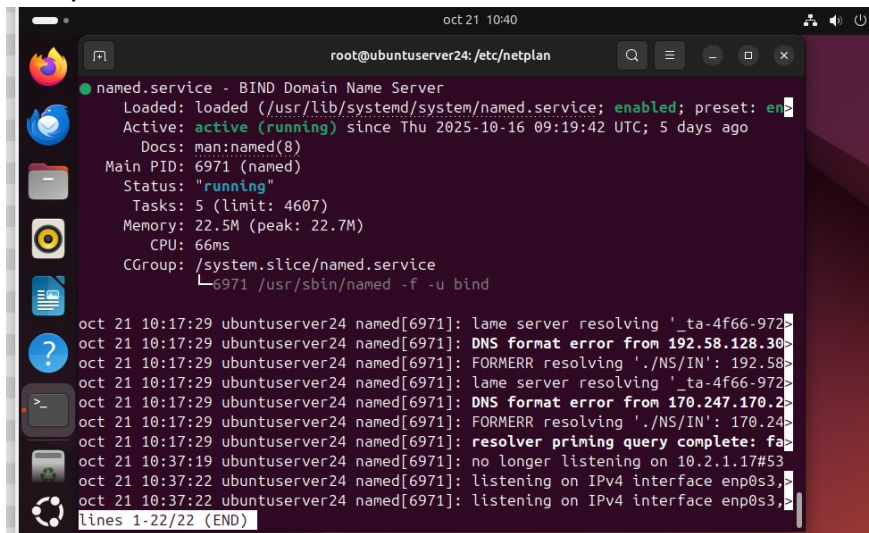


## Ejercicio 1

Mostramos que el servidor DNS bind9 está instalado

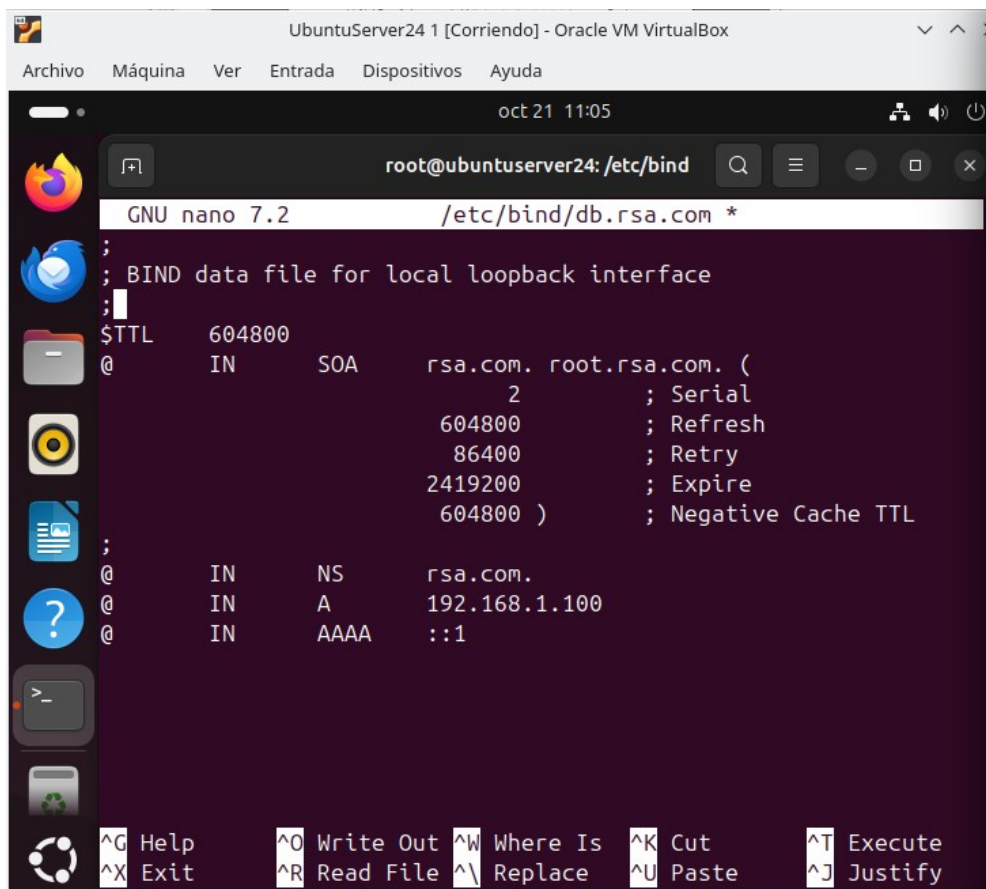


```
root@ubuntu24: /etc/netplan
named.service - BIND Domain Name Server
Loaded: loaded (/usr/lib/systemd/system/named.service; enabled; preset: en
Active: active (running) since Thu 2025-10-16 09:19:42 UTC; 5 days ago
Docs: man:named(8)
Main PID: 6971 (named)
Status: "running"
Tasks: 5 (limit: 4607)
Memory: 22.5M (peak: 22.7M)
CPU: 66ms
CGroup: /system.slice/named.service
└─6971 /usr/sbin/named -f -u bind

oct 21 10:17:29 ubuntu24 named[6971]: lame server resolving '_ta-4f66-972
oct 21 10:17:29 ubuntu24 named[6971]: DNS format error from 192.58.128.30
oct 21 10:17:29 ubuntu24 named[6971]: FORMERR resolving './NS/IN': 192.58
oct 21 10:17:29 ubuntu24 named[6971]: lame server resolving '_ta-4f66-972
oct 21 10:17:29 ubuntu24 named[6971]: DNS format error from 170.247.170.2
oct 21 10:17:29 ubuntu24 named[6971]: FORMERR resolving './NS/IN': 170.24
oct 21 10:17:29 ubuntu24 named[6971]: resolver priming query complete: fa
oct 21 10:37:19 ubuntu24 named[6971]: no longer listening on 10.2.1.17#53
oct 21 10:37:22 ubuntu24 named[6971]: listening on IPv4 interface enp0s3
oct 21 10:37:22 ubuntu24 named[6971]: listening on IPv4 interface enp0s3
lines 1-22/22 (END)
```

## Ejercicio 2

Es el contenido del archivo de configuración de la zona de búsqueda directa.

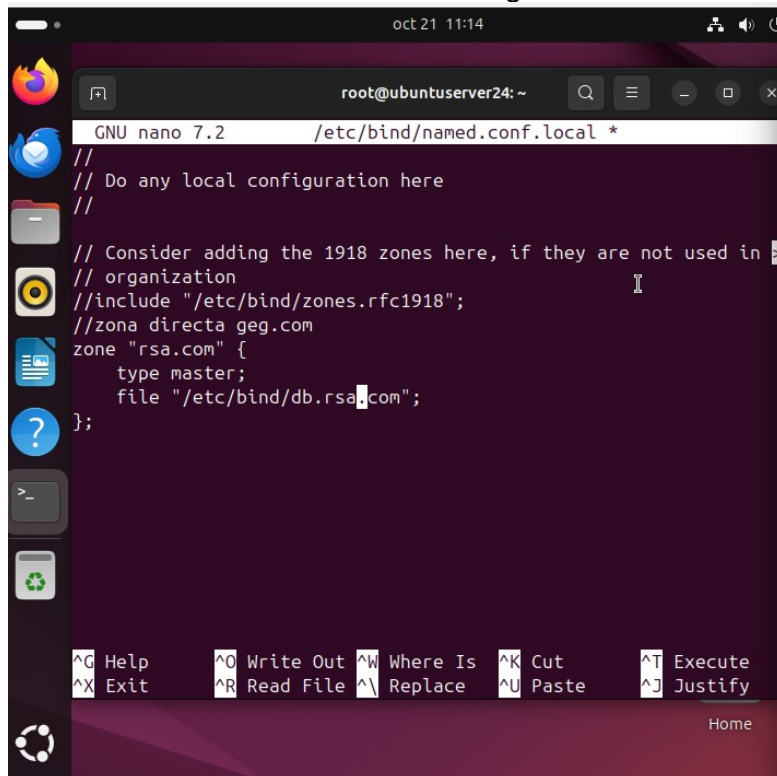


```
UbuntuServer24 1 [Corriendo] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
root@ubuntu24: /etc/bind
GNU nano 7.2 /etc/bind/db.rsa.com *
;
; BIND data file for local loopback interface
;
$TTL      604800
@         IN      SOA      rsa.com. root.rsa.com. (
                        2      ; Serial
                        604800  ; Refresh
                        86400   ; Retry
                        2419200 ; Expire
                        604800 ) ; Negative Cache TTL
;
@         IN      NS       rsa.com.
@         IN      A        192.168.1.100
@         IN      AAAA     ::1

^G Help      ^O Write Out ^W Where Is  ^K Cut       ^T Execute
^X Exit      ^R Read File ^\ Replace  ^U Paste    ^J Justify
```

### Ejercicio 3

Muestra la zona directa creada en el archivo de configuración de zonas



The screenshot shows a terminal window with the nano text editor open, editing the file /etc/bind/named.conf.local. The terminal title bar indicates the user is root@ubuntuserver24. The nano editor's status bar shows 'GNU nano 7.2'. The file content includes comments for local configuration and a zone definition for 'rsa.com' of type 'master' with a file path of '/etc/bind/db.rsa.com'. The nano editor's bottom status bar displays various keyboard shortcuts like ^G Help, ^O Write Out, ^W Where Is, ^K Cut, ^T Execute, ^X Exit, ^R Read File, ^\_ Replace, ^U Paste, and ^J Justify. A 'Home' button is visible in the bottom right corner of the editor area.

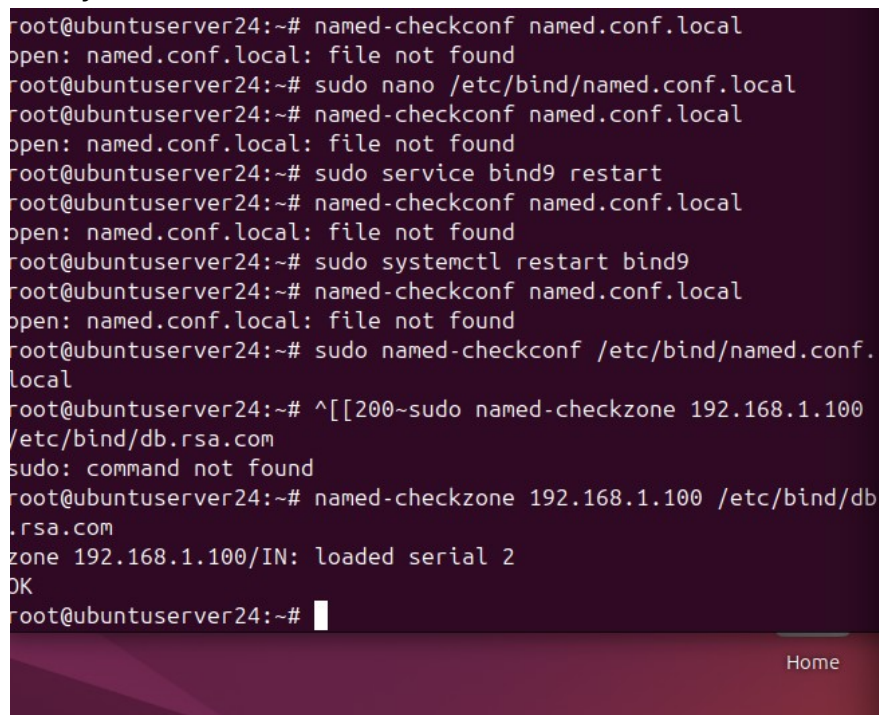
```
root@ubuntuserver24: ~
GNU nano 7.2 /etc/bind/named.conf.local *
//
// Do any local configuration here
//
// Consider adding the 1918 zones here, if they are not used in
// organization
//include "/etc/bind/zones.rfc1918";
//zona directa geg.com
zone "rsa.com" {
    type master;
    file "/etc/bind/db.rsa.com";
};

^G Help    ^O Write Out ^W Where Is ^K Cut     ^T Execute
^X Exit    ^R Read File ^_ Replace  ^U Paste   ^J Justify

Home
```

### Ejercicio 4

Mostrar el estado del servicio bind9 después de configurar los *forwarders* en el archivo named.conf.options y reiniciar el servicio.



The screenshot shows a terminal window with the following commands and output: 1. 'named-checkconf named.conf.local' results in 'open: named.conf.local: file not found'. 2. 'sudo nano /etc/bind/named.conf.local' opens the file in nano. 3. 'named-checkconf named.conf.local' again results in 'open: named.conf.local: file not found'. 4. 'sudo service bind9 restart' is executed. 5. 'named-checkconf named.conf.local' still results in 'open: named.conf.local: file not found'. 6. 'sudo systemctl restart bind9' is executed. 7. 'named-checkconf named.conf.local' still results in 'open: named.conf.local: file not found'. 8. 'sudo named-checkconf /etc/bind/named.conf.local' is executed. 9. '^[[200~sudo named-checkzone 192.168.1.100 /etc/bind/db.rsa.com' is executed, resulting in 'sudo: command not found'. 10. 'named-checkzone 192.168.1.100 /etc/bind/db.rsa.com' is executed, resulting in 'zone 192.168.1.100/IN: loaded serial 2 OK'. The terminal ends with the root prompt 'root@ubuntuserver24:~#'. A 'Home' button is visible in the bottom right corner of the terminal window.

```
root@ubuntuserver24:~# named-checkconf named.conf.local
open: named.conf.local: file not found
root@ubuntuserver24:~# sudo nano /etc/bind/named.conf.local
root@ubuntuserver24:~# named-checkconf named.conf.local
open: named.conf.local: file not found
root@ubuntuserver24:~# sudo service bind9 restart
root@ubuntuserver24:~# named-checkconf named.conf.local
open: named.conf.local: file not found
root@ubuntuserver24:~# sudo systemctl restart bind9
root@ubuntuserver24:~# named-checkconf named.conf.local
open: named.conf.local: file not found
root@ubuntuserver24:~# sudo named-checkconf /etc/bind/named.conf.local
root@ubuntuserver24:~# ^[[200~sudo named-checkzone 192.168.1.100
/etc/bind/db.rsa.com
sudo: command not found
root@ubuntuserver24:~# named-checkzone 192.168.1.100 /etc/bind/db
.rsa.com
zone 192.168.1.100/IN: loaded serial 2
OK
root@ubuntuserver24:~#

Home
```

## Ejercicio 4B

```
root@ubuntuserver24: ~  
service" for details.  
root@ubuntuserver24:~# sudo nano /etc/bind/named.conf.options  
root@ubuntuserver24:~# sudo systemctl restart bind9  
root@ubuntuserver24:~# sudo service bind9 status  
● named.service - BIND Domain Name Server  
   Loaded: loaded (/usr/lib/systemd/system/named.service; enabled; vendor preset: enabled)  
   Active: active (running) since Tue 2025-10-21 11:32:23 UTC; 1min 1s ago  
     Docs: man:named(8)  
  Main PID: 12254 (named)  
    Status: "running"  
   Tasks: 4 (limit: 4607)  
  Memory: 22.3M (peak: 22.7M)  
     CPU: 47ms  
   CGroup: /system.slice/named.service  
           └─12254 /usr/sbin/named -f -u bind  
  
oct 21 11:32:23 ubuntuserver24 named[12254]: network unreachable>  
oct 21 11:32:23 ubuntuserver24 named[12254]: network unreachable>  
oct 21 11:32:23 ubuntuserver24 named[12254]: network unreachable>  
oct 21 11:32:23 ubuntuserver24 named[12254]: network unreachable>  
oct 21 11:32:23 ubuntuserver24 named[12254]: network unreachable>  
oct 21 11:32:23 ubuntuserver24 named[12254]: network unreachable>  
oct 21 11:32:23 ubuntuserver24 named[12254]: network unreachable>  
oct 21 11:32:23 ubuntuserver24 named[12254]: managed-keys-zone: >
```

## Ejercicio 5

Mostrar el archivo /etc/systemd/resolved.conf después de modificarlo para que apunte al servidor DNS local

```
oct 21 11:46  
alumnoadmin@ubuntuserver24: /etc  
GNU nano 7.2 /etc/systemd/resolved.conf *  
#  
# See resolved.conf(5) for details.  
[Resolve]  
# Some examples of DNS servers which may be used for DNS= and Fa>  
# Cloudflare: 1.1.1.1#cloudflare-dns.com 1.0.0.1#cloudflare-dns.>  
# Google: 8.8.8.8#dns.google 8.8.4.4#dns.google 2001:4860:48>  
# Quad9: 9.9.9.9#dns.quad9.net 149.112.112.112#dns.quad9.ne>  
DNS=192.168.1.100  
#FallbackDNS=  
#Domains=  
#DNSSEC=no  
#DNSOverTLS=no  
#MulticastDNS=no  
#LLMNR=no  
#Cache=no-negative  
#CacheFromLocalhost=no  
#DNSStubListener=yes  
#DNSStubListenerExtra=  
#ReadEtcHosts=yes  
#ResolveUnicastSingleLabel=no  
#StaleRetentionSec=0  
  
^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute  
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify
```

## Ejercicio 6

Mostrar el archivo de configuración de la zona de búsqueda directa (db.rsa.com) después de cambiar la entrada para "www"

```
alumnoadmin@ubuntu24: /etc
GNU nano 7.2 /etc/bind/db.rsa.com *
; BIND data file for rsa.com
;
$TTL 604800
@ IN SOA ns1.rsa.com. root.rsa.com. (
    2024102101 ; Serial (Recome
    604800 ; Refresh
    86400 ; Retry
    2419200 ; Expire
    604800 ) ; Negative Cache
;
; Registros de Servidores de Nombres (NS)
@ IN NS ns1.rsa.com.

; Registros A y AAAA (La máquina donde reside el servidor)
ns1 IN A 192.168.1.100
ns1 IN AAAA ::1

; Registro A para el dominio raíz
@ IN A 192.168.1.100

; Registros opcionales (ejemplo para un servidor web)
www IN CNAME ns1
```

```
alumnoadmin@ubuntu24:~$ cd /etc/
bash: cd: /etc/: No such file or directory
alumnoadmin@ubuntu24:~$ cd /etc
alumnoadmin@ubuntu24:~$ sudo nano /etc/systemd/resolved.
conf
[sudo] password for alumnoadmin:
alumnoadmin@ubuntu24:~$
alumnoadmin@ubuntu24:~$ sudo nano /etc/bind/db.rsa.com
alumnoadmin@ubuntu24:~$ sudo named-checkzone rsa.com /et
c/bind/db.rsa.com
zone rsa.com/IN: loaded serial 2024102101
OK
alumnoadmin@ubuntu24:~$ sudo systemctl restart bind9
alumnoadmin@ubuntu24:~$
```

## Ejercicio 7

Mostrar el archivo named.conf.local donde se vea la zona de búsqueda inversa creada.

```
oct 23 07:13
alumnoadmin@ubuntu24: /etc
GNU nano 7.2 /etc/bind/named.conf.local
// Do any local configuration here
//
// Consider adding the 1918 zones here, if they are not used in
// organization
//include "/etc/bind/zones.rfc1918";
//zona directa geg.com
zone "rsa.com" {
    type master;
    file "/etc/bind/db.rsa.com";
};
//zona busqueda inversa
zone "168.192.in-addr.arpa" {
    type master;
    file "/etc/bind/db.192.168.1";
};
```

```
oct 23 07:13
alumnoadmin@ubuntu24: /etc
GNU nano 7.2 /etc/bind/named.conf.local
// Do any local configuration here
//
// Consider adding the 1918 zones here, if they are not used in
// organization
//include "/etc/bind/zones.rfc1918";
//zona directa geg.com
zone "rsa.com" {
    type master;
    file "/etc/bind/db.rsa.com";
};
//zona busqueda inversa
zone "168.192.in-addr.arpa" {
    type master;
    file "/etc/bind/db.192.168.1";
};
```



## Ejercicio 8 Y 9

Mostrar el archivo de configuración de la zona de búsqueda inversa, llamado db.168.192

Mostrar el resultado de los comandos named-checkconf y named-checkzone para verificar la configuración de la zona inversa.

```
alumnoadmin@ubuntu24:/etc/bind$ sudo cp db.127 db.168.192
alumnoadmin@ubuntu24:/etc/bind$ ls -l
total 64
-rw-r--r-- 1 root root 2928 ago 21 14:46 bind.keys
-rw-r--r-- 1 root root 255 ago 21 14:46 db.0
-rw-r--r-- 1 root root 271 ago 18 17:02 db.127
-rw-r--r-- 1 root bind 271 oct 23 07:23 db.168.192
-rw-r--r-- 1 root bind 581 oct 23 07:12 db.192.168.1
-rw-r--r-- 1 root root 237 ago 18 17:02 db.255
-rw-r--r-- 1 root root 353 ago 18 17:02 db.empty
-rw-r--r-- 1 root root 270 ago 18 17:02 db.local
-rw-r--r-- 1 root bind 270 oct 21 10:49 db.misiniciales.com
-rw-r--r-- 1 root bind 760 oct 21 11:51 db.rsa.com
-rw-r--r-- 1 root bind 458 ago 21 14:46 named.conf
-rw-r--r-- 1 root bind 498 ago 18 17:02 named.conf.default-zones
-rw-r--r-- 1 root bind 367 oct 23 07:11 named.conf.local
-rw-r--r-- 1 root bind 840 oct 21 11:32 named.conf.options
-rw-r--r-- 1 bind bind 100 oct 16 09:19 rndc.key
-rw-r--r-- 1 root root 1317 ago 18 17:02 zones.rfc1918
alumnoadmin@ubuntu24:/etc/bind$ sudo nano /etc/bind/db.168.192
alumnoadmin@ubuntu24:/etc/bind$ sudo named-checkconf
alumnoadmin@ubuntu24:/etc/bind$ sudo named-checkzone 1.168.192.in-addr
.arpa /etc/bind/db.168.192
zone 1.168.192.in-addr.arpa/IN: loaded serial 1
OK
alumnoadmin@ubuntu24:/etc/bind$ sudo systemctl reload named
alumnoadmin@ubuntu24:/etc/bind$
```

```
alumnoadmin@ubuntu24:/etc/bind$ cat /etc/bind/db.168.192
;
; BIND reverse data file for local loopback interface
;
$TTL      604800
@         IN      SOA      rsa.com. root.rsa.com. (
                        1          ; Serial
                        604800     ; Refresh
                        86400      ; Retry
                        2419200    ; Expire
                        604800 )   ; Negative Cache TTL
;
@         IN      NS       rsa.com.
1.0.0     IN      PTR      rsa.com.
```

## Ejercicio 10

Mostrar el funcionamiento del DNS con resolución directa e inversa, utilizando el comando host.

```
alumnoadmin@ubuntu24:/etc/bind$ sudo host www.rsa.com
Host www.rsa.com not found: 2(SERVFAIL)
alumnoadmin@ubuntu24:/etc/bind$ sudo nano db.rsa.com
alumnoadmin@ubuntu24:/etc/bind$ sudo systemctl restart systemd-r
esolved
alumnoadmin@ubuntu24:/etc/bind$ sudo systemctl restart bind9
alumnoadmin@ubuntu24:/etc/bind$ sudo host www.rsa.com
www.rsa.com is an alias for ubuntu24.rsa.com.
ubuntu24.rsa.com has address 192.168.1.100
alumnoadmin@ubuntu24:/etc/bind$ sudo host geg.com
Host geg.com not found: 2(SERVFAIL)
alumnoadmin@ubuntu24:/etc/bind$ sudo host rsa.com
rsa.com has address 192.168.1.100
rsa.com has IPv6 address ::1
alumnoadmin@ubuntu24:/etc/bind$ sudo host 192.168.1.100
Host 100.1.168.192.in-addr.arpa not found: 2(SERVFAIL)
alumnoadmin@ubuntu24:/etc/bind$
```

### Ejercicio 11

El comando **dig** sirve para **consultar información del sistema de nombres de dominio (DNS)**.

```
alumnoadmin@ubuntuserver24:/etc/bind$ sudo host www.rsa.com
Host www.rsa.com not found: 2(SERVFAIL)
alumnoadmin@ubuntuserver24:/etc/bind$ sudo nano db.rsa.com
alumnoadmin@ubuntuserver24:/etc/bind$ sudo systemctl restart systemd-r
esolved
alumnoadmin@ubuntuserver24:/etc/bind$ sudo systemctl restart bind9
alumnoadmin@ubuntuserver24:/etc/bind$ sudo host www.rsa.com
www.rsa.com is an alias for ubuntuserver.rsa.com.
ubuntuserver.rsa.com has address 192.168.1.100
alumnoadmin@ubuntuserver24:/etc/bind$ sudo host geg.com
Host geg.com not found: 2(SERVFAIL)
alumnoadmin@ubuntuserver24:/etc/bind$ sudo host rsa.com
rsa.com has address 192.168.1.100
rsa.com has IPv6 address ::1
alumnoadmin@ubuntuserver24:/etc/bind$ sudo host 192.168.1.100
Host 100.1.168.192.in-addr.arpa not found: 2(SERVFAIL)
alumnoadmin@ubuntuserver24:/etc/bind$
```

### Ejercicio 12

No me sale google porque no tengo la interfaz de red configurada de manera que salga internet

```
alumnoadmin@ubuntuserver24:/etc/bind$ nslookup google.com
;; Got SERVFAIL reply from 127.0.0.53
Server:          127.0.0.53
Address:         127.0.0.53#53

** server can't find google.com: SERVFAIL

alumnoadmin@ubuntuserver24:/etc/bind$ nslookup rsa.com
Server:          127.0.0.53
Address:         127.0.0.53#53

Non-authoritative answer:
Name:   rsa.com
Address: 192.168.1.100
Name:   rsa.com
Address: ::1
```