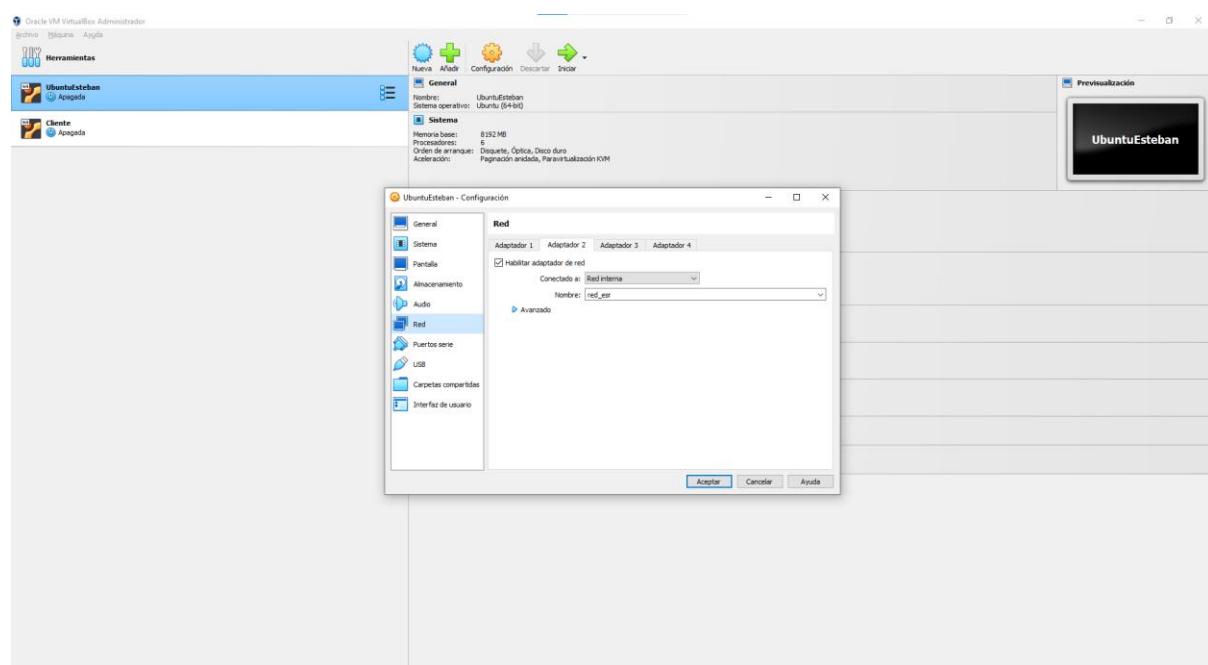
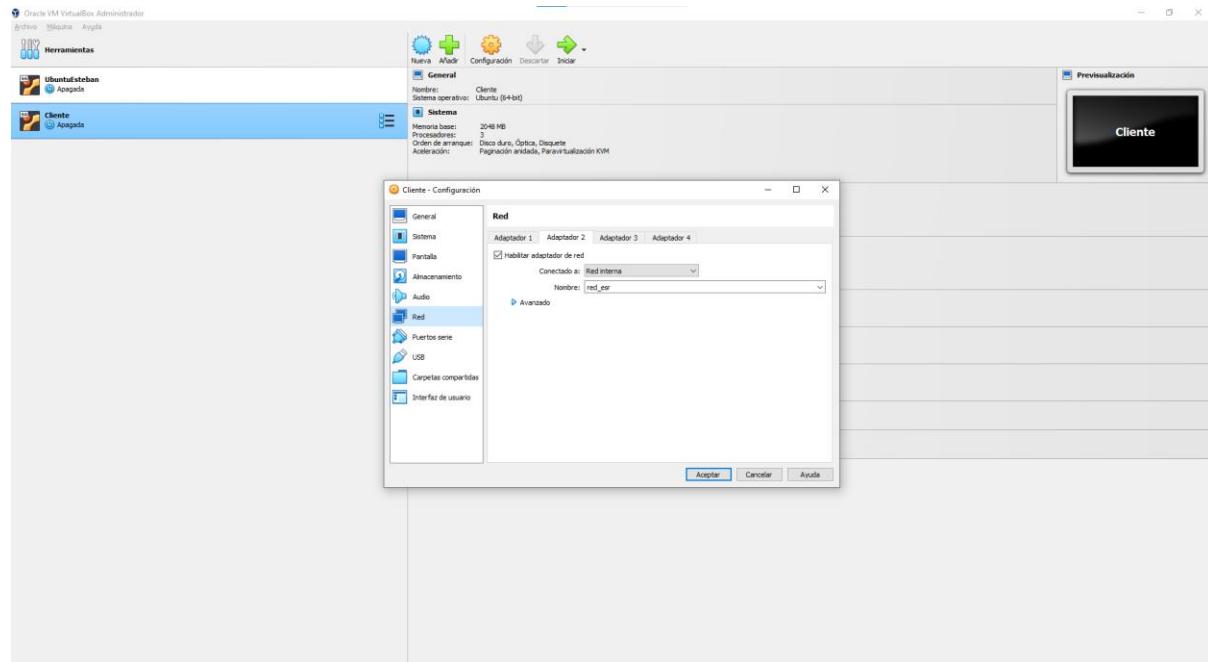


ef



Configuración del servidor

```
esteban@esteban-VirtualBox:~$ ping 192.168.200.24
PING 192.168.200.24 (192.168.200.24) 56(84) bytes of data.
64 bytes from 192.168.200.24: icmp_seq=1 ttl=64 time=0.371 ms
64 bytes from 192.168.200.24: icmp_seq=2 ttl=64 time=0.628 ms
64 bytes from 192.168.200.24: icmp_seq=3 ttl=64 time=0.609 ms
64 bytes from 192.168.200.24: icmp_seq=4 ttl=64 time=0.433 ms
64 bytes from 192.168.200.24: icmp_seq=5 ttl=64 time=0.654 ms
64 bytes from 192.168.200.24: icmp_seq=6 ttl=64 time=0.843 ms
64 bytes from 192.168.200.24: icmp_seq=7 ttl=64 time=0.654 ms
64 bytes from 192.168.200.24: icmp_seq=8 ttl=64 time=0.337 ms
64 bytes from 192.168.200.24: icmp_seq=9 ttl=64 time=0.825 ms
64 bytes from 192.168.200.24: icmp_seq=10 ttl=64 time=0.345 ms
64 bytes from 192.168.200.24: icmp_seq=11 ttl=64 time=0.400 ms
64 bytes from 192.168.200.24: icmp_seq=12 ttl=64 time=0.600 ms
64 bytes from 192.168.200.24: icmp_seq=13 ttl=64 time=0.821 ms
^C
--- 192.168.200.24 ping statistics ---
13 packets transmitted, 13 received, 0% packet loss, time 12290ms
rtt min/avg/max/mdev = 0.337/0.578/0.843/0.178 ms
```

```
esteban@esteban-VirtualBox:~$ ping 192.168.200.224
PING 192.168.200.224 (192.168.200.224) 56(84) bytes of data.
64 bytes from 192.168.200.224: icmp_seq=1 ttl=64 time=0.369 ms
64 bytes from 192.168.200.224: icmp_seq=2 ttl=64 time=0.696 ms
64 bytes from 192.168.200.224: icmp_seq=3 ttl=64 time=0.619 ms
64 bytes from 192.168.200.224: icmp_seq=4 ttl=64 time=0.346 ms
64 bytes from 192.168.200.224: icmp_seq=5 ttl=64 time=0.718 ms
64 bytes from 192.168.200.224: icmp_seq=6 ttl=64 time=0.746 ms
64 bytes from 192.168.200.224: icmp_seq=7 ttl=64 time=0.513 ms
64 bytes from 192.168.200.224: icmp_seq=8 ttl=64 time=0.982 ms
64 bytes from 192.168.200.224: icmp_seq=9 ttl=64 time=0.749 ms
64 bytes from 192.168.200.224: icmp_seq=10 ttl=64 time=0.710 ms
64 bytes from 192.168.200.224: icmp_seq=11 ttl=64 time=0.444 ms
64 bytes from 192.168.200.224: icmp_seq=12 ttl=64 time=0.378 ms
```

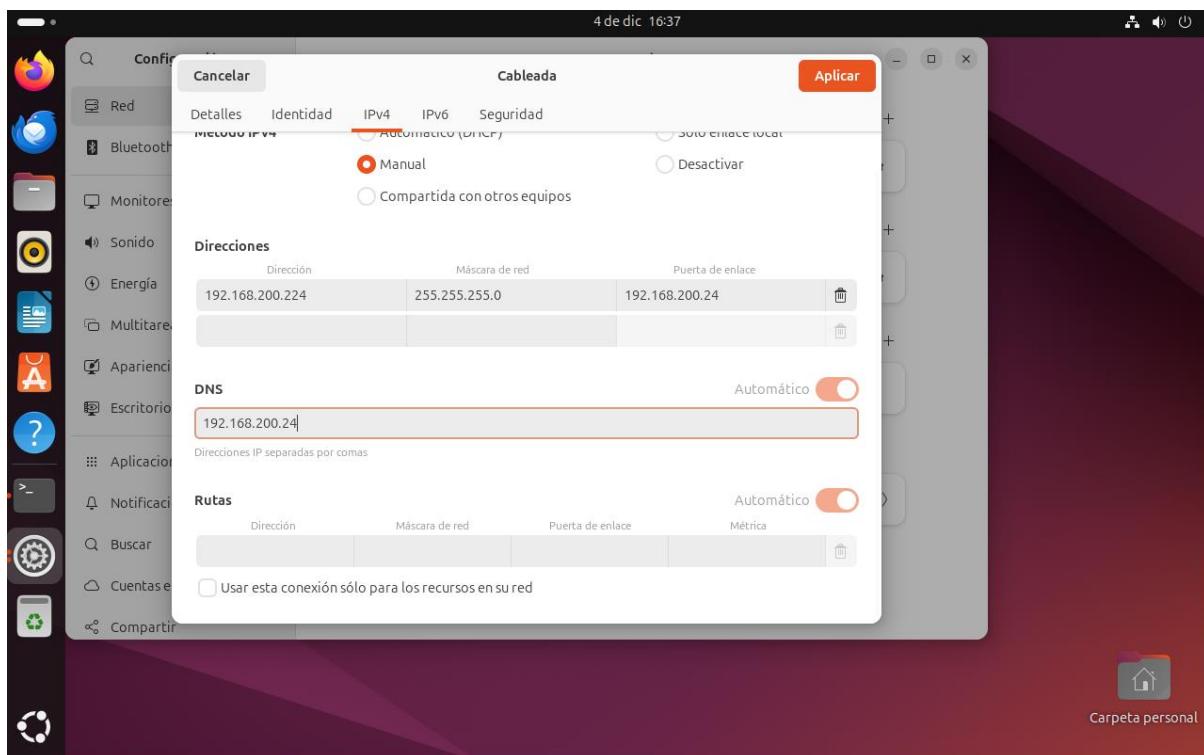
Instalar bind9

```
esteban@esteban-VirtualBox:~$ sudo apt update
sudo apt install bind9
[sudo] contraseña para oscar:
Obj:1 http://archive.ubuntu.com/ubuntu noble InRelease
```

```
GNU nano 7.2          /etc/bind/named.conf.options
options {
    directory "/var/cache/bind";

    // forwarders {
    //     0.0.0.0;
    // };

    dnssec-validation auto;
};
```



```
esteban@esteban-VirtualBox:~$ sudo ufw allow 53/udp
Reglas actualizadas
Reglas actualizadas (v6)
esteban@esteban-VirtualBox:~$ sudo ufw enable
El cortafuegos está activo y habilitado en el arranque del sistema
esteban@esteban-VirtualBox:~$ sudo ufw reload
El cortafuegos se ha recargado
```

The screenshot shows a terminal window titled "Terminal" with the command "GNU nano 7.2" at the top. The file being edited is "/etc/bind/named.conf.options". The content of the file is as follows:

```
options {
    directory "/var/cache/bind";

    forwarders {
        8.8.8.8;
        8.8.8.4; █
    };
    dnssec-validation auto;
};
```

At the bottom of the terminal window, there is a status bar with keyboard shortcuts:

^G Ayuda ^O Guardar ^W Buscar ^K Cortar ^T Ejecutar ^C Ubicación
^X Salir ^R Leer fich. █ ^\ Reemplazar ^U Pegar ^J Justificar ^/ Ir a línea

```
GNU nano 7.2          /etc/bind/named.conf.options
options {
    directory "/var/cache/bind";

    allow-query { 192.168.200.224;
                  127.0.0.1; };

    forwarders {
        8.8.8.8;
        8.8.8.4;
    };

    dnssec-validation auto;
};

};
```

```
[ 14 líneas escritas ]
^G Ayuda      ^O Guardar     ^W Buscar      ^K Cortar      ^T Ejecutar   ^C Ubicación
^X Salir      ^R Leer fich. ^\ Reemplazar ^U Pegar       ^J Justificar ^/ Ir a línea
```

Parte 3

```
esteban@esteban-VirtualBox:~$ nslookup www.google.com
Server:      127.0.0.53
Address:     127.0.0.53#53

Non-authoritative answer:
Name:   www.google.com
Address: 142.250.200.132
Name:   www.google.com
Address: 2a00:1450:4003:803::2004
```

```

esteban@esteban-VirtualBox:~$ dig www.redes.com

; <>> DiG 9.18.39-0ubuntu0.24.04.2-Ubuntu <>> www.redes.com
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 47338
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;www.redes.com.           IN      A

;; ANSWER SECTION:
www.redes.com.        3600    IN      A      51.38.65.44

;; Query time: 59 msec
;; SERVER: 127.0.0.53#53(127.0.0.53) (UDP)
;; WHEN: Thu Dec 04 17:23:18 CET 2025
;; MSG SIZE rcvd: 58

esteban@esteban-VirtualBox:~$ dig www.redes.com

; <>> DiG 9.18.39-0ubuntu0.24.04.2-Ubuntu <>> www.redes.com
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 64822
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;www.redes.com.           IN      A

;; ANSWER SECTION:
www.redes.com.        3595    IN      A      51.38.65.44

;; Query time: 3 msec
;; SERVER: 127.0.0.53#53(127.0.0.53) (UDP)
;; WHEN: Thu Dec 04 17:23:23 CET 2025
;; MSG SIZE rcvd: 58

```

2 cliente

Creamos el 2 cliente y configuramos su ip dns...

Método IPv4	<input type="radio"/> Automático (DHCP)	<input type="radio"/> Sólo enlace local
	<input checked="" type="radio"/> Manual	<input type="radio"/> Desactivar
	<input type="radio"/> Compartida con otros equipos	

Direcciones

Dirección	Máscara de red	Puerta de enlace	
190.168.200.225	255.255.255.0	192.168.200.24	

DNS

192.168.200.24	Automático
----------------	------------

Direcciones IP separadas por comas

Añadimos al name.conf.options del servidor la ip del nuevo cliente

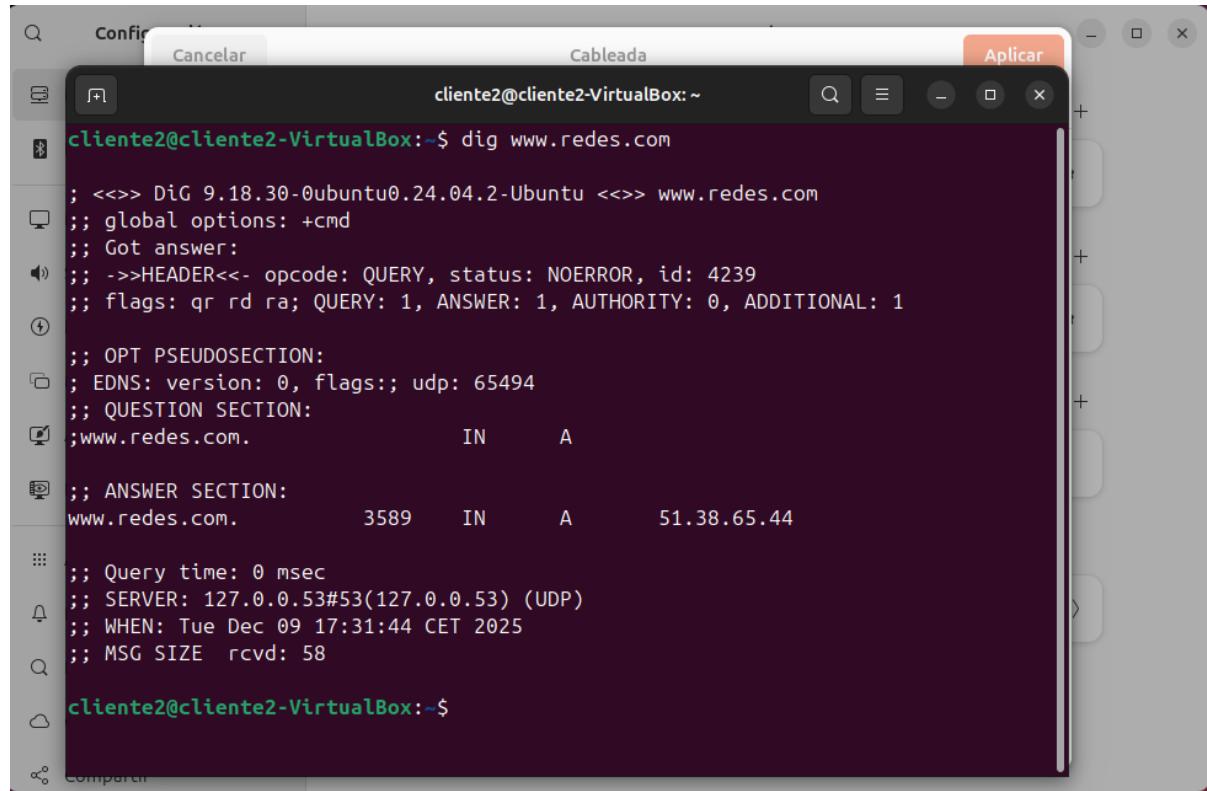
```
options {
    directory "/var/cache/bind";

    allow-query { 192.168.200.224;
                  192.168.200.225; █
                  127.0.0.1; };

    forwarders {
        8.8.8.8;
        8.8.4.4;
    };

    dnssec-validation auto;

};
```



The screenshot shows a terminal window titled 'cliente2@cliente2-VirtualBox:~'. The user has run the command 'dig www.redes.com'. The output is as follows:

```
cliente2@cliente2-VirtualBox:~$ dig www.redes.com

; <>> DiG 9.18.30-0ubuntu0.24.04.2-Ubuntu <>> www.redes.com
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 4239
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1
;; OPT PSEUDOSECTION:
;; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;www.redes.com.           IN      A
;; ANSWER SECTION:
www.redes.com.       3589     IN      A      51.38.65.44
;; Query time: 0 msec
;; SERVER: 127.0.0.53#53(127.0.0.53) (UDP)
;; WHEN: Tue Dec 09 17:31:44 CET 2025
;; MSG SIZE  rcvd: 58

cliente2@cliente2-VirtualBox:~$
```

volvemos a ejecutar el dig y nos damos cuenta de que solo ha tardado 0 segundos

```
esteban@esteban-VirtualBox:~$ sudo rndc querylog
esteban@esteban-VirtualBox:~$ sudo tail -f /var/log/syslog
2025-12-09T18:10:16.387756+01:00 esteban-VirtualBox systemd[1]: Finished sysstat-collect.service - system activity accounting tool.
2025-12-09T18:11:34.052764+01:00 esteban-VirtualBox kernel: [UFW BLOCK] IN=enp0s8 OUT= MAC=08:00:27:57:9a:21:08:00:27:94:2b:41:08:00 SRC=190.168.200.225 DST=192.168.200.24 LEN=64 TOS=0
x00 PREC=0x00 TTL=64 ID=40681 DF PROTO=TCP SPT=57914 DPT=53 WINDOW=64240 RES=0x00 SYN URGP=0
2025-12-09T18:11:35.094262+01:00 esteban-VirtualBox kernel: [UFW BLOCK] IN=enp0s8 OUT= MAC=08:00:27:57:9a:21:08:00:27:94:2b:41:08:00 SRC=190.168.200.225 DST=192.168.200.24 LEN=60 TOS=0
x00 PREC=0x00 TTL=64 ID=40682 DF PROTO=TCP SPT=57914 DPT=53 WINDOW=64240 RES=0x00 SYN URGP=0
2025-12-09T18:11:36.071979+01:00 esteban-VirtualBox kernel: [UFW BLOCK] IN=enp0s8 OUT= MAC=08:00:27:57:9a:21:08:00:27:94:2b:41:08:00 SRC=190.168.200.225 DST=192.168.200.24 LEN=60 TOS=0
x00 PREC=0x00 TTL=64 ID=40683 DF PROTO=TCP SPT=57914 DPT=53 WINDOW=64240 RES=0x00 SYN URGP=0
2025-12-09T18:11:37.092868+01:00 esteban-VirtualBox kernel: [UFW BLOCK] IN=enp0s8 OUT= MAC=08:00:27:57:9a:21:08:00:27:94:2b:41:08:00 SRC=190.168.200.225 DST=192.168.200.24 LEN=60 TOS=0
x00 PREC=0x00 TTL=64 ID=40684 DF PROTO=TCP SPT=57914 DPT=53 WINDOW=64240 RES=0x00 SYN URGP=0
2025-12-09T18:11:38.118391+01:00 esteban-VirtualBox kernel: [UFW BLOCK] IN=enp0s8 OUT= MAC=08:00:27:57:9a:21:08:00:27:94:2b:41:08:00 SRC=190.168.200.225 DST=192.168.200.24 LEN=60 TOS=0
x00 PREC=0x00 TTL=64 ID=40685 DF PROTO=TCP SPT=57914 DPT=53 WINDOW=64240 RES=0x00 SYN URGP=0
2025-12-09T18:11:39.142866+01:00 esteban-VirtualBox kernel: [UFW BLOCK] IN=enp0s8 OUT= MAC=08:00:27:57:9a:21:08:00:27:94:2b:41:08:00 SRC=190.168.200.225 DST=192.168.200.24 LEN=60 TOS=0
x00 PREC=0x00 TTL=64 ID=40686 DF PROTO=TCP SPT=57914 DPT=53 WINDOW=64240 RES=0x00 SYN URGP=0
2025-12-09T18:11:55.531746+01:00 esteban-VirtualBox kernel: [UFW BLOCK] IN=enp0s8 OUT= MAC=08:00:27:57:9a:21:08:00:27:94:2b:41:08:00 SRC=190.168.200.225 DST=192.168.200.24 LEN=60 TOS=0
x00 PREC=0x00 TTL=64 ID=4121 DF PROTO=TCP SPT=3938 DPT=53 WINDOW=64240 RES=0x00 SYN URGP=0
2025-12-09T18:12:10.302453+01:00 esteban-VirtualBox named[1298]: received control channel command "querylog"
2025-12-09T18:12:29.302993+01:00 esteban-VirtualBox named[1298]: query logging is now on
2025-12-09T18:12:29.482712+01:00 esteban-VirtualBox kernel: [UFW BLOCK] IN=enp0s8 OUT= MAC=08:00:27:57:9a:21:08:00:27:94:2b:41:08:00 SRC=190.168.200.225 DST=192.168.200.24 LEN=64 TOS=0
x00 PREC=0x00 TTL=64 ID=64968 DF PROTO=TCP SPT=49452 DPT=53 WINDOW=64240 RES=0x00 SYN URGP=0
2025-12-09T18:12:30.317148+01:00 esteban-VirtualBox named[1298]: client @0x76fac534f178 192.168.200.224#55915 (connectivity-check.ubuntu.com): query: connectivity-check.ubuntu.com IN A +E(0) (192.168.200.24)
2025-12-09T18:12:31.814078+01:00 esteban-VirtualBox named[1298]: client @0x76fac534f178 192.168.200.224#56698 (api.snapcraft.io): query: api.snapcraft.io IN A +E(0) (192.168.200.24)
2025-12-09T18:12:31.814582+01:00 esteban-VirtualBox named[1298]: client @0x76fac537fcf8 192.168.200.224#37137 (api.snapcraft.io): query: api.snapcraft.io IN AAAA +E(0) (192.168.200.24)
2025-12-09T18:12:32.713879+01:00 esteban-VirtualBox named[1298]: client @0x76fac537fcf8 192.168.200.224#54215 (api.snapcraft.io): query: api.snapcraft.io IN AAAA +E(0) (192.168.200.24)
2025-12-09T18:12:32.713993+01:00 esteban-VirtualBox named[1298]: client @0x76fac537fcf8 192.168.200.224#40375 (api.snapcraft.io): query: api.snapcraft.io IN A +E(0) (192.168.200.24)
2025-12-09T18:12:32.971492+01:00 esteban-VirtualBox named[1298]: client @0x76fac537fcf8 192.168.200.224#38890 (canonical-lgw01.cdn.snapcraftcontent.com): query: canonical-lgw01.cdn.snapcraftcontent.com IN AAAA +E(0) (192.168.200.24)
2025-12-09T18:12:32.971595+01:00 esteban-VirtualBox named[1298]: client @0x76fac534f178 192.168.200.224#60057 (canonical-lgw01.cdn.snapcraftcontent.com): query: canonical-lgw01.cdn.snapcraftcontent.com IN A +E(0) (192.168.200.24)
2025-12-09T18:12:34.513178+01:00 esteban-VirtualBox kernel: [UFW BLOCK] IN=enp0s8 OUT= MAC=08:00:27:57:9a:21:08:00:27:94:2b:41:08:00 SRC=190.168.200.225 DST=192.168.200.24 LEN=60 TOS=0
x00 PREC=0x00 TTL=64 ID=64973 DF PROTO=TCP SPT=49452 DPT=53 WINDOW=64240 RES=0x00 SYN URGP=0
2025-12-09T18:12:35.426888+01:00 esteban-VirtualBox named[1298]: client @0x76fab03bf88 192.168.200.224#59016 (dashboard.snapcraft.io): query: dashboard.snapcraft.io IN AAAA +E(0) (192.168.200.24)
2025-12-09T18:12:35.427131+01:00 esteban-VirtualBox named[1298]: client @0x76fab03bf88 192.168.200.224#34685 (dashboard.snapcraft.io): query: dashboard.snapcraft.io IN A +E(0) (192.168.200.24)
^C
```