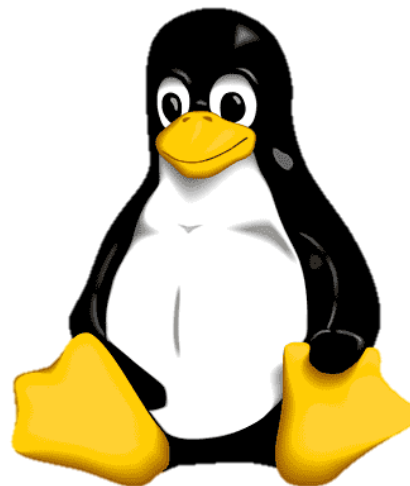


A3.P2

Servicio DNS

Linux



Sergio García Márquez

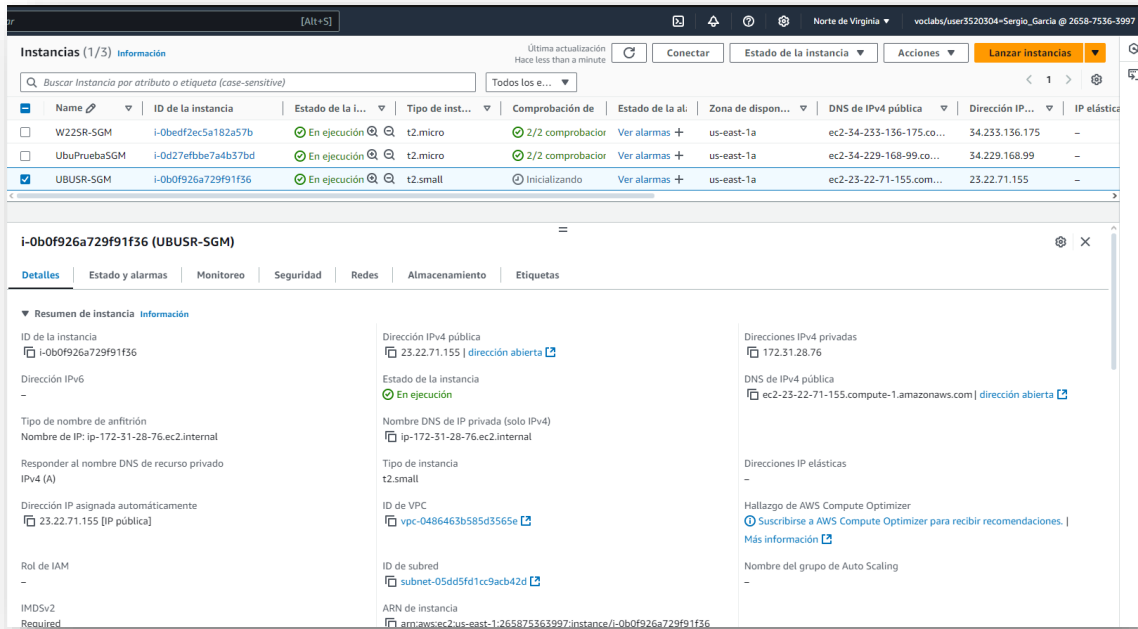
I.E.S San Sebastián

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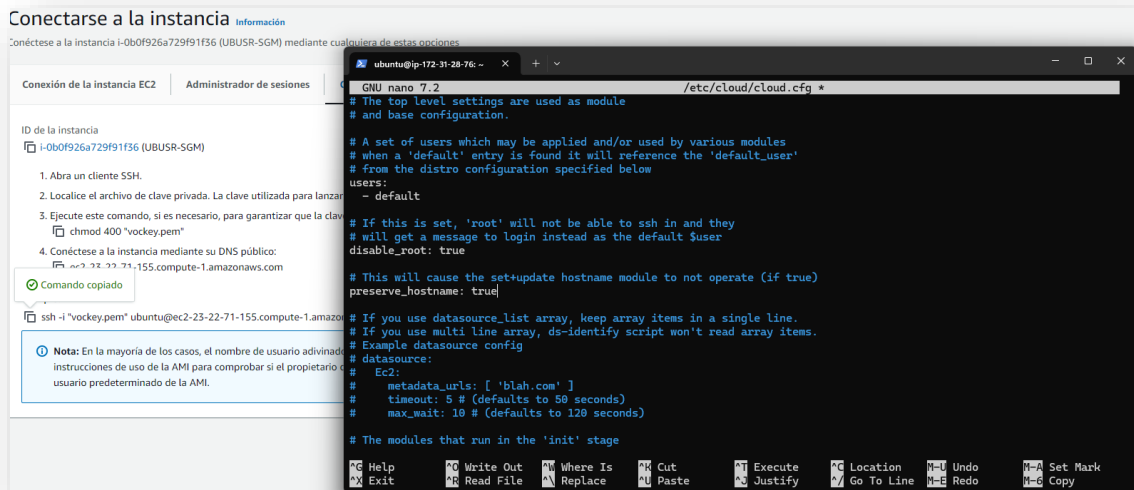
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1. Creación de la máquina en AWS y configuración del hostname

La instancia se creó con las siguientes características:



Ahora debemos modificar el hostname. Lo primero será tocar el archivo `/etc/cloud/cloud.cfg` para que conserve el cambio.



Ahora ponemos el nuevo nombre de host con el comando `hostnamectl`.

```
ubuntu@ip-172-31-28-76:~$ sudo nano /etc/cloud/cloud.cfg
ubuntu@ip-172-31-28-76:~$ sudo hostnamectl set-hostname ubusrSGM
ubuntu@ip-172-31-28-76:~$ |
```

Y cuando reiniciemos tendremos permanentemente el nombre del host.

```
Connection to ec2-23-22-71-155.compute-1.amazonaws.com closed.
PS C:\Users\sergi\Downloads> ssh -i "labsuser (1).pem" ubuntu@ec2-23-22-71-155.compute-1.amazonaws.com
Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.8.0-1016-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

System information as of Tue Nov 19 12:02:30 UTC 2024

System load:  0.87          Processes:            113
Usage of /:   23.2% of 6.71GB Users logged in:          0
Memory usage: 11%          IPv4 address for enX0: 172.31.28.76
Swap usage:   0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

Last login: Tue Nov 19 11:59:15 2024 from 2.142.141.251
ubuntu@ubusrSGM:~$ |
```

Haciendo “ip a” podemos ver la ip del server, aunque en una interfaz de red con un nombre dinámico asignado (enx0). Supongo que usarán nombres predecibles usan identificadores únicos derivados de la dirección MAC de la interfaz para hacerlo único y no sea mas fácil de identificar.

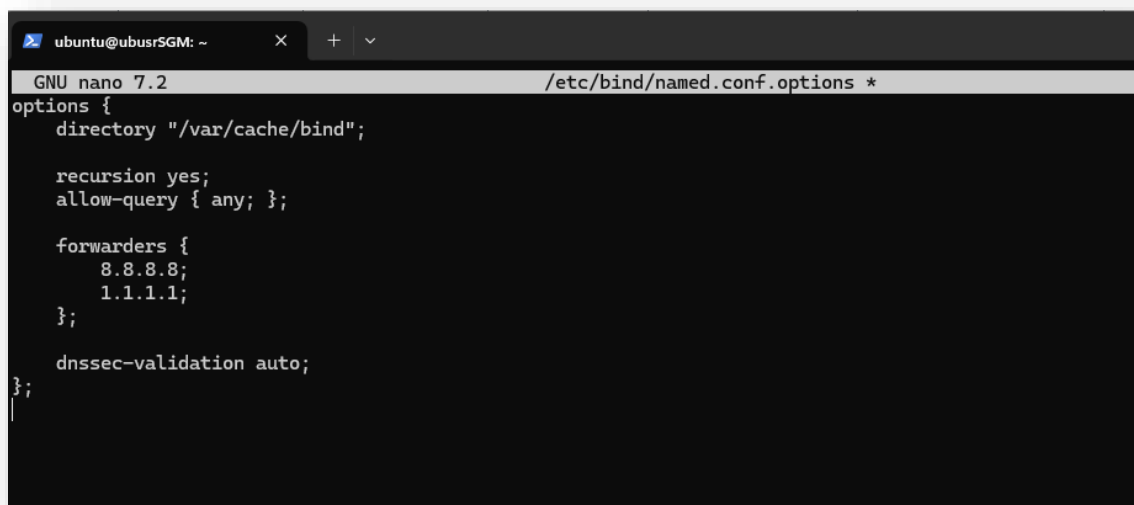
```
ubuntu@ubusrSGM:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
        valid_lft forever preferred_lft forever
2: enx0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 9001 qdisc fq_codel state UP group default qlen 1000
    link/ether 0a:ff:fe:e8:5a:d7 brd ff:ff:ff:ff:ff:ff
    inet 172.31.28.76/20 metric 100 brd 172.31.31.255 scope global dynamic enx0
        valid_lft 2942sec preferred_lft 2942sec
    inet6 fe80::8ff:feff:fee8:5ad7/64 scope link
        valid_lft forever preferred_lft forever
```

2. Instalar BIND y configuración como servidor caché

Para instalar bind, tendremos que hacerlo con el siguiente comando:

```
Get:51 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64
Get:52 http://security.ubuntu.com/ubuntu noble-security/multiverse Trans
Get:53 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64
Get:54 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64
Fetched 30.8 MB in 6s (5228 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
48 packages can be upgraded. Run 'apt list --upgradable' to see them.
ubuntu@ubusrSGM:~$ sudo apt install bind9 -y
```

El siguiente paso será configurar BIND como servidor cache, editando el archivo de configuración principal “/etc/bind/named.conf.options”



```

ubuntu@ubusrSGM: ~
GNU nano 7.2 /etc/bind/named.conf.options *
options {
    directory "/var/cache/bind";

    recursion yes;
    allow-query { any; };

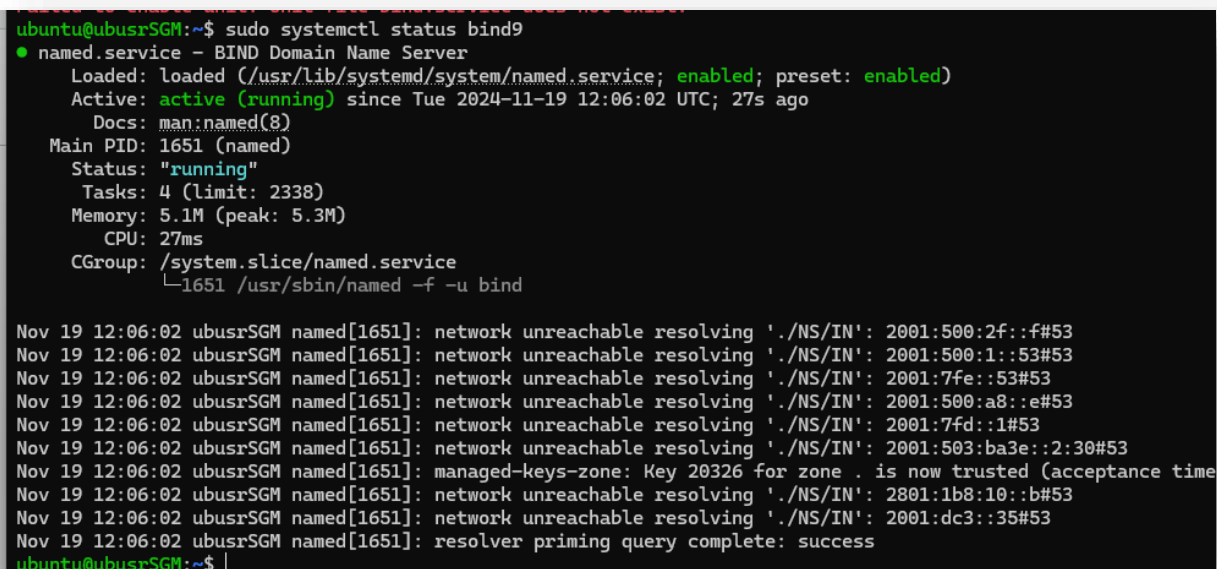
    forwarders {
        8.8.8.8;
        1.1.1.1;
    };

    dnssec-validation auto;
};

```

Con la línea “directory” le decimos que sea un servidor caché, y con los forwarders estableceremos los servidores DNS.

Le hacemos un restart a bind9 y ya estaría listo.



```

ubuntu@ubusrSGM:~$ sudo systemctl status bind9
● named.service - BIND Domain Name Server
   Loaded: loaded (/usr/lib/systemd/system/named.service; enabled; preset: enabled)
   Active: active (running) since Tue 2024-11-19 12:06:02 UTC; 27s ago
     Docs: man:named(8)
  Main PID: 1651 (named)
    Status: "running"
     Tasks: 4 (limit: 2338)
  Memory: 5.1M (peak: 5.3M)
     CPU: 27ms
    CGroup: /system.slice/named.service
            └─1651 /usr/sbin/named -f -u bind

Nov 19 12:06:02 ubusrSGM named[1651]: network unreachable resolving './NS/IN': 2001:500:2f::f#53
Nov 19 12:06:02 ubusrSGM named[1651]: network unreachable resolving './NS/IN': 2001:500:1::53#53
Nov 19 12:06:02 ubusrSGM named[1651]: network unreachable resolving './NS/IN': 2001:7fe::53#53
Nov 19 12:06:02 ubusrSGM named[1651]: network unreachable resolving './NS/IN': 2001:500:a8::e#53
Nov 19 12:06:02 ubusrSGM named[1651]: network unreachable resolving './NS/IN': 2001:7fd::1#53
Nov 19 12:06:02 ubusrSGM named[1651]: network unreachable resolving './NS/IN': 2001:503:ba3e::2:30#53
Nov 19 12:06:02 ubusrSGM named[1651]: managed-keys-zone: Key 20326 for zone . is now trusted (acceptance time
Nov 19 12:06:02 ubusrSGM named[1651]: network unreachable resolving './NS/IN': 2801:1b8:10::b#53
Nov 19 12:06:02 ubusrSGM named[1651]: network unreachable resolving './NS/IN': 2001:dc3::35#53
Nov 19 12:06:02 ubusrSGM named[1651]: resolver priming query complete: success
ubuntu@ubusrSGM:~$

```

3. Comprobación a Google con nslookup y dig

Con dig sería así:

```
ubuntu@ip-172-31-22-243:~$ dig @23.22.71.155 www.google.es

; <<>> DiG 9.18.28-0ubuntu0.24.04.1-Ubuntu <<>> @23.22.71.155 www.google.es
; (1 server found)
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 54528
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: 2bf5281dadbd57ed01000000673c7fd3cc67620acd0d89f1 (good)
;; QUESTION SECTION:
;www.google.es.                IN      A

;; ANSWER SECTION:
www.google.es.                207     IN      A      64.233.180.94

;; Query time: 1 msec
;; SERVER: 23.22.71.155#53(23.22.71.155) (UDP)
;; WHEN: Tue Nov 19 12:08:51 UTC 2024
;; MSG SIZE rcvd: 86

ubuntu@ip-172-31-22-243:~$
```

i-0d27efbbe7a4b37bd (UbuPruebaSGM)

PublicIPs: 34.229.168.99 PrivateIPs: 172.31.22.243

Con nslookup así(la ip es otra por olvidarme):

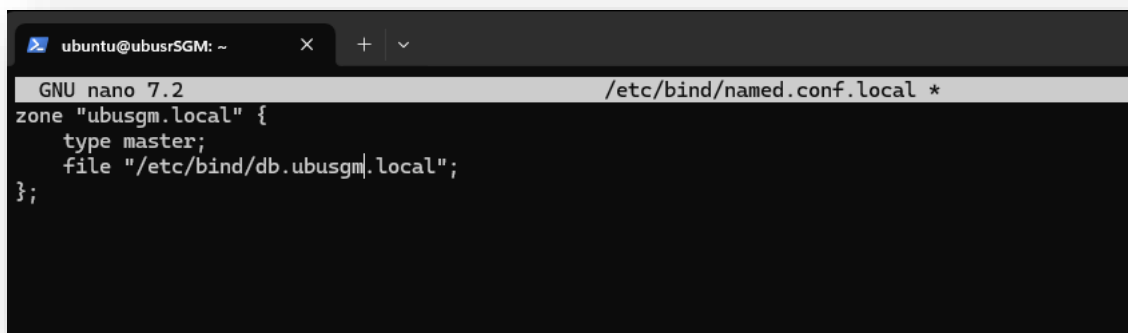
```
ubuntu@ip-172-31-22-243:~$ nslookup www.google.es 54.242.11.81
Server:          54.242.11.81
Address:         54.242.11.81#53

Non-authoritative answer:
Name:   www.google.es
Address: 172.253.122.94
Name:   www.google.es
Address: 2607:f8b0:4004:c1b::5e

ubuntu@ip-172-31-22-243:~$
```

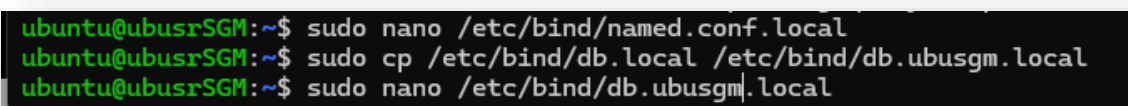
4. Ubusgm.local actuando como maestro de la zona

El primer paso será establecer la ruta donde tendremos la configuración del maestro en el archivo “named.conf.local”.



```
ubuntu@ubusrSGM: ~  
GNU nano 7.2 /etc/bind/named.conf.local *  
zone "ubusgm.local" {  
    type master;  
    file "/etc/bind/db.ubusgm.local";  
};
```

Ahora copiaré este archivo pero lo llamaré “db.ubusgm.local” para iniciar la configuración como maestro de la zona.



```
ubuntu@ubusrSGM:~$ sudo nano /etc/bind/named.conf.local  
ubuntu@ubusrSGM:~$ sudo cp /etc/bind/db.local /etc/bind/db.ubusgm.local  
ubuntu@ubusrSGM:~$ sudo nano /etc/bind/db.ubusgm.local
```

A continuación, se editará el archivo de configuración para que tenga lo siguiente:

- Dos registros de tipo A (Host) para los equipos ser1.ubusgm.local, ser2.ubusgm.local y cuatro más para pc1.ubusgm.local al pc4.ubusgm.local.
- Un RR de tipo CNAME para ser1.ubusgm.local llamado www.ubusgm.local.
- Un RR de tipo CNAME para ser2.ubusgm.local llamado smtp.ubusgm.local.
- Un RR de tipo MX que nos indique que el servidor de correo para el dominio de correo ubusgm.local es la máquina smtp.ubusgm.local.


```

GNU nano 7.2 /etc/bind/db.ubusgm.local
;
; BIND data file for ubusgm.local
;
$TTL      604800
@         IN      SOA      ns1.ubusgm.local. admin.ubusgm.local. (
                        2      ; Serial
                        604800 ; Refresh
                        86400  ; Retry
                        2419200 ; Expire
                        604800 ) ; Negative Cache TTL
;
@         IN      NS       ns1.ubusgm.local.
ns1       IN      A        23.22.71.155

ser1      IN      A        172.31.0.2
ser2      IN      A        172.31.0.3
pc1       IN      A        172.31.0.4
pc2       IN      A        172.31.0.5
pc3       IN      A        172.31.0.6
pc4       IN      A        172.31.0.7

www       IN      CNAME    ser1
smtp      IN      CNAME    ser2
@         IN      MX 10    smtp.ubusgm.local.

```

[Read 25 lines]

^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location M-U Un
 ^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^_ Go To Line M-E Re

Una vez listo, hacemos un restart al servicio Bind.

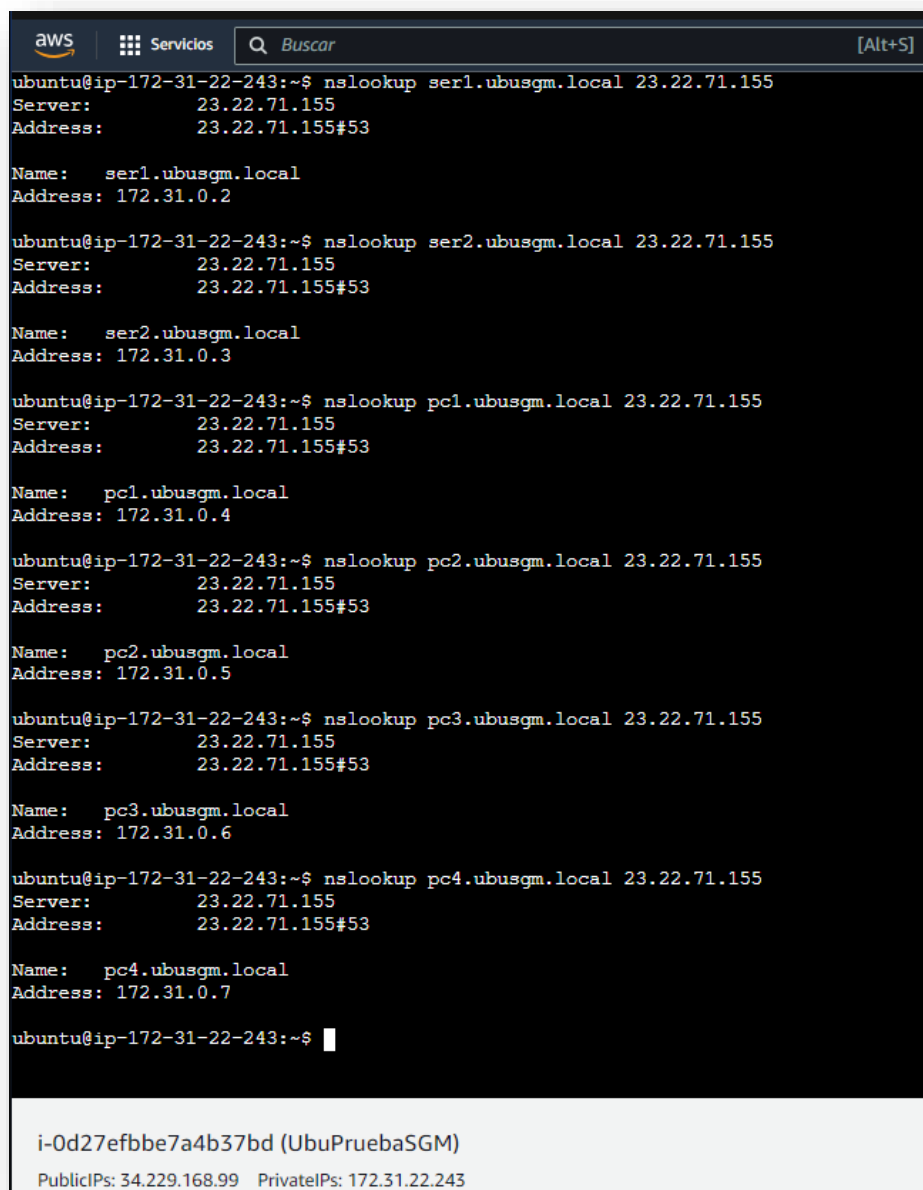
```
ubuntu@ubusrSGM:~$ sudo systemctl restart bind9
```

Ahora podemos ver que el servidor DNS se resuelve con nuestra IP pública y el nombre.

```
C:\Users\sergi>nslookup ubusgm.local 23.22.71.155
Servidor:  ec2-23-22-71-155.compute-1.amazonaws.com
Address:  23.22.71.155

Nombre:  ubusgm.local
```

Con nslookup podemos encontrar todos los ficticios:



```
aws Servicios Q Buscar [Alt+S]
ubuntu@ip-172-31-22-243:~$ nslookup ser1.ubusgm.local 23.22.71.155
Server:      23.22.71.155
Address:     23.22.71.155#53

Name:   ser1.ubusgm.local
Address: 172.31.0.2

ubuntu@ip-172-31-22-243:~$ nslookup ser2.ubusgm.local 23.22.71.155
Server:      23.22.71.155
Address:     23.22.71.155#53

Name:   ser2.ubusgm.local
Address: 172.31.0.3

ubuntu@ip-172-31-22-243:~$ nslookup pc1.ubusgm.local 23.22.71.155
Server:      23.22.71.155
Address:     23.22.71.155#53

Name:   pc1.ubusgm.local
Address: 172.31.0.4

ubuntu@ip-172-31-22-243:~$ nslookup pc2.ubusgm.local 23.22.71.155
Server:      23.22.71.155
Address:     23.22.71.155#53

Name:   pc2.ubusgm.local
Address: 172.31.0.5

ubuntu@ip-172-31-22-243:~$ nslookup pc3.ubusgm.local 23.22.71.155
Server:      23.22.71.155
Address:     23.22.71.155#53

Name:   pc3.ubusgm.local
Address: 172.31.0.6

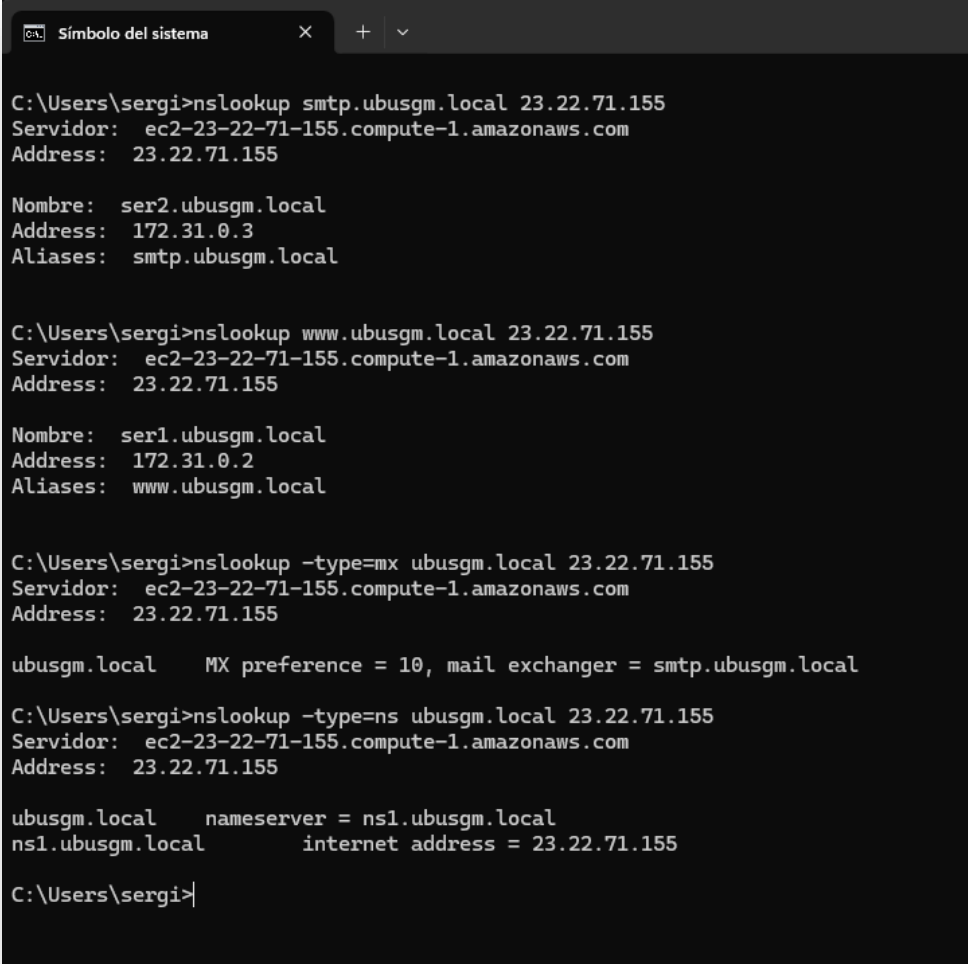
ubuntu@ip-172-31-22-243:~$ nslookup pc4.ubusgm.local 23.22.71.155
Server:      23.22.71.155
Address:     23.22.71.155#53

Name:   pc4.ubusgm.local
Address: 172.31.0.7

ubuntu@ip-172-31-22-243:~$
```

i-0d27efbbe7a4b37bd (UbuPruebaSGM)
PublicIPs: 34.229.168.99 PrivateIPs: 172.31.22.243

También con nslookup encontramos los www, smtp, los tipo mx y los nameserver.



```
C:\Users\sergi>nslookup smtp.ubusgm.local 23.22.71.155
Servidor:  ec2-23-22-71-155.compute-1.amazonaws.com
Address:  23.22.71.155

Nombre:  ser2.ubusgm.local
Address:  172.31.0.3
Aliases:  smtp.ubusgm.local

C:\Users\sergi>nslookup www.ubusgm.local 23.22.71.155
Servidor:  ec2-23-22-71-155.compute-1.amazonaws.com
Address:  23.22.71.155

Nombre:  ser1.ubusgm.local
Address:  172.31.0.2
Aliases:  www.ubusgm.local

C:\Users\sergi>nslookup -type=mx ubusgm.local 23.22.71.155
Servidor:  ec2-23-22-71-155.compute-1.amazonaws.com
Address:  23.22.71.155

ubusgm.local    MX preference = 10, mail exchanger = smtp.ubusgm.local

C:\Users\sergi>nslookup -type=ns ubusgm.local 23.22.71.155
Servidor:  ec2-23-22-71-155.compute-1.amazonaws.com
Address:  23.22.71.155

ubusgm.local    nameserver = ns1.ubusgm.local
ns1.ubusgm.local    internet address = 23.22.71.155

C:\Users\sergi>
```

Ahora se comprobará con dig. Primero los ser1 y 2.

```
ubuntu@ip-172-31-22-243:~$ dig @23.22.71.155 ser1.ubusgm.local

; <<>> DiG 9.18.28-0ubuntu0.24.04.1-Ubuntu <<>> @23.22.71.155 ser1.ubusgm.local
; (1 server found)
;; 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: 64912
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: 85573cccd401bcab01000000673c844063d1bc757c118a21 (good)
;; QUESTION SECTION:
;ser1.ubusgm.local.                IN      A

;; ANSWER SECTION:
ser1.ubusgm.local.        604800 IN      A      172.31.0.2

;; Query time: 0 msec
;; SERVER: 23.22.71.155#53(23.22.71.155) (UDP)
;; WHEN: Tue Nov 19 12:27:44 UTC 2024
;; MSG SIZE rcvd: 90

ubuntu@ip-172-31-22-243:~$ dig @23.22.71.155 ser2.ubusgm.local

; <<>> DiG 9.18.28-0ubuntu0.24.04.1-Ubuntu <<>> @23.22.71.155 ser2.ubusgm.local
; (1 server found)
;; 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: 747
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: 8af17c68686239c101000000673c8444ad2ec0017e52e62b (good)
;; QUESTION SECTION:
;ser2.ubusgm.local.                IN      A

;; ANSWER SECTION:
ser2.ubusgm.local.        604800 IN      A      172.31.0.3

i-0d27efbbe7a4b37bd (UbuPruebaSGM)
PublicIPs: 34.229.168.99 PrivateIPs: 172.31.22.243
```

Y los Pc.

```
ubuntu@ip-172-31-22-243:~$ dig @23.22.71.155 pc1.ubusgm.local

; <<>> DiG 9.18.28-0ubuntu0.24.04.1-Ubuntu <<>> @23.22.71.155 pc1.ubusgm.local
; (1 server found)
;; 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: 26039
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: 949ab9fe93ea000501000000673c84619f21168c84107eb5 (good)
;; QUESTION SECTION:
;pc1.ubusgm.local.                IN      A

;; ANSWER SECTION:
pc1.ubusgm.local.                604800  IN      A      172.31.0.4

;; Query time: 1 msec
;; SERVER: 23.22.71.155#53(23.22.71.155) (UDP)
;; WHEN: Tue Nov 19 12:28:17 UTC 2024
;; MSG SIZE rcvd: 89

ubuntu@ip-172-31-22-243:~$ dig @23.22.71.155 pc2.ubusgm.local

; <<>> DiG 9.18.28-0ubuntu0.24.04.1-Ubuntu <<>> @23.22.71.155 pc2.ubusgm.local
; (1 server found)
;; 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: 37312
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: 3879e65a6213798401000000673c846416cfe2d24ce190b7 (good)
;; QUESTION SECTION:
;pc2.ubusgm.local.                IN      A

;; ANSWER SECTION:
pc2.ubusgm.local.                604800  IN      A      172.31.0.5

i-0d27efbbe7a4b37bd (UbuPruebaSGM)
PublicIPs: 34.229.168.99 PrivateIPs: 172.31.22.243
```

Ahora MX y NS con dig. La ip es otra porque se me olvidó.

```
ubuntu@ip-172-31-22-243:~$ dig @54.242.11.81 ubusgm.local mx

; <<>> DiG 9.18.28-0ubuntu0.24.04.1-Ubuntu <<>> @54.242.11.81 ubusgm.local mx
; (1 server found)
;; 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: 29325
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: 31c3da810c90c6f1010000006740744824a0b5e9f37d3669 (good)
;; QUESTION SECTION:
;ubusgm.local.                IN      MX

;; ANSWER SECTION:
ubusgm.local.                604800 IN      MX      10 smtp.ubusgm.local.

;; Query time: 2 msec
;; SERVER: 54.242.11.81#53(54.242.11.81) (UDP)
;; WHEN: Fri Nov 22 12:08:40 UTC 2024
;; MSG SIZE rcvd: 90
```

```
; <<>> DiG 9.18.28-0ubuntu0.24.04.1-Ubuntu <<>> @54.242.11.81 ubusgm.local ns
; (1 server found)
;; 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: 64818
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 2

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: 17506e553c5e08a7010000006740745a2995e64e87873c66 (good)
;; QUESTION SECTION:
;ubusgm.local.                IN      NS

;; ANSWER SECTION:
ubusgm.local.                604800 IN      NS      ns1.ubusgm.local.

;; ADDITIONAL SECTION:
ns1.ubusgm.local.            604800 IN      A      172.31.28.76

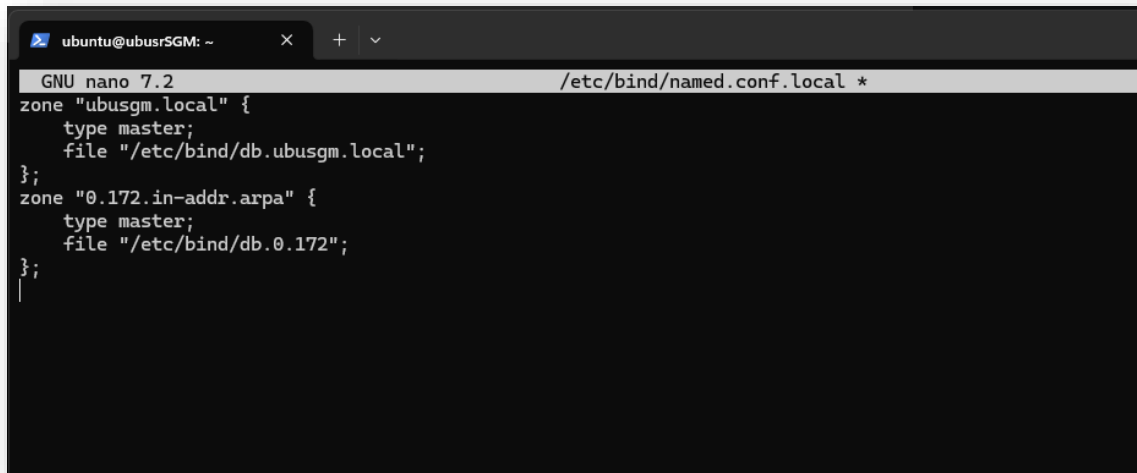
;; Query time: 2 msec
;; SERVER: 54.242.11.81#53(54.242.11.81) (UDP)
;; WHEN: Fri Nov 22 12:08:58 UTC 2024
;; MSG SIZE rcvd: 103
```

```
ubuntu@ip-172-31-22-243:~$
```

i-0d27efbbe7a4b37bd (UbuPruebaSGM)

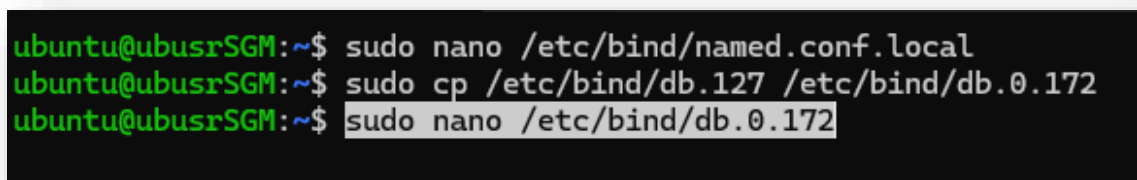
5. Zona inversa

El primer paso para crear la zona inversa será modificar el archivo `/etc/bind/named.conf.local`. En este paso hemos creado la zona inversa de 172.0.



```
GNU nano 7.2 /etc/bind/named.conf.local *
zone "ubusgm.local" {
    type master;
    file "/etc/bind/db.ubusgm.local";
};
zone "0.172.in-addr.arpa" {
    type master;
    file "/etc/bind/db.0.172";
};
|
```

Ahora copiaremos este archivo con un nuevo nombre para su creación, se hará con el nombre de la ip inversa para reconocerlo.



```
ubuntu@ubusrSGM:~$ sudo nano /etc/bind/named.conf.local
ubuntu@ubusrSGM:~$ sudo cp /etc/bind/db.127 /etc/bind/db.0.172
ubuntu@ubusrSGM:~$ sudo nano /etc/bind/db.0.172
```

Y ya en el archivo modificaremos la zona inversa. Cada equipo tiene que poner la ip inversa de los bits modificables. Si ser1 es 172.0.0.2, pues pondremos 2.0.

```

ubuntu@ubusrSGM: ~
GNU nano 7.2 /etc/bind/db.0.172 *
;
; BIND reverse data file for 172.0.0.0/16
;
$TTL      604800
@         IN      SOA      ns1.ubusgm.local. admin.ubusgm.local. (
                        2      ; Serial
                        604800 ; Refresh
                        86400  ; Retry
                        2419200 ; Expire
                        604800 ) ; Negative Cache TTL
;
@         IN      NS       ns1.ubusgm.local.
2.0       IN      PTR      ser1.ubusgm.local.
3.0       IN      PTR      ser2.ubusgm.local.
4.0       IN      PTR      pc1.ubusgm.local.
5.0       IN      PTR      pc2.ubusgm.local.
6.0       IN      PTR      pc3.ubusgm.local.
7.0       IN      PTR      pc4.ubusgm.local.
|

```

Con el siguiente comando podremos ver si la configuración de la zona inversa es correcta:

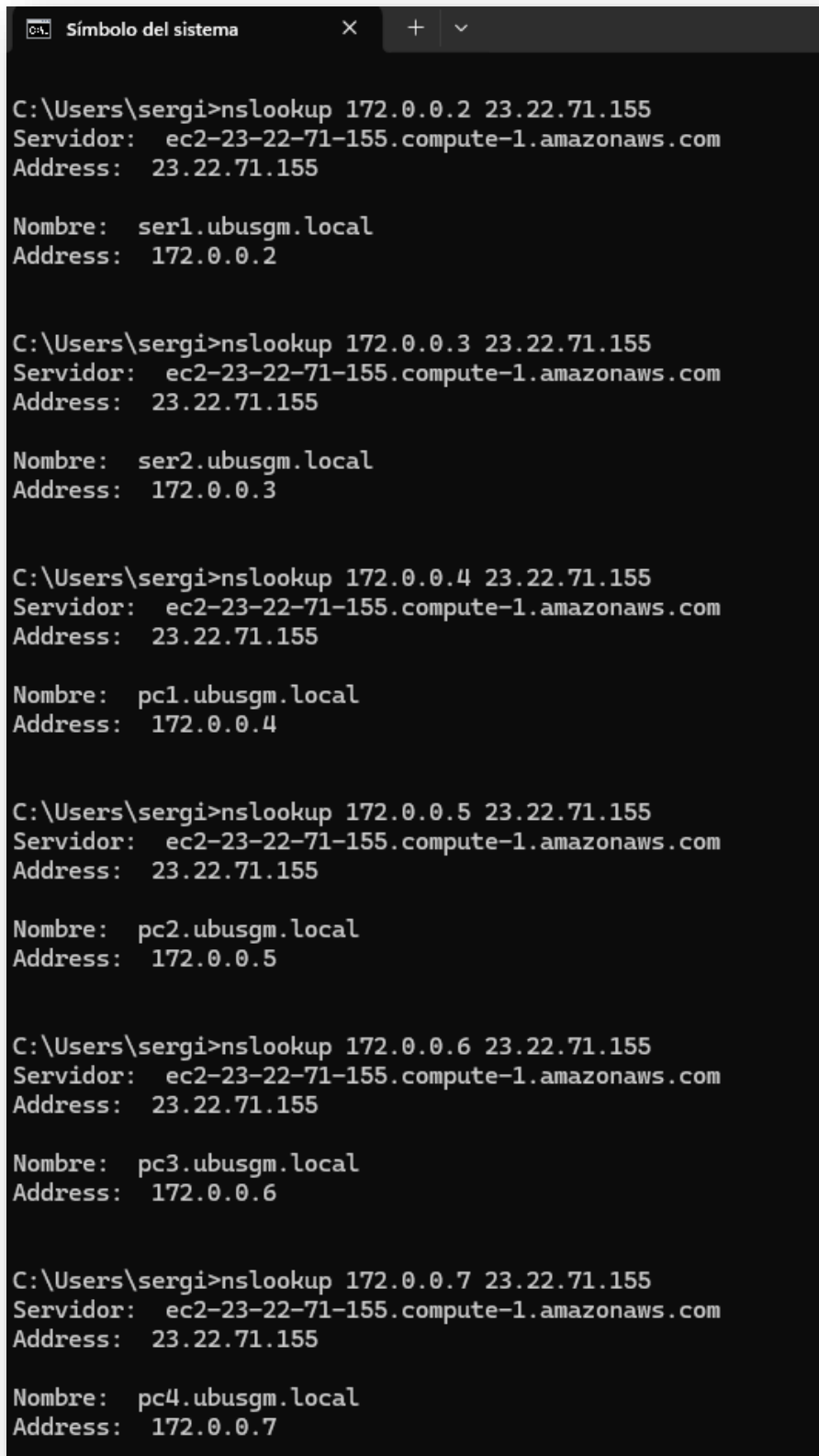
```

ubuntu@ubusrSGM:~$ sudo named-checkconf
ubuntu@ubusrSGM:~$ sudo named-checkzone 0.172.in-addr.arpa /etc/bind/db.0.172
zone 0.172.in-addr.arpa/IN: loaded serial 2
OK
ubuntu@ubusrSGM:~$ |

```

Haremos un reset a bind9 y ya podremos empezar a comprobar.

Ahora si probamos a hacer nslookup de la zona inversa, debería salir lo siguiente:



```
C:\Users\sergi>nslookup 172.0.0.2 23.22.71.155
Servidor:  ec2-23-22-71-155.compute-1.amazonaws.com
Address:  23.22.71.155

Nombre:  ser1.ubusgm.local
Address:  172.0.0.2

C:\Users\sergi>nslookup 172.0.0.3 23.22.71.155
Servidor:  ec2-23-22-71-155.compute-1.amazonaws.com
Address:  23.22.71.155

Nombre:  ser2.ubusgm.local
Address:  172.0.0.3

C:\Users\sergi>nslookup 172.0.0.4 23.22.71.155
Servidor:  ec2-23-22-71-155.compute-1.amazonaws.com
Address:  23.22.71.155

Nombre:  pc1.ubusgm.local
Address:  172.0.0.4

C:\Users\sergi>nslookup 172.0.0.5 23.22.71.155
Servidor:  ec2-23-22-71-155.compute-1.amazonaws.com
Address:  23.22.71.155

Nombre:  pc2.ubusgm.local
Address:  172.0.0.5

C:\Users\sergi>nslookup 172.0.0.6 23.22.71.155
Servidor:  ec2-23-22-71-155.compute-1.amazonaws.com
Address:  23.22.71.155

Nombre:  pc3.ubusgm.local
Address:  172.0.0.6

C:\Users\sergi>nslookup 172.0.0.7 23.22.71.155
Servidor:  ec2-23-22-71-155.compute-1.amazonaws.com
Address:  23.22.71.155

Nombre:  pc4.ubusgm.local
Address:  172.0.0.7
```

Con dig lo comprobaremos así:

```
ubuntu@ip-172-31-22-243:~$ dig -x 172.0.0.2 @23.22.71.155

; <<>> DiG 9.18.28-0ubuntu0.24.04.1-Ubuntu <<>> -x 172.0.0.2 @23.22.71.155
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 10036
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: 63669290f3fb714001000000673c85e62ead362eb831cea7 (good)
;; QUESTION SECTION:
;2.0.0.172.in-addr.arpa.                IN      PTR

;; ANSWER SECTION:
2.0.0.172.in-addr.arpa. 604800 IN      PTR      ser1.ubusgm.local.

;; Query time: 1 msec
;; SERVER: 23.22.71.155#53(23.22.71.155) (UDP)
;; WHEN: Tue Nov 19 12:34:46 UTC 2024
;; MSG SIZE rcvd: 110

ubuntu@ip-172-31-22-243:~$ dig -x 172.0.0.3 @23.22.71.155

; <<>> DiG 9.18.28-0ubuntu0.24.04.1-Ubuntu <<>> -x 172.0.0.3 @23.22.71.155
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 18452
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: b5f1338bcd059f8f01000000673c85efc06aa265474de9fc (good)
;; QUESTION SECTION:
;3.0.0.172.in-addr.arpa.                IN      PTR

;; ANSWER SECTION:
3.0.0.172.in-addr.arpa. 604800 IN      PTR      ser2.ubusgm.local.

;; Query time: 1 msec
;; SERVER: 23.22.71.155#53(23.22.71.155) (UDP)
;; WHEN: Tue Nov 19 12:34:55 UTC 2024
;; MSG SIZE rcvd: 110

ubuntu@ip-172-31-22-243:~$
```

```

ubuntu@ip-172-31-22-243:~$ dig -x 172.0.0.4 @23.22.71.155

; <<>> DiG 9.18.28-0ubuntu0.24.04.1-Ubuntu <<>> -x 172.0.0.4 @23.22.71.155
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 462
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: 8233b526da83721a01000000673c8606186b299229ea87ba (good)
;; QUESTION SECTION:
;4.0.0.172.in-addr.arpa.          IN      PTR

;; ANSWER SECTION:
4.0.0.172.in-addr.arpa. 604800 IN      PTR      pc1.ubusgm.local.

;; Query time: 0 msec
;; SERVER: 23.22.71.155#53(23.22.71.155) (UDP)
;; WHEN: Tue Nov 19 12:35:18 UTC 2024
;; MSG SIZE rcvd: 109

ubuntu@ip-172-31-22-243:~$ dig -x 172.0.0.5 @23.22.71.155

; <<>> DiG 9.18.28-0ubuntu0.24.04.1-Ubuntu <<>> -x 172.0.0.5 @23.22.71.155
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 2880
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: 59118c420c950c6201000000673c860a09b49bc959f05203 (good)
;; QUESTION SECTION:
;5.0.0.172.in-addr.arpa.          IN      PTR

;; ANSWER SECTION:
5.0.0.172.in-addr.arpa. 604800 IN      PTR      pc2.ubusgm.local.

;; Query time: 0 msec
;; SERVER: 23.22.71.155#53(23.22.71.155) (UDP)
;; WHEN: Tue Nov 19 12:35:22 UTC 2024
;; MSG SIZE rcvd: 109

ubuntu@ip-172-31-22-243:~$ █

```

i-0d27efbbe7a4b37bd (UbuPruebaSGM)

PublicIPs: 34.229.168.99 PrivateIPs: 172.31.22.243

```

ubuntu@ip-172-31-22-243:~$ dig -x 172.0.0.5 @23.22.71.155

; <<>> DiG 9.18.28-0ubuntu0.24.04.1-Ubuntu <<>> -x 172.0.0.5 @23.22.71.155
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 48295
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: 89661db590cb39af01000000673c861f84071d741d74cf0b (good)
;; QUESTION SECTION:
;5.0.0.172.in-addr.arpa.          IN      PTR

;; ANSWER SECTION:
5.0.0.172.in-addr.arpa. 604800 IN      PTR      pc2.ubusgm.local.

;; Query time: 0 msec
;; SERVER: 23.22.71.155#53(23.22.71.155) (UDP)
;; WHEN: Tue Nov 19 12:35:43 UTC 2024
;; MSG SIZE rcvd: 109

ubuntu@ip-172-31-22-243:~$ dig -x 172.0.0.6 @23.22.71.155

; <<>> DiG 9.18.28-0ubuntu0.24.04.1-Ubuntu <<>> -x 172.0.0.6 @23.22.71.155
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 45506
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: 2a82c0cda73805af01000000673c8623f1122d344c33fcce (good)
;; QUESTION SECTION:
;6.0.0.172.in-addr.arpa.          IN      PTR

;; ANSWER SECTION:
6.0.0.172.in-addr.arpa. 604800 IN      PTR      pc3.ubusgm.local.

;; Query time: 0 msec
;; SERVER: 23.22.71.155#53(23.22.71.155) (UDP)
;; WHEN: Tue Nov 19 12:35:47 UTC 2024
;; MSG SIZE rcvd: 109

ubuntu@ip-172-31-22-243:~$ █

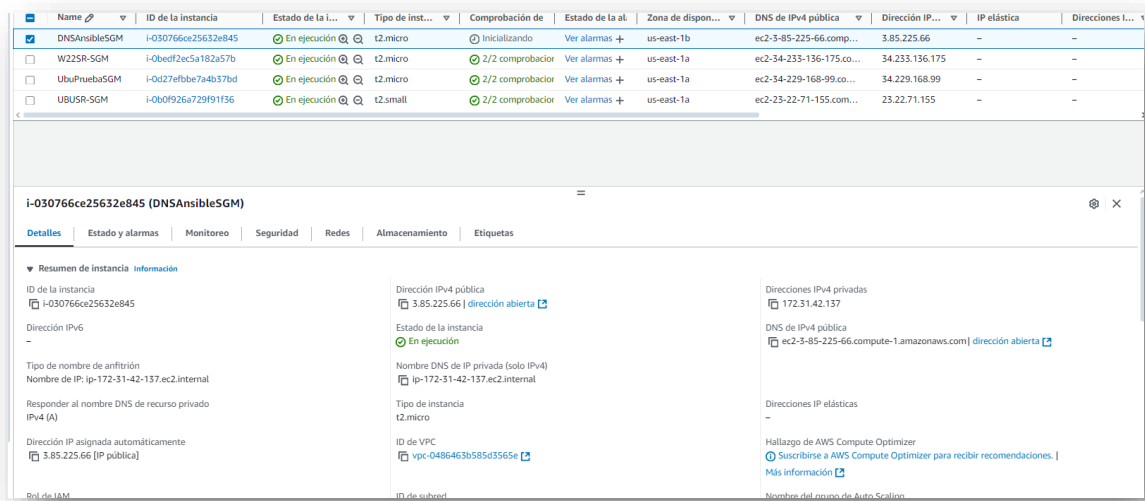
```

i-0d27efbbe7a4b37bd (UbuPruebaSGM)

PublicIPs: 34.229.168.99 PrivateIPs: 172.31.22.243

6. Realizar toda la configuración anterior pero con Ansible

Para este punto de la práctica se creó una instancia llamada DNSAnsibleSGM.



Hacemos los mismos pasos para cambiar el nombre de host.

```
ubuntu@ip-172-31-42-137:~$ sudo nano /etc/cloud/cloud.cfg
ubuntu@ip-172-31-42-137:~$ sudo hostnamectl set-hostname DNSAnsibleSGM
```

Ahora crearemos un playbook de ansible para la configuración, debería quedar así:

```
GNU nano 7.2 bind_setup.yml
---
- name: Configurar servidor DNSAnsibleSGM con BIND
  hosts: all
  become: true
  tasks:

    # Instalar BIND
    - name: Instalar BIND
      apt:
        name: bind9
        state: present
        update_cache: yes

    # Configurar named.conf.local
    - name: Configurar named.conf.local
      copy:
        dest: /etc/bind/named.conf.local
        content: |
          zone "ubusgm.local" {
            type master;
            file "/etc/bind/db.ubusgm.local";
          };
          zone "31.172.in-addr.arpa" {
            type master;
            file "/etc/bind/db.31.172";
          };

    # Subir el archivo de zona directa
    - name: Configurar archivo de zona directa
      copy:
        dest: /etc/bind/db.ubusgm.local
        content: |
          $TTL      604800
          @          IN      SOA      ns1.ubusgm.local. admin.ubusgm.local. (
                                2          ; Serial
                                604800     ; Refresh
                                86400      ; Retry
                                2419200    ; Expire
                                604800 )   ; Negative Cache TTL
          ;
          @          IN      NS       ns1.ubusgm.local.

i-030766ce25632e845 (DNSAnsibleSGM)
PublicIPs: 3.85.225.66 PrivateIPs: 172.31.42.137
```

```

GNU nano 7.2                                     bind_setup.yml *
;
;      86400      ; Retry
;      2419200   ; Expire
;      604800 )   ; Negative Cache TTL
;
@      IN      NS      ns1.ubusgm.local.
ns1    IN      A       3.85.225.66
ser1   IN      A       172.31.42.2
ser2   IN      A       172.31.42.3
pc1    IN      A       172.31.42.4
pc2    IN      A       172.31.42.5
pc3    IN      A       172.31.42.6
pc4    IN      A       172.31.42.7
www    IN      CNAME   ser1
smtp   IN      CNAME   ser2
@      IN      MX      10 smtp.ubusgm.local.

# Subir el archivo de zona inversa
- name: Configurar archivo de zona inversa
  copy:
    dest: /etc/bind/db.31.172
    content: |
      $TTL      604800
      @      IN      SOA      ns1.ubusgm.local. admin.ubusgm.local. (
                        2      ; Serial
                        604800 ; Refresh
                        86400  ; Retry
                        2419200 ; Expire
                        604800 ) ; Negative Cache TTL
      ;
      @      IN      NS      ns1.ubusgm.local.
      2.42   IN      PTR     ser1.ubusgm.local.
      3.42   IN      PTR     ser2.ubusgm.local.
      4.42   IN      PTR     pc1.ubusgm.local.
      5.42   IN      PTR     pc2.ubusgm.local.
      6.42   IN      PTR     pc3.ubusgm.local.
      7.42   IN      PTR     pc4.ubusgm.local.

# Recargar BIND
- name: Recargar servicio BIND
  shell: rndc reload

^G Help      ^C Write Out  ^W Where Is   ^R Cut        ^E Execute    ^G Location   M-U Undo     M-A Set Mark
^X Exit      ^R Read File  ^\ Replace    ^U Paste      ^J Justify    ^_ Go To Line  M-E Redo     M-C Copy

```

i-030766ce25632e845 (DNSAnsibleSGM)

PublicIPs: 3.85.225.66 PrivateIPs: 172.31.42.137

Importante instalar ansible antes de hacer nada.

```

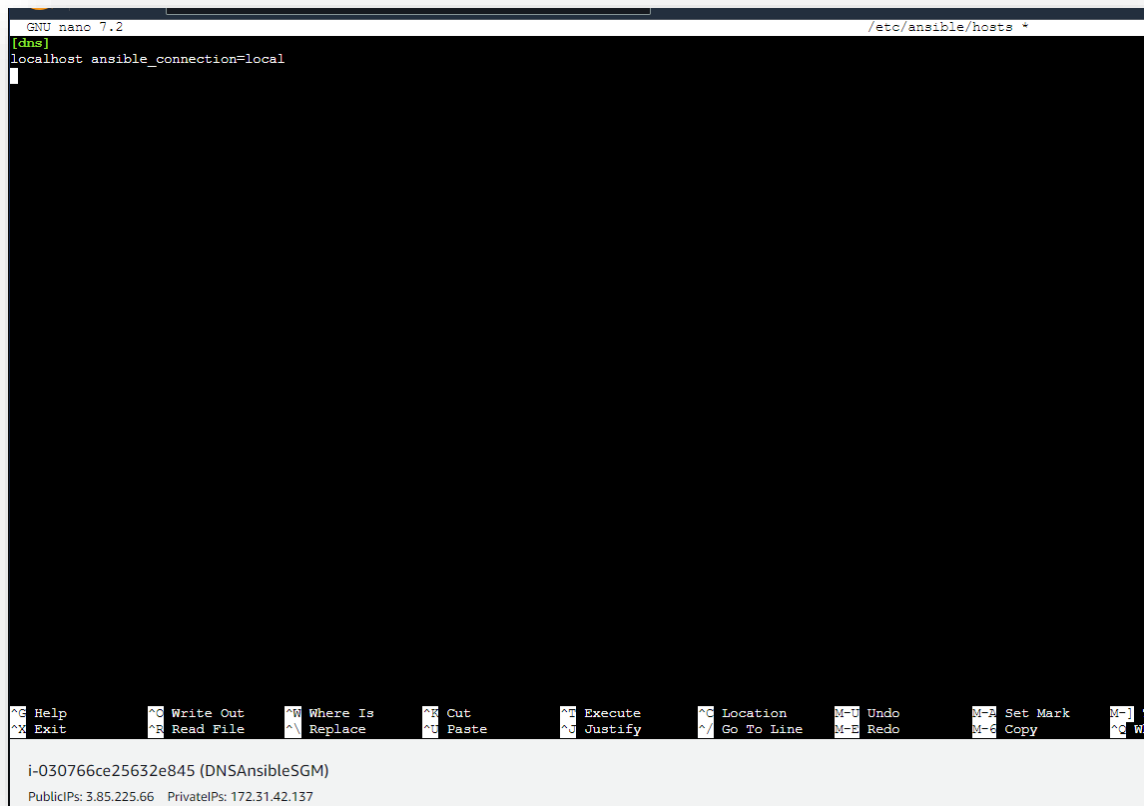
ubuntu@DNSAnsibleSGM:~$ sudo apt install ansible

```

i-030766ce25632e845 (DNSAnsibleSGM)

PublicIPs: 3.85.225.66 PrivateIPs: 172.31.42.137

Nos iremos (o crearemos si no hay) un archivo llamado `/etc/ansible/hosts` donde pondremos el host y la conexión.



```

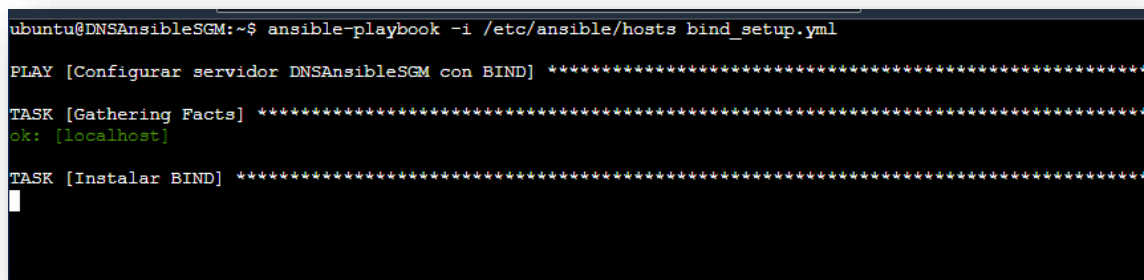
GNU nano 7.2 /etc/ansible/hosts *
[dns]
localhost ansible_connection=local

```

Help Write Out Where Is Cut Execute Location Undo Set Mark
Exit Read File Replace Paste Justify Go To Line Redo Copy W

i-030766ce25632e845 (DNSAnsibleSGM)
PublicIPs: 3.85.225.66 PrivateIPs: 172.31.42.137

Y ya podemos ejecutar el playbook de la siguiente forma:



```

ubuntu@DNSAnsibleSGM:~$ ansible-playbook -i /etc/ansible/hosts bind_setup.yml

PLAY [Configurar servidor DNSAnsibleSGM con BIND] *****

TASK [Gathering Facts] *****
ok: [localhost]

TASK [Instalar BIND] *****

```


Y esperamos a que acabe.

```

ubuntu@DNSAnsibleSGM:~$ ansible-playbook -i /etc/ansible/hosts bind_setup.yml

PLAY [Configurar servidor DNSAnsibleSGM con BIND] *****

TASK [Gathering Facts] *****
ok: [localhost]

TASK [Instalar BIND] *****
changed: [localhost]

TASK [Configurar named.conf.local] *****
changed: [localhost]

TASK [Configurar archivo de zona directa] *****
changed: [localhost]

TASK [Configurar archivo de zona inversa] *****
changed: [localhost]

TASK [Recargar servicio BIND] *****
changed: [localhost]

PLAY RECAP *****
localhost                : ok=6   changed=5   unreachable=0   failed=0   skipped=0   rescued=0   ignored=0

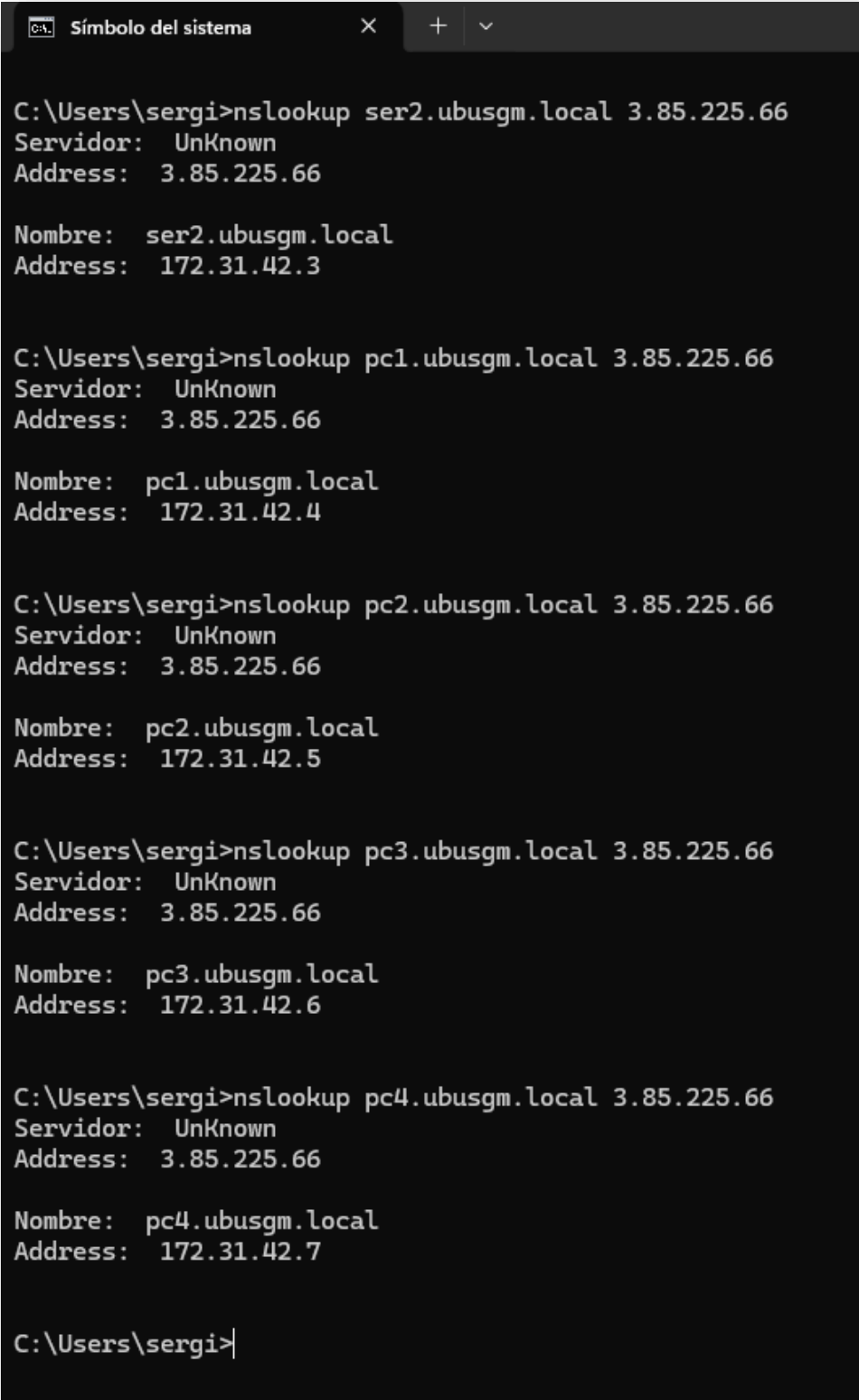
ubuntu@DNSAnsibleSGM:~$ systemctl status bind9
● named.service - BIND Domain Name Server
   Loaded: loaded (/usr/lib/systemd/system/named.service; enabled; preset: enabled)
   Active: active (running) since Tue 2024-11-19 12:57:35 UTC; 20s ago
     Docs: man:named(8)
   Main PID: 2794 (named)
    Status: "running"
     Tasks: 4 (limit: 1130)
  Memory: 7.2M (peak: 7.9M)
     CPU: 40ms
   CGroup: /system.slice/named.service
           └─2794 /usr/sbin/named -f -u bind

Nov 19 12:57:41 DNSAnsibleSGM named[2794]: network unreachable resolving './DNSKEY/IN': 2001:500:2d::d#53
Nov 19 12:57:41 DNSAnsibleSGM named[2794]: network unreachable resolving './DNSKEY/IN': 2001:dc3::35#53
Nov 19 12:57:41 DNSAnsibleSGM named[2794]: network unreachable resolving './DNSKEY/IN': 2001:7fd:1#53
Nov 19 12:57:41 DNSAnsibleSGM named[2794]: network unreachable resolving './DNSKEY/IN': 2001:503:c27::2:30#53
Nov 19 12:57:41 DNSAnsibleSGM named[2794]: zone 31.172.in-addr.arpa/IN: loaded serial 2
Nov 19 12:57:41 DNSAnsibleSGM named[2794]: zone ubusgm.local/IN: ubusgm.local/MX 'smtp.ubusgm.local' is a CNAME (illegal)
Nov 19 12:57:41 DNSAnsibleSGM named[2794]: zone ubusgm.local/IN: loaded serial 2

i-030766ce25632e845 (DNSAnsibleSGM)
PublicIPs: 3.85.225.66  PrivateIPs: 172.31.42.137

```

Sólo nos queda comprobar todo con nslookup:



```
C:\Users\sergi>nslookup ser2.ubusgm.local 3.85.225.66
Servidor: UnKnown
Address: 3.85.225.66

Nombre: ser2.ubusgm.local
Address: 172.31.42.3

C:\Users\sergi>nslookup pc1.ubusgm.local 3.85.225.66
Servidor: UnKnown
Address: 3.85.225.66

Nombre: pc1.ubusgm.local
Address: 172.31.42.4

C:\Users\sergi>nslookup pc2.ubusgm.local 3.85.225.66
Servidor: UnKnown
Address: 3.85.225.66

Nombre: pc2.ubusgm.local
Address: 172.31.42.5

C:\Users\sergi>nslookup pc3.ubusgm.local 3.85.225.66
Servidor: UnKnown
Address: 3.85.225.66

Nombre: pc3.ubusgm.local
Address: 172.31.42.6

C:\Users\sergi>nslookup pc4.ubusgm.local 3.85.225.66
Servidor: UnKnown
Address: 3.85.225.66

Nombre: pc4.ubusgm.local
Address: 172.31.42.7

C:\Users\sergi>
```

```
C:\Users\sergi>nslookup -type=mx ubusgm.local 3.85.225.66
Servidor: UnKnown
Address: 3.85.225.66

ubusgm.local MX preference = 10, mail exchanger = smtp.ubusgm.local

C:\Users\sergi>nslookup -type=ns ubusgm.local 3.85.225.66
Servidor: UnKnown
Address: 3.85.225.66

ubusgm.local nameserver = ns1.ubusgm.local
ns1.ubusgm.local internet address = 3.85.225.66
```

```
C:\Users\sergi>nslookup www.ubusgm.local 3.85.225.66
Servidor: UnKnown
Address: 3.85.225.66

Nombre: ser1.ubusgm.local
Address: 172.31.42.2
Aliases: www.ubusgm.local

C:\Users\sergi>nslookup smtp.ubusgm.local 3.85.225.66
Servidor: UnKnown
Address: 3.85.225.66

Nombre: ser2.ubusgm.local
Address: 172.31.42.3
Aliases: smtp.ubusgm.local
```

Y con el comando dig:

```
ubuntu@ip-172-31-22-243:~$ dig pc1.ubusgm.local @3.85.225.66

; <<>> DiG 9.18.28-0ubuntu0.24.04.1-Ubuntu <<>> pc1.ubusgm.local @3.85.225.66
;; 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: 65534
;; flags: qr aa rd; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1
;; WARNING: recursion requested but not available

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: 2a458ee0afa7e94a01000000673c8cdeca8dbb3db4952201 (good)
;; QUESTION SECTION:
;pc1.ubusgm.local.                IN      A

;; ANSWER SECTION:
pc1.ubusgm.local.                604800  IN      A      172.31.42.4

;; Query time: 0 msec
;; SERVER: 3.85.225.66#53(3.85.225.66) (UDP)
;; WHEN: Tue Nov 19 13:04:30 UTC 2024
;; MSG SIZE rcvd: 89

ubuntu@ip-172-31-22-243:~$ dig ser1.ubusgm.local @3.85.225.66

; <<>> DiG 9.18.28-0ubuntu0.24.04.1-Ubuntu <<>> ser1.ubusgm.local @3.85.225.66
;; 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: 15287
;; flags: qr aa rd; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1
;; WARNING: recursion requested but not available

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: aeb03dd60b0e7c8401000000673c8ce64b567a77db42b7b6 (good)
;; QUESTION SECTION:
;ser1.ubusgm.local.                IN      A

;; ANSWER SECTION:
ser1.ubusgm.local.                604800  IN      A      172.31.42.2

i-0d27efbbe7a4b37bd (UbuPruebaSGM)
PublicIPs: 34.229.168.99 PrivateIPs: 172.31.22.243
```

```

ubuntu@ip-172-31-22-243:~$ dig mx ubusgm.local @3.85.225.66

; <<>> DiG 9.18.28-0ubuntu0.24.04.1-Ubuntu <<>> mx ubusgm.local @3.85.225.66
;; 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: 51822
;; flags: qr aa rd; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1
;; WARNING: recursion requested but not available

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: 25a8a3bb2709872901000000673c8d0673e574ef2213e3a3 (good)
; EDE: 18 (Prohibited)
;; QUESTION SECTION:
;ubusgm.local.                IN      MX

;; ANSWER SECTION:
ubusgm.local.                604800 IN      MX      10 smtp.ubusgm.local.

;; Query time: 2 msec
;; SERVER: 3.85.225.66#53(3.85.225.66) (UDP)
;; WHEN: Tue Nov 19 13:05:10 UTC 2024
;; MSG SIZE rcvd: 96

ubuntu@ip-172-31-22-243:~$ dig ns ubusgm.local @3.85.225.66

; <<>> DiG 9.18.28-0ubuntu0.24.04.1-Ubuntu <<>> ns ubusgm.local @3.85.225.66
;; 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: 9903
;; flags: qr aa rd; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 2
;; WARNING: recursion requested but not available

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: dad86cad8f4320a101000000673c8d206fac8db918092ee6 (good)
;; QUESTION SECTION:
;ubusgm.local.                IN      NS

;; ANSWER SECTION:
ubusgm.local.                604800 IN      NS      ns1.ubusgm.local.

;; ADDITIONAL SECTION:
ns1.ubusgm.local.            604800 IN      A      3.85.225.66

;; Query time: 0 msec
;; SERVER: 3.85.225.66#53(3.85.225.66) (UDP)
;; WHEN: Tue Nov 19 13:05:36 UTC 2024
;; MSG SIZE rcvd: 103

```

i-Od27efbbe7a4b37bd (UbuPruebaSGM)

PublicIPs: 34.229.168.99 PrivateIPs: 172.31.22.243

```

ubuntu@ip-172-31-22-243:~$ dig www.ubusgm.local @3.85.225.66

; <<>> DiG 9.18.28-0ubuntu0.24.04.1-Ubuntu <<>> www.ubusgm.local @3.85.225.66
;; 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: 48323
;; flags: qr aa rd; QUERY: 1, ANSWER: 2, AUTHORITY: 0, ADDITIONAL: 1
;; WARNING: recursion requested but not available

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: 38533a81939e743601000000673c8d4a720c6ed0d267ee8a (good)
;; QUESTION SECTION:
;www.ubusgm.local.                IN      A

;; ANSWER SECTION:
www.ubusgm.local.        604800  IN      CNAME   ser1.ubusgm.local.
ser1.ubusgm.local.      604800  IN      A       172.31.42.2

;; Query time: 1 msec
;; SERVER: 3.85.225.66#53(3.85.225.66) (UDP)
;; WHEN: Tue Nov 19 13:06:18 UTC 2024
;; MSG SIZE rcvd: 108

ubuntu@ip-172-31-22-243:~$ dig smtp.ubusgm.local @3.85.225.66

; <<>> DiG 9.18.28-0ubuntu0.24.04.1-Ubuntu <<>> smtp.ubusgm.local @3.85.225.66
;; 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: 31433
;; flags: qr aa rd; QUERY: 1, ANSWER: 2, AUTHORITY: 0, ADDITIONAL: 1
;; WARNING: recursion requested but not available

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: 73ca1f3486d42f6801000000673c8d5206ef1b710e8198e8 (good)
;; QUESTION SECTION:
;smtp.ubusgm.local.                IN      A

;; ANSWER SECTION:
smtp.ubusgm.local.        604800  IN      CNAME   ser2.ubusgm.local.
ser2.ubusgm.local.      604800  IN      A       172.31.42.3

;; Query time: 1 msec
;; SERVER: 3.85.225.66#53(3.85.225.66) (UDP)
;; WHEN: Tue Nov 19 13:06:26 UTC 2024
;; MSG SIZE rcvd: 109

ubuntu@ip-172-31-22-243:~$

```

i-Od27efbbe7a4b37bd (UbuPruebaSGM)

PublicIPs: 34.229.168.99 PrivateIPs: 172.31.22.243

7. Configuración maestro-esclavo

Configurar un DNS maestro-esclavo mejora la disponibilidad y rendimiento del sistema al permitir que el servidor esclavo actúe como respaldo en caso de fallos del maestro, distribuya la carga de consultas y almacene copias actualizadas de las zonas configuradas. Esto garantiza un servicio DNS más fiable, eficiente y tolerante a fallos.

Sabiendo esto, lo primero será crear una instancia esclava en AWS.

<input checked="" type="checkbox"/>	UBUSRSlaveSGM	i-041850939d8296a06	En ejecución	t2.micro	Inicializando	Ver alarmas +	us-east-1b	ec2-98-80-65-89.comp...	98.80.65.89	-
<input type="checkbox"/>	DNSAnsibleSGM	i-030766ce25632e845	En ejecución	t2.micro	2/2 comprobador	Ver alarmas +	us-east-1b	ec2-3-85-225-66.comp...	3.85.225.66	-
<input type="checkbox"/>	W22SR-SGM	i-0bedf2ec5a182a57b	En ejecución	t2.micro	2/2 comprobador	Ver alarmas +	us-east-1a	ec2-34-233-136-175.co...	34.233.136.175	-
<input type="checkbox"/>	UbuPruebaSGM	i-0d27efbbe7a4b37bd	En ejecución	t2.micro	2/2 comprobador	Ver alarmas +	us-east-1a	ec2-34-229-168-99.co...	34.229.168.99	-

i-041850939d8296a06 (UBUSRSlaveSGM)										
<div> <div>Detalles</div> <div>Estado y alarmas</div> <div>Monitoreo</div> <div>Seguridad</div> <div>Redes</div> <div>Almacenamiento</div> <div>Etiquetas</div> </div>										
<div> <div>Resumen de instancia</div> <div>Información</div> </div>										
ID de la instancia			Dirección IPv4 pública			Direcciones IPv4 privadas				
i-041850939d8296a06			98.80.65.89 dirección abierta			172.31.39.97				
Dirección IPv6			Estado de la instancia			DNS de IPv4 pública				
-			En ejecución			ec2-98-80-65-89.compute-1.amazonaws.com dirección abierta				
Tipo de nombre de anfitrión			Nombre DNS de IP privada (solo IPv4)			Direcciones IP elásticas				
Nombre de IP: ip-172-31-39-97.ec2.internal			ip-172-31-39-97.ec2.internal			-				
Responder al nombre DNS de recurso privado IPv4 (A)			Tipo de instancia			Hallazgo de AWS Compute Optimizer				
Dirección IP asignada automáticamente			t2.micro			Suscribirse a AWS Compute Optimizer para recibir recomendaciones. Más información				
98.80.65.89 [IP pública]			ID de VPC			Nombre del grupo de Auto Scaling				
Rol de IAM			ID de subred			-				
-			subnet-0de9f53fc719c7207							
IMDSv2			ARN de instancia							
Required			arn:aws:ec2:us-east-1:265875363997:instance/i-041850939d8296a06							

Importante instalar bind

```

aws Servicios [Alt+S]
Get:20 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 Components [35.0 kB]
Get:21 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 c-n-f Metadata [83 B]
Get:22 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [663 kB]
Get:23 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main Translation-en [156 kB]
Get:24 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [120 B]
Get:25 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 c-n-f Metadata [83 B]
Get:26 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [71 kB]
Get:27 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe Translation-en [21 B]
Get:28 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [120 B]
Get:29 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 c-n-f Metadata [83 B]
Get:30 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Packages [71 kB]
Get:31 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted Translation-en [21 B]
Get:32 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Components [120 B]
Get:33 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 c-n-f Metadata [83 B]
Get:34 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Packages [71 kB]
Get:35 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse Translation-en [21 B]
Get:36 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [120 B]
Get:37 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 c-n-f Metadata [83 B]
Get:38 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/main amd64 Components [120 B]
Get:39 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/main amd64 c-n-f Metadata [83 B]
Get:40 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Packages [71 kB]
Get:41 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe Translation-en [21 B]
Get:42 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [120 B]
Get:43 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 c-n-f Metadata [83 B]
Get:44 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/restricted amd64 Components [120 B]
Get:45 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/restricted amd64 c-n-f Metadata [83 B]
Get:46 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 Components [120 B]
Get:47 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 c-n-f Metadata [83 B]
Get:48 http://security.ubuntu.com/ubuntu noble-security/restricted Translation-en [91.2 kB]
Get:49 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Components [212 B]
Get:50 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 c-n-f Metadata [424 B]
Get:51 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Packages [12.2 kB]
Get:52 http://security.ubuntu.com/ubuntu noble-security/multiverse Translation-en [2940 B]
Get:53 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [212 B]
Get:54 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 c-n-f Metadata [356 B]
Fetched 30.8 MB in 6s (5228 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
48 packages can be upgraded. Run 'apt list --upgradable' to see them.
ubuntu@ip-172-31-39-97:~$ sudo apt install bind9
i-041850939d8296a06 (UBUSRSslaveSGM)
PublicIPs: 98.80.65.89 PrivateIPs: 172.31.39.97

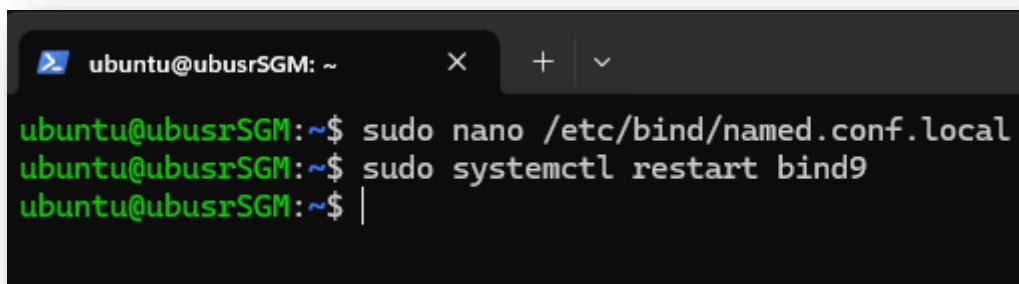
```


Ahora modificamos así con la ip el archivo de configuración de bind en nuestro server maestro.



```
ubuntu@ubusrSGM: ~  
GNU nano 7.2 /etc/bind/named.conf.local *  
zone "ubusgm.local" {  
    type master;  
    file "/etc/bind/db.ubusgm.local";  
    allow-transfer { 98.80.65.89; }; # IP pública del servidor esclavo  
};  
  
zone "0.172.in-addr.arpa" {  
    type master;  
    file "/etc/bind/db.0.172";  
    allow-transfer { 98.80.65.89; }; # IP pública del servidor esclavo  
};
```

Y reseteamos el servicio.



```
ubuntu@ubusrSGM: ~  
ubuntu@ubusrSGM:~$ sudo nano /etc/bind/named.conf.local  
ubuntu@ubusrSGM:~$ sudo systemctl restart bind9  
ubuntu@ubusrSGM:~$
```

Ya tenemos listo el servidor maestro, ahora nos vamos al esclavo y modificamos así con la IP del maestro el archivo de configuración bind. (con la privada no me dejó)

```
GNU nano 7.2 /etc/bind/named.conf.local
zone "ubusgm.local" {
    type slave;
    file "/var/cache/bind/db.ubusgm.local";
    masters { 23.22.71.155; }; # IP privada o pública del servidor maestro
};

zone "0.172.in-addr.arpa" {
    type slave;
    file "/var/cache/bind/db.0.172";
    masters { 23.22.71.155; }; # IP privada o pública del servidor maestro
};

^G Help      ^C Write Out  ^W Where Is  ^R Cut       ^T Execute   ^C Location  M-U Undo     M-Z Set Max
^X Exit      ^B Read File  ^\ Replace   ^V Paste     ^J Justify   ^/_ Go To Line M-E Redo     M-G Copy

i-041850939d8296a06 (UBUSRSlaveSGM)
PublicIPs: 98.80.65.89 PrivateIPs: 172.31.39.97
```

Reseteamos servicio.

```
ubuntu@ip-172-31-39-97:~$ sudo nano /etc/bind/named.conf.local
ubuntu@ip-172-31-39-97:~$ sudo systemctl restart bind9

i-041850939d8296a06 (UBUSRSlaveSGM)
PublicIPs: 98.80.65.89 PrivateIPs: 172.31.39.97
```

Ahora hice unas cuantas consultas para ver los logs:

La ip es otra porque la consulta la volví a hacer otro día diferente.

```

; communications error to 98.80.65.89#53: timed out
^Cubuntu@ip-172-31-39-97:~$ dig @98.81.152.71 -x 172.0.0.2

; <<>> Dig 9.18.28-0ubuntu0.24.04.1-Ubuntu <<>> @98.81.152.71 -x 172.0.0.2
; (1 server found)
; global options: +cmd
; Got answer:
; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 48951
; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: c7c8eeee670ee92e0100000067489f7e2a981c732b93f07b (good)
; QUESTION SECTION:
; 2.0.0.172.in-addr.arpa.                IN      PTR

; ANSWER SECTION:
2.0.0.172.in-addr.arpa. 604800 IN      PTR      ser1.ubusgm.local.

; Query time: 1 msec
; SERVER: 98.81.152.71#53(98.81.152.71) (UDP)
; WHEN: Thu Nov 28 16:51:10 UTC 2024
; MSG SIZE rcvd: 110

ubuntu@ip-172-31-39-97:~$ dig @98.81.152.71 -x 172.0.0.3

; <<>> Dig 9.18.28-0ubuntu0.24.04.1-Ubuntu <<>> @98.81.152.71 -x 172.0.0.3
; (1 server found)
; global options: +cmd
; Got answer:
; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 6913
; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: 0afe327ab166f2af0100000067489f8316a2081efcbf18b4 (good)
; QUESTION SECTION:
; 3.0.0.172.in-addr.arpa.                IN      PTR

; ANSWER SECTION:
3.0.0.172.in-addr.arpa. 604800 IN      PTR      ser2.ubusgm.local.

```

i-041850939d8296a06 (UBUSRSlaveSGM)

PublicIPs: 54.81.46.183 PrivateIPs: 172.31.39.97

Y si todo va bien, las consultas deberían poner un success como en la foto.

```

ubuntu@ip-172-31-39-97:~$ dig 98.80.65.89 seri.ubusgm.local
;<<> DiG 9.18.28-Ubuntu0.24.04.1-Ubuntu <<> 98.80.65.89 seri.ubusgm.local
; (1 servers found)
;; 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: 11217
;; flags: qr aa rd; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1
;; WARNING: recursion requested but not available

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags: udp: 1232
; COOKIE: 925553e1ca1af0c701000000673c9b3df138a7a9031dedb2 (good)
;; QUESTION SECTION:
;seri.ubusgm.local.          IN      A
;; ANSWER SECTION:
seri.ubusgm.local.         604800 IN      A      172.31.0.2

;; Query time: 0 msec
;; SERVER: 98.80.65.89#53(98.80.65.89) (UDP)
;; WHEN: Tue Nov 19 14:05:49 UTC 2024
;; MSG SIZE  rcv=90

ubuntu@ip-172-31-39-97:~$ sudo tail -f /var/log/syslog | grep named
2024-11-19T14:05:46.469734+00:00 ip-172-31-39-97 named[2302]: resolver priming query complete: success
2024-11-19T14:05:46.475048+00:00 ip-172-31-39-97 named[2302]: transfer of 'ubusgm.local/IN' from 23.22.71.155#53: connected using 23.22.71.155#53
2024-11-19T14:05:46.476696+00:00 ip-172-31-39-97 named[2302]: zone ubusgm.local/IN: transferred serial 2
2024-11-19T14:05:46.476780+00:00 ip-172-31-39-97 named[2302]: transfer of 'ubusgm.local/IN' from 23.22.71.155#53: Transfer status: success
2024-11-19T14:05:46.476825+00:00 ip-172-31-39-97 named[2302]: transfer of 'ubusgm.local/IN' from 23.22.71.155#53: Transfer completed: 1 messages, 13 records, 317 bytes, 0.001 secs (317000 bytes/sec) (see serial 2)
2024-11-19T14:05:46.965726+00:00 ip-172-31-39-97 named[2302]: zone 0.172.in-addr.arpa/IN: Transfer started.
2024-11-19T14:05:46.967068+00:00 ip-172-31-39-97 named[2302]: transfer of '0.172.in-addr.arpa/IN' from 23.22.71.155#53: connected using 23.22.71.155#53
2024-11-19T14:05:46.968980+00:00 ip-172-31-39-97 named[2302]: zone 0.172.in-addr.arpa/IN: transferred serial 2
2024-11-19T14:05:46.969062+00:00 ip-172-31-39-97 named[2302]: transfer of '0.172.in-addr.arpa/IN' from 23.22.71.155#53: Transfer status: success
2024-11-19T14:05:46.969092+00:00 ip-172-31-39-97 named[2302]: transfer of '0.172.in-addr.arpa/IN' from 23.22.71.155#53: Transfer completed: 1 messages, 9 records, 286 bytes, 0.001 secs (286000 bytes/sec) (see serial 2)
sudo tail -f /var/log/syslog | grep named

```

I-041850939d8296a06 (UBUSRSlavesGM)

PublicIP: 98.80.65.89 PrivateIP: 172.31.39.97