

Fent servir la maquina bàsica de Debian 10 anem a Instal·lar un servidor DNS

Abans d'engegar-la li canviem la mac

Li canviem el nom:

#hostnamectl set-hostname dns-jvillalba-server

```
root@server:/home/daw# hostnamectl set-hostname dns-mcastellvi-server
root@server:/home/daw# nano /etc/host
root@server:/home/daw# nano /etc/hosts
root@server:/home/daw# cat /etc/hosts
127.0.0.1    localhost
127.0.1.1    server.vidal.local    dns-mcastellvi-server

# The following lines are desirable for IPv6 capable hosts
::1        localhost ip6-localhost ip6-loopback
ff02::1    ip6-allnodes
ff02::2    ip6-allrouters
root@server:/home/daw#
```

(fiqueu al mon del server la vostra inicial i el vostre cognom)

Hem de ficar el mateix nom a /etc/host

Recordeu que un server tindria que tenir una ip fixa.

#nano /etc/network/interfaces

```
GNU nano 5.4 /etc/network/interfaces
# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).

source /etc/network/interfaces.d/*

# The loopback network interface
auto lo
iface lo inet loopback

# The primary network interface
auto enp0s3
iface enp0s3 inet static interface
address 192.168.85.187
netmask 255.255.255.0
gateway 192.168.85.1
dns-nameservers 192.168.0.25 8.8.8.8
```

Tindrem que configurar també el nostre client perquè ho faci servir.

Podríem usar el nostre servidor web amb varis dominis per que el nostre servidor DNS enviï als clients la seva IP quan arribi una petició DNS

Este ip es el del servidor:.

```
valid_lft forever preferred_lft forever
inet6 ::1/128 scope host
valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
    link/ether 08:00:27:41:44:39 brd ff:ff:ff:ff:ff:ff
    inet 192.168.85.187/24 brd 192.168.85.255 scope global dynamic enp0s3
        valid_lft 86003sec preferred_lft 86003sec
    inet6 fe80::a00:27ff:fe41:4439/64 scope link
        valid_lft forever preferred_lft forever
3: docker0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue state DOWN group default qlen 1000
    link/ether 17:35:7a:18:00:00 brd 17:35:7a:18:00:00
```

I este el del cliente:

```
root@vib2022:/home/vib# ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNK 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: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:25:1b:b7 brd ff:ff:ff:ff:ff:ff
    inet 192.168.85.237/24 brd 192.168.85.255 scope global dynamic enp0s3
        valid_lft forever preferred_lft forever
    inet6 fe80::208:15ff:fe1b:b7/64 scope link
        valid_lft forever preferred_lft forever
```

FES CAPTURA DE PANTALLA DEL QUE ES DEMANA I CONTESTA LES PREGUNTES:

1.- Instal·la BIND 9

```
root@server:/home/daw# apt-get install bind9 bind9-doc resolvconf python-ply-doc
Leyendo lista de paquetes... Hecho
Creando árbol de dependencias... Hecho
Leyendo la información de estado... Hecho
Se instalarán los siguientes paquetes adicionales:
  bind9-utils dns-root-data python3-ply
Paquetes sugeridos:
```

2.- Comprova que està actiu.

```
root@server:/etc/bind# systemctl status bind9
● named.service - BIND Domain Name Server
   Loaded: loaded (/lib/systemd/system/named.service; enabled; vendor preset: enabled)
   Active: active (running) since Fri 2022-03-25 09:18:48 CET; 2min 6s ago
     Docs: man:named(8)
  Main PID: 3799 (named)
    Tasks: 8 (limit: 4679)
   Memory: 24.4M
      CPU: 67ms
   CGroup: /system.slice/named.service
           └─3799 /usr/sbin/named -f -u bind

mar 25 09:18:49 dns-mcastellvi-server named[3799]: network unreachable resolving './DNSKEY/IN'>
mar 25 09:18:49 dns-mcastellvi-server named[3799]: network unreachable resolving './NS/IN': 20>
mar 25 09:18:49 dns-mcastellvi-server named[3799]: network unreachable resolving './DNSKEY/IN'>
mar 25 09:18:49 dns-mcastellvi-server named[3799]: network unreachable resolving './NS/IN': 20>
mar 25 09:18:49 dns-mcastellvi-server named[3799]: zone 127.in-addr.arpa/IN: loaded serial 1
mar 25 09:18:49 dns-mcastellvi-server named[3799]: zone localhost/IN: loaded serial 2
mar 25 09:18:49 dns-mcastellvi-server named[3799]: all zones loaded
mar 25 09:18:49 dns-mcastellvi-server named[3799]: running
```

3.- Quina versió de BIND 9 tenim funcionant?

```
root@server:/etc/bind# named -v
BIND 9.16.22-Debian (Extended Support Version) <id:59bfaba>
root@server:/etc/bind#
```

4.- Qué es DNSSEC?

Es un segurador adicional que crea capes de seguretat als servidors DNS evitnat activitats malicioes

5.- Desactiva DNSSEC al teu servidor.

Edita el fitxer de confifuració.

```
daw@server: ~
GNU nano 5.4 /etc/bind/named.conf.options
// ports to talk. See http://www.kb.cert.org/vuls/id/800113

// If your ISP provided one or more IP addresses for stable
// nameservers, you probably want to use them as forwarders.
// Uncomment the following block, and insert the addresses replacing
// the all-0's placeholder.

// forwarders {
//     192.168.85.187;
// };

//=====
// If BIND logs error messages about the root key being expired,
// you will need to update your keys. See https://www.isc.org/bind
//=====
dnssec-validation no;

listen-on-v6 { any; };
```

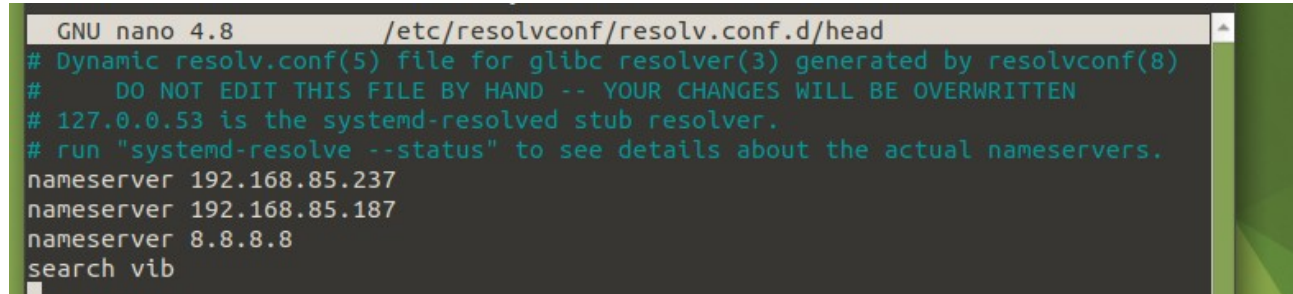
6.- Explica que es un reenviador a un servidor DNS.

Es un servidor DNS configurat per redirigir els noms DNS externs fora de la red de la empresa, però també es possible redirigir les peticions a un domini no contemplat però situat en la red provada de la empresa.

7.- Fica a la màquina client el nostre servidor com a servidor dns

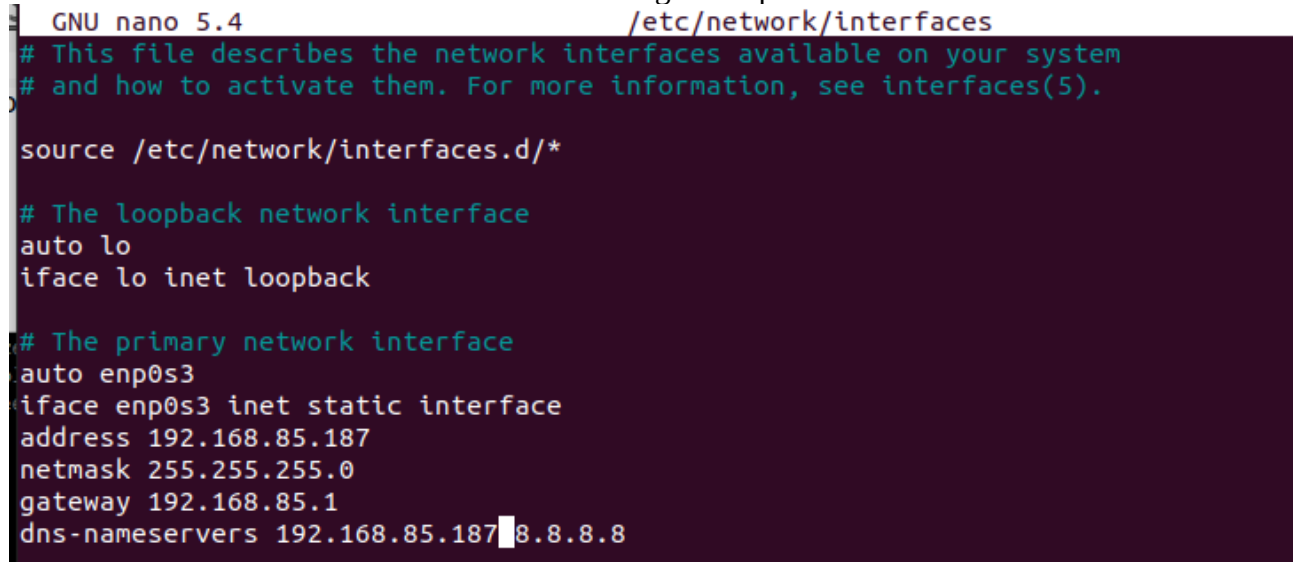
Edito el fitxer:

nano /etc/resolvconf/resolv.conf.d/head



```
GNU nano 4.8 /etc/resolvconf/resolv.conf.d/head
# Dynamic resolv.conf(5) file for glibc resolver(3) generated by resolvconf(8)
#     DO NOT EDIT THIS FILE BY HAND -- YOUR CHANGES WILL BE OVERWRITTEN
# 127.0.0.53 is the systemd-resolved stub resolver.
# run "systemd-resolve --status" to see details about the actual nameservers.
nameserver 192.168.85.237
nameserver 192.168.85.187
nameserver 8.8.8.8
search vib
```

8.- Fica com a reenviador al servidor DNS de Google i el que fem a servir al vial.



```
GNU nano 5.4 /etc/network/interfaces
# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).

source /etc/network/interfaces.d/*

# The loopback network interface
auto lo
iface lo inet loopback

# The primary network interface
auto enp0s3
iface enp0s3 inet static interface
address 192.168.85.187
netmask 255.255.255.0
gateway 192.168.85.1
dns-nameservers 192.168.85.187 8.8.8.8
```

9.- Reinicia el servei DNS.

```

root@server:/etc/bind# systemctl restart bind9
root@server:/etc/bind# systemctl status bind9
● named.service - BIND Domain Name Server
   Loaded: loaded (/lib/systemd/system/named.service; enabled; vendor preset: enabled)
   Active: active (running) since Fri 2022-03-25 12:45:29 CET; 957ms ago
     Docs: man:named(8)
  Main PID: 34683 (named)
    Tasks: 6 (limit: 4679)
   Memory: 21.9M
      CPU: 40ms
   CGroup: /system.slice/named.service
           └─34683 /usr/sbin/named -f -u bind

mar 25 12:45:29 dns-mcastellvi-server named[34683]: command channel listening on ::1#953
mar 25 12:45:29 dns-mcastellvi-server named[34683]: managed-keys-zone: loaded serial 3
mar 25 12:45:29 dns-mcastellvi-server named[34683]: zone 0.in-addr.arpa/IN: loaded serial 1
mar 25 12:45:29 dns-mcastellvi-server named[34683]: zone 255.in-addr.arpa/IN: loaded serial 1
mar 25 12:45:29 dns-mcastellvi-server named[34683]: zone mcastellvi.vidal/IN: loaded serial 1
mar 25 12:45:29 dns-mcastellvi-server named[34683]: zone mcastellvi.vidal/IN: sending notifies (serial 1)
mar 25 12:45:29 dns-mcastellvi-server named[34683]: zone 127.in-addr.arpa/IN: loaded serial 1
mar 25 12:45:29 dns-mcastellvi-server named[34683]: zone localhost/IN: loaded serial 2

```

10.- Comprova amb l'eina nslookup que amb el domini www.vidalibarraquer.net quina ip ens dona. Des de fora del centre dona

```

root@vib2022:/home/vib# nslookup www.vidalibarraquer.net
Server:          127.0.0.53
Address:         127.0.0.53#53

Non-authoritative answer:
Name:   www.vidalibarraquer.net
Address: 192.168.128.4

root@vib2022:/home/vib#

```

Fixeu-vos en que donaria a amazon.com

```

root@vib2022:/home/vib# nslookup amazon.com
Server:          127.0.0.53
Address:         127.0.0.53#53

Non-authoritative answer:
Name:   amazon.com
Address: 176.32.103.205
Name:   amazon.com
Address: 205.251.242.103
Name:   amazon.com
Address: 54.239.28.85

root@vib2022:/home/vib#

```

11.- Que es un canonical name (CNAME) ?

Es basicamente el tipo de enlace de domini para interpretar la ip i tratar el valor que demana analitzi, hay diversos tipus, la A (per interpretar IPs), MX(Per correus), etc...

12.- Fes servir ara l'eina dig

```

root@vib2022:/home/vib# dig SOA www.vidalibarraquer.net

; <<>> DiG 9.16.1-Ubuntu <<>> SOA www.vidalibarraquer.net
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 34081
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
;; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;www.vidalibarraquer.net.      IN      SOA

;; Query time: 8 msec
;; SERVER: 127.0.0.53#53(127.0.0.53)
;; WHEN: vie mar 25 09:40:40 UTC 2022
;; MSG SIZE rcvd: 52

root@vib2022:/home/vib#

```

13.- Qué vol dir SOA?

El SOA es un registre de inici de autoritat que almacena informacio important sobre un domini o zona.

14.- Provem ara el soa amb nslookup

Sense www també em mostra el mateix error, ja que estic dintre de la intranet, si estiguessa casa no pasaria

```
root@vib2022:/home/vib# nslookup -type=soa www.vidalibarraquer.net
Server:          127.0.0.53
Address:         127.0.0.53#53

Non-authoritative answer:
*** Can't find www.vidalibarraquer.net: No answer

Authoritative answers can be found from:

root@vib2022:/home/vib# nslookup -type=soa vidalibarraquer.net
Server:          127.0.0.53
Address:         127.0.0.53#53

Non-authoritative answer:
*** Can't find vidalibarraquer.net: No answer

Authoritative answers can be found from:

root@vib2022:/home/vib#
```

14.- Afegirem una zona o domini per la nostra xarxa local que contingui la inicial del teu nom seguit del teu cognom amb arrel vidal .

(He introduït les altres rutes dels proxims exercicis, i apart he tret el mail que em donava un error però funcionava igual)

```
GNU nano 5.4 db.mcastellvi.vidal
$TTL 1D
@ IN SOA ns1.mcastellvi.vidal. admin.mcastellvi.vidal. (
    1 ; Serial
    604800 ; Refresh
    86400 ; Retry
    2419200 ; Expire
    604800 ; Negative Cache TTL
);

@ IN NS mcastellvi.vidal.
@ IN NS mcastellvi.vidal.
mcastellvi.vidal. IN A 192.168.85.187
ns1 IN A 192.168.85.187
router.mcastellvi.vidal. IN A 192.168.85.1
www.mcastellvi.vidal. IN A 192.168.85.187
nas.mcastellvi.vidal. IN A 192.168.85.188

[ 17 líneas leídas ]
^G Ayuda ^O Guardar ^W Buscar ^K Cortar ^T Ejecutar ^C Ubicación M-U Deshacer
^X Salir ^R Leer fich. ^\ Reemplazar ^U Pegar ^J Justificar ^_ Ir a línea M-E Rehacer
```

15.- comprova que el fitxer es correcte amb named-checkzone

```
root@server:/etc/bind# named-checkzone mcastellvi.vidal /etc/bind/db.mcastellvi.vidal
zone mcastellvi.vidal/IN: loaded serial 1
OK
root@server:/etc/bind#
```

16.- Afegeix la definició d'aquest zona a la configuració de Bind.


```
GNU nano 5.4 /etc/bind/named.conf.default-zones

zone "0.in-addr.arpa" {
    type master;
    file "/etc/bind/db.0";
};

zone "255.in-addr.arpa" {
    type master;
    file "/etc/bind/db.255";
};

zone "mcastellvi.vidal" {
    type master;
    file "/etc/bind/db.mcastellvi.vidal";
};
```

17.- Recarreguem el servei

```
root@server:/etc/bind# systemctl restart bind9
root@server:/etc/bind# systemctl status bind9
● named.service - BIND Domain Name Server
   Loaded: loaded (/lib/systemd/system/named.service; enabled; vendor preset: enabled)
   Active: active (running) since Fri 2022-03-25 12:45:29 CET; 957ms ago
     Docs: man:named(8)
  Main PID: 34683 (named)
    Tasks: 6 (limit: 4679)
  Memory: 21.9M
     CPU: 40ms
   CGroup: /system.slice/named.service
           └─34683 /usr/sbin/named -f -u bind

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mar 25 12:45:29 dns-mcastellvi-server named[34683]: zone 0.in-addr.arpa/IN: loaded serial 1
mar 25 12:45:29 dns-mcastellvi-server named[34683]: zone 255.in-addr.arpa/IN: loaded serial 1
mar 25 12:45:29 dns-mcastellvi-server named[34683]: zone mcastellvi.vidal/IN: loaded serial 1
mar 25 12:45:29 dns-mcastellvi-server named[34683]: zone mcastellvi.vidal/IN: sending notifies (serb
mar 25 12:45:29 dns-mcastellvi-server named[34683]: zone 127.in-addr.arpa/IN: loaded serial 1
mar 25 12:45:29 dns-mcastellvi-server named[34683]: zone localhost/IN: loaded serial 2
```

18.- Faig un ping des de client


```

root@vib2022:/home/vib# ping nsl.mcastellvi.vidal
PING nsl.mcastellvi.vidal (192.168.85.187) 56(84) bytes of data.
64 bytes from 192.168.85.187 (192.168.85.187): icmp_seq=1 ttl=64 time=0.421 ms
64 bytes from 192.168.85.187 (192.168.85.187): icmp_seq=2 ttl=64 time=1.17 ms
64 bytes from 192.168.85.187 (192.168.85.187): icmp_seq=3 ttl=64 time=1.30 ms
^C
--- nsl.mcastellvi.vidal ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2003ms
rtt min/avg/max/mdev = 0.421/0.961/1.297/0.385 ms
root@vib2022:/home/vib# ping mcastellvi.vidal
PING mcastellvi.vidal (192.168.85.187) 56(84) bytes of data.
64 bytes from 192.168.85.187 (192.168.85.187): icmp_seq=1 ttl=64 time=0.510 ms
64 bytes from 192.168.85.187 (192.168.85.187): icmp_seq=2 ttl=64 time=0.730 ms
^C
--- mcastellvi.vidal ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1001ms
rtt min/avg/max/mdev = 0.510/0.620/0.730/0.110 ms

```

19.- Afegiu a la zona mes registres:

router.jvillalba.vidal. IN A 192.168.0.1

www.jvillalba.vidal. IN A 192.168.0.25

nas.jvillalba.vidal. IN A 192.168.0.26

He implementat apartir de la meva ip, no exactament a la teva ja que la meva ip estatica es la mateixa que la del servidor

```

GNU nano 5.4 db.mcastellvi.vidal
#TTL      1D
@          IN      SOA  nsl.mcastellvi.vidal. admin.mcastellvi.vidal. (
        1          ; Serial
        604800     ; Refresh
        86400      ; Retry
        2419200    ; Expire
        604800     ; Negative Cache TTL
);

          IN      NS   mcastellvi.vidal.
@          IN      NS   mcastellvi.vidal.
mcastellvi.vidal. IN    A    192.168.85.187
nsl         IN      A    192.168.85.187
router.mcastellvi.vidal. IN  A    192.168.85.1
www.mcastellvi.vidal. IN    A    192.168.85.187
nas.mcastellvi.vidal. IN    A    192.168.85.188

[ 17 líneas leídas ]
^G Ayuda      ^O Guardar    ^W Buscar     ^K Cortar     ^T Ejecutar   ^C Ubicación  M-U Deshacer
^X Salir      ^R Leer fich. ^\ Reemplazar ^U Pegar      ^J Justificar ^_ Ir a línea  M-E Rehacer

```

Fem ping a vera que passa.

```

root@vib2022:/home/vib# ping www.mcastellvi.vidal
PING www.mcastellvi.vidal (192.168.85.187) 56(84) bytes of data.
64 bytes from 192.168.85.187 (192.168.85.187): icmp_seq=1 ttl=64 time=0.248 ms
64 bytes from 192.168.85.187 (192.168.85.187): icmp_seq=2 ttl=64 time=0.481 ms
^C
--- www.mcastellvi.vidal ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1010ms
rtt min/avg/max/mdev = 0.248/0.364/0.481/0.116 ms
root@vib2022:/home/vib# ping router.mcastellvi.vidal
PING router.mcastellvi.vidal (192.168.85.1) 56(84) bytes of data.
64 bytes from 192.168.85.1 (192.168.85.1): icmp_seq=1 ttl=64 time=0.515 ms
64 bytes from 192.168.85.1 (192.168.85.1): icmp_seq=2 ttl=64 time=0.484 ms
^C
--- router.mcastellvi.vidal ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1015ms
rtt min/avg/max/mdev = 0.484/0.499/0.515/0.015 ms
root@vib2022:/home/vib# ping nas.mcastellvi.vidal
PING nas.mcastellvi.vidal (192.168.85.188) 56(84) bytes of data.
From 192.168.85.237 (192.168.85.237) icmp_seq=1 Destination Host Unreachable
From 192.168.85.237 (192.168.85.237) icmp_seq=2 Destination Host Unreachable
From 192.168.85.237 (192.168.85.237) icmp_seq=3 Destination Host Unreachable
^C
--- nas.mcastellvi.vidal ping statistics ---
5 packets transmitted, 0 received, +3 errors, 100% packet loss, time 4075ms
pipe 4
root@vib2022:/home/vib#

```

Obiament la ip que es 192.168.85.188 no es podra connectar ja que no existeix servidor amb aquest nom, però el router al ser la primera ip i ser el router i despres la www que esta amb la mateixa ip del servidor, si que fara ping

20.- Configura la resolució inversa i comprova la resolució inversa amb nslookup des de client (has d'instal·lar el paquet dnsutils).

Ara crearem un nou db:

```

GNU nano 5.4 db.85.168.192
$TTL 1D
@      IN      SOA mcastellvi.vidal. admin.mcastellvi.vidal. (
1      ; Serial
604800 ; Refresh
86400  ; Retry
2419200 ; Expire
604800 ; Negative Cache TTL
);
      IN      NS      mcastellvi.vidal.
187    IN      PTR     nsl.mcastellvi.vidal.
85     IN      PTR     router.mcastellvi.vidal.
168    IN      PTR     nas.mcastellvi.vidal.
192    IN      PTR     www.mcastellvi.vidal.

```

```

zone "85.168.192.in-addr.arpa" {
    type master;
    file "/etc/bind/db.85.168.192";
};

```

[37 lines

```

root@vib2022:/home/vib# nslookup 192.168.85.187
187.85.168.192.in-addr.arpa      name = nsl.mcastellvi.vidal.

root@vib2022:/home/vib#

```