: network unreachable resolving 'ns4-02.azure-dns.info/AAAA/IN'
Apr 07 10:51:15 serwer37v named[3757]: network unreachable resolving 'tm2.dns-tm.com/A/IN': 2620:1ec
Apr 07 10:51:15 serwer37v named[3757]: network unreachable resolving 'tm2.dns-tm.com/A/IN': 2620:1ec
root@serwer37v:~#
```

Następnie poleceniem **dig** testuje serwer

```
ubuntu server - VMware Workstation 16 Player (Non-commercial use only)
Player | [Icons]
Main PID: 2022 (named)
Tasks: 6 (limit: 7119)
CGroup: /system.slice/bind9.service
└─2022 /usr/sbin/named -f -u bind

Apr 06 18:06:59 s37.egzamin.local named[2022]: network unreachable resolving 'E.ROOT-SERVERS.NET/AAA
Apr 06 18:06:59 s37.egzamin.local named[2022]: network unreachable resolving 'E.ROOT-SERVERS.NET/AAA
Apr 06 18:06:59 s37.egzamin.local named[2022]: network unreachable resolving 'G.ROOT-SERVERS.NET/AAA
Apr 06 18:06:59 s37.egzamin.local named[2022]: network unreachable resolving 'G.ROOT-SERVERS.NET/AAA
Apr 06 18:06:59 s37.egzamin.local named[2022]: network unreachable resolving 'E.ROOT-SERVERS.NET/AAA
Apr 06 18:06:59 s37.egzamin.local named[2022]: network unreachable resolving 'E.ROOT-SERVERS.NET/AAA
Apr 06 18:06:59 s37.egzamin.local named[2022]: network unreachable resolving 'G.ROOT-SERVERS.NET/AAA
Apr 06 18:06:59 s37.egzamin.local named[2022]: network unreachable resolving 'G.ROOT-SERVERS.NET/AAA
Apr 06 18:06:59 s37.egzamin.local named[2022]: managed-keys-zone: Unable to fetch DNSKEY set '': fa
root@s37:/home/user# dig -x 127.0.0.1

; <<>> DiG 9.11.3-1ubuntu1.17-Ubuntu <<>> -x 127.0.0.1
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 55115
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
;; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;1.0.0.127.in-addr.arpa.          IN      PTR

;; ANSWER SECTION:
1.0.0.127.in-addr.arpa. 0        IN      PTR      localhost.

;; Query time: 0 msec
;; SERVER: 127.0.0.53#53(127.0.0.53)
;; WHEN: Wed Apr 06 18:07:52 UTC 2022
;; MSG SIZE rcvd: 74

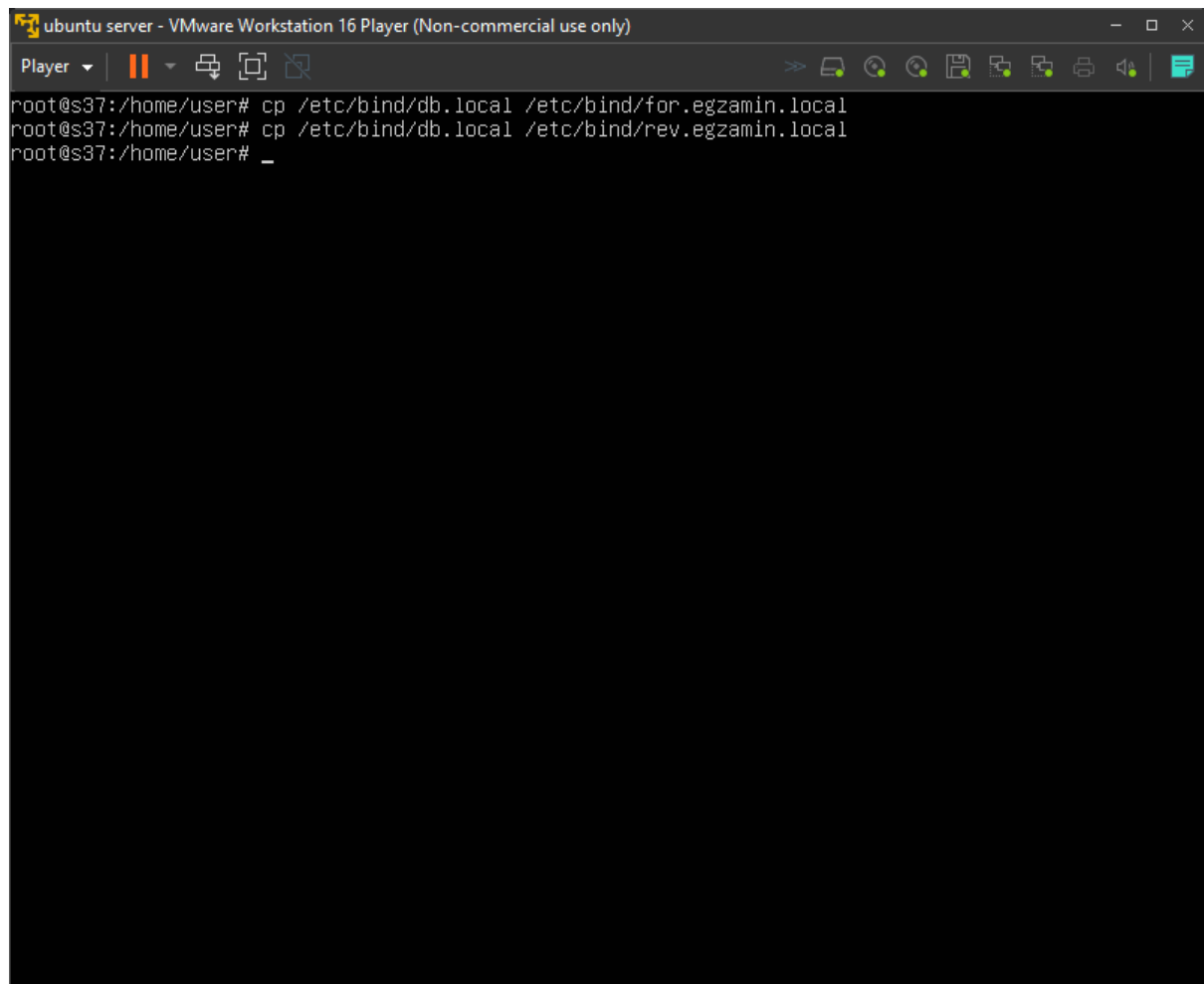
root@s37:/home/user#
```

Następnie sprawdzam czy plik *named.conf*









```
ubuntu server - VMware Workstation 16 Player (Non-commercial use only)
Player ▾ | [Icons]
root@s37:/home/user# cp /etc/bind/db.local /etc/bind/for.egzamin.local
root@s37:/home/user# cp /etc/bind/db.local /etc/bind/rev.egzamin.local
root@s37:/home/user# _
```

Następnie dodaje rekordy *serwer37v*, *ubunteks37v*, *windas37v* w pliku *for.egzamin.local* oraz zmieniam domenę.



```
Ubuntu Server 18.04 1 [Uruchomiona] - Oracle VM VirtualBox
Plik Maszyna Widok Wejście Urządzenia Pomoc

; BIND data file for local loopback interface
;
$TTL      604800
@         IN      SOA      66.0.10.in-addr.arpa. root.s37.egzamin.local. (
                                2          ; Serial
                                604800     ; Refresh
                                86400      ; Retry
                                2419200    ; Expire
                                604800 )   ; Negative Cache TTL
;
@         IN      NS       serwer37v.s37.egzamin.local.
serwer37v IN      A        10.0.66.10
ubunteks37v IN     A       10.0.66.20
windas37v  IN     A       10.0.66.21

10       IN      PTR      serwer37v.s37.egzamin.local.
20       IN      PTR      ubunteks37v.s37.egzamin.local.
21       IN      PTR      windas37v.s37.egzamin.local.
@         IN      AAAA     ::1

"/etc/bind/rev.so.local" 20L, 490C                                     12,21-37      All
```

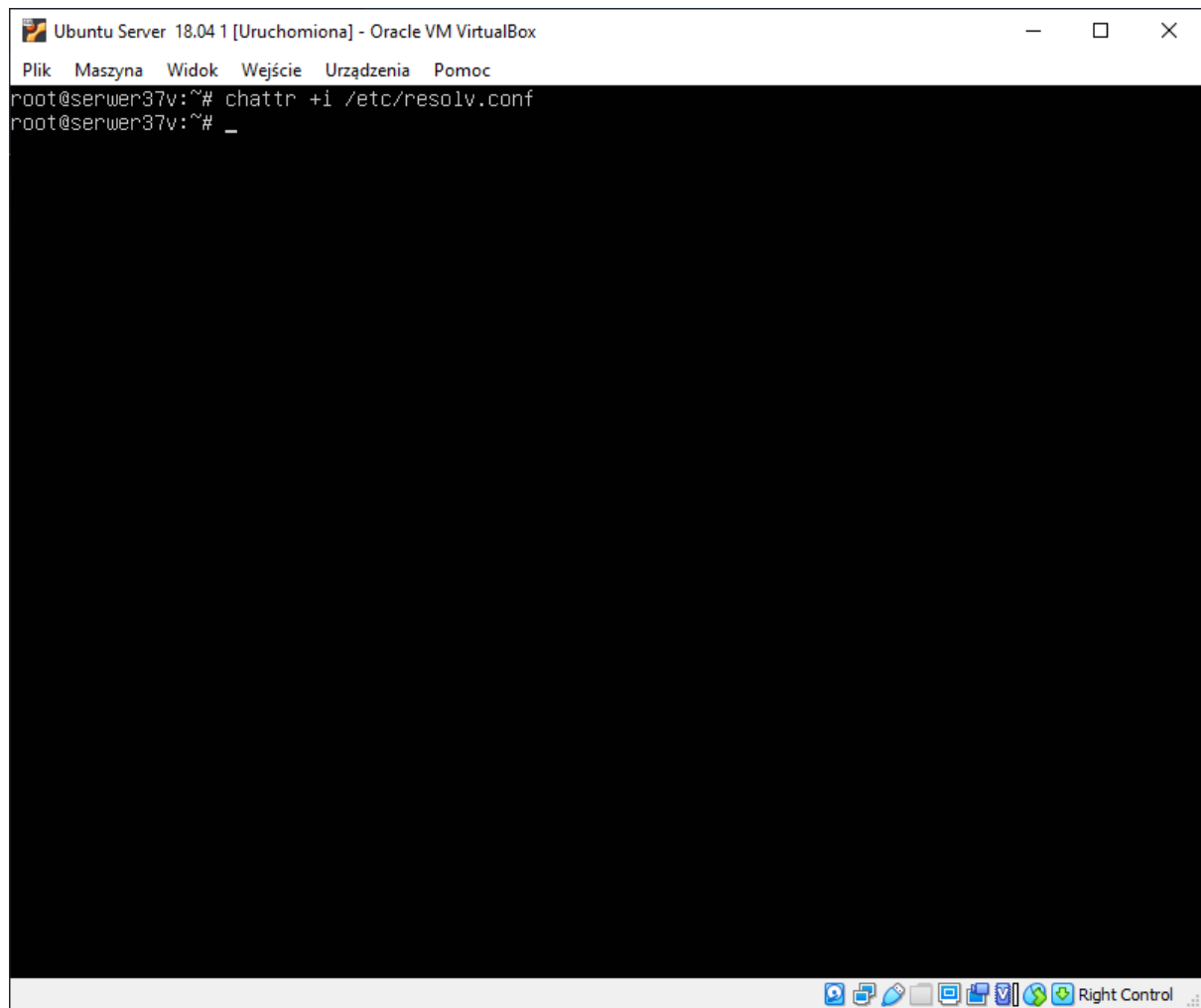
Następnie usuwam plik /etc/resolv.conf



```
ubuntu server - VMware Workstation 16 Player (Non-commercial use only)
Player ▾ | [Icons]
root@serwer37v:~# rm /etc/resolv.conf
root@serwer37v:~#
```

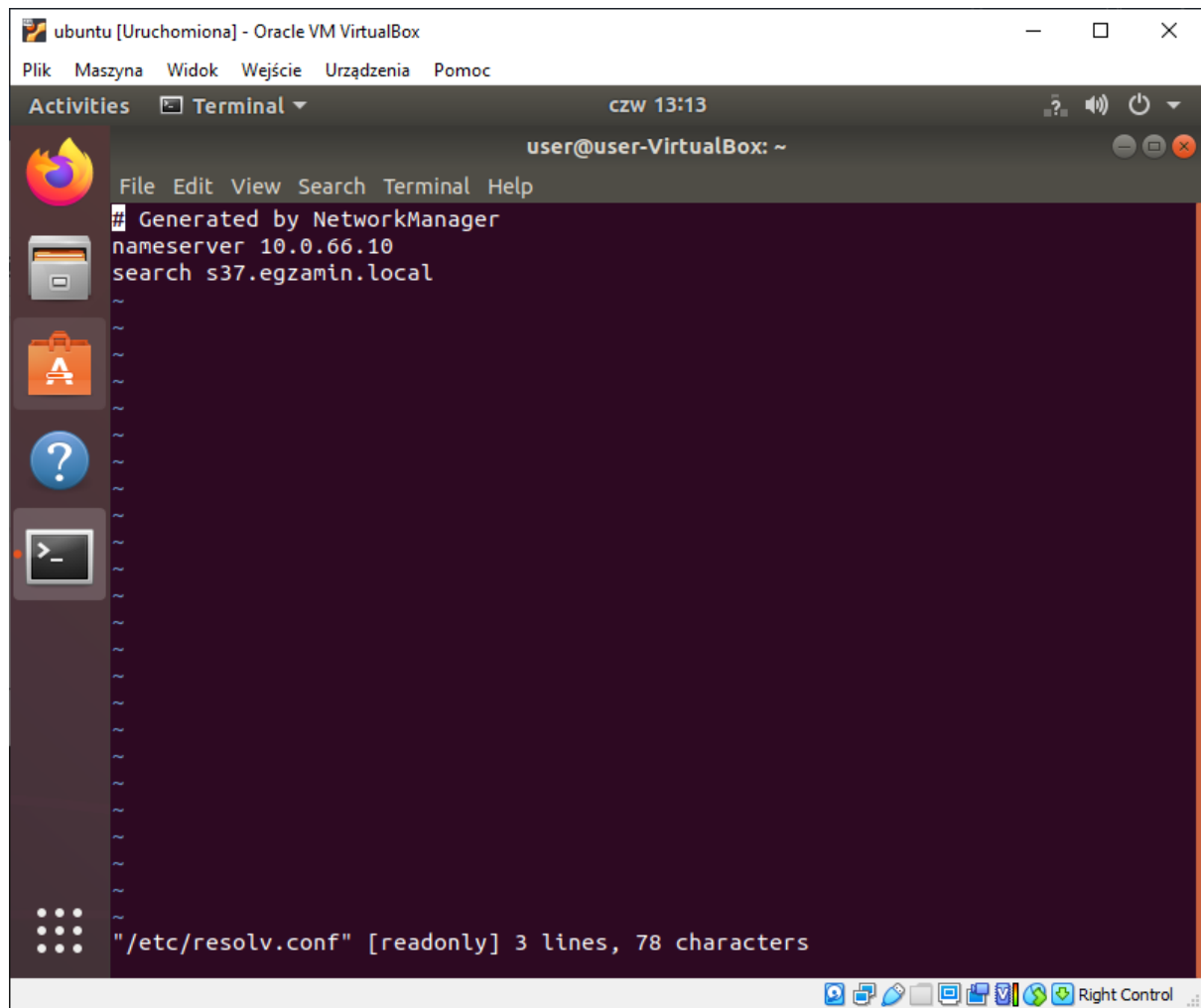
I wpisuje do niego wartości *nameserver*, *options*, *search*



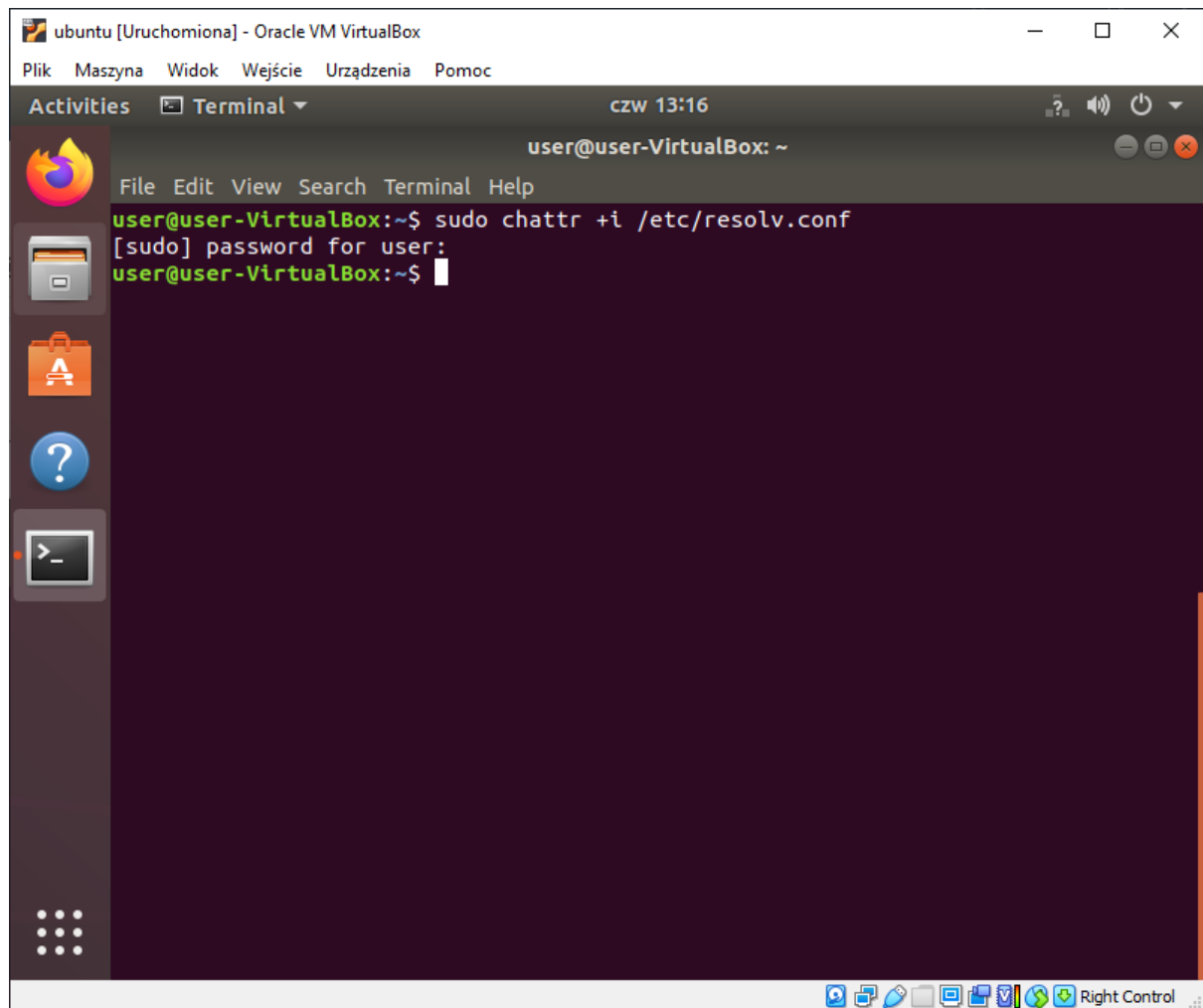


Podobnie robię na maszynie Ubuntu desktop





I ustawiam flagę read only



## Aliasy

Aby dodać aliasy tworzę rekordy **CNAME** w pliku zawierającym strefę wyszukiwania do przodu.



```
Ubuntu Server 18.04.1 [Uruchomiona] - Oracle VM VirtualBox
Plik Maszyna Widok Wejście Urządzenia Pomoc
root@serwer37v:~# dig s37.egzamin.local

; <<> DiG 9.11.3-1ubuntu1.17-Ubuntu <<> s37.egzamin.local
;; global options: +cmd
;; Got answer:
;; WARNING: .local is reserved for Multicast DNS
;; You are currently testing what happens when an mDNS query is leaked to DNS
;; ->>HEADER<- opcode: QUERY, status: NOERROR, id: 30313
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1

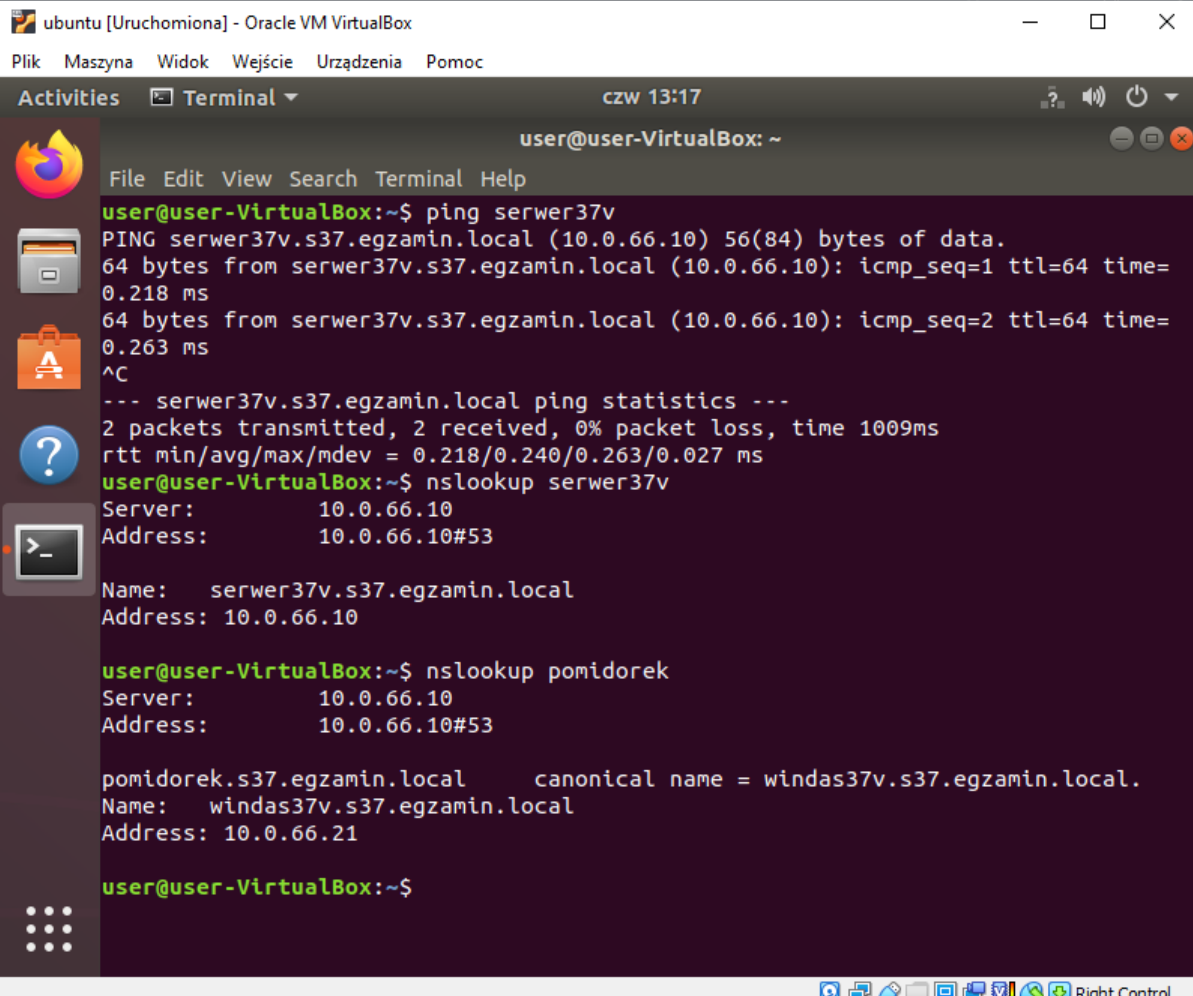
;; OPT PSEUDOSECTION:
;; EDNS: version: 0, flags:;; udp: 4096
;; COOKIE: aff9b96482136e4c46c8e5d1624ec8f0a19c3c9078f6ff8b (good)
;; QUESTION SECTION:
;s37.egzamin.local.          IN      A

;; AUTHORITY SECTION:
s37.egzamin.local.  604800 IN      SOA      serwer37v.s37.egzamin.local. root.s37.egzamin.local.
2 604800 86400 2419200 604800

;; Query time: 0 msec
;; SERVER: 10.0.66.10#53(10.0.66.10)
;; WHEN: Thu Apr 07 11:20:16 UTC 2022
;; MSG SIZE rcvd: 125

root@serwer37v:~# _
```

Następnie sprawdzam adres poleceniem nslookup i pinguję adres serwera



The screenshot shows a terminal window titled "ubuntu [Uruchomiona] - Oracle VM VirtualBox". The window has a menu bar with "Plik", "Maszyna", "Widok", "Wejście", "Urządzenia", and "Pomoc". Below the menu bar is a status bar showing "czw 13:17" and system icons. The terminal itself has a title bar "user@user-VirtualBox: ~" and a menu bar with "File", "Edit", "View", "Search", "Terminal", and "Help". The terminal content shows the following commands and output:

```
user@user-VirtualBox:~$ ping serwer37v
PING serwer37v.s37.egzamin.local (10.0.66.10) 56(84) bytes of data.
64 bytes from serwer37v.s37.egzamin.local (10.0.66.10): icmp_seq=1 ttl=64 time=
0.218 ms
64 bytes from serwer37v.s37.egzamin.local (10.0.66.10): icmp_seq=2 ttl=64 time=
0.263 ms
^C
--- serwer37v.s37.egzamin.local ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1009ms
rtt min/avg/max/mdev = 0.218/0.240/0.263/0.027 ms
user@user-VirtualBox:~$ nslookup serwer37v
Server:      10.0.66.10
Address:     10.0.66.10#53

Name:   serwer37v.s37.egzamin.local
Address: 10.0.66.10

user@user-VirtualBox:~$ nslookup pomidorek
Server:      10.0.66.10
Address:     10.0.66.10#53

pomidorek.s37.egzamin.local    canonical name = windas37v.s37.egzamin.local.
Name:   windas37v.s37.egzamin.local
Address: 10.0.66.21

user@user-VirtualBox:~$
```

The terminal window also features a sidebar on the left with icons for file manager, application launcher, help, and a terminal icon. The bottom of the window shows a taskbar with various application icons and a "Right Control" button.

Na Windowsie robię podobnie

```
w10 [Uruchomiona] - Oracle VM VirtualBox
Plik Maszyna Widok Wejście Urządzenia Pomoc
C:\Windows\system32\cmd.exe

C:\Users\uczen>ping papryczka.s37.egzamin.local

Pinging ubunteks37v.s37.egzamin.local [10.0.66.20] with 32 bytes of data:
Reply from 10.0.66.20: bytes=32 time<1ms TTL=64
Reply from 10.0.66.20: bytes=32 time<1ms TTL=64
Reply from 10.0.66.20: bytes=32 time<1ms TTL=64
Reply from 10.0.66.20: bytes=32 time<1ms TTL=64

Ping statistics for 10.0.66.20:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\uczen>nslookup papryczka.s37.egzamin.local
Server:  serwer37v.s37.egzamin.local
Address:  10.0.66.10

Name:    ubunteks37v.s37.egzamin.local
Address: 10.0.66.20
Aliases: papryczka.s37.egzamin.local

C:\Users\uczen>nslookup serwer37v.s37.egzamin.local
Server:  serwer37v.s37.egzamin.local
Address: 10.0.66.10

Name:    serwer37v.s37.egzamin.local
Address: 10.0.66.10

C:\Users\uczen>
```

```
Ubuntu Server 18.04.1 [Uruchomiona] - Oracle VM VirtualBox
Plik Maszyna Widok Wejście Urządzenia Pomoc

root@serwer37v:~# ping pomidorek
PING windas37v.s37.egzamin.local (10.0.66.21) 56(84) bytes of data.
64 bytes from windas37v.s37.egzamin.local (10.0.66.21): icmp_seq=1 ttl=128 time=0.336 ms
64 bytes from windas37v.s37.egzamin.local (10.0.66.21): icmp_seq=2 ttl=128 time=0.980 ms
64 bytes from windas37v.s37.egzamin.local (10.0.66.21): icmp_seq=3 ttl=128 time=0.409 ms
^C
--- windas37v.s37.egzamin.local ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2004ms
rtt min/avg/max/mdev = 0.336/0.575/0.980/0.287 ms
root@serwer37v:~# ping papryczka
PING unbunteks37v.s37.egzamin.local (10.0.66.20) 56(84) bytes of data.
64 bytes from unbunteks37v.s37.egzamin.local (10.0.66.20): icmp_seq=1 ttl=64 time=0.281 ms
64 bytes from unbunteks37v.s37.egzamin.local (10.0.66.20): icmp_seq=2 ttl=64 time=0.246 ms
64 bytes from unbunteks37v.s37.egzamin.local (10.0.66.20): icmp_seq=3 ttl=64 time=0.302 ms
^C
--- unbunteks37v.s37.egzamin.local ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2068ms
rtt min/avg/max/mdev = 0.246/0.276/0.302/0.026 ms
root@serwer37v:~#
```