



PRÁCTICA DE DNS:

Despliegue Aplicaciones Web

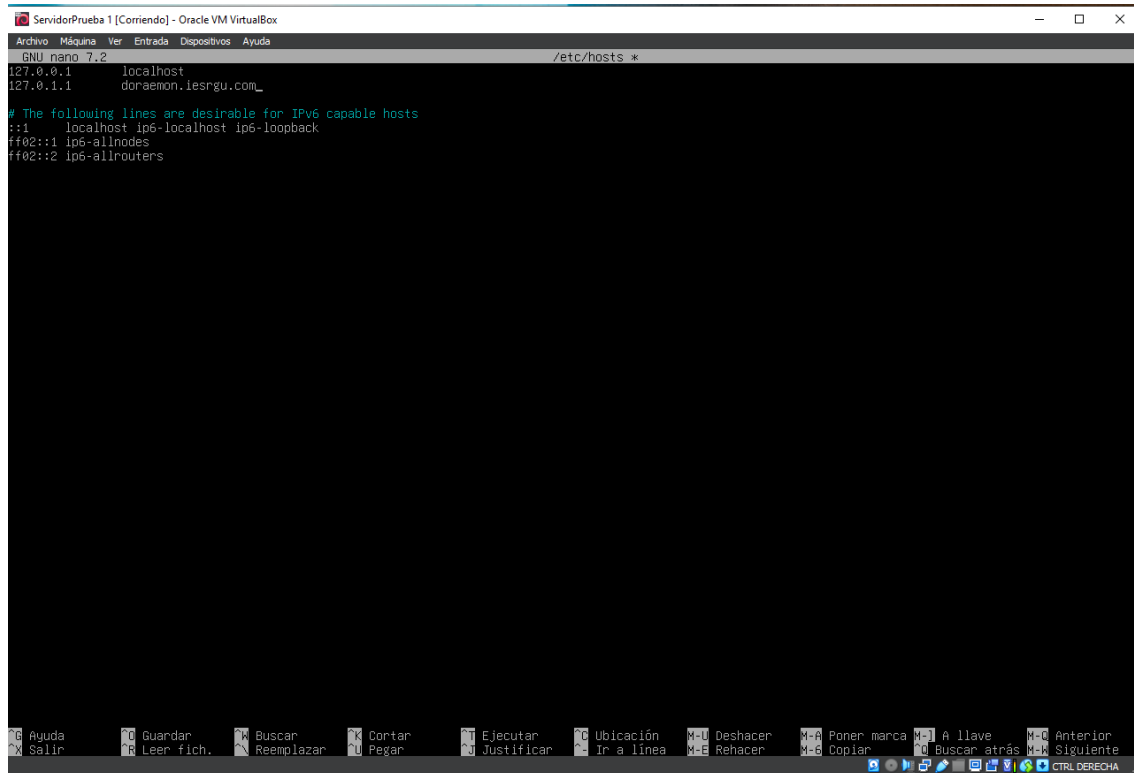
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2ºDAW

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1. GESTIÓN DEL ENTORNO

Nombrar a la maquina servidor doraemon.iesrgu.com con ip 192.168.x.254



The screenshot shows a terminal window titled 'ServidorPrueba 1 [Corriendo] - Oracle VM VirtualBox'. Inside, the nano text editor is open to the file /etc/hosts. The file contains the following content:

```
127.0.0.1    localhost
127.0.1.1    doraemon.iesrgu.com_

# The following lines are desirable for IPv6 capable hosts
::1         localhost ip6-localhost ip6-loopback
ff02::1     ip6-allnodes
ff02::2     ip6-allrouters
```

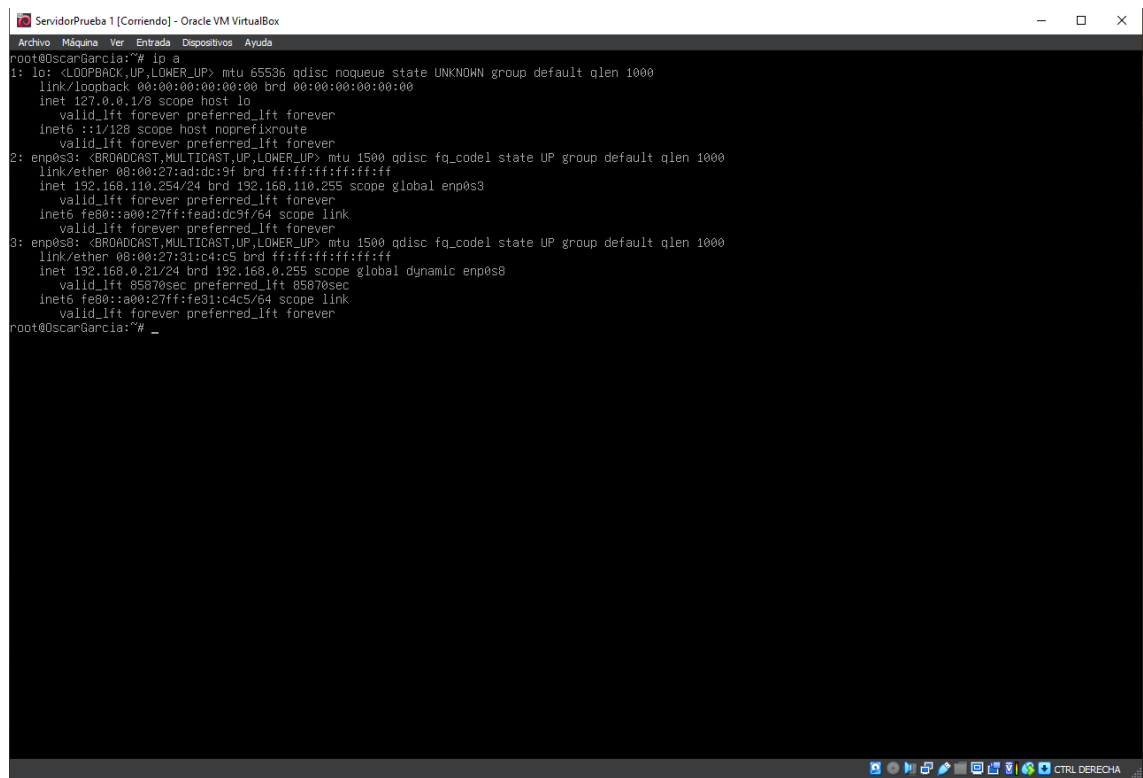
The nano editor's status bar at the bottom shows various keyboard shortcuts like 'Ayuda', 'Guardar', 'Buscar', etc.



The screenshot shows a terminal window titled 'ServidorPrueba 1 [Corriendo] - Oracle VM VirtualBox'. Inside, the nano text editor is open to the file /etc/hostname. The file contains the following content:

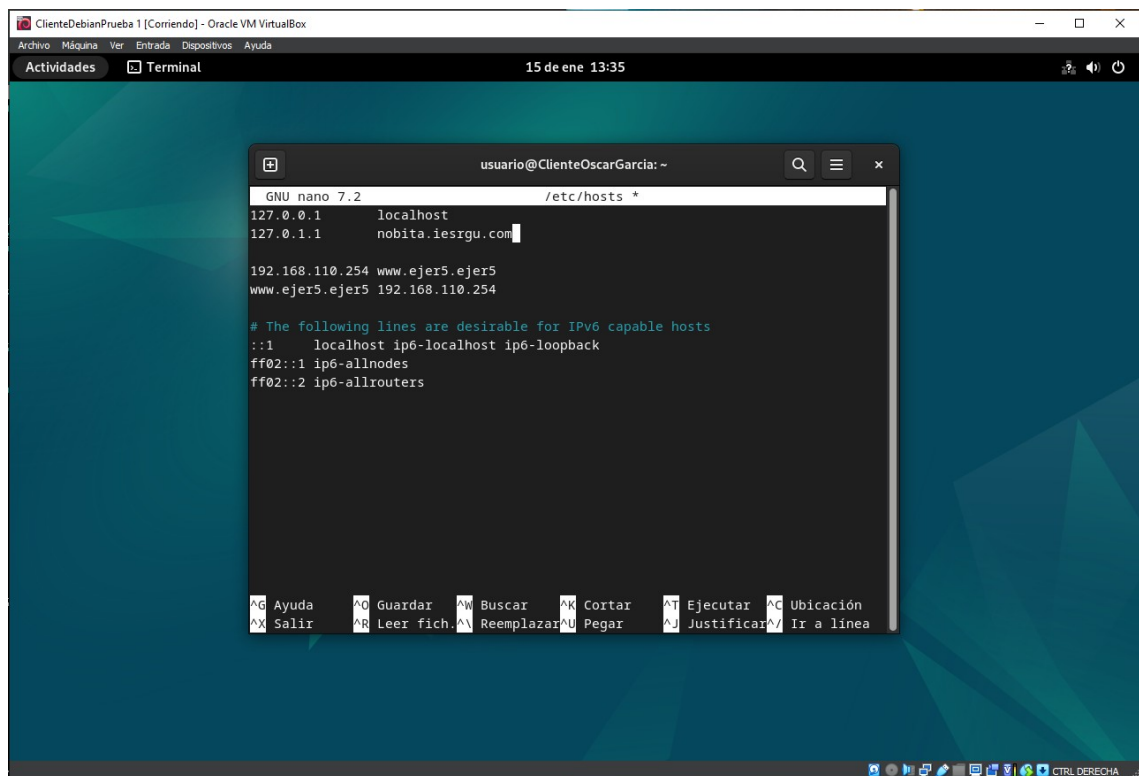
```
doraemon.iesrgu.com
```

The nano editor's status bar at the bottom shows various keyboard shortcuts like 'Ayuda', 'Guardar', 'Buscar', etc.



```
root@OscarGarcia:~# 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: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:ad:dc:9f brd ff:ff:ff:ff:ff:ff
    inet 192.168.110.254/24 brd 192.168.110.255 scope global enp0s3
        valid_lft forever preferred_lft forever
    inet6 fe80::a00:27ff:fead:dc9f/64 scope link
        valid_lft forever preferred_lft forever
3: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:31:c4:c5 brd ff:ff:ff:ff:ff:ff
    inet 192.168.0.21/24 brd 192.168.0.255 scope global dynamic enp0s8
        valid_lft 85870sec preferred_lft 85870sec
    inet6 fe80::a00:27ff:fe31:c4c5/64 scope link
        valid_lft forever preferred_lft forever
root@OscarGarcia:~# _
```

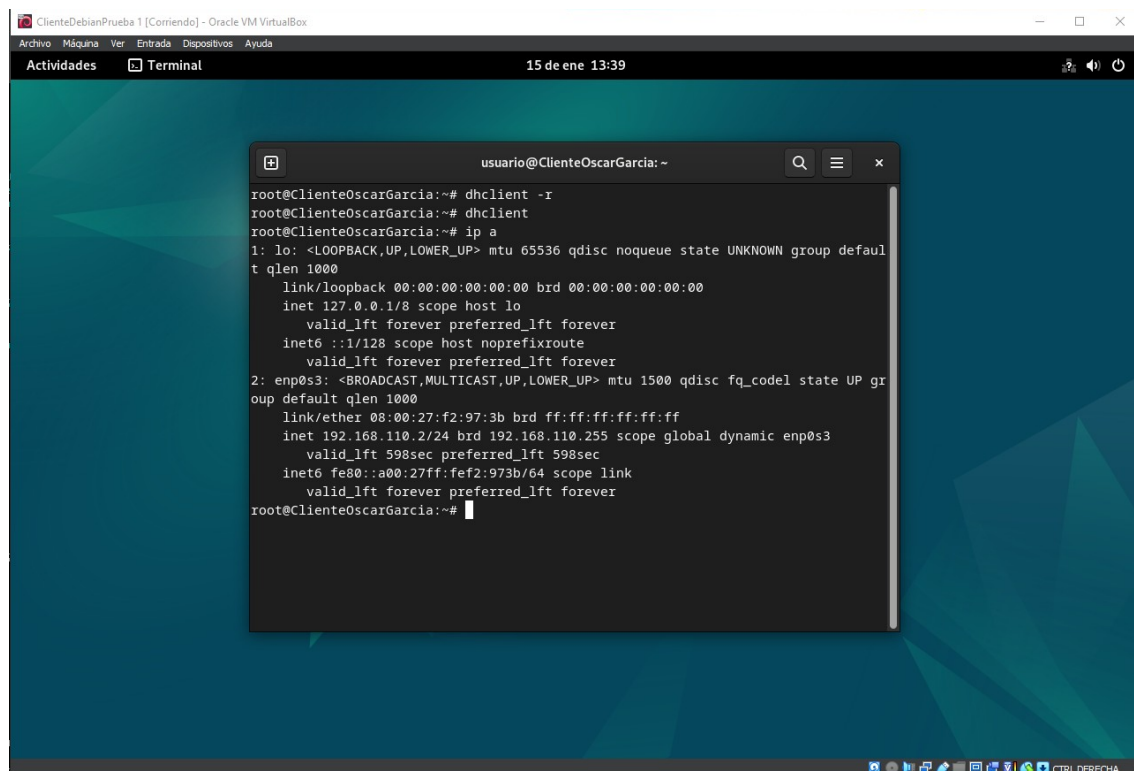
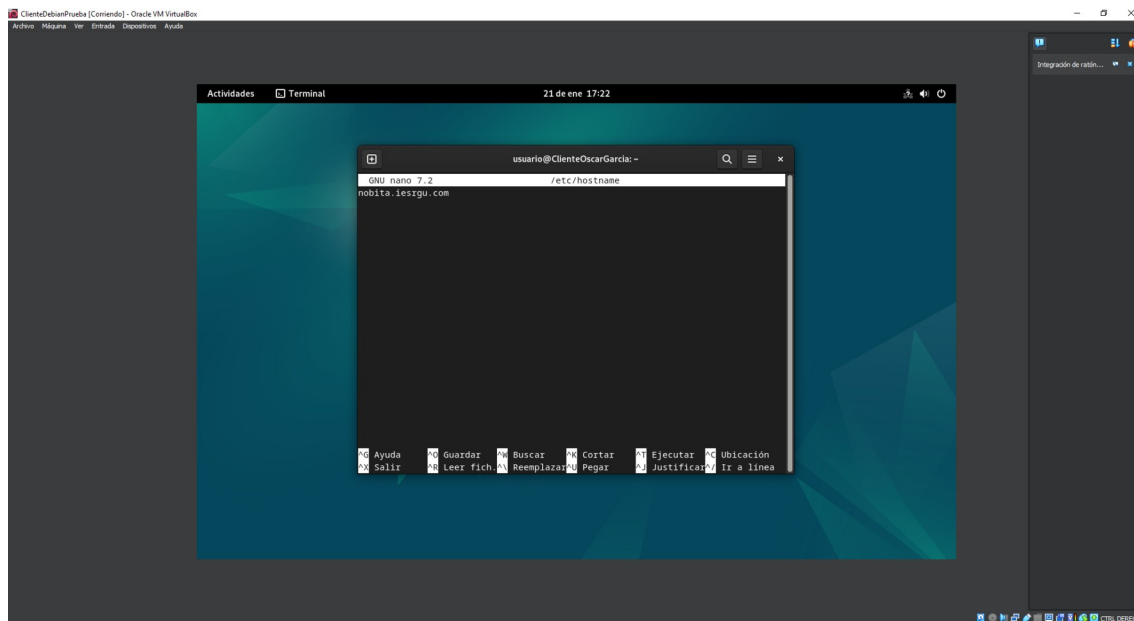
Cliente 1 nobita.iesrgu.com



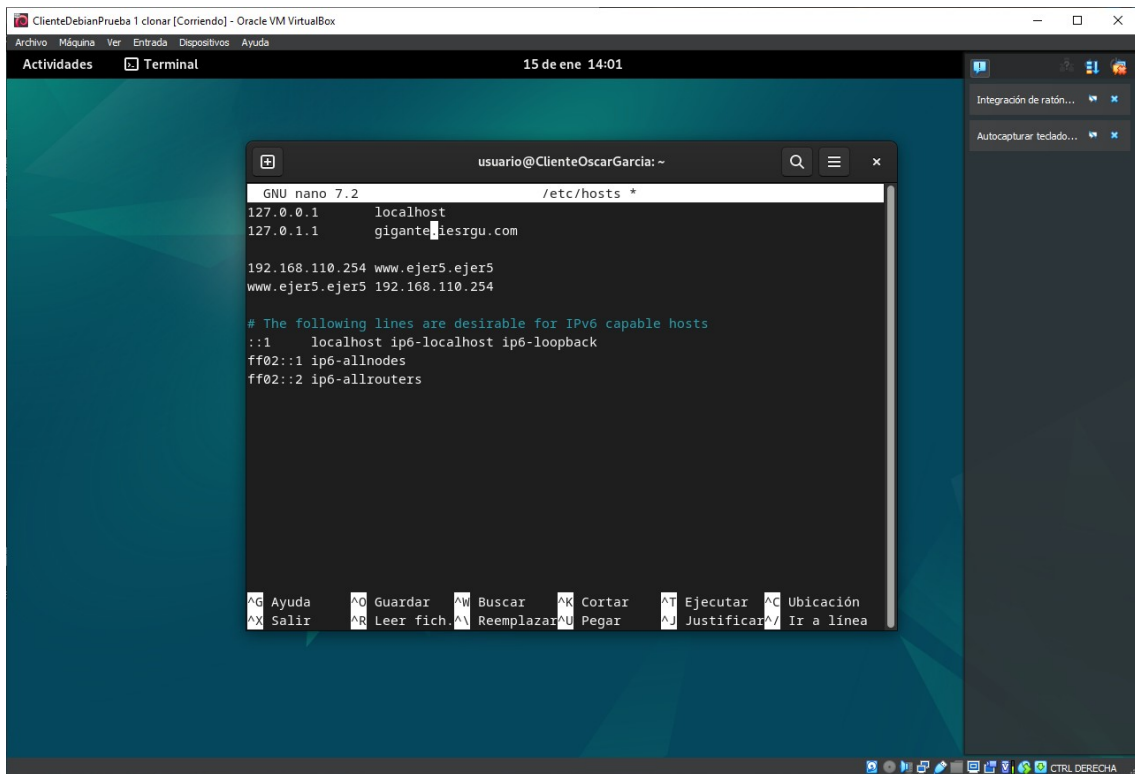
```
GNU nano 7.2 /etc/hosts *
127.0.0.1 localhost
127.0.1.1 nobita.iesrgu.com

192.168.110.254 www.ejer5.ejer5
www.ejer5.ejer5 192.168.110.254

# The following lines are desirable for IPv6 capable hosts
::1 localhost ip6-localhost ip6-loopback
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
```



Cliente 2 gigante.iesrgu.com



ClienteDebianPrueba 1 clonar [Corriendo] - Oracle VM VirtualBox

Archivo Máquina Ver Entrada Dispositivos Ayuda

Actividades Terminal 15 de ene 14:01

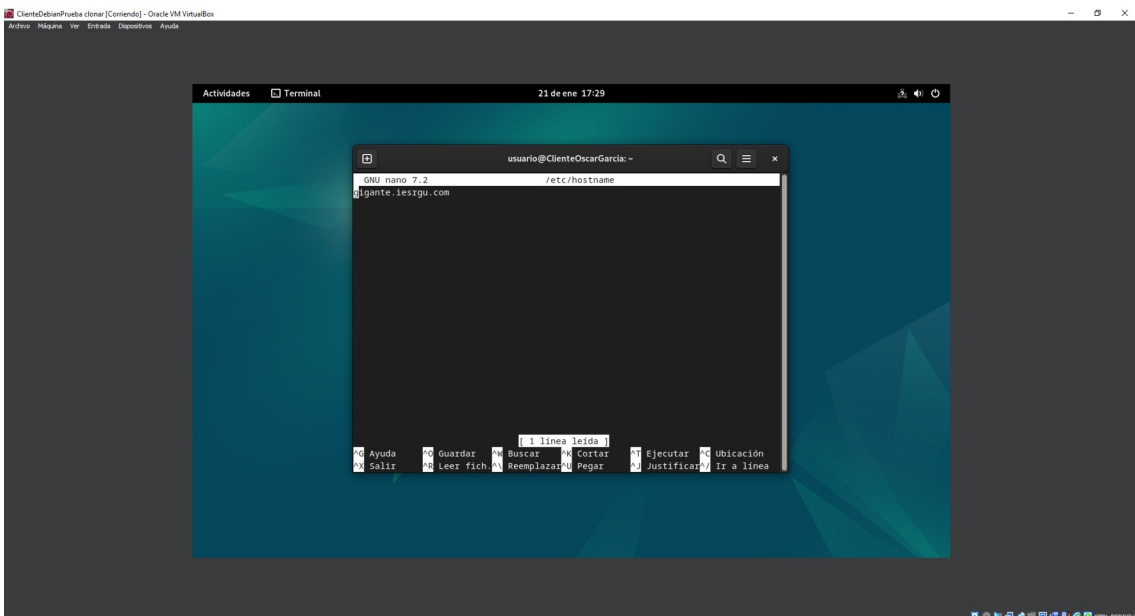
Integración de ratón... Autocapturar teclado...

```
GNU nano 7.2 /etc/hosts *
127.0.0.1 localhost
127.0.1.1 gigante.iesrgu.com

192.168.110.254 www.ejer5.ejer5
www.ejer5.ejer5 192.168.110.254

# The following lines are desirable for IPv6 capable hosts
::1 localhost ip6-localhost ip6-loopback
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
```

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



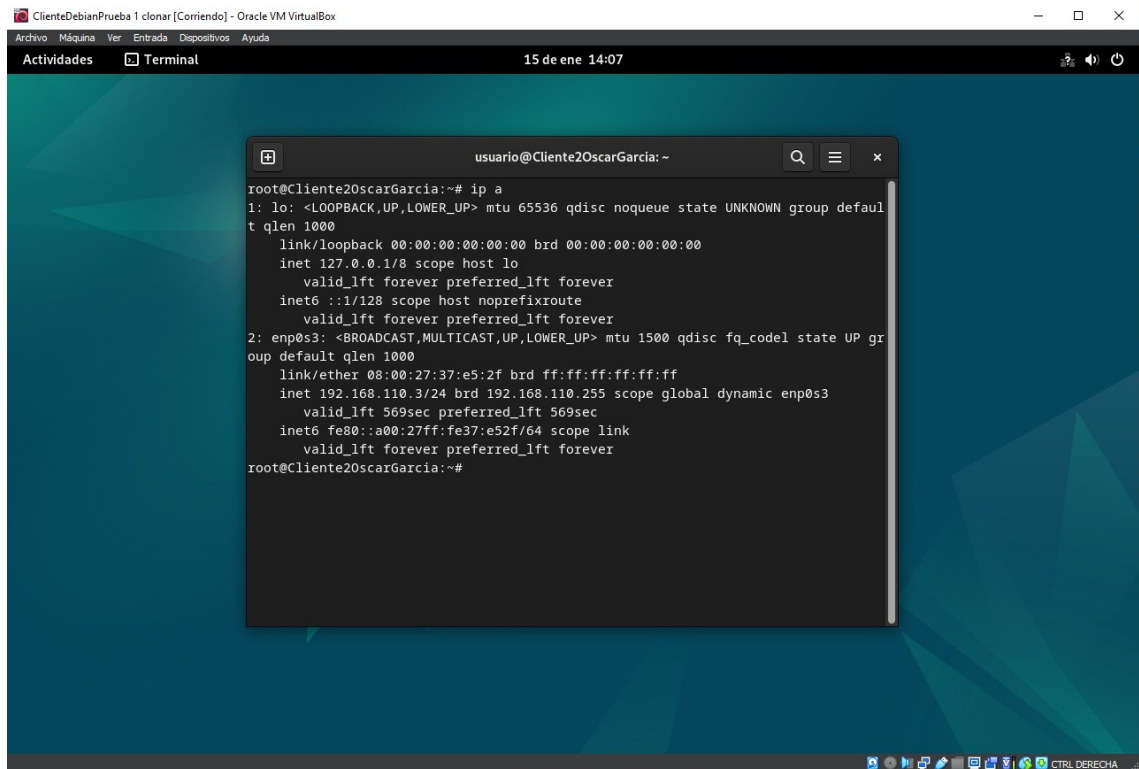
ClienteDebianPrueba clonar [Corriendo] - Oracle VM VirtualBox

Archivo Máquina Ver Entrada Dispositivos Ayuda

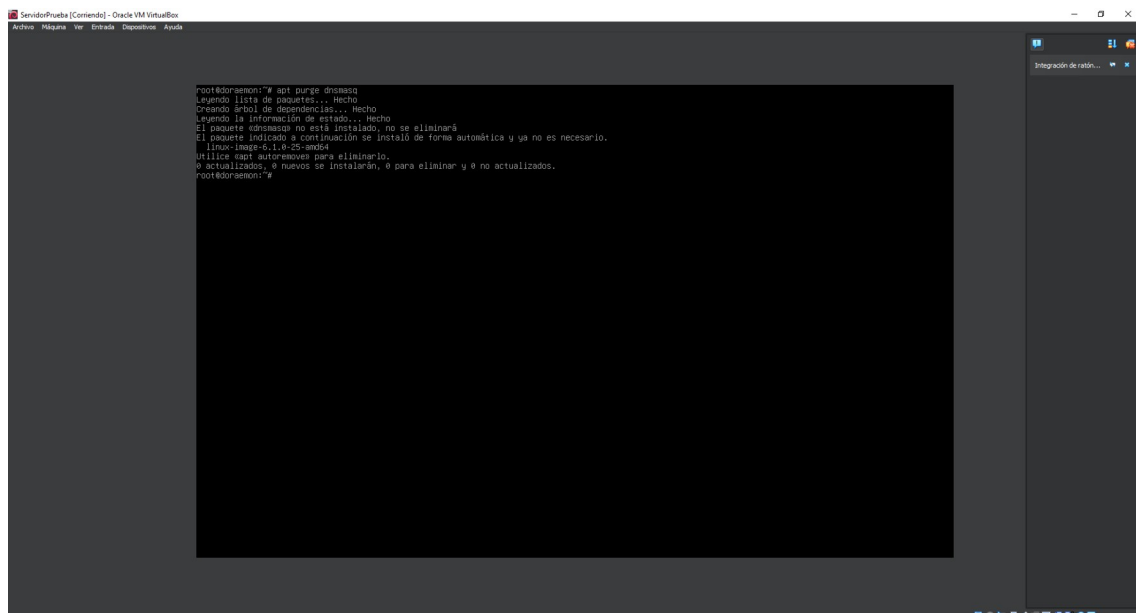
Actividades Terminal 21 de ene 17:29

```
GNU nano 7.2 /etc/hostname
gigante.iesrgu.com
```

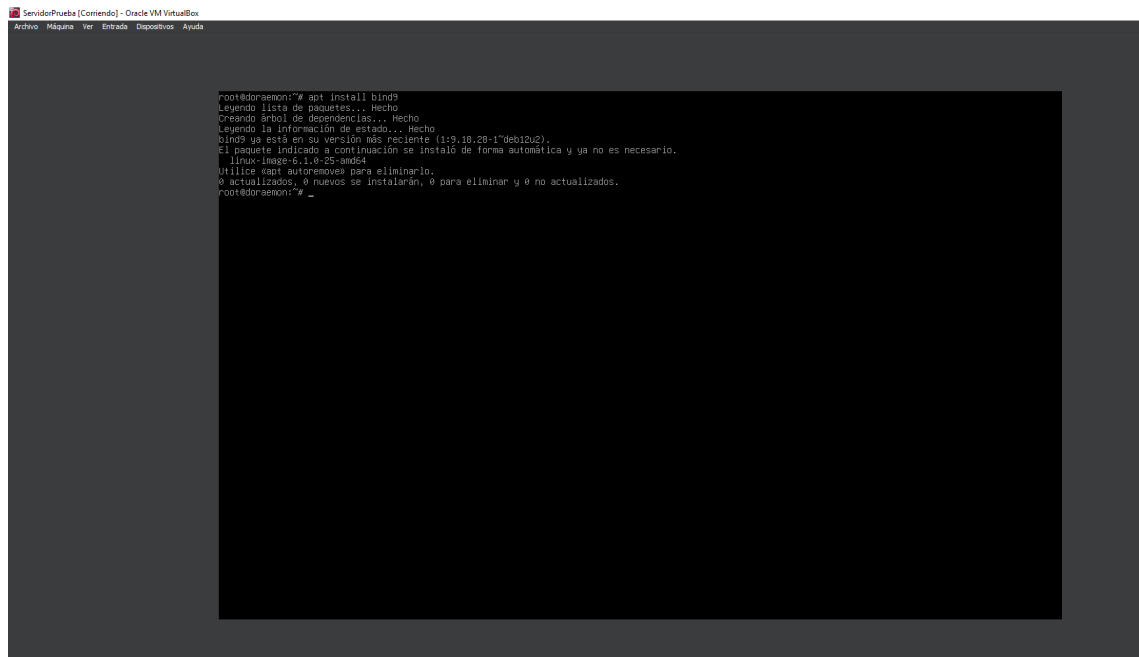
^G Ayuda ^O Guardar ^W Buscar ^K Cortar ^T Ejecutar ^C Ubicación
^X Salir ^R Leer fich. ^M Reemplazar ^U Pegar ^J Justificar ^_ Ir a línea



2. CONFIGURACIÓN



Instalar bind9



```
SevidorPrueba [Comando] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda

root@doraemon:~# apt install bind9
Leyendo lista de paquetes... Hecho
Creando árbol de dependencias... Hecho
Leyendo la información de estado... Hecho
bind9 se está en su versión más reciente (1:9.10.29-1~deb10u2).
El paquete indicado a continuación se instaló de forma automática y ya no es necesario.
linux-image-6.10-25-amd64
Utilice «apt autoremove» para eliminarlo.
0 actualizados, 0 nuevos se instalarán, 0 para eliminar y 0 no actualizados.
root@doraemon:~# _
```

Modificar el archivo /etc/bind/named.conf.local



```
SevidorPrueba [Comando] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda

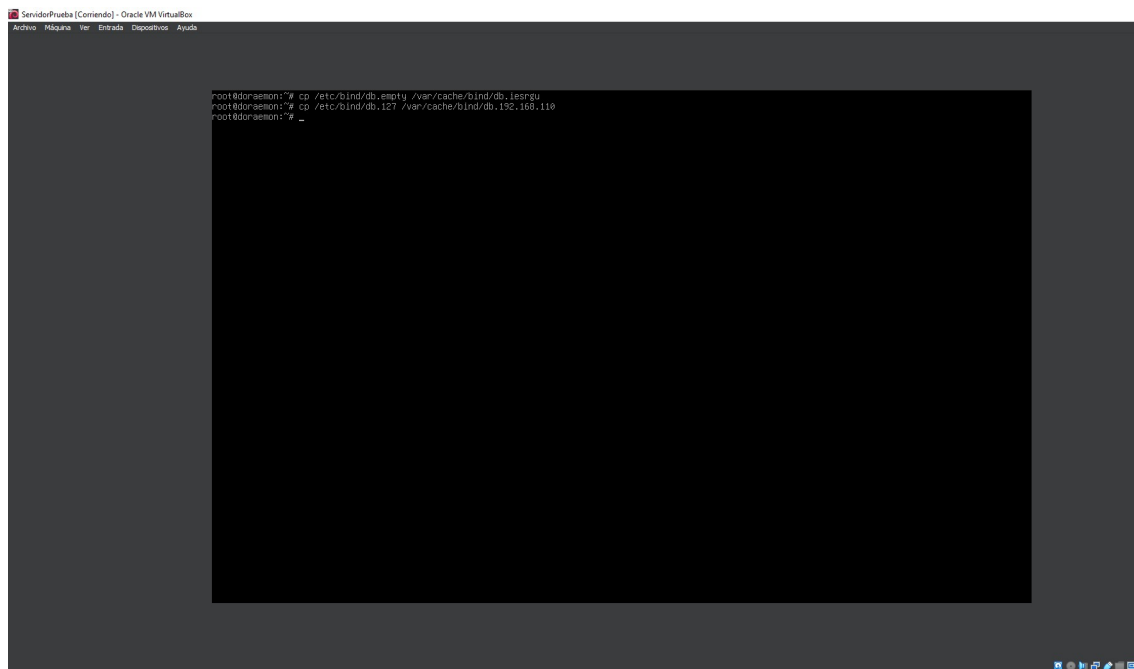
GNU nano 2.9.2 /etc/bind/named.conf.local
//
// Do any local configuration here
//
// Consider adding the 1918 zones here, if they are not used in your
// organization
//include "/etc/bind/zones.rfc1918":

zone "iesgu.com"{
    type master;
    file "db.iesgu";
};

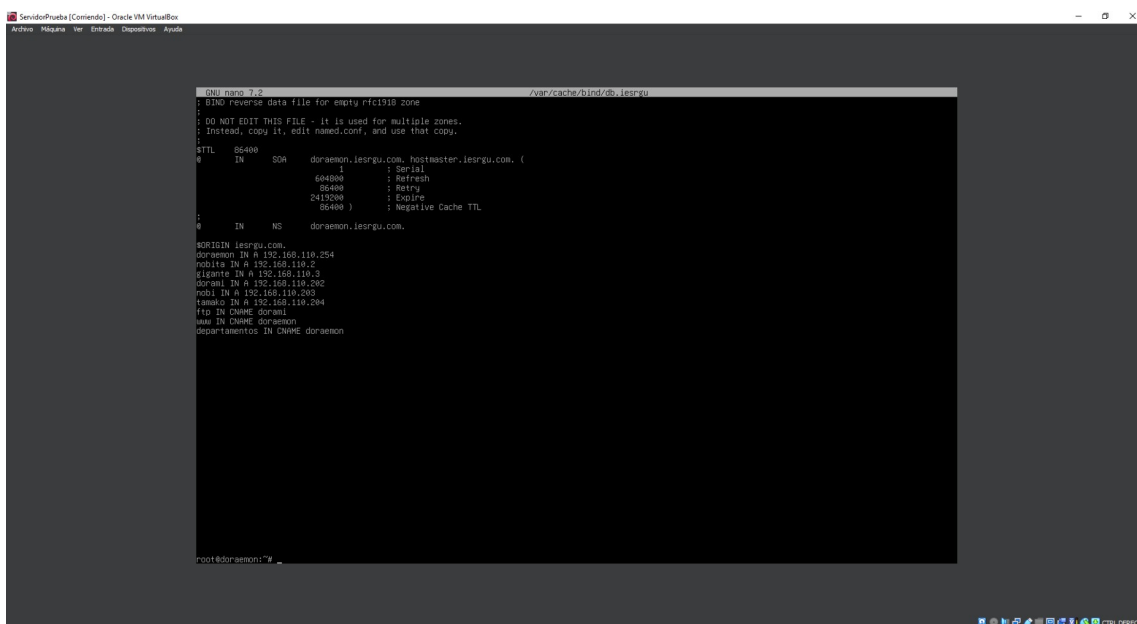
zone "192.168.192.in-addr.arpa"{
    type master;
    file "db.192.168.192";
};

[12 líneas] [Inicio]
Ayuda Guardar Buscar Contar Ejecutar Ubicación Deshacer Poner marca A llave Anterior
Salir Leer fich. Reemplazar Pegar Justificar Ir a línea Renacer Coolar Buscar atrás Siguiente
```

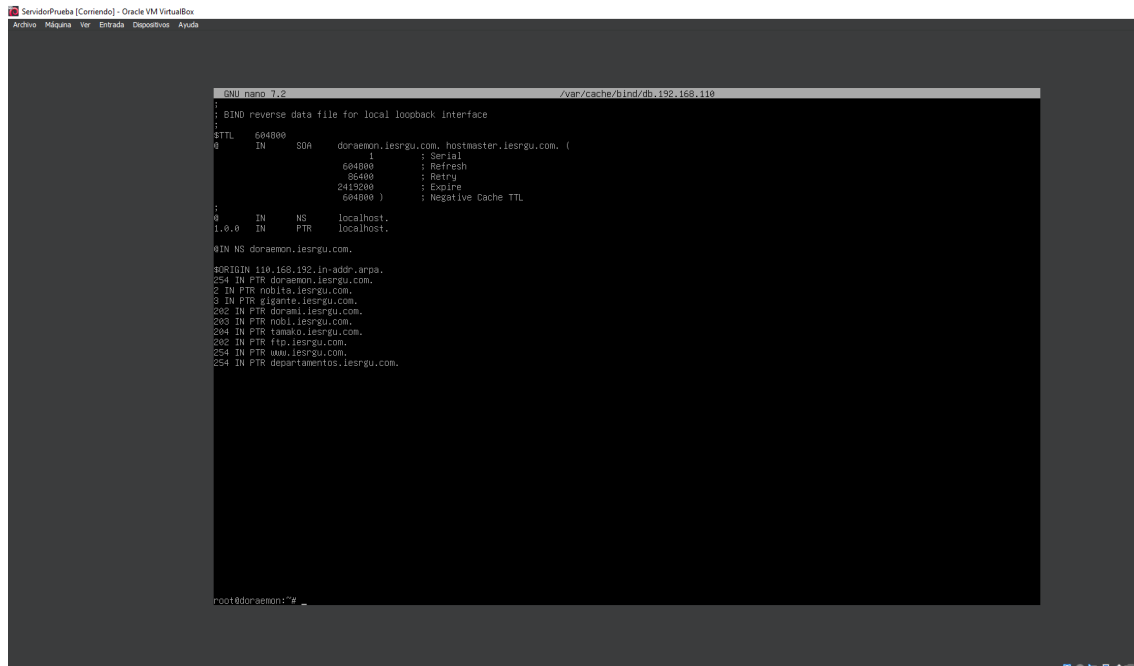

Copiar los archivos para configurarlos.



Configuración de nano /var/cache/bind/db.iesrgu



Modificamos el fichero de resolución inversa



```
GNU nano 2.2 /var/cache/bind/db.192.168.110
;
; BIND reverse data file for local loopback interface
;
$TTL 604800
@ IN SOA doraemon.iesrgu.com. hostmaster.iesrgu.com. (
    604800      ; Serial
    604800      ; Refresh
    2419200     ; Retry
    604800     ; Expire
    604800 )    ; Negative Cache TTL
;
@ IN NS localhost.
1.0.0 IN PTR localhost.

0 IN NS doraemon.iesrgu.com.
4096 IN 110.168.192.in-addr.arpa.
254 IN PTR doraemon.iesrgu.com.
2 IN PTR nobita.iesrgu.com.
3 IN PTR gigante.iesrgu.com.
202 IN PTR doraemon.iesrgu.com.
203 IN PTR nobi.iesrgu.com.
204 IN PTR tamako.iesrgu.com.
202 IN PTR fup.iesrgu.com.
254 IN PTR www.iesrgu.com.
254 IN PTR departamentos.iesrgu.com.
```

Configuración del reenviador /etc/bind/named.conf.options



```
GNU nano 2.2 /etc/bind/named.conf.options
options {
    directory "/var/cache/bind";

    // If there is a firewall between you and nameservers you want
    // to talk to, you may need to fix the firewall to allow multiple
    // ports to talk.  See http://www.kb.cert.org/vuls/id/800110
    // 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 {
        0.0.0.0;
    };

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

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

modificar el fichero de configuración /etc/dhcp/dhcpd.conf



The screenshot shows a terminal window titled "ServidorPrueba [Corriendo] - Oracle VM VirtualBox". The terminal displays the configuration of the DHCP daemon's configuration file, `/etc/dhcp/dhcpd.conf`, using the `nano 7.2` editor. The configuration includes a `host` entry for "fantasia", a `class` named "foo" with a match condition, and several `subnet` declarations for different IP ranges and networks. The configuration is as follows:

```
GNU nano 7.2 /etc/dhcp/dhcpd.conf *
# to which a BOOTP client is connected which has the dynamic-bootp flag
# set.
#host fantasia {
# hardware ethernet 08:00:07:26:c0:a5;
# fixed-address fantasia.example.com;
#}

# You can declare a class of clients and then do address allocation
# based on that. The example below shows a case where all clients
# in a certain class get addresses on the 10.17.224/24 subnet, and all
# other clients get addresses on the 10.0.29/24 subnet.

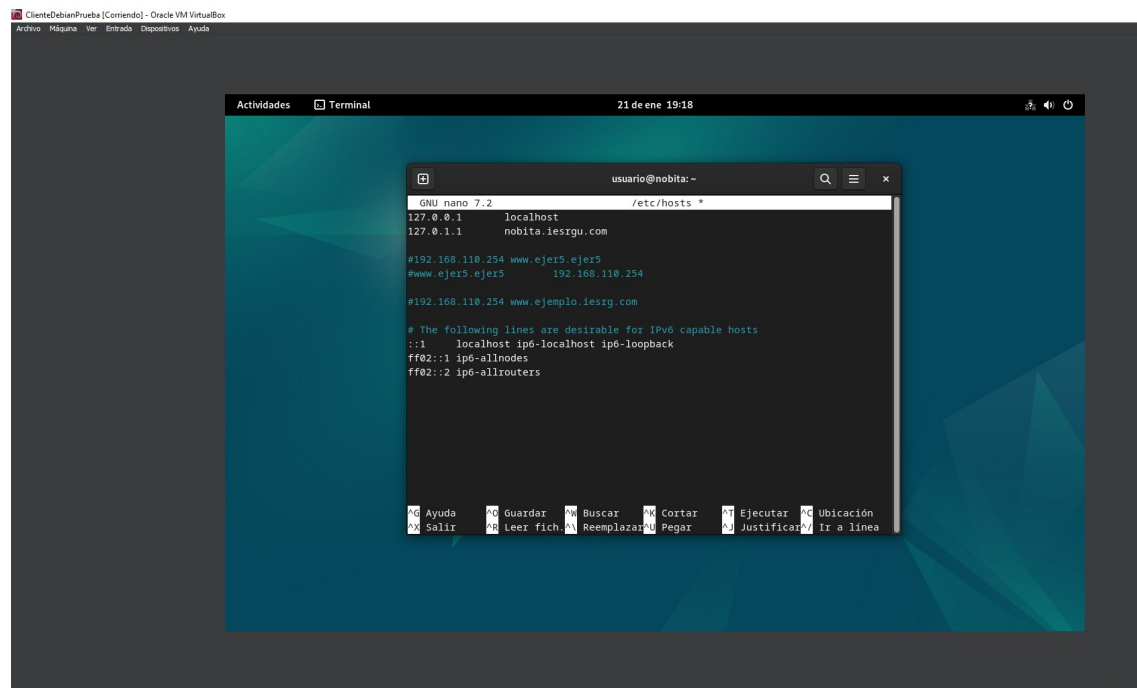
#class "foo" {
# match if substring (option vendor-class-identifier, 0, 4) = "SUNM";
#}

#shared-network 224.29 {
# subnet 10.17.224.0 netmask 255.255.255.0 {
# option routers rtr-224.example.org;
# }
# subnet 10.0.29.0 netmask 255.255.255.0 {
# option routers rtr-29.example.org;
# }
# pool {
# allow members of "foo";
# range 10.17.224.10 10.17.224.254;
# }
# pool {
# deny members of "foo";
# range 10.0.29.10 10.0.29.230;
# }
#}

subnet 192.168.110.0 netmask 255.255.255.0 {
range 192.168.110.1 192.168.110.90 ;
option routers 192.168.110.254 ;
option broadcast-address 192.168.110.255 ;
option domain-name-servers 192.168.110.254 ;
option domain-name "iesrgu.com" ;
}

#Reserva de direccion
host nobita.iesrgu.com {
hardware ethernet 98:80:27:42:19:bd;
fixed-address 192.168.110.2;
}

host gigante.iesrgu.com {
}
```



The screenshot shows a terminal window titled "ClienteDebianPrueba [Corriendo] - Oracle VM VirtualBox". The terminal displays the configuration of the `/etc/hosts` file using the `nano 7.2` editor. The configuration includes entries for `localhost`, `nobita.iesrgu.com`, and several IP addresses mapped to domain names. The configuration is as follows:

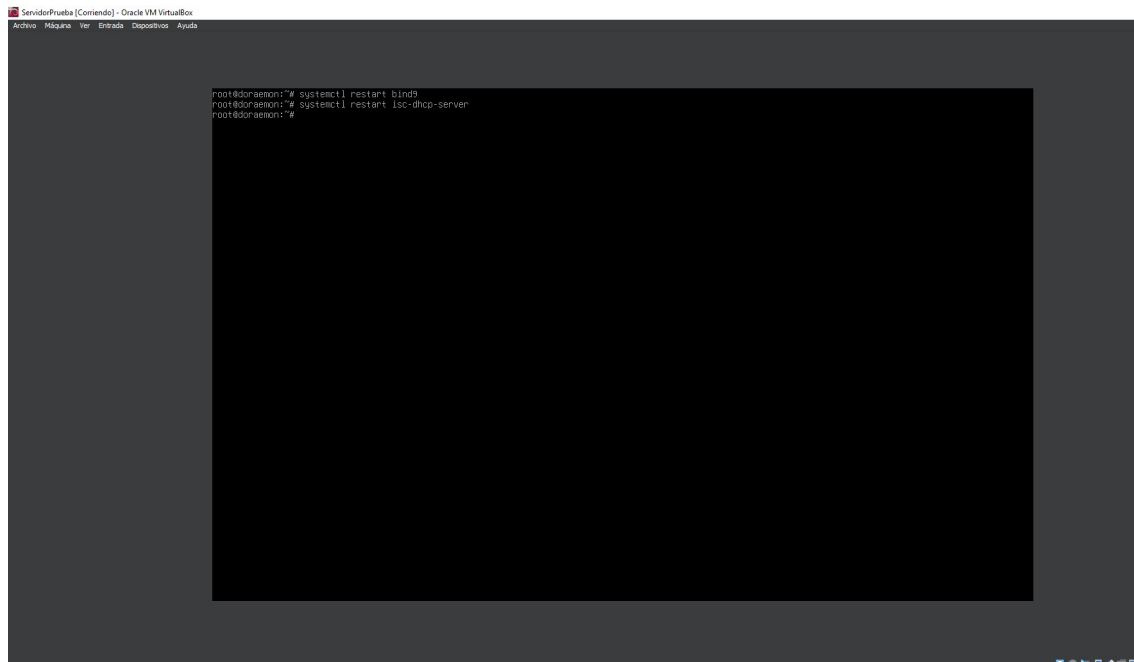
```
GNU nano 7.2 /etc/hosts *
127.0.0.1 localhost
127.0.1.1 nobita.iesrgu.com

#192.168.110.254 www.ejer5.ejer5
#www.ejer5.ejer5 192.168.110.254

#192.168.110.254 www.ejemplo.iesrgu.com

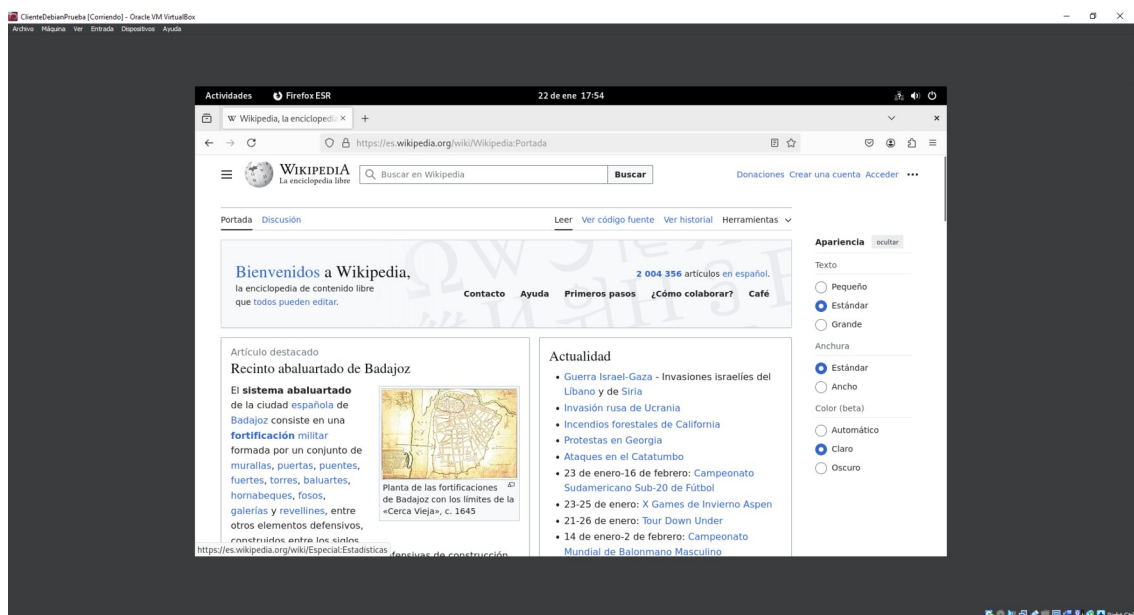
# The following lines are desirable for IPv6 capable hosts
::1 localhost ip6-localhost ip6-loopback
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
```

Reload de los servicios

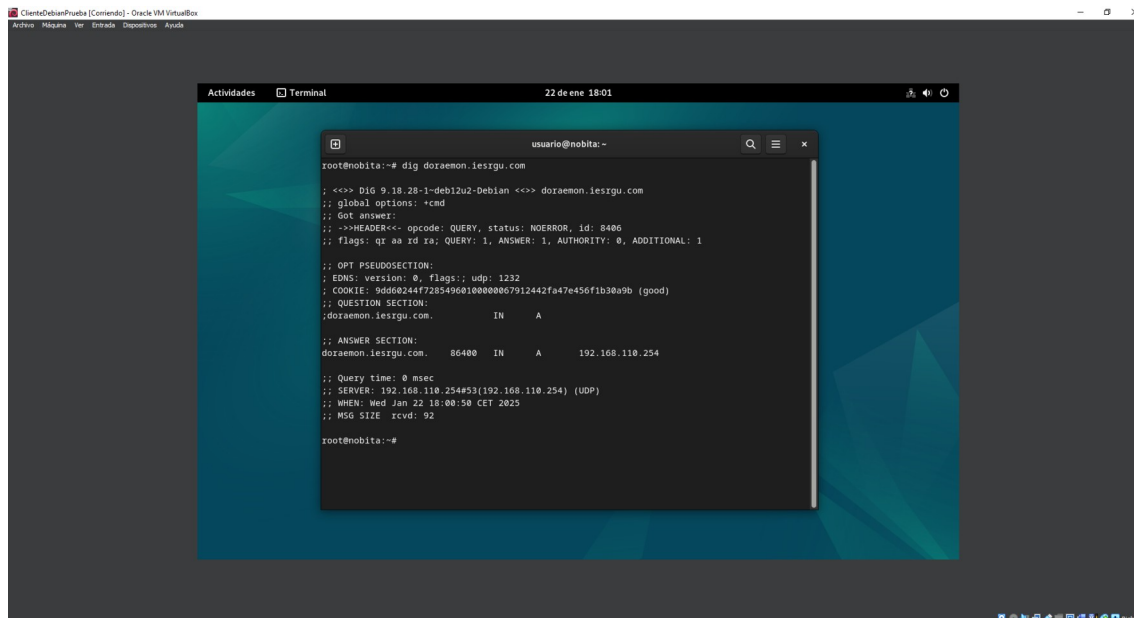


3. COMPROBACIONES

Comprobación de la navegación por internet correctamente.



Dirección de doraemon.iesrgu.com



A screenshot of a terminal window within an Oracle VM VirtualBox environment. The terminal shows a user running a 'dig' command to query the DNS for 'doraemon.iesrgu.com'. The output displays various DNS record types including EDNS, COOKIE, QUESTION, and ANSWER sections. The IP address 192.168.110.254 is returned for the A record.

```
root@nobia:~# dig doraemon.iesrgu.com

;<<<> Dig 9.18.28-1-debi2u2-Debian <<> doraemon.iesrgu.com
;; global options: +cmd
;; Got answer:
;; ->HEADER<- opcode: QUERY, status: NOERROR, id: 8406
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

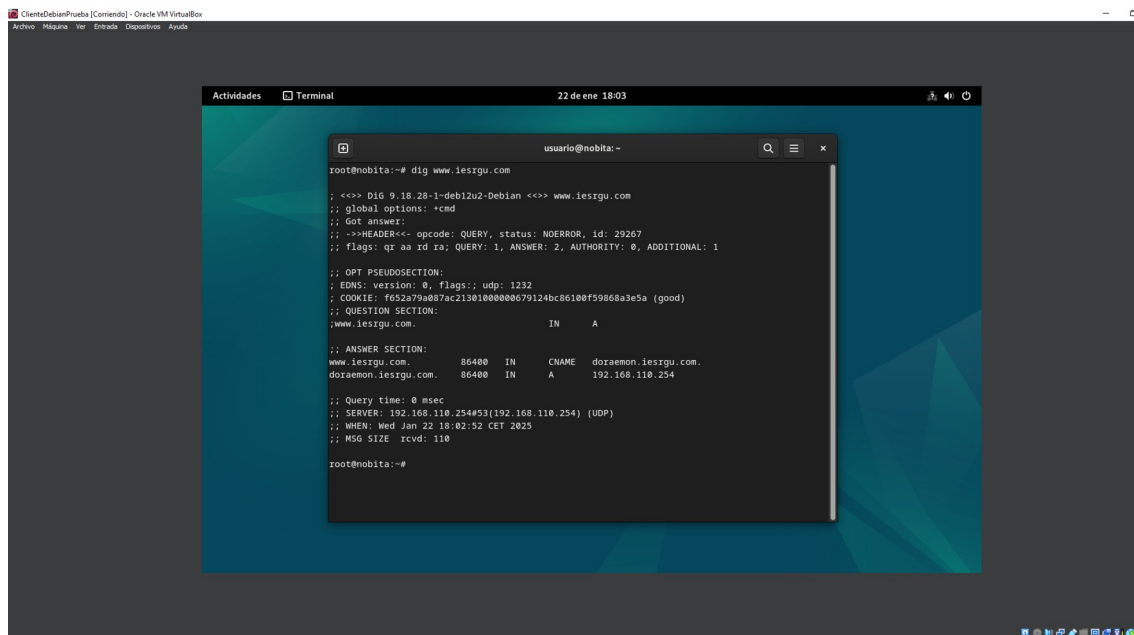
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: 9dd60244f72854960100000067912442fa47e456fb30a9b (good)
;; QUESTION SECTION:
;doraemon.iesrgu.com.                IN      A

;; ANSWER SECTION:
doraemon.iesrgu.com.      86400   IN      A      192.168.110.254

;; Query time: 0 msec
;; SERVER: 192.168.110.254#53(192.168.110.254) (UDP)
;; WHEN: Wed Jan 22 18:00:50 CET 2025
;; MSG SIZE rcvd: 92

root@nobia:~#
```

Dirección de www.iesrgu.com



A screenshot of a terminal window within an Oracle VM VirtualBox environment. The terminal shows a user running a 'dig' command to query the DNS for 'www.iesrgu.com'. The output displays various DNS record types including EDNS, COOKIE, QUESTION, and ANSWER sections. The IP address 192.168.110.254 is returned for the A record, and the CNAME record points to 'doraemon.iesrgu.com'.

```
root@nobia:~# dig www.iesrgu.com

;<<<> Dig 9.18.28-1-debi2u2-Debian <<> www.iesrgu.com
;; global options: +cmd
;; Got answer:
;; ->HEADER<- opcode: QUERY, status: NOERROR, id: 29267
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 2, AUTHORITY: 0, ADDITIONAL: 1

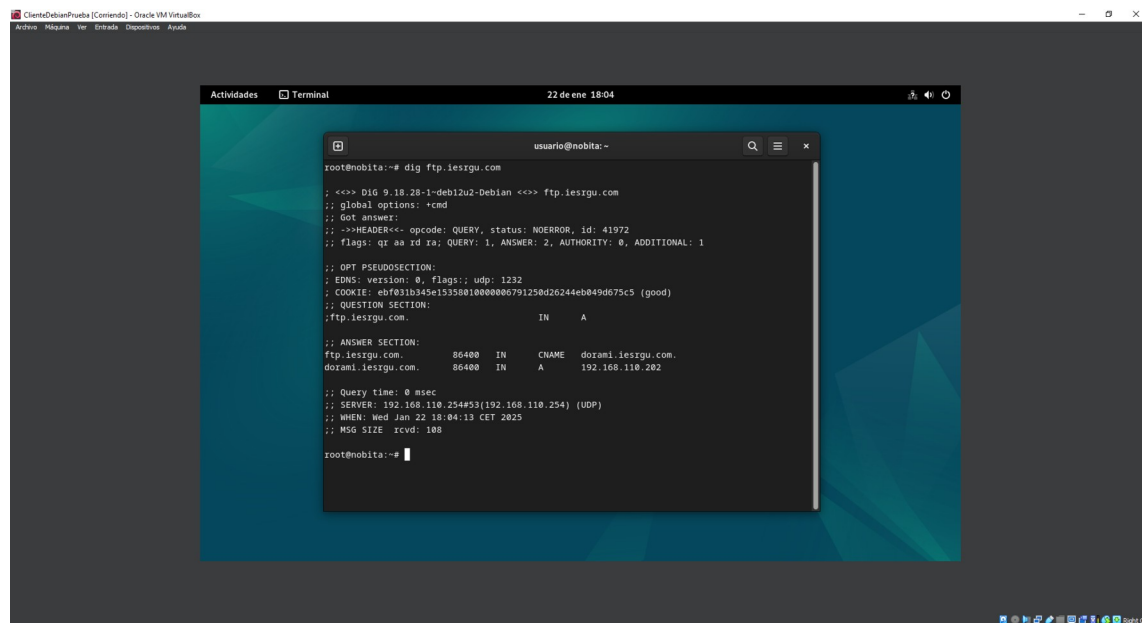
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: f652a79a807ac2130100000067912442fa47e456fb30a9b (good)
;; QUESTION SECTION:
;www.iesrgu.com.                IN      A

;; ANSWER SECTION:
www.iesrgu.com.      86400   IN      CNAME  doraemon.iesrgu.com.
doraemon.iesrgu.com. 86400   IN      A      192.168.110.254

;; Query time: 0 msec
;; SERVER: 192.168.110.254#53(192.168.110.254) (UDP)
;; WHEN: Wed Jan 22 18:02:52 CET 2025
;; MSG SIZE rcvd: 110

root@nobia:~#
```

Dirección de ftp.iesrgu.com



A screenshot of a terminal window titled "usuario@nobita:~" showing the output of a `dig ftp.iesrgu.com` command. The terminal is part of a virtual machine environment, as indicated by the window title bar "ClienteDebianPrueba [Comando] - Oracle VM VirtualBox". The output of the command is as follows:

```
root@nobita:~# dig ftp.iesrgu.com
;<<<> Dig 9.18.28-1-debi2u2-Debian <<<> ftp.iesrgu.com
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 41972
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 2, AUTHORITY: 0, ADDITIONAL: 1

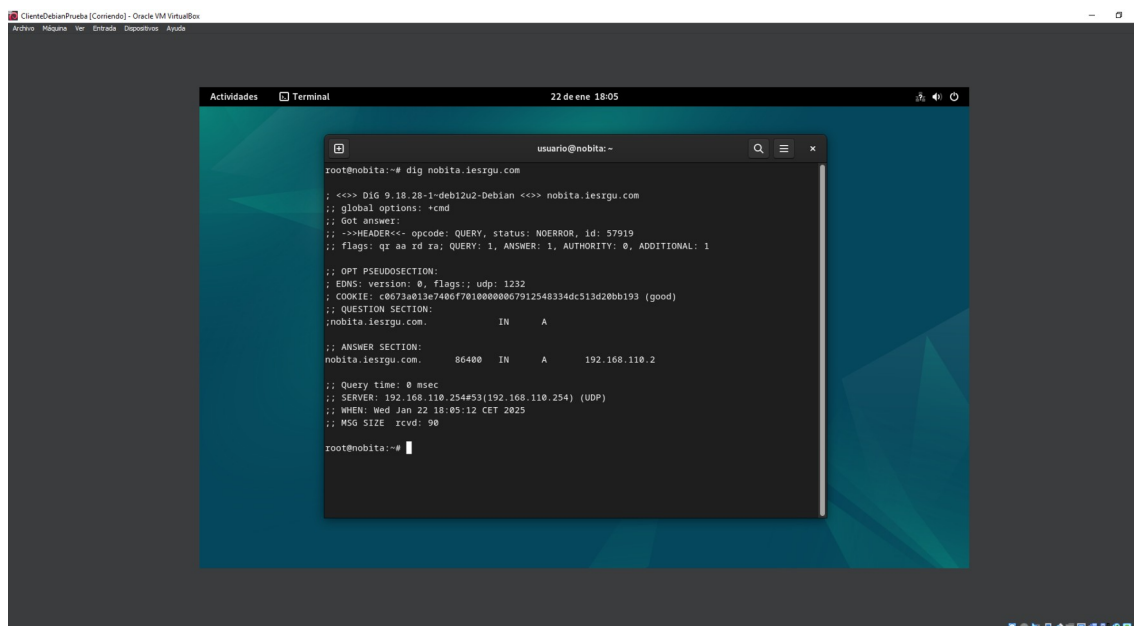
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: eb031b345e15358010000006791250d26244eb049d675c5 (good)
;; QUESTION SECTION:
;ftp.iesrgu.com.                IN      A

;; ANSWER SECTION:
ftp.iesrgu.com.                86400   IN      CNAME  dorami.iesrgu.com.
dorami.iesrgu.com.            86400   IN      A      192.168.110.202

;; Query time: 0 msec
;; SERVER: 192.168.110.254#53(192.168.110.254) (UDP)
;; WHEN: Wed Jan 22 18:04:13 CET 2025
;; MSG SIZE rcvd: 108

root@nobita:~#
```

Dirección de nobita.iesrgu.com



A screenshot of a terminal window titled "usuario@nobita:~" showing the output of a `dig nobita.iesrgu.com` command. The terminal is part of a virtual machine environment, as indicated by the window title bar "ClienteDebianPrueba [Comando] - Oracle VM VirtualBox". The output of the command is as follows:

```
root@nobita:~# dig nobita.iesrgu.com
;<<<> Dig 9.18.28-1-debi2u2-Debian <<<> nobita.iesrgu.com
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 57919
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

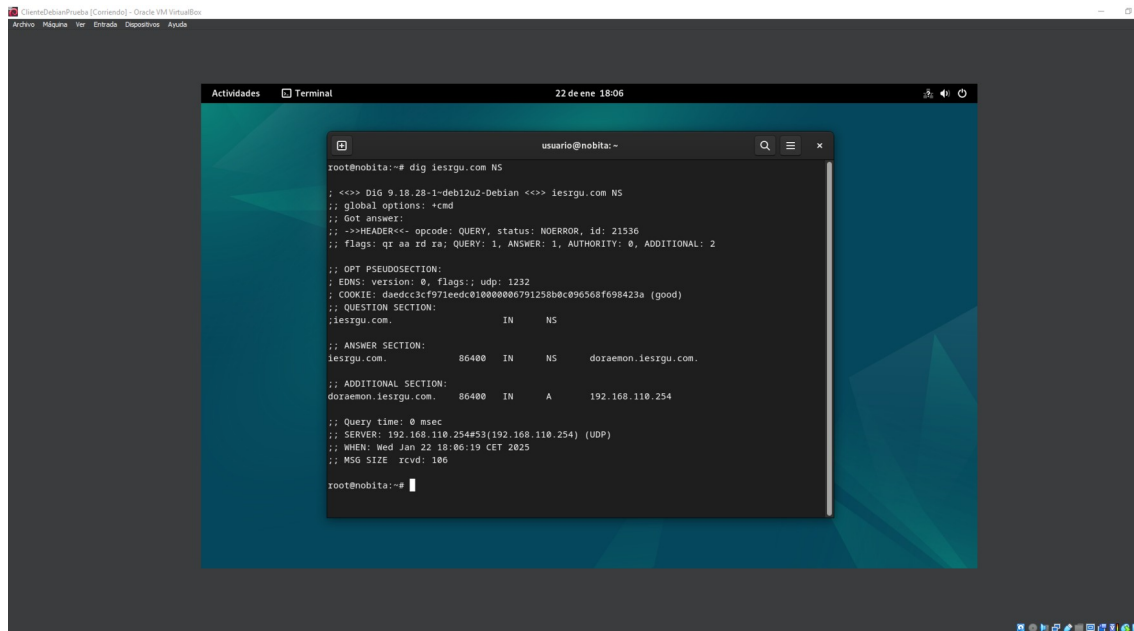
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: c0673a813e7486f70100000067912548334dc513d20bb193 (good)
;; QUESTION SECTION:
;nobita.iesrgu.com.            IN      A

;; ANSWER SECTION:
nobita.iesrgu.com.            86400   IN      A      192.168.110.2

;; Query time: 0 msec
;; SERVER: 192.168.110.254#53(192.168.110.254) (UDP)
;; WHEN: Wed Jan 22 18:05:12 CET 2025
;; MSG SIZE rcvd: 90

root@nobita:~#
```

Preguntar por el servidor DNS



A screenshot of a terminal window within an Oracle VM VirtualBox environment. The terminal shows a user running the command `dig iesigu.com NS`. The output displays DNS query details, including the question section for `iesigu.com. IN NS` and the answer section showing `doraemon.iesigu.com. 86400 IN NS`. The terminal window is titled 'usuario@nobia: -' and the background is a dark blue geometric pattern.

```
root@nobia:~# dig iesigu.com NS

;<<> Dig 9.18.28-1-deb12u2-Debian <<> iesigu.com NS
;; global options: +cmd
;; Got answer:
;; ->HEADER<<- opcode: QUERY, status: NOERROR, id: 21536
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 2

;; OPT PSEUDOSECTION:
;; EDNS: version: 0, flags: udp: 1232
;; COOKIE: d4edc3cf971eedc010000006791258b0c096568f698423a (good)
;; QUESTION SECTION:
;; iesigu.com.                IN      NS

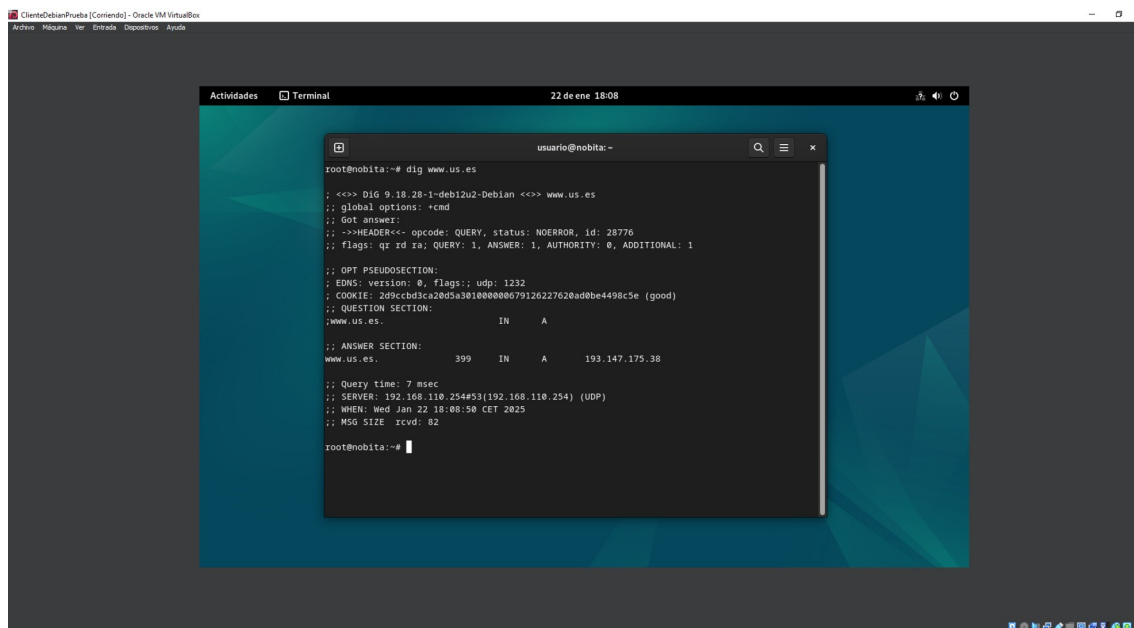
;; ANSWER SECTION:
iesigu.com.                86400   IN      NS      doraemon.iesigu.com.

;; ADDITIONAL SECTION:
doraemon.iesigu.com.      86400   IN      A       192.168.110.254

;; Query time: 0 msec
;; SERVER: 192.168.110.254#53(192.168.110.254) (UDP)
;; WHEN: Wed Jan 22 18:06:19 CET 2025
;; MSG SIZE  rcvd: 106

root@nobia:~#
```

Pregunta por la dirección IP de www.us.es



A screenshot of a terminal window within an Oracle VM VirtualBox environment. The terminal shows a user running the command `dig www.us.es`. The output displays DNS query details, including the question section for `www.us.es. IN A` and the answer section showing `www.us.es. 399 IN A 193.147.175.38`. The terminal window is titled 'usuario@nobia: -' and the background is a dark blue geometric pattern.

```
root@nobia:~# dig www.us.es

;<<> Dig 9.18.28-1-deb12u2-Debian <<> www.us.es
;; global options: +cmd
;; Got answer:
;; ->HEADER<<- opcode: QUERY, status: NOERROR, id: 28776
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

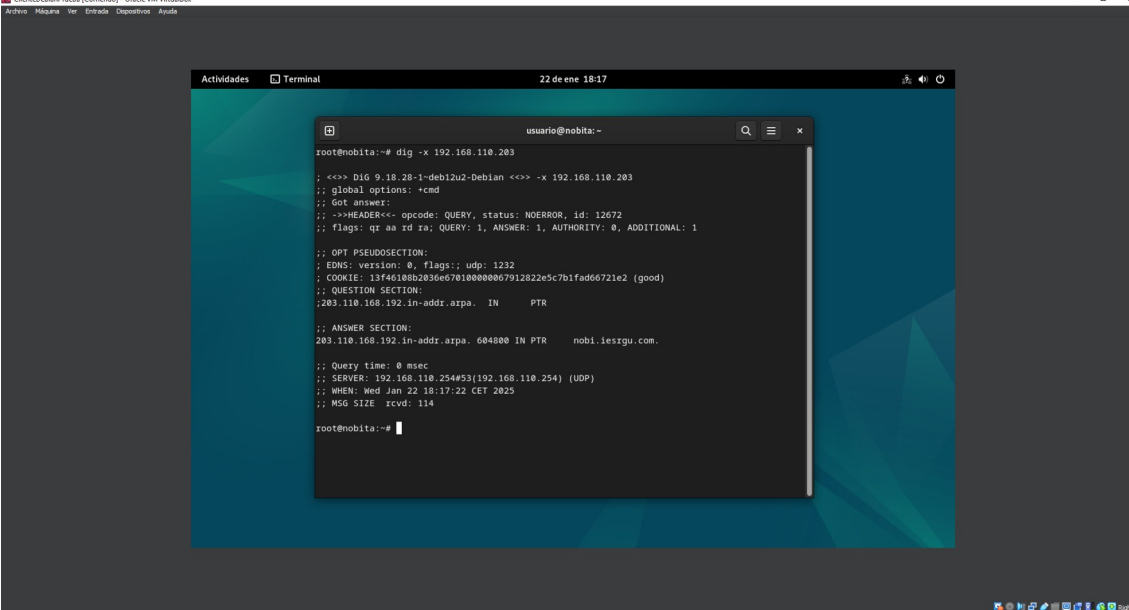
;; OPT PSEUDOSECTION:
;; EDNS: version: 0, flags: udp: 1232
;; COOKIE: 2d9ccb3ca20d5a301000000679126227620ad0be4498c5e (good)
;; QUESTION SECTION:
;; www.us.es.                 IN      A

;; ANSWER SECTION:
www.us.es.                399     IN      A       193.147.175.38

;; Query time: 7 msec
;; SERVER: 192.168.110.254#53(192.168.110.254) (UDP)
;; WHEN: Wed Jan 22 18:08:50 CET 2025
;; MSG SIZE  rcvd: 82

root@nobia:~#
```

Pregunta por el nombre de la dirección 192.168.110.203



The screenshot shows a terminal window titled "usuario@nobia:~" with the following output from the command `dig -x 192.168.110.203`:

```
root@nobia:~# dig -x 192.168.110.203
;; <<>> Dig 0.10.20-1-debi2u2-Debian <<>> -x 192.168.110.203
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 12672
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags: udp: 1232
; COOKIE: 13f40105b2036e670100000067912822e5c7b1fad66721e2 (good)
;; QUESTION SECTION:
;203.110.168.192.in-addr.arpa. IN PTR

;; ANSWER SECTION:
203.110.168.192.in-addr.arpa. 604800 IN PTR nobi.iesrgu.com.

;; Query time: 0 msec
;; SERVER: 192.168.110.254#53(192.168.110.254) (UDP)
;; WHEN: Wed Jan 22 18:17:22 CET 2025
;; MSG SIZE rcvd: 114

root@nobia:~#
```