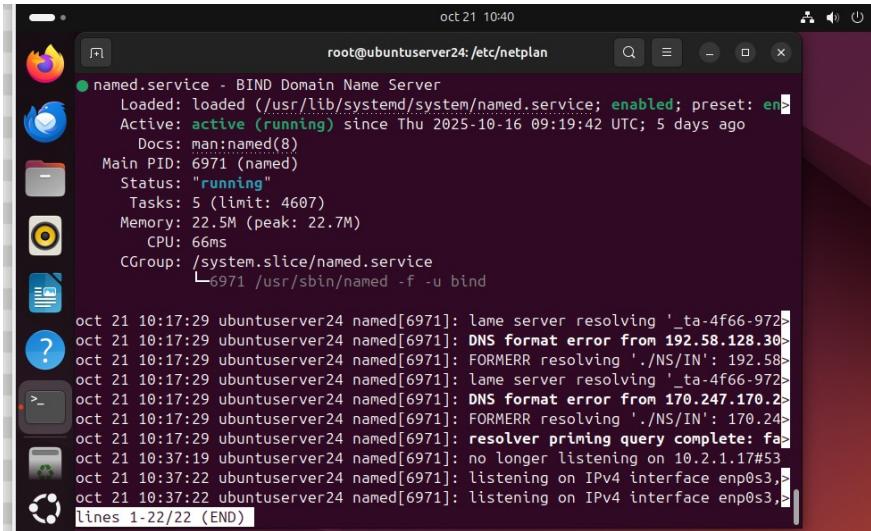


Ejercicio 1

Mostramos que el servidor DNS bind9 está instalado

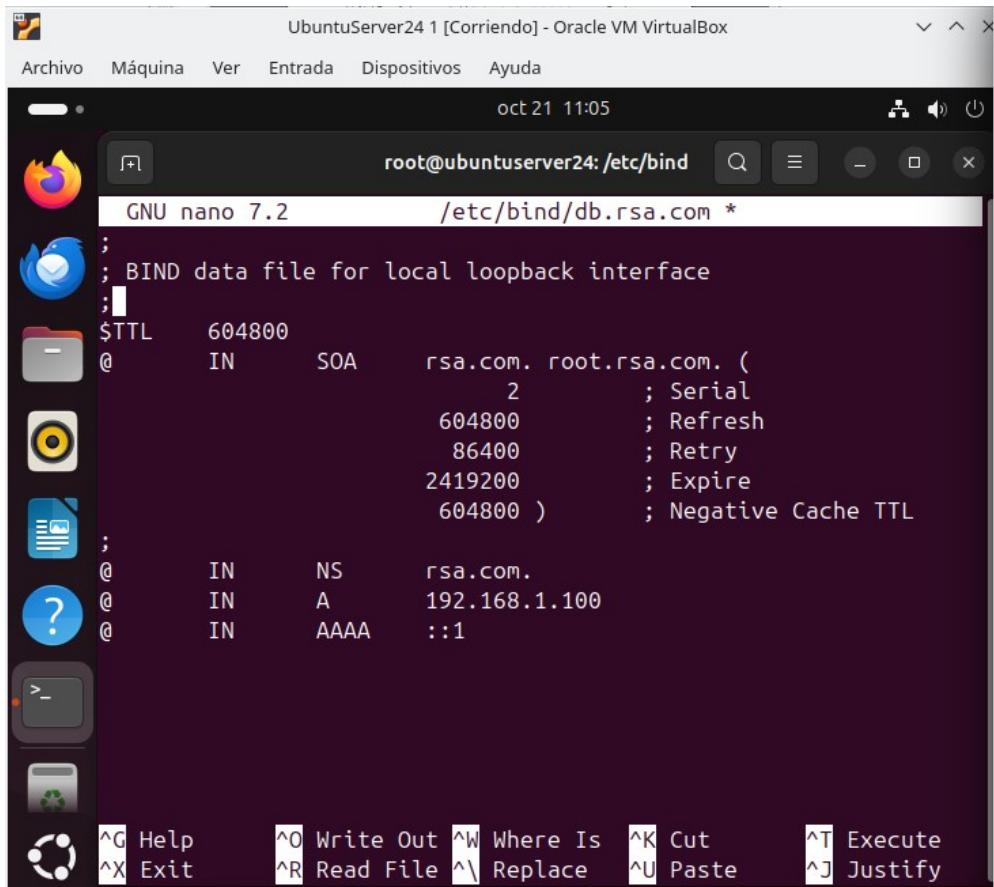


```
root@ubuntuserver24:/etc/netplan
oct 21 10:40
named.service - BIND Domain Name Server
   Loaded: loaded (/usr/lib/systemd/system/named.service; enabled; preset: enabled)
   Active: active (running) since Thu 2025-10-16 09:19:42 UTC; 5 days ago
     Docs: man:named(8)
     Main PID: 6971 (named)
        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 ubuntuserver24 named[6971]: lame server resolving '_ta-4f66-972'
oct 21 10:17:29 ubuntuserver24 named[6971]: DNS format error from 192.58.128.30
oct 21 10:17:29 ubuntuserver24 named[6971]: FORMERR resolving './NS/IN': 192.58
oct 21 10:17:29 ubuntuserver24 named[6971]: lame server resolving '_ta-4f66-972'
oct 21 10:17:29 ubuntuserver24 named[6971]: DNS format error from 170.247.170.2
oct 21 10:17:29 ubuntuserver24 named[6971]: FORMERR resolving './NS/IN': 170.24
oct 21 10:17:29 ubuntuserver24 named[6971]: resolver priming query complete: fa
oct 21 10:37:19 ubuntuserver24 named[6971]: no longer listening on 10.2.1.17#53
oct 21 10:37:22 ubuntuserver24 named[6971]: listening on IPv4 interface enp0s3,
oct 21 10:37:22 ubuntuserver24 named[6971]: listening on IPv4 interface enp0s3,
lines 1-22/22 (END)
```

Ejercicio 2

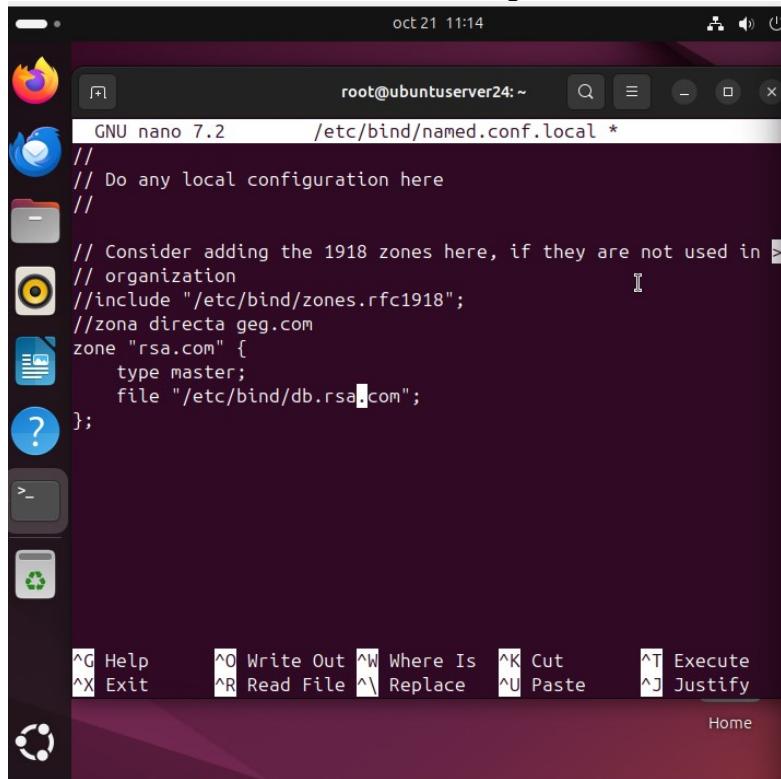
Es el contenido del archivo de configuración de la zona de búsqueda directa.



```
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
```

Ejercicio 3

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



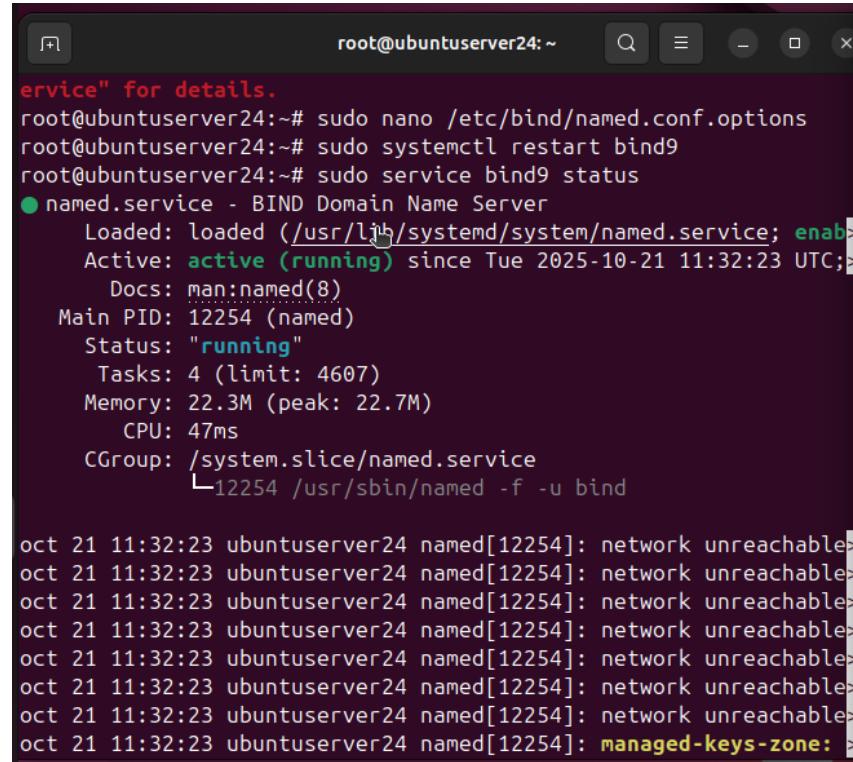
```
root@ubuntuserver24:~# nano /etc/bind/named.conf.local
// Do any local configuration here
//
// Consider adding the 1918 zones here, if they are not used in organization
//include "/etc/bind/zones.rfc1918";
//zona directa geg.com
zone "rsa.com" {
    type master;
    file "/etc/bind/db.rsa.com";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

Ejercicio 4

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

```
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:~#
```

Ejercicio 4B

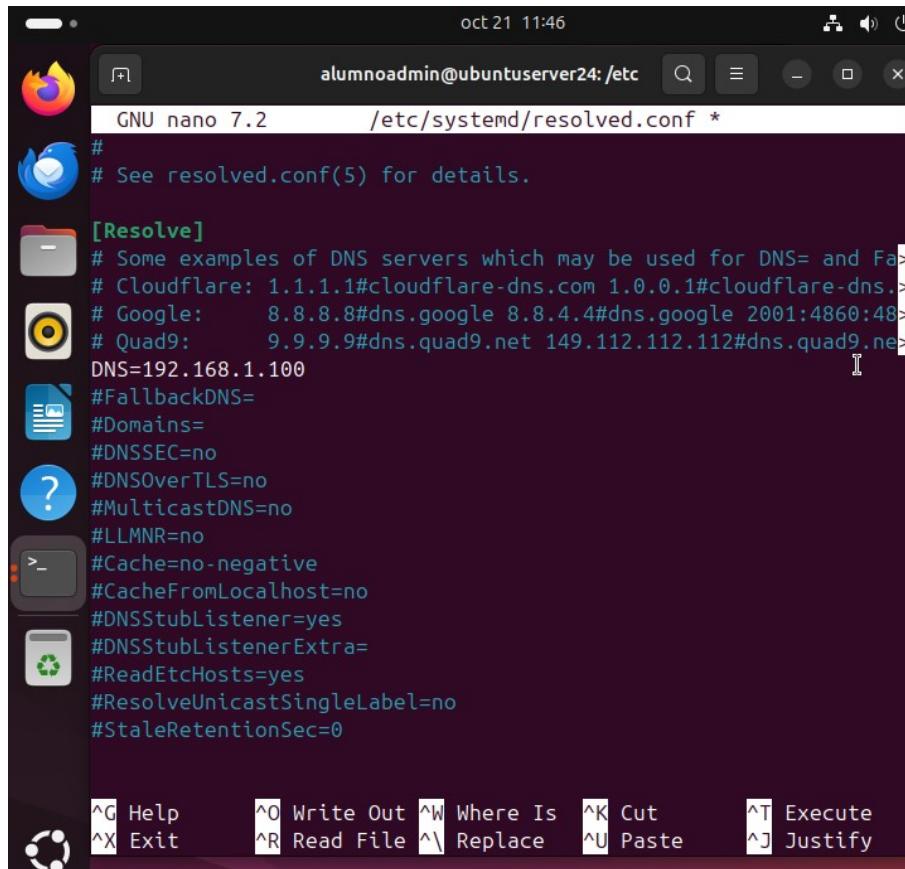


```
root@ubuntuserver24:~# sudo nano /etc/bind/named.conf.options
root@ubuntuserver24:~# sudo systemctl restart bind9
root@ubuntuserver24:~# sudo service bind9 status
● named.service - BIND Domain Name Server
   Loaded: loaded (/usr/lib/systemd/system/named.service; enabled)
   Active: active (running) 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]: managed-keys-zone: >
```

Ejercicio 5

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



```
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 FallbackDNS=
# 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 2001:4860:4860::8.8.8.8#dns.google 2001:4860:4860::8.8.4.4#dns.google
# Quad9:       9.9.9.9#dns.quad9.net 149.112.112.112#dns.quad9.net
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
```

Ejercicio 6

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

The left terminal window shows the contents of the /etc/bind/db.rsa.com file:

```
alumnoadmin@ubuntuserver24:/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 servicio)
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
```

The right terminal window shows the command-line steps to verify the configuration:

```
alumnoadmin@ubuntuserver24: $ cd etc/
bash: cd: etc/: No such file or directory
alumnoadmin@ubuntuserver24: $ cd /etc
alumnoadmin@ubuntuserver24:/etc$ sudo nano /etc/systemd/resolved.conf
[sudo] password for alumnoadmin:
alumnoadmin@ubuntuserver24:/etc$ sudo nano /etc/bind/db.rsa.com
alumnoadmin@ubuntuserver24:/etc$ sudo named-checkzone rsa.com /etc/bind/db.rsa.com
zone rsa.com/IN: loaded serial 2024102101
OK
alumnoadmin@ubuntuserver24:/etc$ sudo systemctl restart bind9
alumnoadmin@ubuntuserver24:/etc$
```

Ejercicio 7

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

The left terminal window shows the /etc/bind/named.conf.local file:

```
alumnoadmin@ubuntuserver24:/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";
};
```

The right terminal window shows the same file after adding the reverse search zone:

```
alumnoadmin@ubuntuserver24:/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@ubuntuserver24:/etc/bind$ sudo cp db.127 db.168.192
alumnoadmin@ubuntuserver24:/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----- 1 bind bind 100 oct 16 09:19 rndc.key
-rw-r--r-- 1 root root 1317 ago 18 17:02 zones.rfc1918
alumnoadmin@ubuntuserver24:/etc/bind$ sudo nano /etc/bind/db.168.192
alumnoadmin@ubuntuserver24:/etc/bind$ sudo named-checkconf
alumnoadmin@ubuntuserver24:/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@ubuntuserver24:/etc/bind$ sudo systemctl reload named
alumnoadmin@ubuntuserver24:/etc/bind$
```

```
alumnoadmin@ubuntuserver24:/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@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-resolved
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 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-resolved
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
```