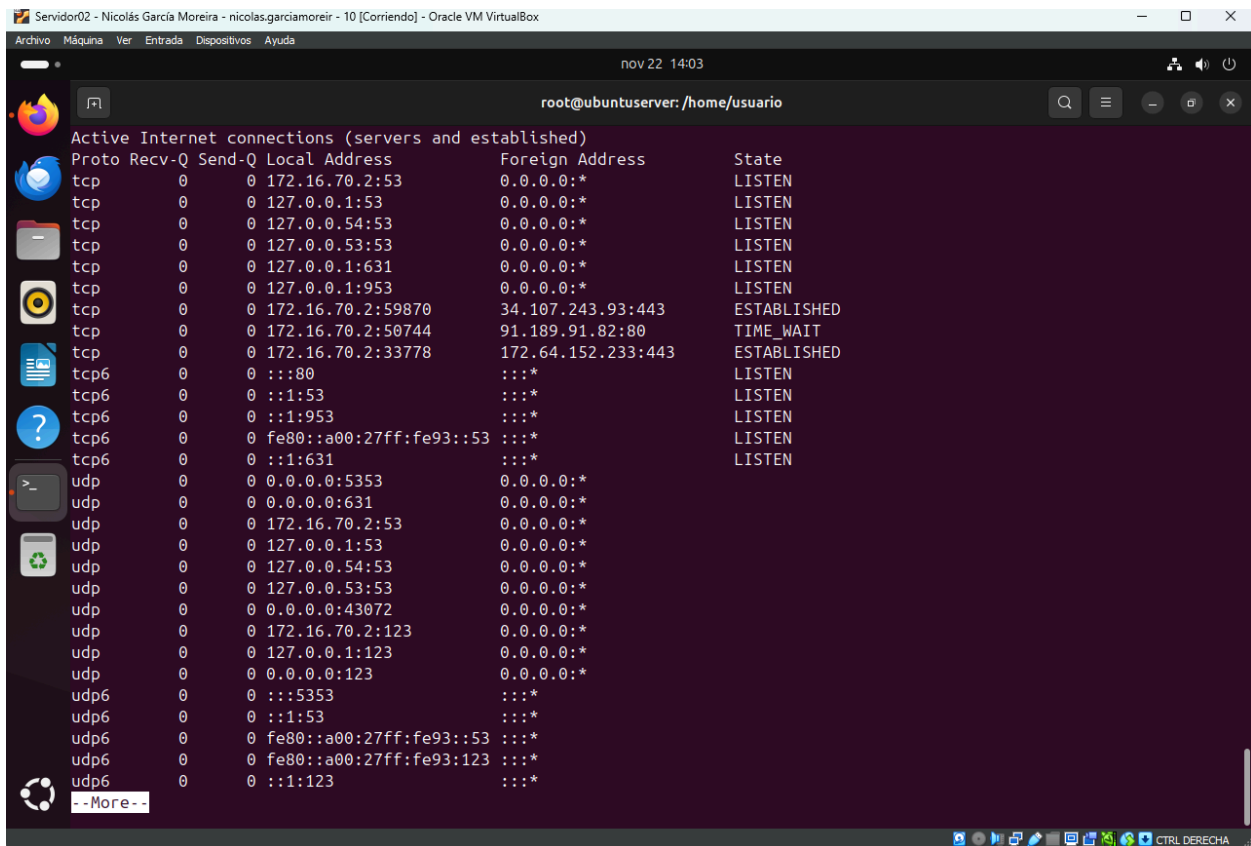


# Actividad 1: Servidor web en Linux: instalación de Apache.

1. Instrucciones:
  - a. Todas las capturas de navegador que se pidan a continuación deberán ser realizadas desde Cliente03 Ubuntu Desktop mediante **Firefox**. Además, deberán mostrar siempre la **barra de direcciones**.
  - b. En Servidor02, se deberá actualizar Firefox para que reconozca los certificados a la hora de conectarse con HTTPS. Ejecutar.
    - i. `apt-get update`
    - ii. `apt-get install firefox`
2. Instala Apache, una vez finalizada la instalación captura el listado de conexiones de Servidor02 en el que se muestre que hay un servicio escuchando en el puerto 80.

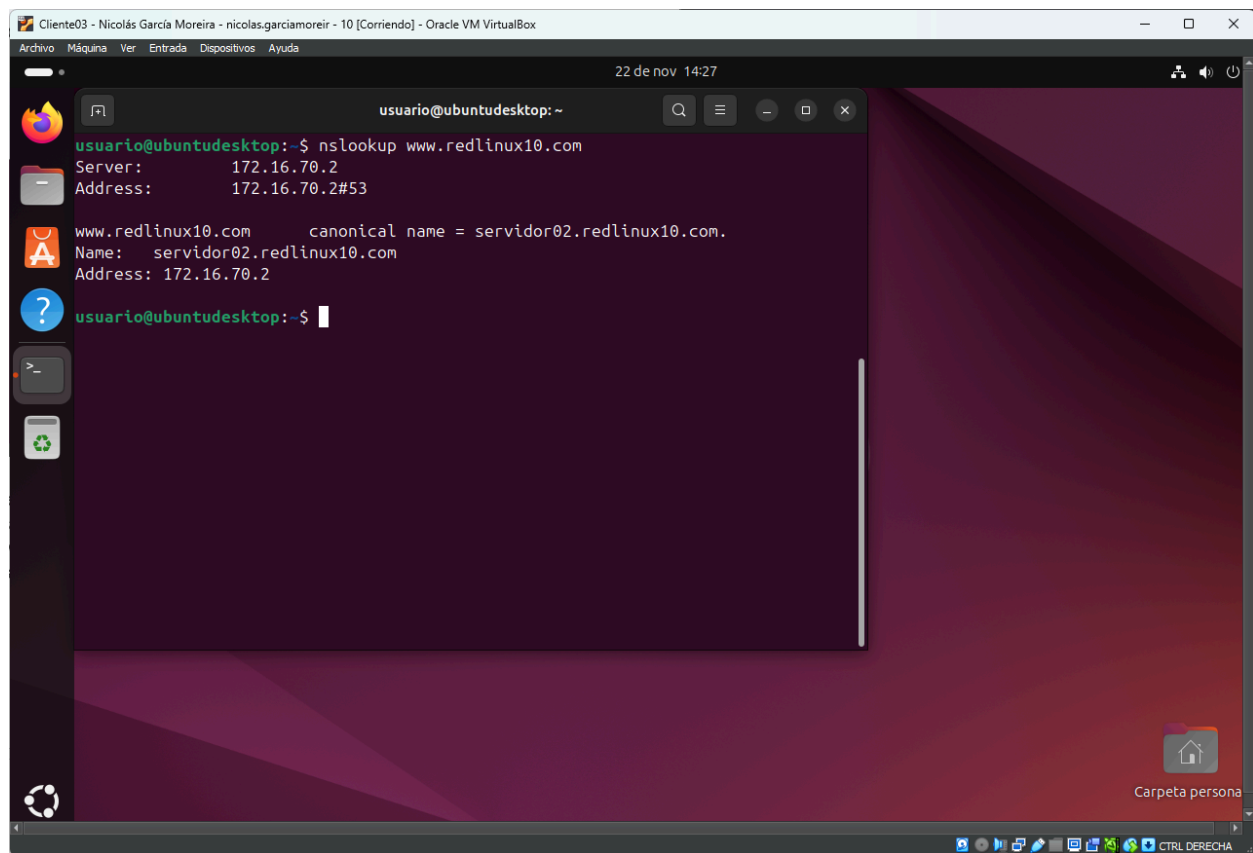


The screenshot shows a terminal window titled "Servidor02 - Nicolás García Moreira - nicolas.garciamoreir - 10 [Corriendo] - Oracle VM VirtualBox". The terminal output displays "Active Internet connections (servers and established)" with columns for Proto, Recv-Q, Send-Q, Local Address, Foreign Address, and State. The connections are listed as follows:

| Proto | Recv-Q | Send-Q | Local Address           | Foreign Address    | State       |
|-------|--------|--------|-------------------------|--------------------|-------------|
| tcp   | 0      | 0      | 172.16.70.2:53          | 0.0.0.0:*          | LISTEN      |
| tcp   | 0      | 0      | 127.0.0.1:53            | 0.0.0.0:*          | LISTEN      |
| tcp   | 0      | 0      | 127.0.0.54:53           | 0.0.0.0:*          | LISTEN      |
| tcp   | 0      | 0      | 127.0.0.53:53           | 0.0.0.0:*          | LISTEN      |
| tcp   | 0      | 0      | 127.0.0.1:631           | 0.0.0.0:*          | LISTEN      |
| tcp   | 0      | 0      | 127.0.0.1:953           | 0.0.0.0:*          | LISTEN      |
| tcp   | 0      | 0      | 172.16.70.2:59870       | 34.107.243.93:443  | ESTABLISHED |
| tcp   | 0      | 0      | 172.16.70.2:50744       | 91.189.91.82:80    | TIME_WAIT   |
| tcp   | 0      | 0      | 172.16.70.2:33778       | 172.64.152.233:443 | ESTABLISHED |
| tcp6  | 0      | 0      | :::80                   | :::*               | LISTEN      |
| tcp6  | 0      | 0      | :::1:53                 | :::*               | LISTEN      |
| tcp6  | 0      | 0      | :::1:953                | :::*               | LISTEN      |
| tcp6  | 0      | 0      | fe80::a00:27ff:fe93::53 | :::*               | LISTEN      |
| tcp6  | 0      | 0      | :::1:631                | :::*               | LISTEN      |
| udp   | 0      | 0      | 0.0.0.0:5353            | 0.0.0.0:*          |             |
| udp   | 0      | 0      | 0.0.0.0:631             | 0.0.0.0:*          |             |
| udp   | 0      | 0      | 172.16.70.2:53          | 0.0.0.0:*          |             |
| udp   | 0      | 0      | 127.0.0.1:53            | 0.0.0.0:*          |             |
| udp   | 0      | 0      | 127.0.0.54:53           | 0.0.0.0:*          |             |
| udp   | 0      | 0      | 127.0.0.53:53           | 0.0.0.0:*          |             |
| udp   | 0      | 0      | 0.0.0.0:43072           | 0.0.0.0:*          |             |
| udp   | 0      | 0      | 172.16.70.2:123         | 0.0.0.0:*          |             |
| udp   | 0      | 0      | 127.0.0.1:123           | 0.0.0.0:*          |             |
| udp   | 0      | 0      | 0.0.0.0:123             | 0.0.0.0:*          |             |
| udp6  | 0      | 0      | :::5353                 | :::*               |             |
| udp6  | 0      | 0      | :::1:53                 | :::*               |             |
| udp6  | 0      | 0      | fe80::a00:27ff:fe93::53 | :::*               |             |
| udp6  | 0      | 0      | fe80::a00:27ff:fe93:123 | :::*               |             |
| udp6  | 0      | 0      | :::1:123                | :::*               |             |

3. DNS:
  - a. En el dominio redlinuxXY.com, define el registro www como alias al Servidor02.
  - b. Crea el dominio extlinuxXY.com y define el registro www como alias al Servidor02.

- c. Desde Cliente03, captura el resultado de realizar nslookup a www en el dominio redlinuxXY.com



The screenshot shows a terminal window titled 'usuario@ubuntu desktop: ~' with the following output from the command 'nslookup www.redlinux10.com':

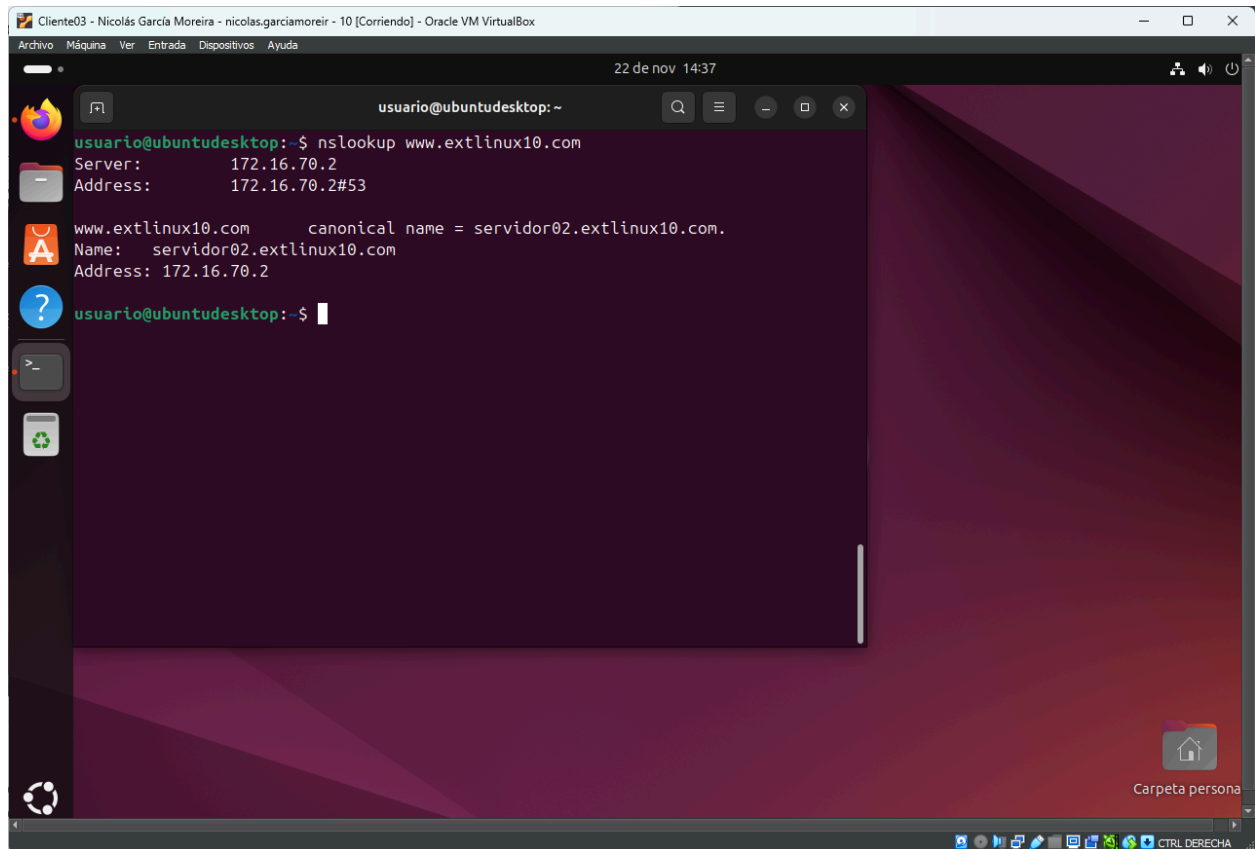
```
usuario@ubuntu desktop: ~$ nslookup www.redlinux10.com
Server:      172.16.70.2
Address:     172.16.70.2#53

www.redlinux10.com    canonical name = servidor02.redlinux10.com.
Name:   servidor02.redlinux10.com
Address: 172.16.70.2

usuario@ubuntu desktop: ~$
```

The terminal window is part of an Oracle VM VirtualBox interface, with the title bar showing 'Cliente03 - Nicolás García Moreira - nicolas.garciamoreir - 10 [Corriendo] - Oracle VM VirtualBox'. The desktop background is a dark purple Ubuntu theme, and the system clock shows '22 de nov 14:27'.

- d. Desde Cliente03, captura el resultado de realizar nslookup a www en el dominio extlinuxXY.com



e. Captura el archivo de registros del dominio redlinuxXY.com

Servidor02 - Nicolás García Moreira - nicolas.garciamoreir - 10 [Corriendo] - Oracle VM VirtualBox

nov 22 14:37

root@ubuntuserver: /etc/bind

GNU nano 7.2 db.redlinux10

```
; BIND data file for local loopback interface
;
$TTL      604800
@         IN      SOA      redlinux10.com. root.redlinux10.com. (
                        2      ; Serial
                        604800 ; Refresh
                        86400  ; Retry
                        2419200 ; Expire
                        604800 ) ; Negative Cache TTL
;
@         IN      NS       redlinux10.com.
@         IN      A        172.16.70.2
@         IN      AAAA     ::1

servidor02 IN      A        172.16.70.2

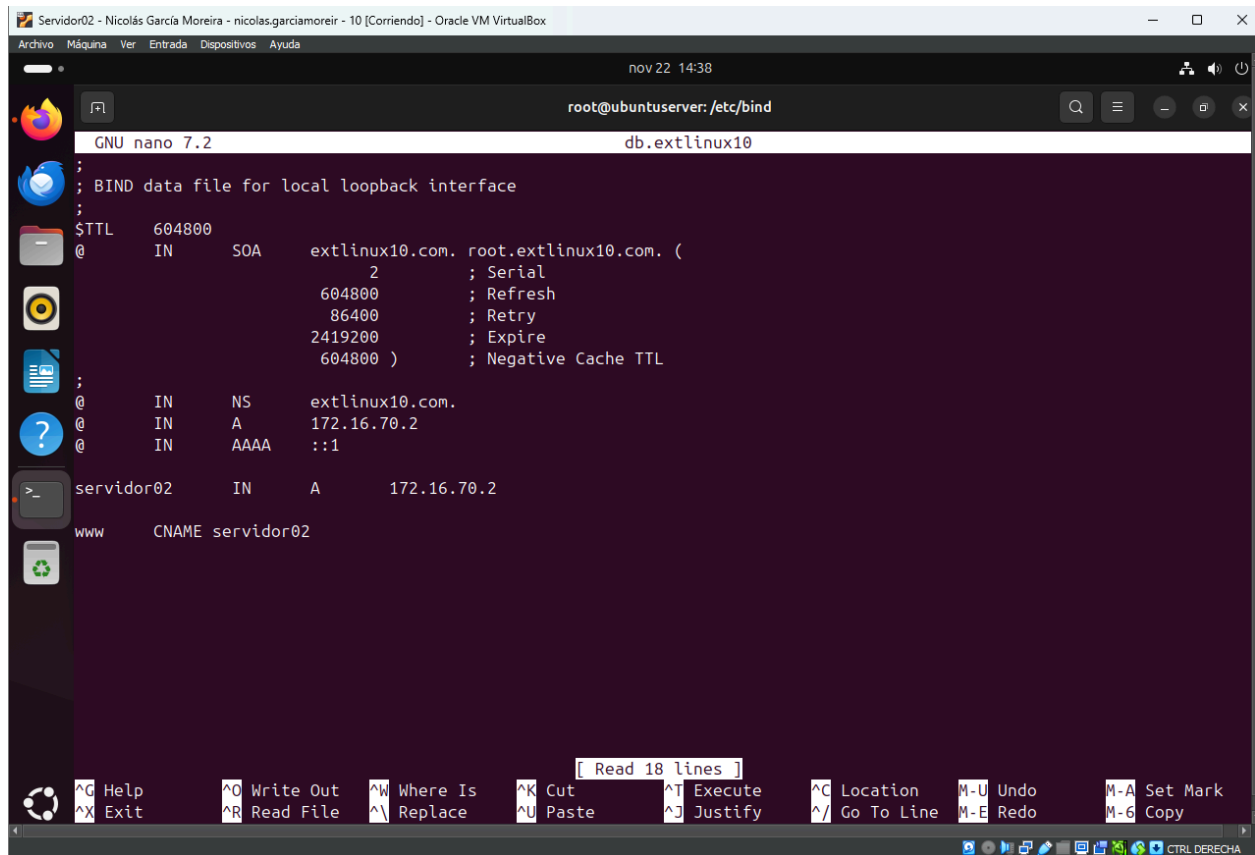
www       CNAME     servidor02
```

[ Read 18 lines ]

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

CTRL DERECHA

f. Captura el archivo de registros del dominio extlinuxXY.com



Servidor02 - Nicolás García Moreira - nicolas.garciamoreir - 10 [Corriendo] - Oracle VM VirtualBox

nov 22 14:38

root@ubuntuserver: /etc/bind

GNU nano 7.2 db.extlinux10

```
; BIND data file for local loopback interface
;
$TTL 604800
@ IN SOA extlinux10.com. root.extlinux10.com. (
    2      ; Serial
    604800 ; Refresh
    86400  ; Retry
    2419200 ; Expire
    604800 ) ; Negative Cache TTL
;
@ IN NS extlinux10.com.
@ IN A 172.16.70.2
@ IN AAAA ::1

servidor02 IN A 172.16.70.2

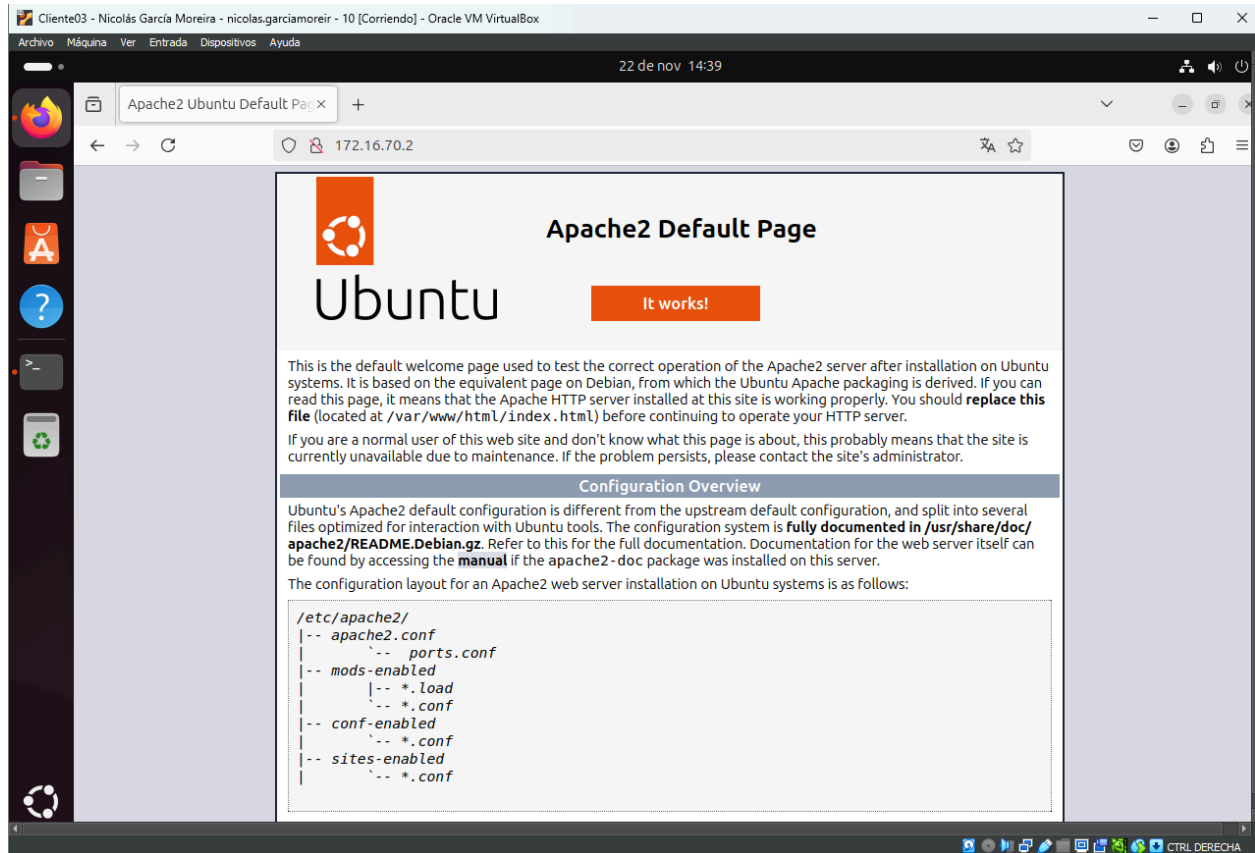
www CNAME servidor02
```

[ Read 18 lines ]

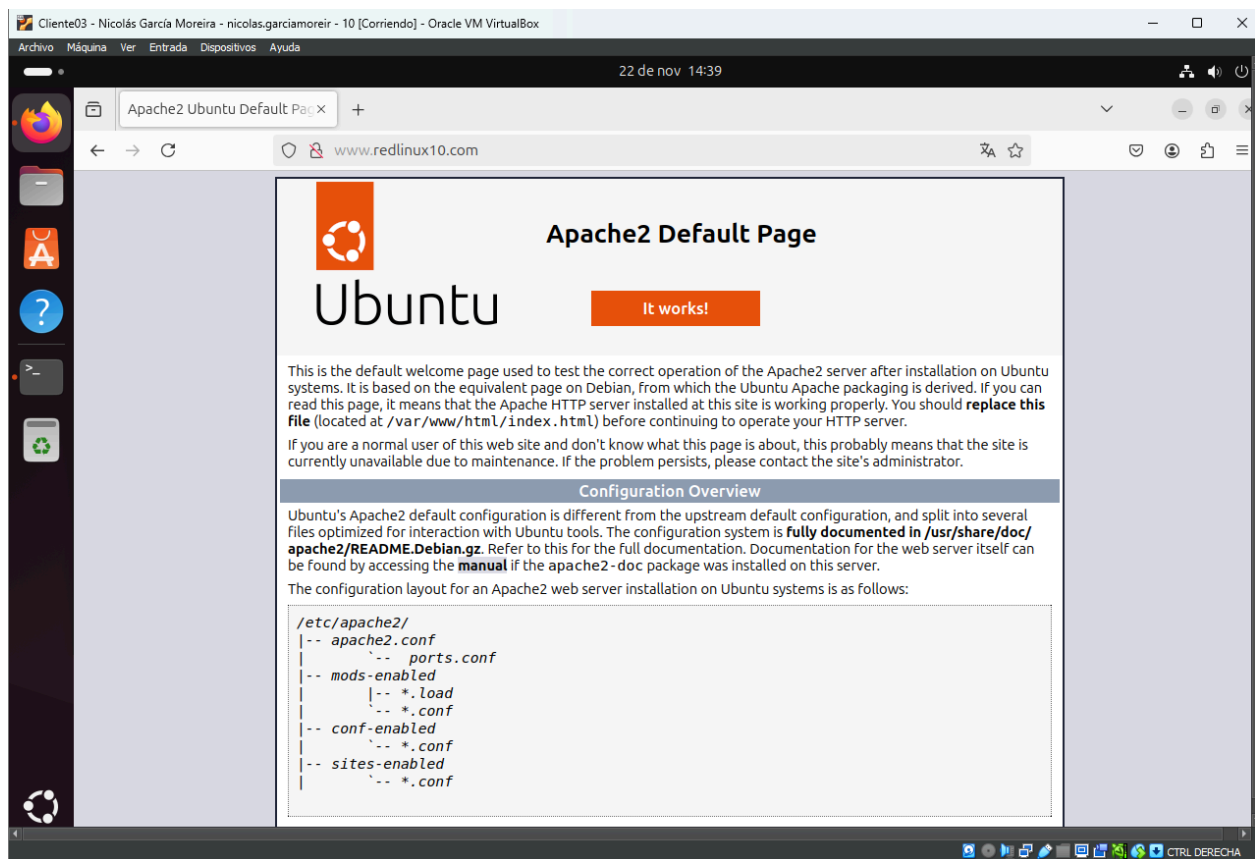
Help Exit Write Out Read File Where Is Replace Cut Paste Execute Justify Location Go To Line Undo Redo Set Mark Copy

CTRL DERECHA

4. Desde Cliente03, realiza las siguientes capturas:
  - a. Resultado de visitar el sitio web por defecto usando la IP en la *intnet3*.



- b. Resultado de visitar el sitio web por defecto usando `www` en el dominio `redlinuxXY.com`



5. Captura el listado de módulos activados.

Servidor02 - Nicolás García Moreira - nicolas.garciamoreir - 10 [Corriendo] - Oracle VM VirtualBox

Archivo Máquina Ver Entrada Dispositivos Ayuda

nov 22 14:40

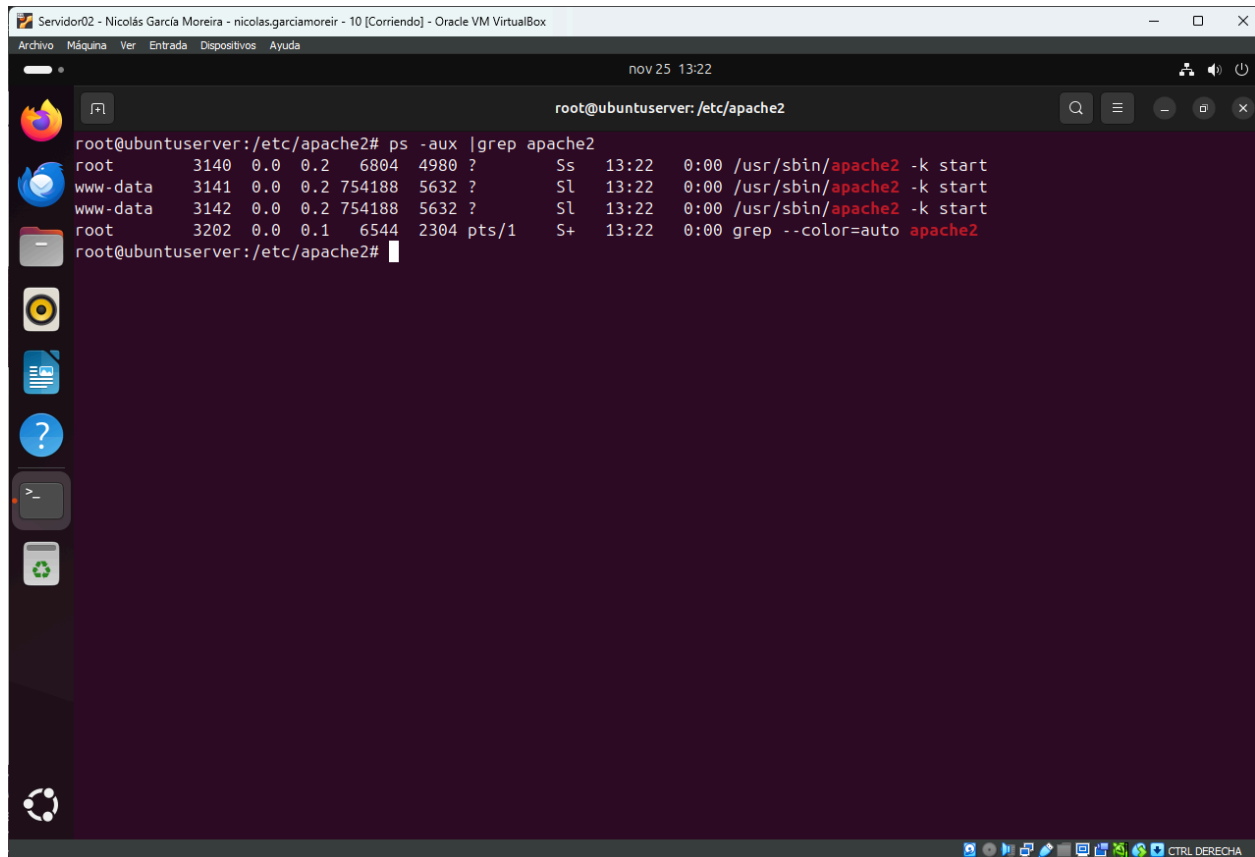
root@ubuntuserver: /etc/apache2

```
root@ubuntuserver:/etc/apache2# ls mods-enabled
access_compat.load  authn_file.load  autoindex.load  env.load  mpm_event.load  setenvif.conf
alias.conf          authz_core.load  deflate.conf     filter.load  negotiation.conf setenvif.load
alias.load          authz_host.load  deflate.load     mime.conf   negotiation.load status.conf
auth_basic.load     authz_user.load  dir.conf        mime.load   reqtimeout.conf  status.load
authn_core.load     autoindex.conf  dir.load        mpm_event.conf reqtimeout.load
```

root@ubuntuserver:/etc/apache2#

6. Captura el listado de procesos de Apache.





```
root@ubuntu:~# ps -aux | grep apache2
root          3140  0.0  0.2  6804 4980 ?        Ss   13:22   0:00 /usr/sbin/apache2 -k start
www-data     3141  0.0  0.2 754188 5632 ?        Sl   13:22   0:00 /usr/sbin/apache2 -k start
www-data     3142  0.0  0.2 754188 5632 ?        Sl   13:22   0:00 /usr/sbin/apache2 -k start
root         3202  0.0  0.1   6544 2304 pts/1    S+   13:22   0:00 grep --color=auto apache2
```

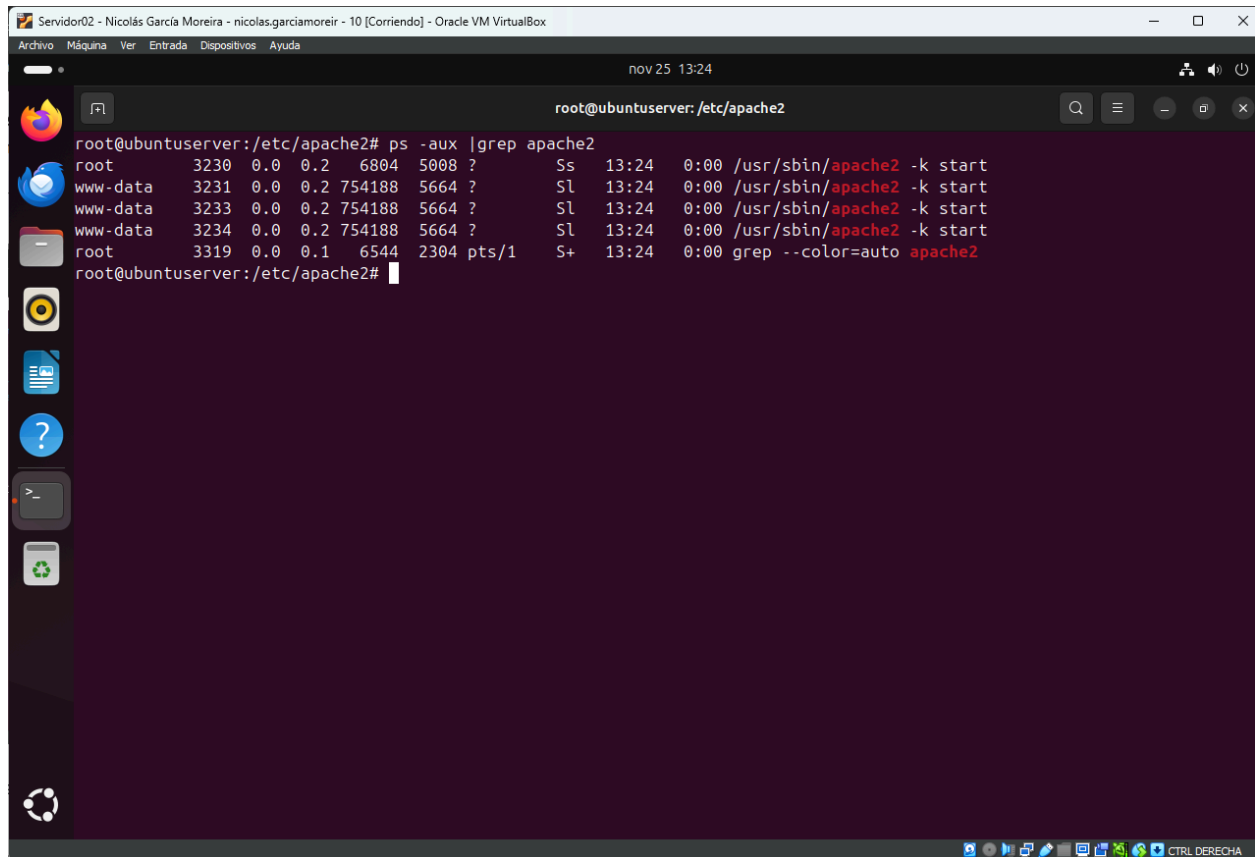
7. Hacer que Apache lance 3 procesos al iniciarse. Captura:
  - a. El archivo en el que se realiza la configuración.

The screenshot shows a terminal window titled "Servidor02 - Nicolás García Moreira - nicolas.garciamoreir - 10 [Corriendo] - Oracle VM VirtualBox". The terminal is running the nano text editor, editing the file `mods-enabled/mpm_event.conf`. The configuration is for the `event MPM` and includes the following settings:

```
# StartServers: initial number of server processes to start
# MinSpareThreads: minimum number of worker threads which are kept spare
# MaxSpareThreads: maximum number of worker threads which are kept spare
# ThreadsPerChild: constant number of worker threads in each server process
# MaxRequestWorkers: maximum number of worker threads
# MaxConnectionsPerChild: maximum number of requests a server process serves
StartServers      3
MinSpareThreads   25
MaxSpareThreads   75
ThreadLimit       64
ThreadsPerChild   25
MaxRequestWorkers 150
MaxConnectionsPerChild 0
```

The terminal interface includes a sidebar with icons for file manager, terminal, and other applications. The bottom of the window displays a status bar with various keyboard shortcuts and a message "[ Read 14 lines ]".

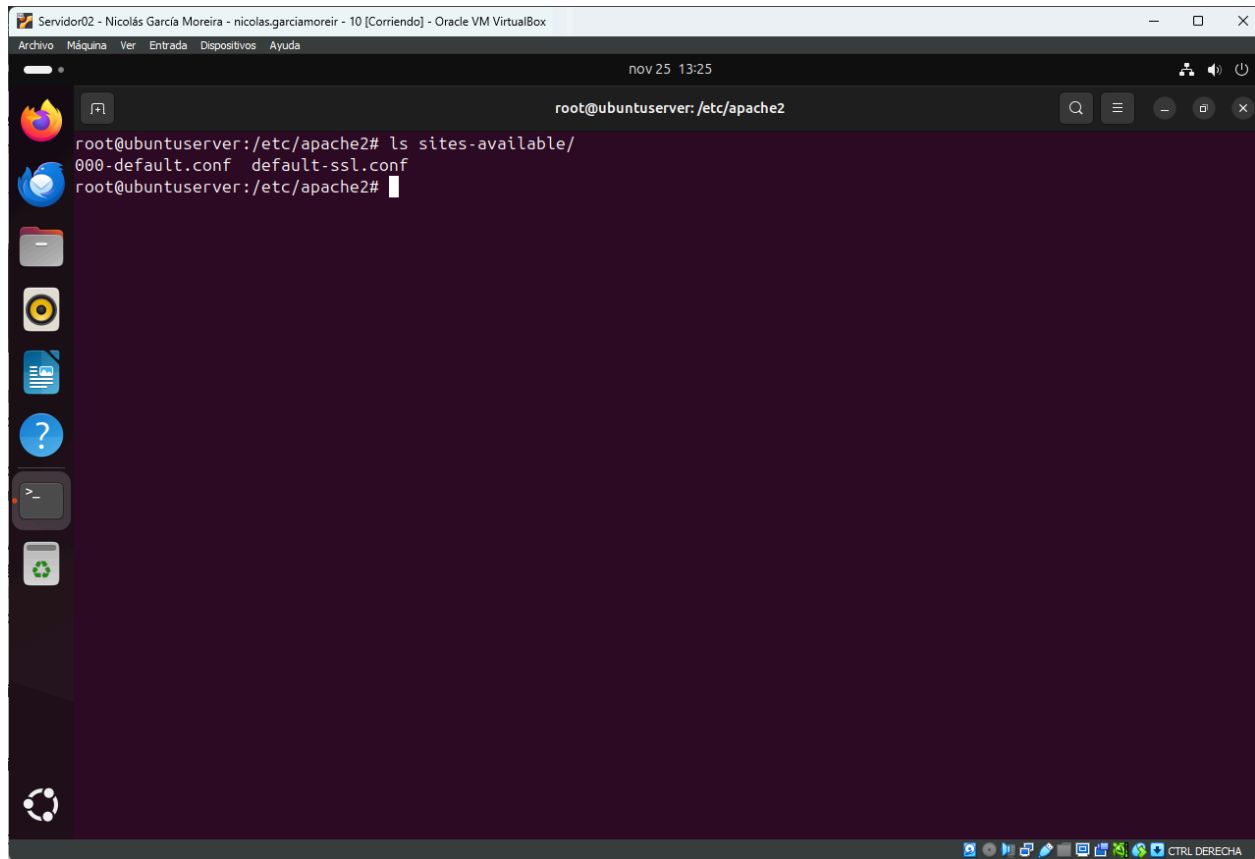
b. Listado de procesos de Apache.



The screenshot shows a terminal window titled "Servidor02 - Nicolás García Moreira - nicolas.garciamoreir - 10 [Corriendo] - Oracle VM VirtualBox". The terminal is running the command `ps -aux | grep apache2` from the `root@ubuntuserver:/etc/apache2#` prompt. The output lists the running processes for Apache2, including the `httpd` daemon and the `grep` command itself.

```
root@ubuntuserver:/etc/apache2# ps -aux | grep apache2
root          3230  0.0  0.2  6804 5008 ?        Ss   13:24   0:00 /usr/sbin/apache2 -k start
www-data     3231  0.0  0.2 754188 5664 ?        Sl   13:24   0:00 /usr/sbin/apache2 -k start
www-data     3233  0.0  0.2 754188 5664 ?        Sl   13:24   0:00 /usr/sbin/apache2 -k start
www-data     3234  0.0  0.2 754188 5664 ?        Sl   13:24   0:00 /usr/sbin/apache2 -k start
root         3319  0.0  0.1   6544 2304 pts/1    S+   13:24   0:00 grep --color=auto apache2
root@ubuntuserver:/etc/apache2#
```

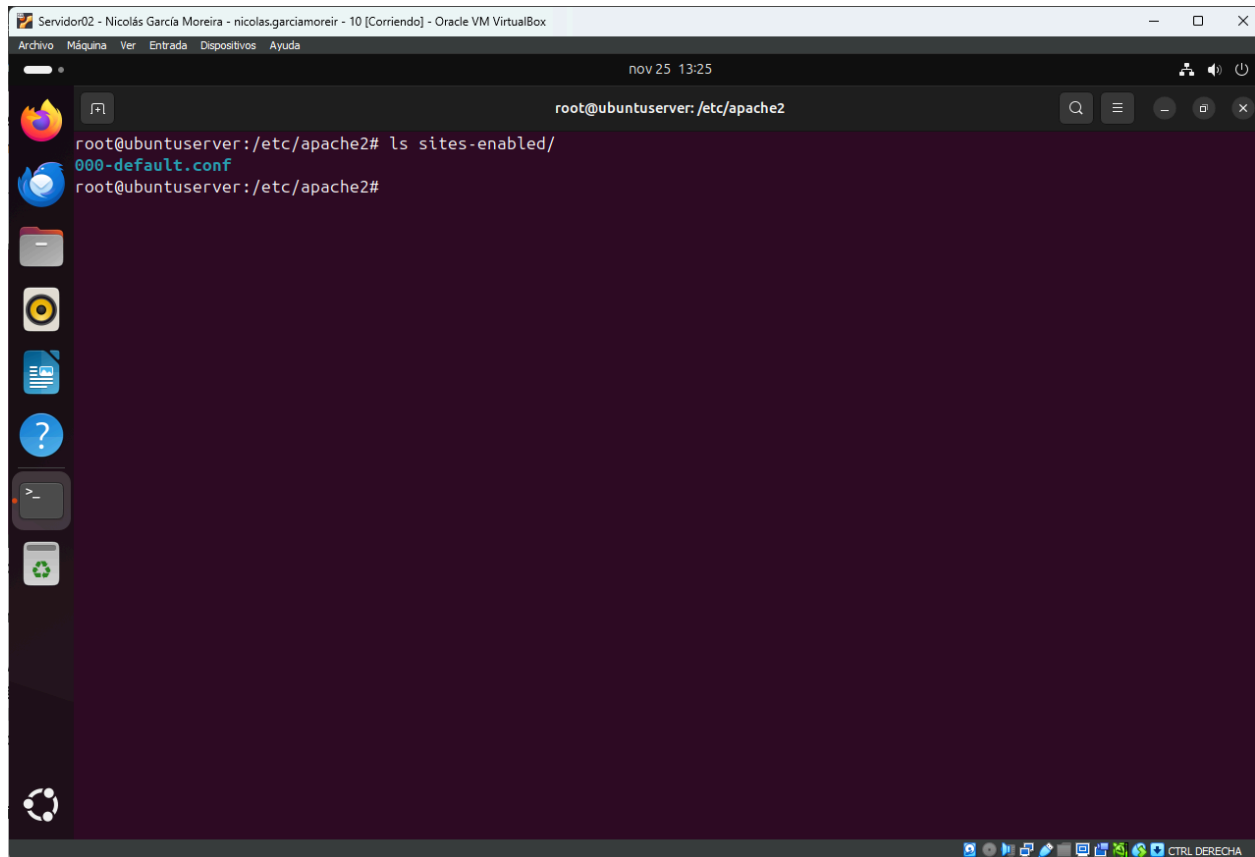
8. Captura la lista de:
  - a. Sitios web disponibles.



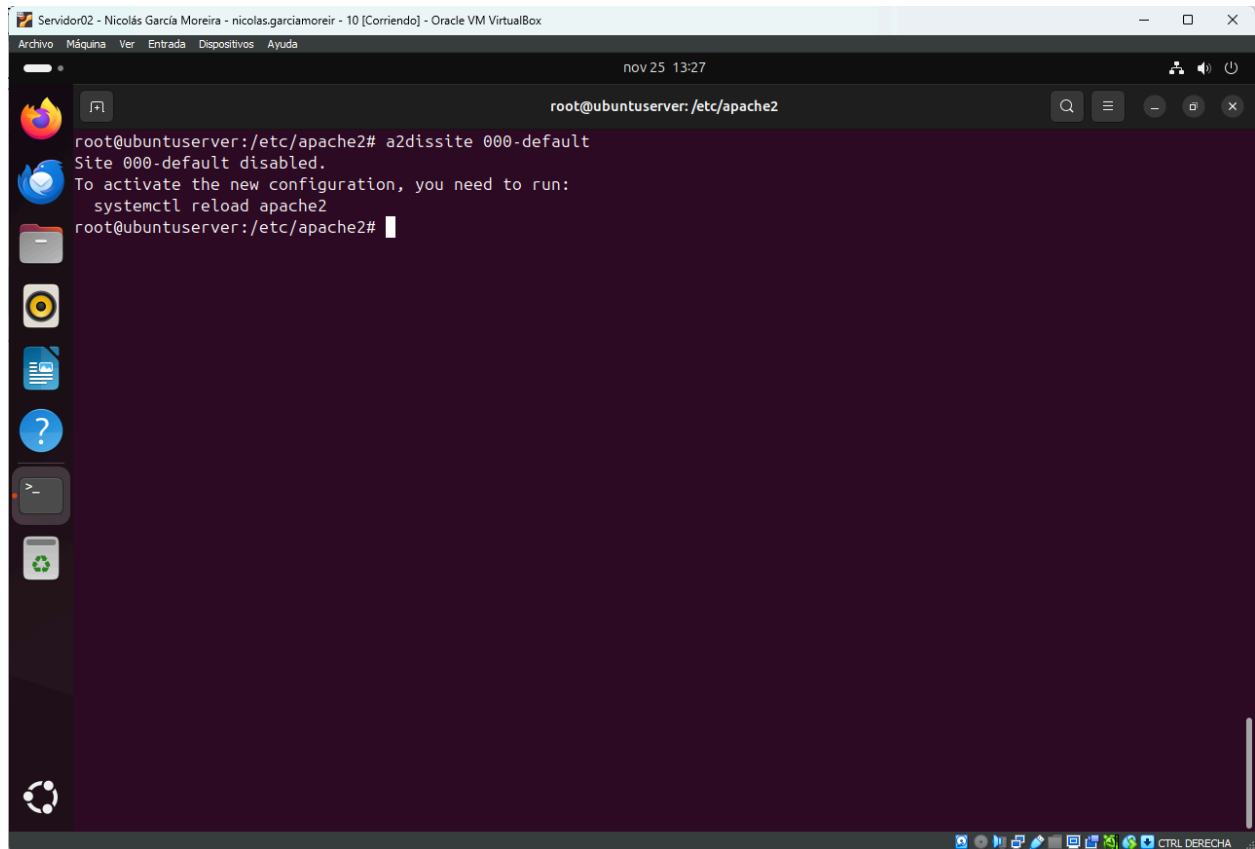
The image shows a terminal window within an Oracle VM VirtualBox environment. The window title is "Servidor02 - Nicolás García Moreira - nicolas.garciamoreir - 10 [Corriendo] - Oracle VM VirtualBox". The terminal shows the user "root" at the prompt "root@ubuntu:~#". The user has navigated to the directory "/etc/apache2" and executed the command "ls sites-available/". The output of the command is "000-default.conf default-ssl.conf". The terminal window has a dark background and a light-colored text. The window's title bar includes standard Linux window controls (minimize, maximize, close) and a menu bar with options like "Archivo", "Máquina", "Ver", "Entrada", "Dispositivos", and "Ayuda". The bottom of the window shows a taskbar with various application icons and a system tray with a clock and other indicators.

```
root@ubuntu:~# cd /etc/apache2
root@ubuntu:~/etc/apache2# ls sites-available/
000-default.conf  default-ssl.conf
root@ubuntu:~/etc/apache2#
```

b. Sitios web activados.

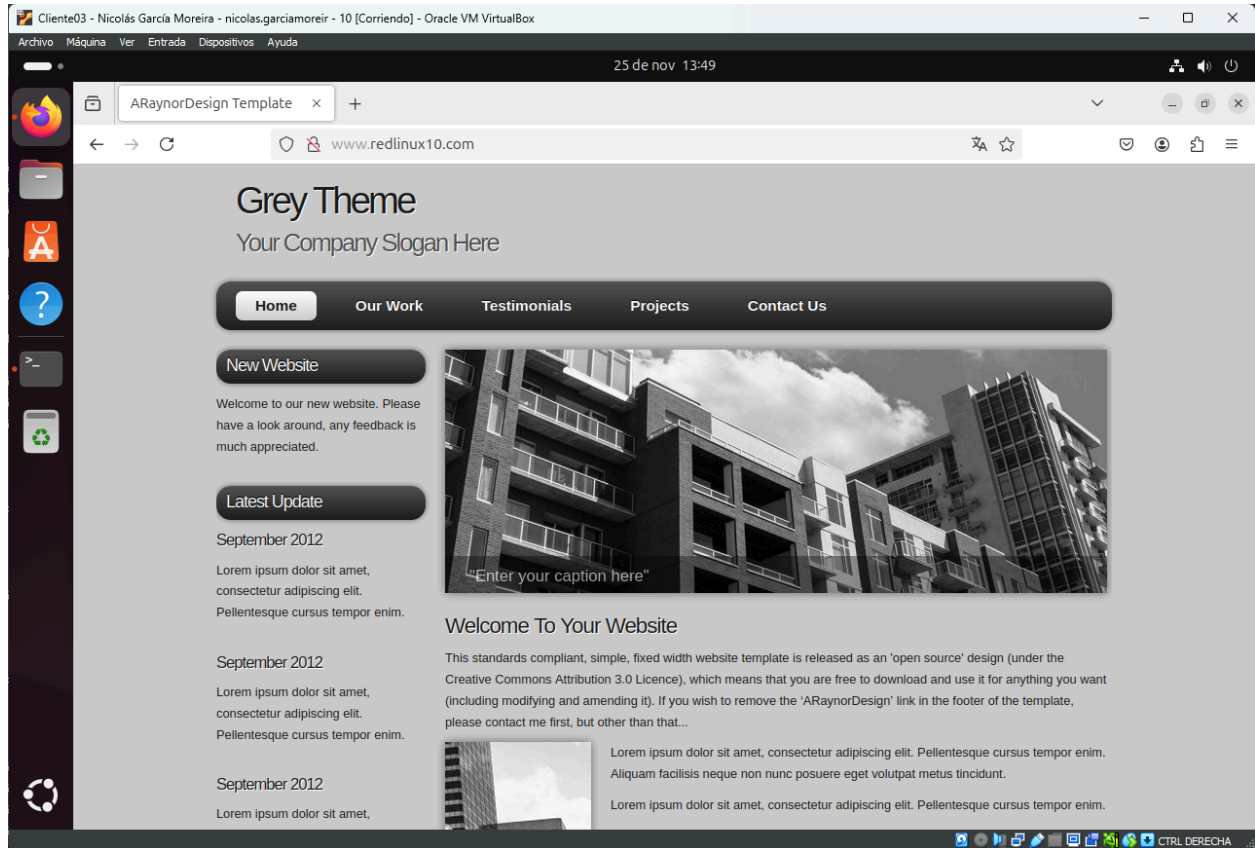


9. Captura el resultado de ejecutar el comando que permite desactivar el sitio web por defecto.

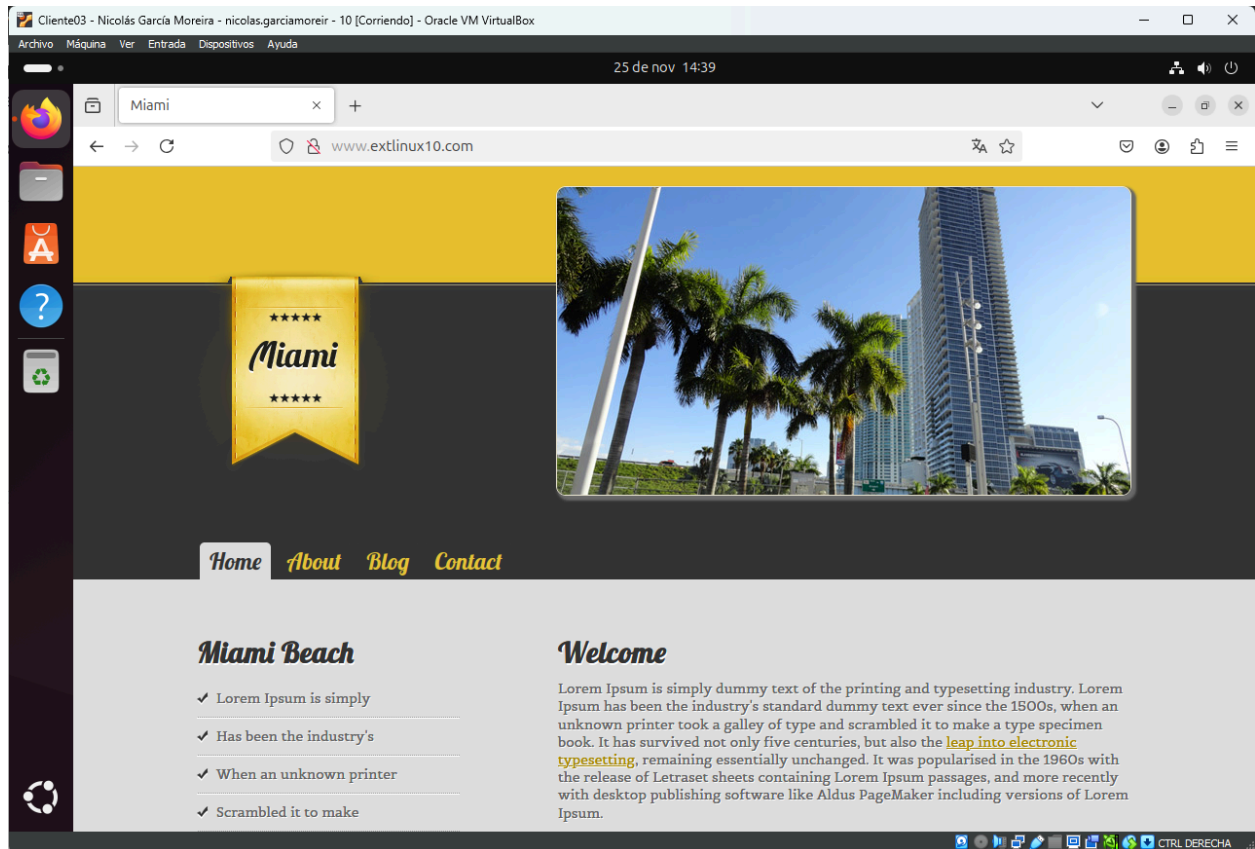


10. Crea y activa **dos sitios web** con las siguientes características (leer todos los puntos antes de hacer nada):
- a. Cada sitio web tendrá una plantilla web a elegir entre las que se pueden descargar de la página:
    - i. <http://www.openwebdesign.org/>
    - ii. Ambas plantillas deberán incluir archivos css.
  - b. El sitio web *uno* tendrá como URL:
    - i. `www.redlinuxXY.com`
      - 1. XY es el número de lista de cada alumno.
  - c. El sitio web *dos* tendrá como URL:
    - i. `www.extlinuxXY.com`
      - 1. XY es el número de lista de cada alumno.
  - d. Ambos sitios web atenderán peticiones HTTP dirigidas a cualquier IP de Servidor02 en el puerto 80.
  - e. Cada sitio web estará almacenado en una subcarpeta dentro de `/var/www` con los nombres `unoXY` y `dosXY` (XY es el número de lista de cada alumno).
    - i. Para crear las carpetas y descomprimir los archivos, se puede hacer uso del explorador de archivos de Ubuntu. Para que el explorador de archivos de Ubuntu se ejecute con permisos de administrador, será necesario llamarlo desde la línea de comandos, con usuario root, escribiendo `nautilus &`

1. Pulsar intro para continuar trabajando en el terminal.
  - ii. Será necesario comprobar que los archivos de cada sitio web tienen permisos para ser accesibles desde grupo y usuario (`ls -lisa /var/www/unoXY` y `ls -lisa /var/www/dosXY`). En caso de no existir esos permisos, ejecutar `chmod -R 755 /var/www/`
11. Desde el cliente, realiza las siguientes capturas:
- a. Resultado de visitar el sitio web *uno* haciendo uso de la URL.

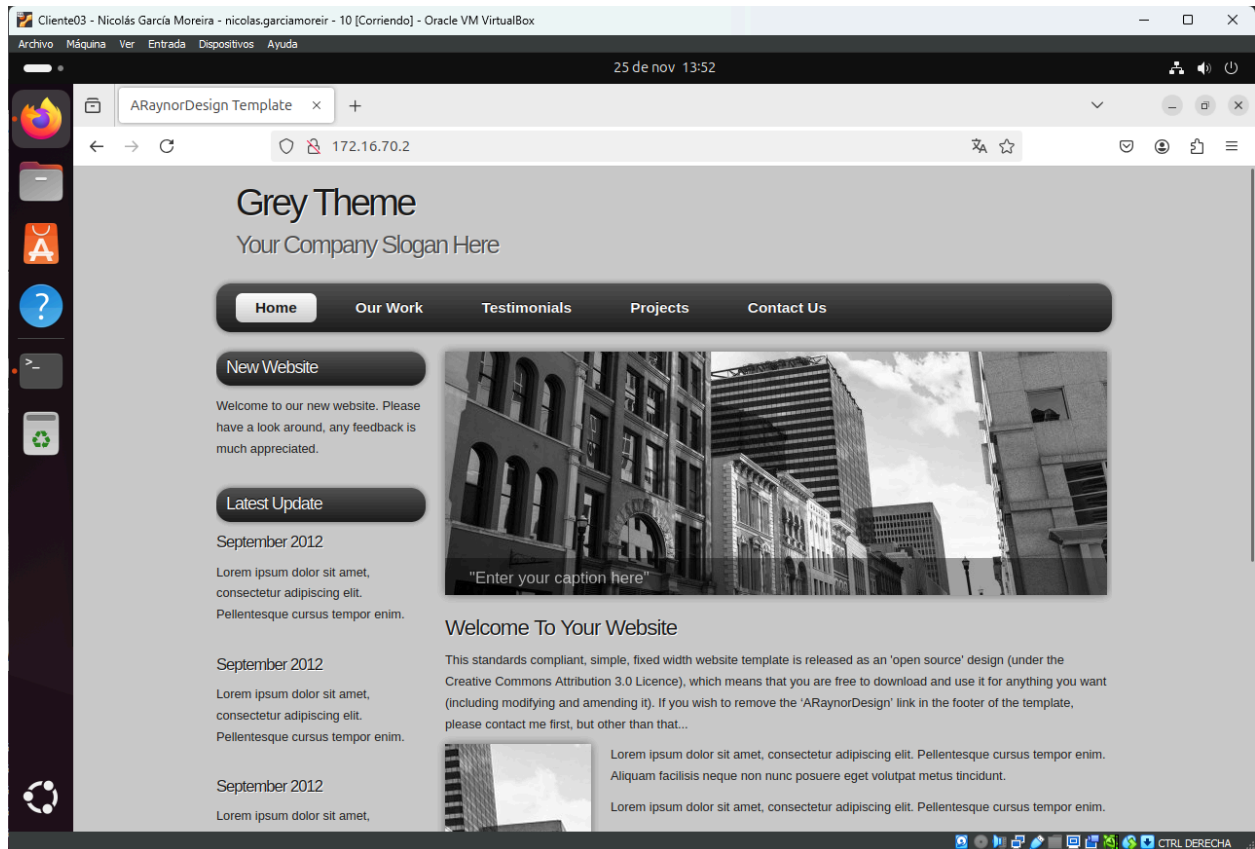


- b. Resultado de visitar el sitio web *dos* haciendo uso de la URL.



c. Resultado de visitar la IP de Servidor02 en la intnet3.



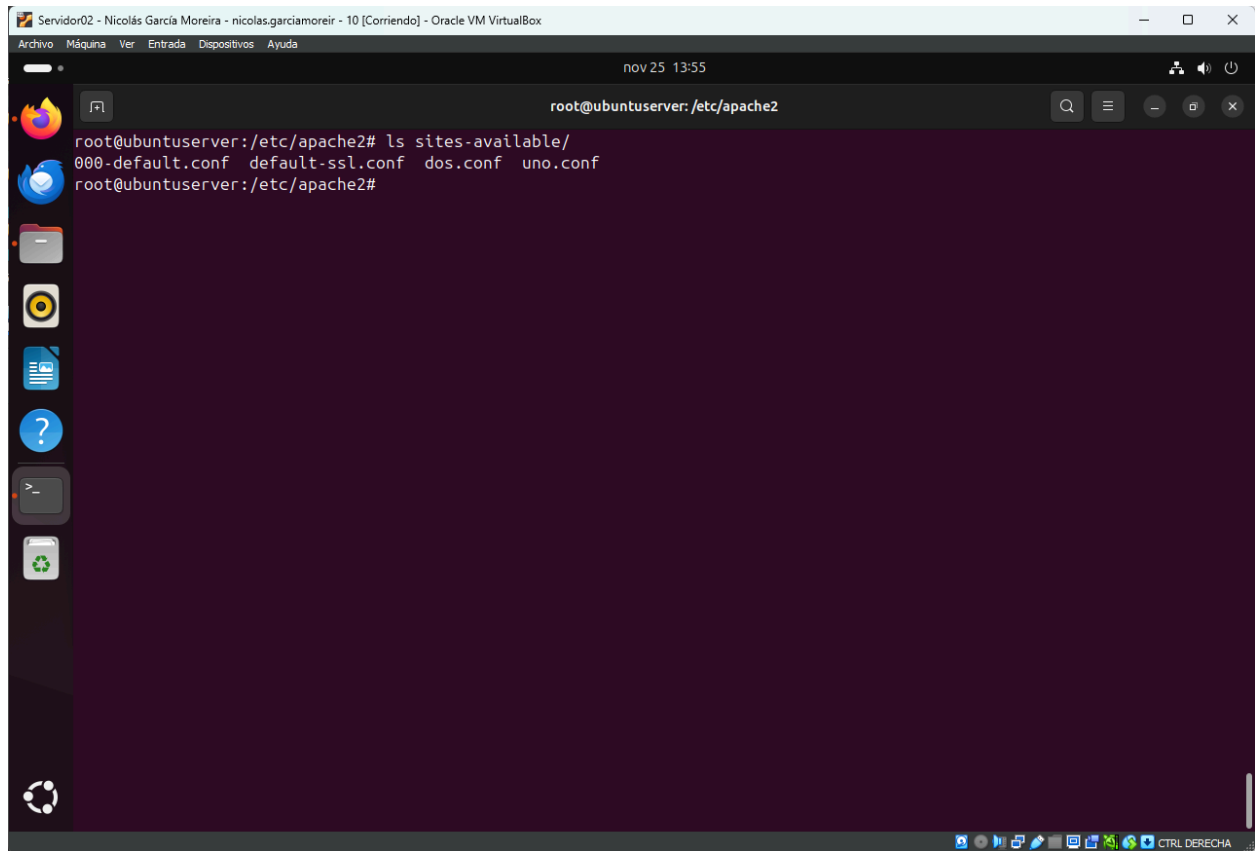


i. ¿Cuál de los dos sitios web se carga? Explica la respuesta.

Se carga la página dos, porque en el caso de que no se visite la url, se visualiza la primera ordenada en orden alfabético por el archivo de configuración

12. Realiza las siguientes capturas:

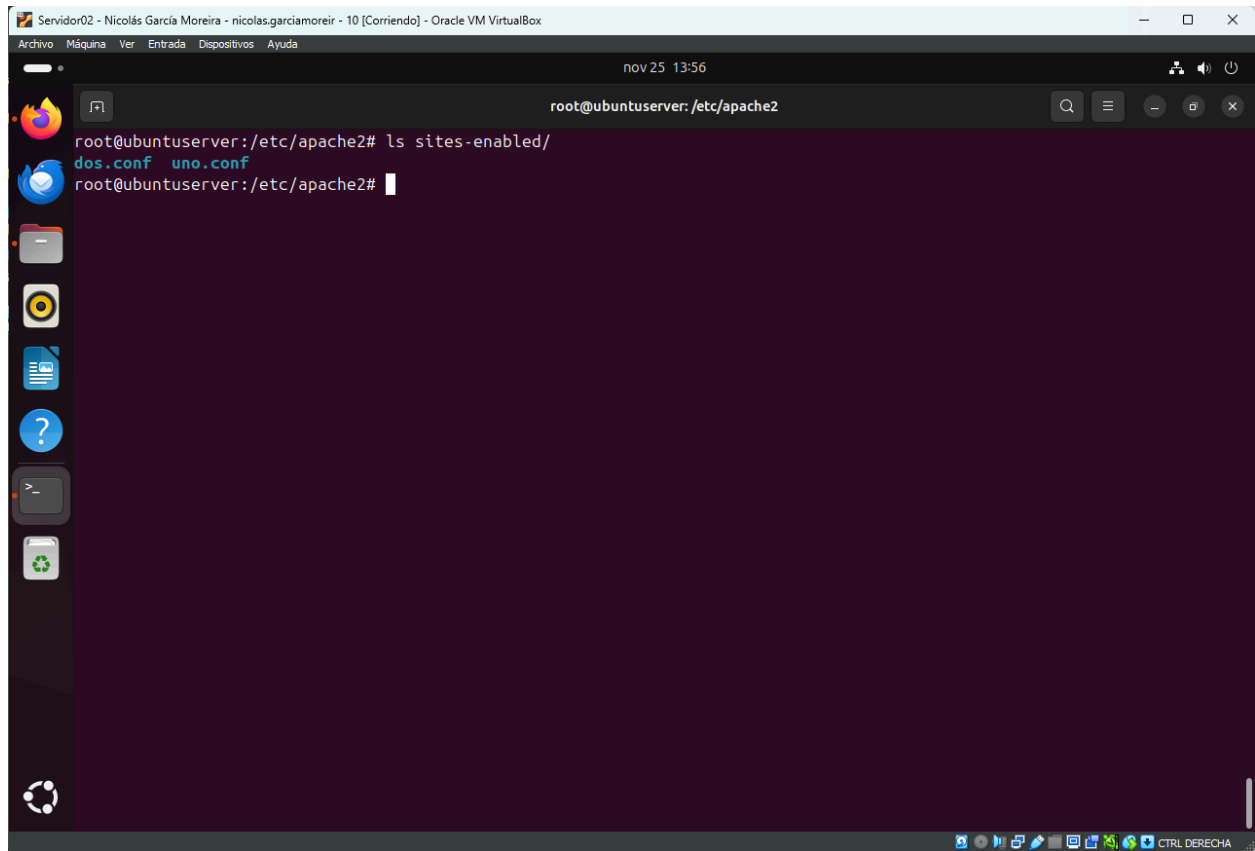
a. Lista de sitios web disponibles.



The screenshot shows a terminal window titled "Servidor02 - Nicolás García Moreira - nicolas.garciamoreir - 10 [Corriendo] - Oracle VM VirtualBox". The terminal is running as root on an Ubuntu server. The user is in the directory /etc/apache2 and has executed the command "ls sites-available/". The output shows four files: "000-default.conf", "default-ssl.conf", "dos.conf", and "uno.conf". The terminal window has a dark purple background and a sidebar on the left with various application icons. The top of the window shows the date and time as "nov 25 13:55".

```
root@ubuntu:~# ls sites-available/
000-default.conf  default-ssl.conf  dos.conf  uno.conf
root@ubuntu:~#
```

b. Lista de sitios web activados.



- c. Listado de carpetas, subcarpetas y archivos del directorio `/var/www`

```
Nov 25 13:58
root@ubuntu: /etc/apache2

No user sessions are running outdated binaries.
No VM guests are running outdated hypervisor (qemu) binaries on this host.
root@ubuntu: /etc/apache2# tree /var/www
/var/www
├── dos10
│   ├── contact.html
│   ├── css
│   │   └── style.css
│   ├── images
│   │   ├── content_image1.jpg
│   │   ├── home_1.jpg
│   │   ├── home_2.jpg
│   │   └── transparent.png
│   ├── index.html
│   ├── js
│   │   ├── image_slide.js
│   │   ├── jquery.galleriffic.js
│   │   ├── jquery.min.js
│   │   └── jquery.opacityrollover.js
│   ├── LICENSE.txt
│   ├── ourwork.html
│   ├── projects.html
│   └── testimonials.html
├── html
│   └── index.html
└── uno10
    ├── contact.html
    ├── css
    │   └── style.css
    ├── images
    │   ├── content_image1.jpg
    │   └── home_1.jpg
```

d. Captura del código de cada virtual host.

Servidor02 - Nicolás García Moreira - nicolas.garciamoreir - 10 [Corriendo] - Oracle VM VirtualBox

Archivo Máquina Ver Entrada Dispositivos Ayuda

nov 25 14:07

root@ubuntu:server: /etc/apache2

GNU nano 7.2 sites-available/uno.conf

```
<VirtualHost *:80>
# The ServerName directive sets the request scheme, hostname and port that
# the server uses to identify itself. This is used when creating
# redirection URLs. In the context of virtual hosts, the ServerName
# specifies what hostname must appear in the request's Host: header to
# match this virtual host. For the default virtual host (this file) this
# value is not decisive as it is used as a last resort host regardless.
# However, you must set it for any further virtual host explicitly.
#ServerName www.example.com

ServerAdmin webmaster@localhost
DocumentRoot /var/www/uno10/
ServerName www.redlinux10.com

# Available loglevels: trace8, ..., trace1, debug, info, notice, warn,
# error, crit, alert, emerg.
# It is also possible to configure the loglevel for particular
# modules, e.g.
#LogLevel info ssl:warn

ErrorLog ${APACHE_LOG_DIR}/error.log
CustomLog ${APACHE_LOG_DIR}/access.log combined

# For most configuration files from conf-available/, which are
# enabled or disabled at a global level, it is possible to
# include a line for only one particular virtual host. For example the
# following line enables the CGI configuration for this host only
# after it has been globally disabled with "a2disconf".
```

[ Read 30 lines ]

|         |              |             |          |            |               |          |              |
|---------|--------------|-------------|----------|------------|---------------|----------|--------------|
| ^G Help | ^O Write Out | ^W Where Is | ^K Cut   | ^T Execute | ^C 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-6 Copy     |

CTRL DERECHA

Servidor02 - Nicolás García Moreira - nicolas.garciamoreir - 10 [Corriendo] - Oracle VM VirtualBox

Archivo Máquina Ver Entrada Dispositivos Ayuda

nov 25 14:07

root@ubuntu:server: /etc/apache2

GNU nano 7.2 sites-available/dos.conf

```
<VirtualHost *:80>
# The ServerName directive sets the request scheme, hostname and port that
# the server uses to identify itself. This is used when creating
# redirection URLs. In the context of virtual hosts, the ServerName
# specifies what hostname must appear in the request's Host: header to
# match this virtual host. For the default virtual host (this file) this
# value is not decisive as it is used as a last resort host regardless.
# However, you must set it for any further virtual host explicitly.
#ServerName www.example.com

ServerAdmin webmaster@localhost
DocumentRoot /var/www/dos10
ServerName www.extlinux10.com

# Available loglevels: trace8, ..., trace1, debug, info, notice, warn,
# error, crit, alert, emerg.
# It is also possible to configure the loglevel for particular
# modules, e.g.
#LogLevel info ssl:warn

ErrorLog ${APACHE_LOG_DIR}/error.log
CustomLog ${APACHE_LOG_DIR}/access.log combined

# For most configuration files from conf-available/, which are
# enabled or disabled at a global level, it is possible to
# include a line for only one particular virtual host. For example the
# following line enables the CGI configuration for this host only
# after it has been globally disabled with "a2disconf".
```

[ Read 30 lines ]

|         |              |             |          |            |               |          |              |
|---------|--------------|-------------|----------|------------|---------------|----------|--------------|
| ^G Help | ^O Write Out | ^W Where Is | ^K Cut   | ^T Execute | ^C 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-6 Copy     |

CTRL DERECHA