

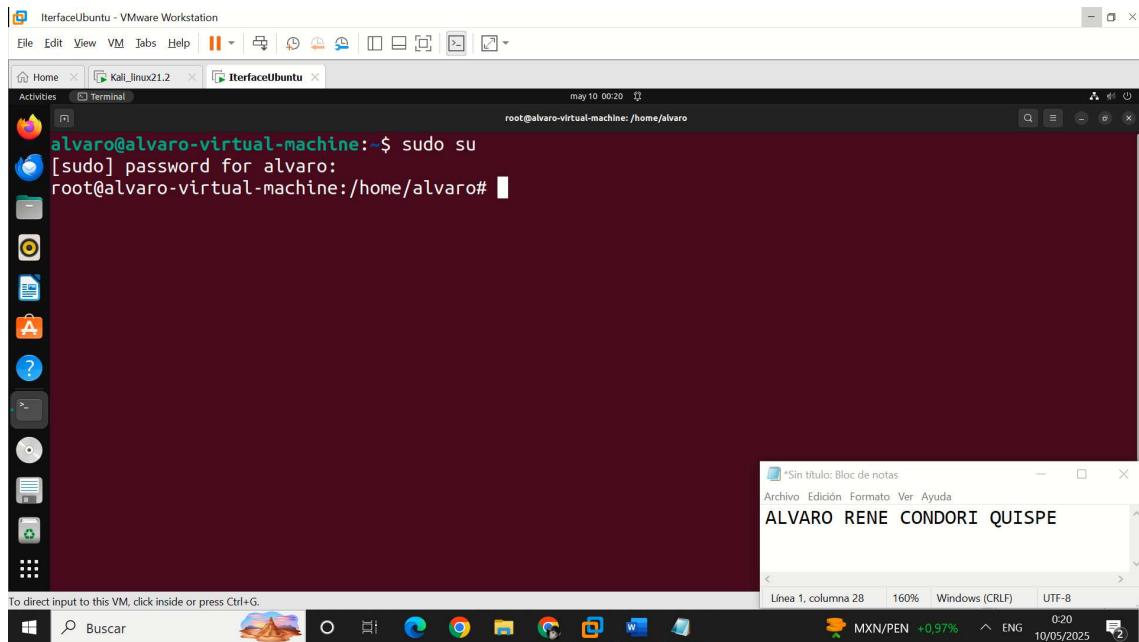
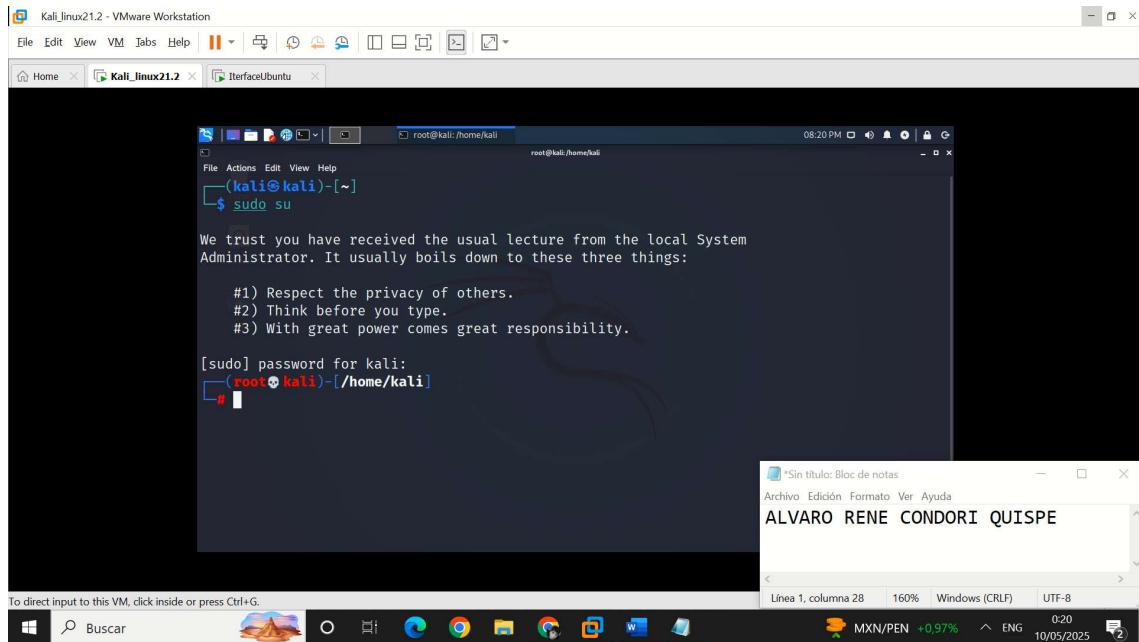
UNIVERSIDAD AUTÓNOMA “TOMAS FRÍAS”
INGENIERÍA DE SISTEMAS

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LABORATORIO 9

1



2

The screenshot shows a Kali Linux VM running in VMware Workstation. The terminal window displays the following command-line session:

```
root@alvaro-virtual-machine:/home/alvaro# which ssh
/usr/bin/ssh
root@alvaro-virtual-machine:/home/alvaro#
root@alvaro-virtual-machine:/home/alvaro# system status ssh
Command 'system' not found, did you mean:
  command 'systemd' from deb systemd (249.11-0ubuntu3.12)
  command 'system3' from deb simh (3.8.1-6.1)
Try: apt install <deb name>
root@alvaro-virtual-machine:/home/alvaro# systemctl status ssh
● ssh.service - OpenBSD Secure Shell server
   Loaded: loaded (/lib/systemd/system/ssh.service; enabled; vendor preset: enabled)
   Active: active (running) since Sat 2025-05-10 00:12:57 -04; 12min ago
     Docs: man:sshd(8)
           man:sshd_config(5)
     Main PID: 860 (sshd)
        Tasks: 1 (limit: 2211)
       Memory: 1.2M
          CPU: 98ms
        CGroup: /system.slice/ssh.service
               └─860 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100"
```

To direct input to this VM, move the mouse pointer inside or press Ctrl+G.

The desktop environment includes a dock with icons for various applications like File Explorer, Edge, and Filezilla. A note application window titled "Sin título: Bloc de notas" is open, containing the text "ALVARO RENE CONDORI QUISPE".

3 se entendió

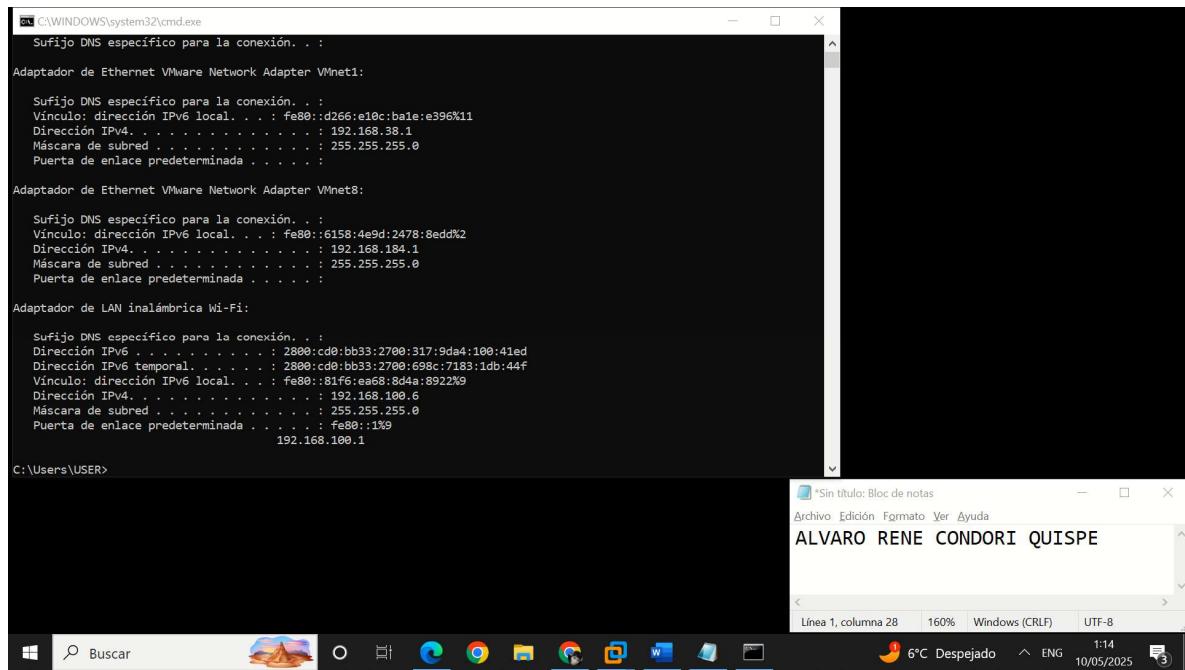
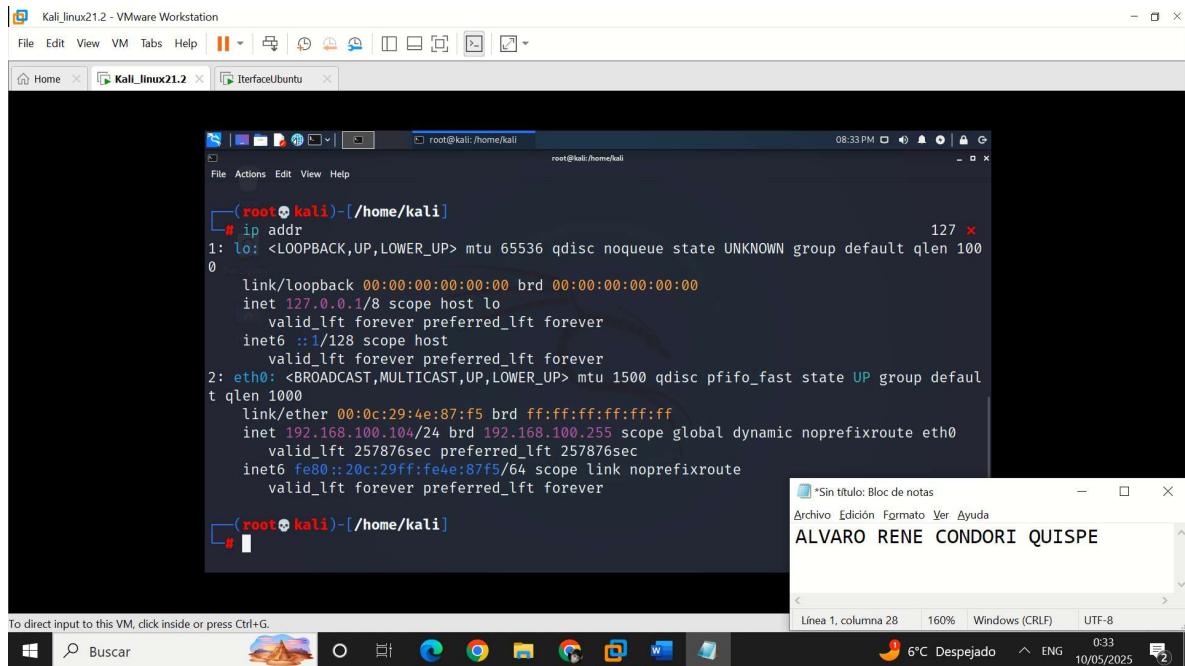
4

The screenshot shows a Kali Linux VM running in VMware Workstation. The terminal window displays the following command-line session:

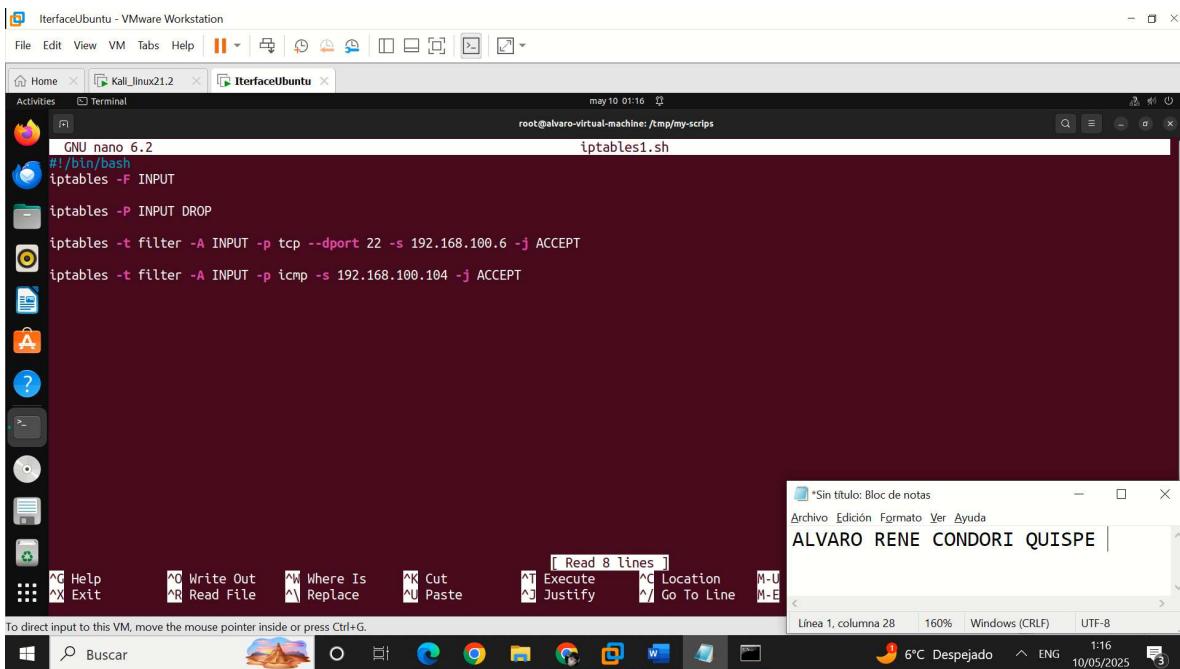
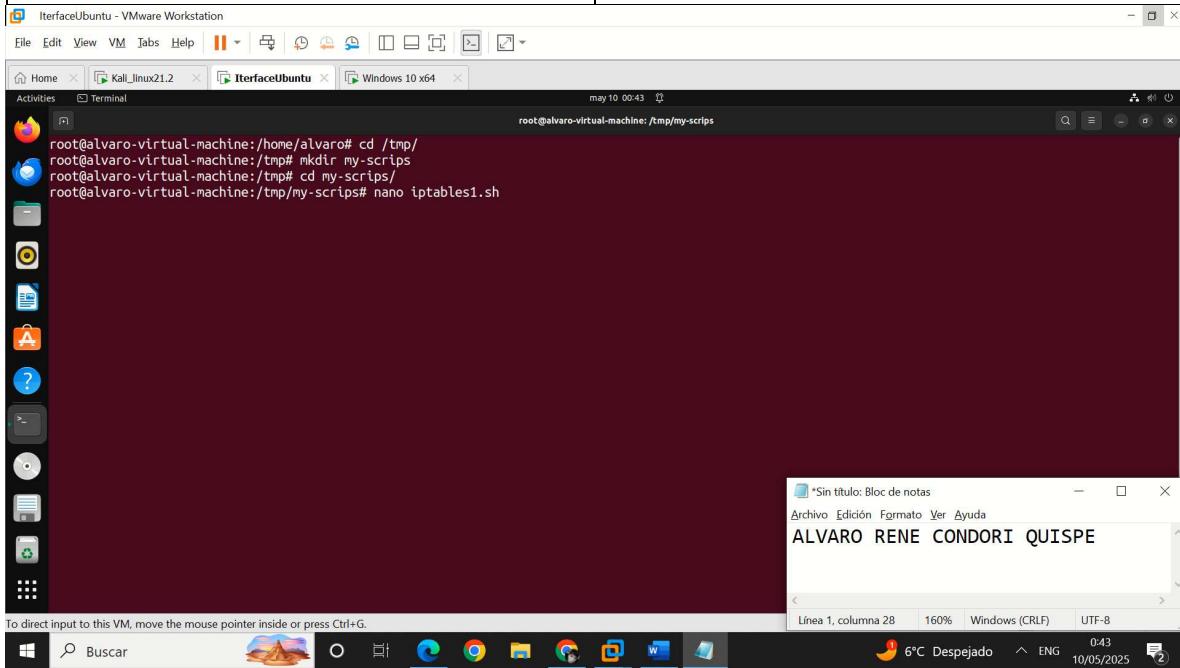
```
root@alvaro-virtual-machine:/home/alvaro# ifconfig
Command 'ifconfig' not found, but can be installed with:
  apt install net-tools
root@alvaro-virtual-machine:/home/alvaro# ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 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
        valid_lft forever preferred_lft forever
2: ens33: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 00:c9:80:f5:53 brd ff:ff:ff:ff:ff:ff
    altname enp2s1
    inet 192.168.100.82/24 brd 192.168.100.255 scope global dynamic noprefixroute ens33
        valid_lft 258022sec preferred_lft 258022sec
    inet6 fe80::6c36:4296:9fc9:9604/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
root@alvaro-virtual-machine:/home/alvaro#
```

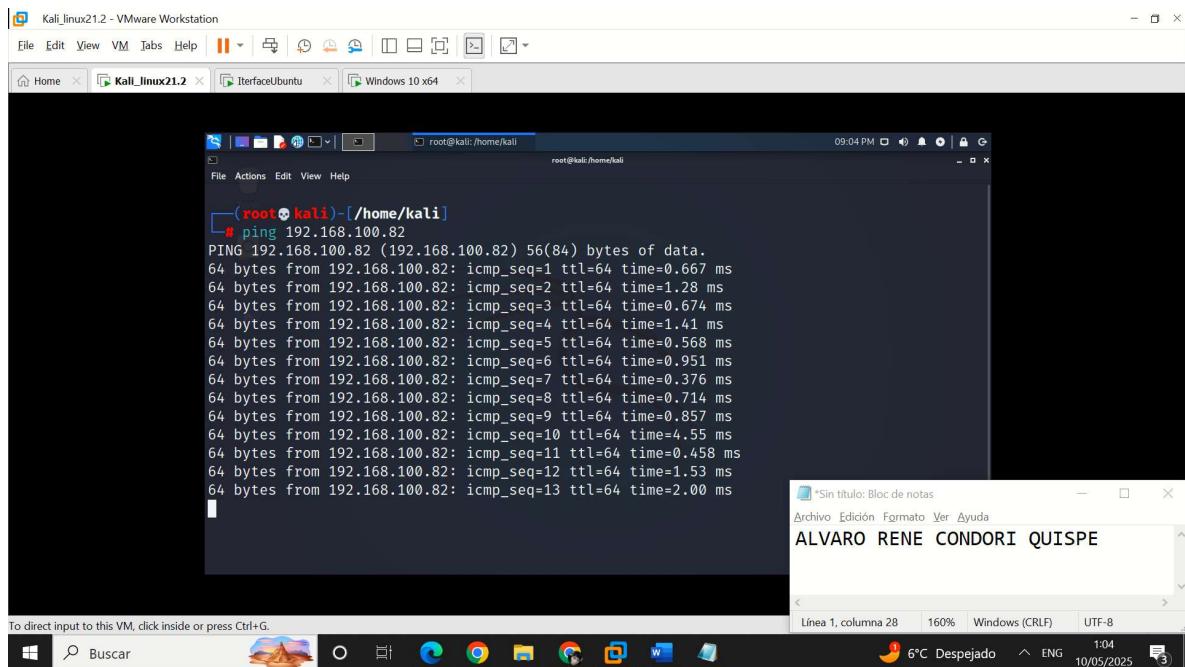
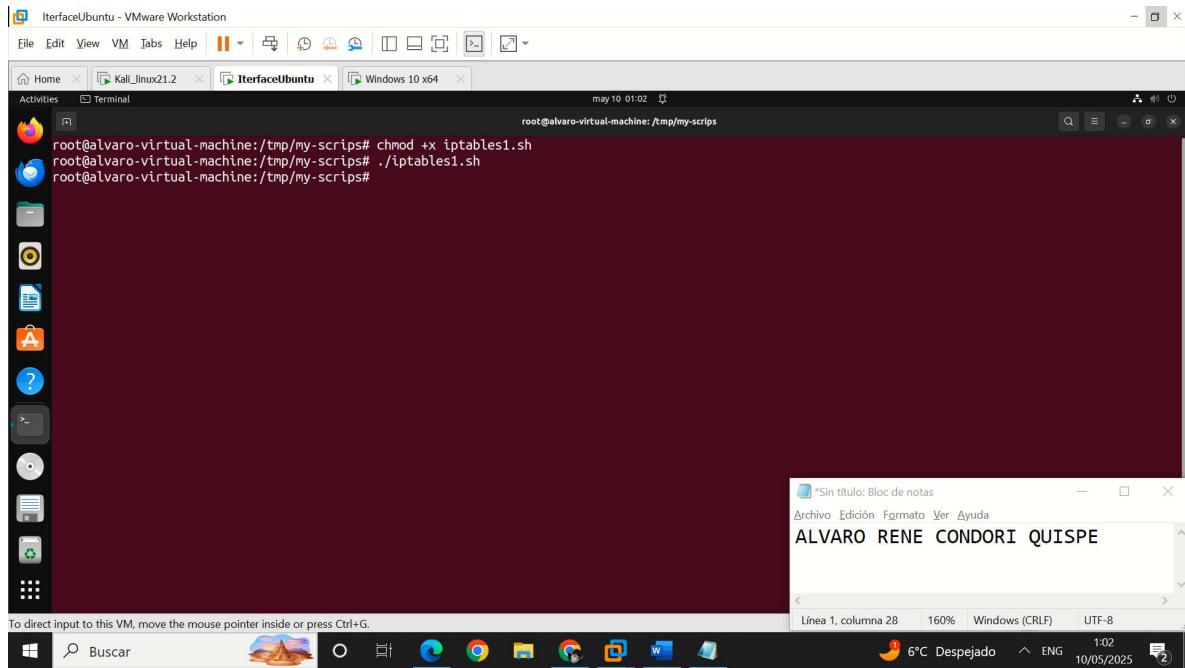
To direct input to this VM, move the mouse pointer inside or press Ctrl+G.

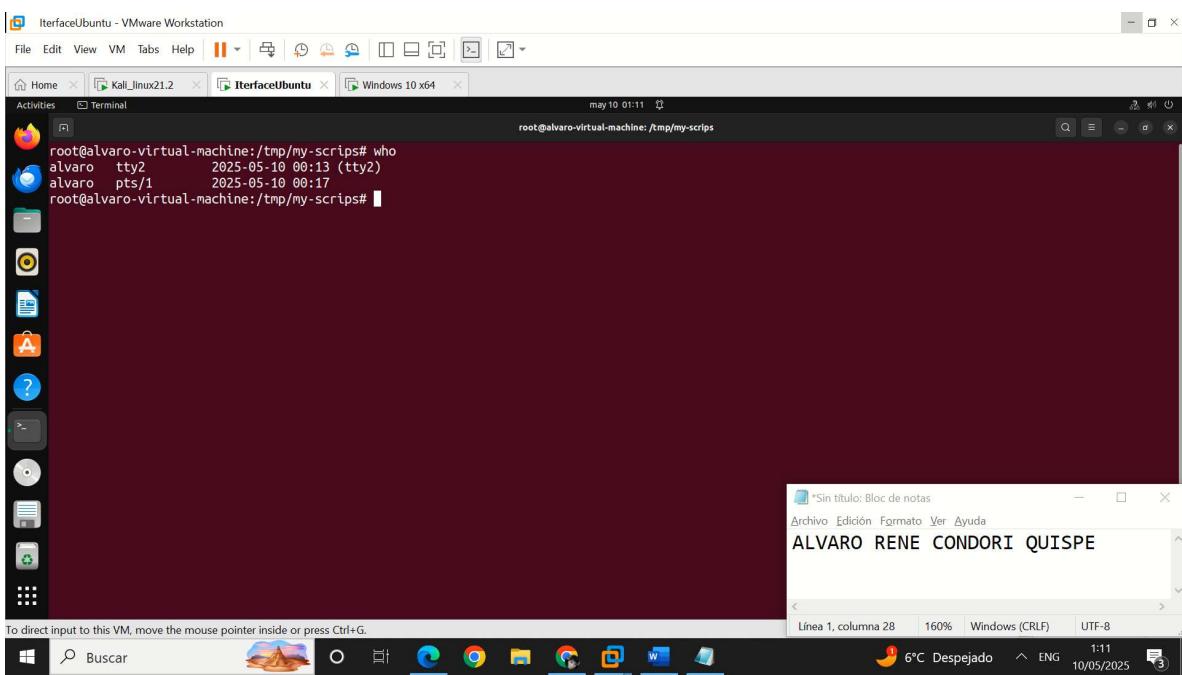
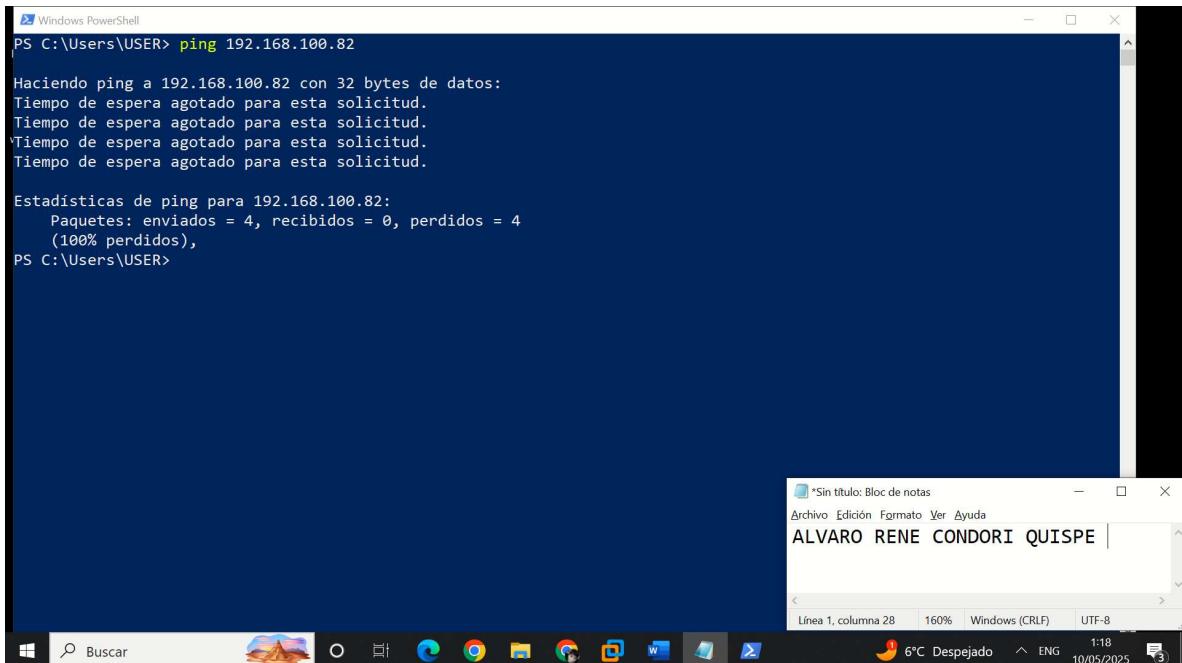
The desktop environment includes a dock with icons for various applications like File Explorer, Edge, and Filezilla. A note application window titled "Sin título: Bloc de notas" is open, containing the text "ALVARO RENE CONDORI QUISPE".



Maquina virtual o dispositivo	Dirección IP
Ubuntu	192.168.100.82
Kali Linux	192.168.100.104
Windows	192.168.100.6







```
alvaro@alvaro-virtual-machine:~
```

Estadísticas de ping para 192.168.100.82:
Paquetes: enviados = 1, recibidos = 0, perdidos = 1
(100% perdidos),
Control-C
^C
C:\Users\USER>ssh alvaro@192.168.100.82
The authenticity of host '192.168.100.82 (192.168.100.82)' can't be established.
ED25519 key fingerprint is SHA256:hepykKUzaH6s22Ne4pke3x8YVeT/QtgETlepnCZUicM.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '192.168.100.82' (ED25519) to the list of known hosts.
alvaro@192.168.100.82's password:
Welcome to Ubuntu 22.04.5 LTS (GNU/Linux 6.8.0-58-generic x86_64)

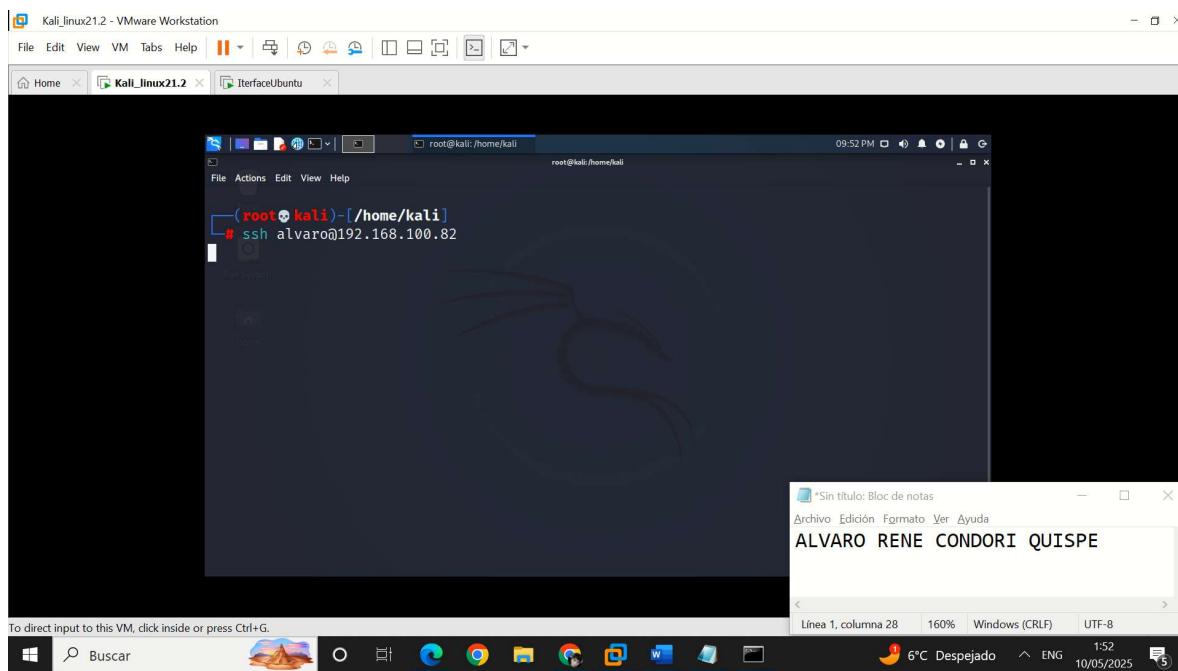
 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/pro

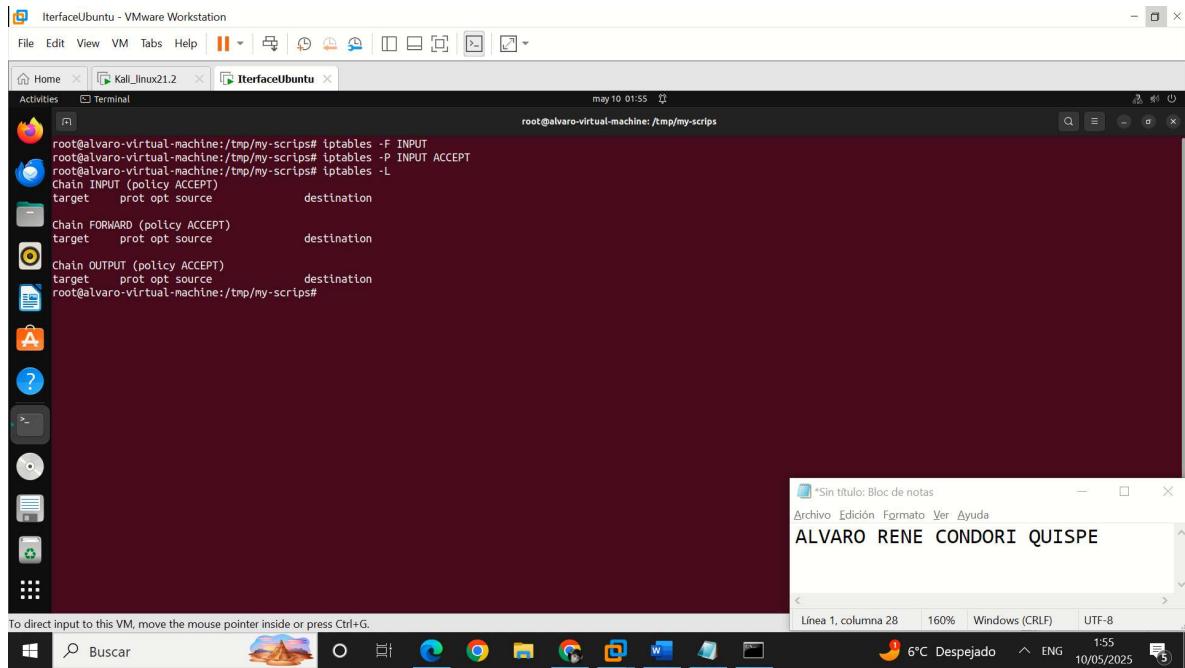
Expanded Security Maintenance for Applications is not enabled.

55 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

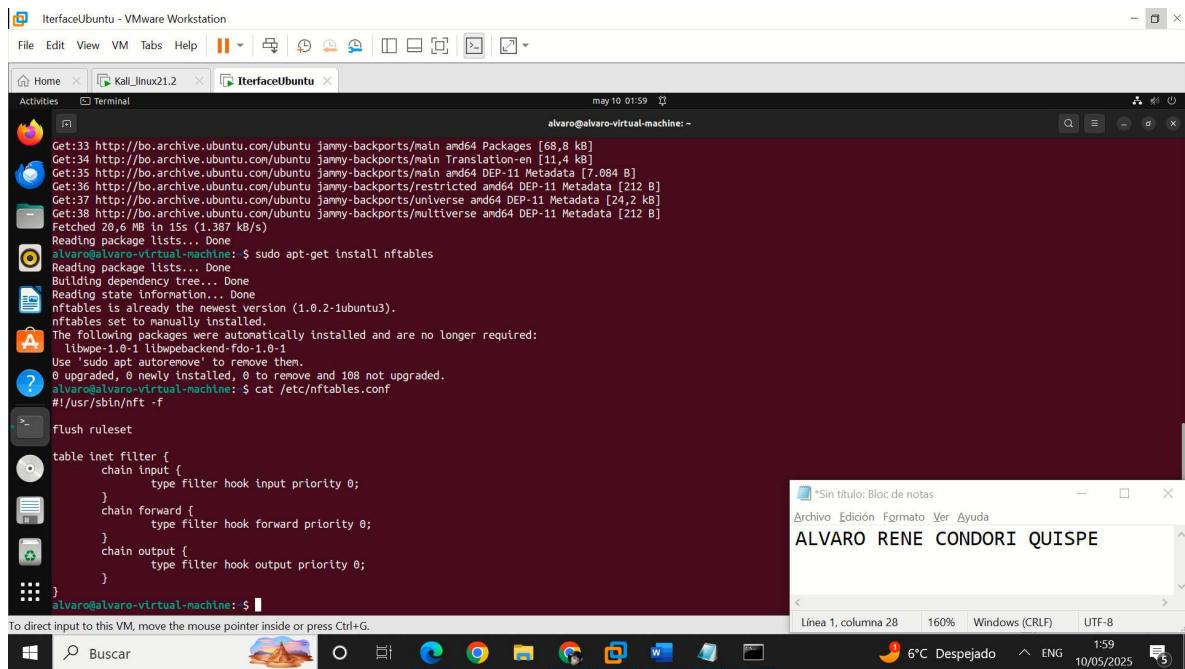
19 additional security updates can be applied with ESM Apps.
Learn more about enabling ESM Apps service at https://ubuntu.com/esm

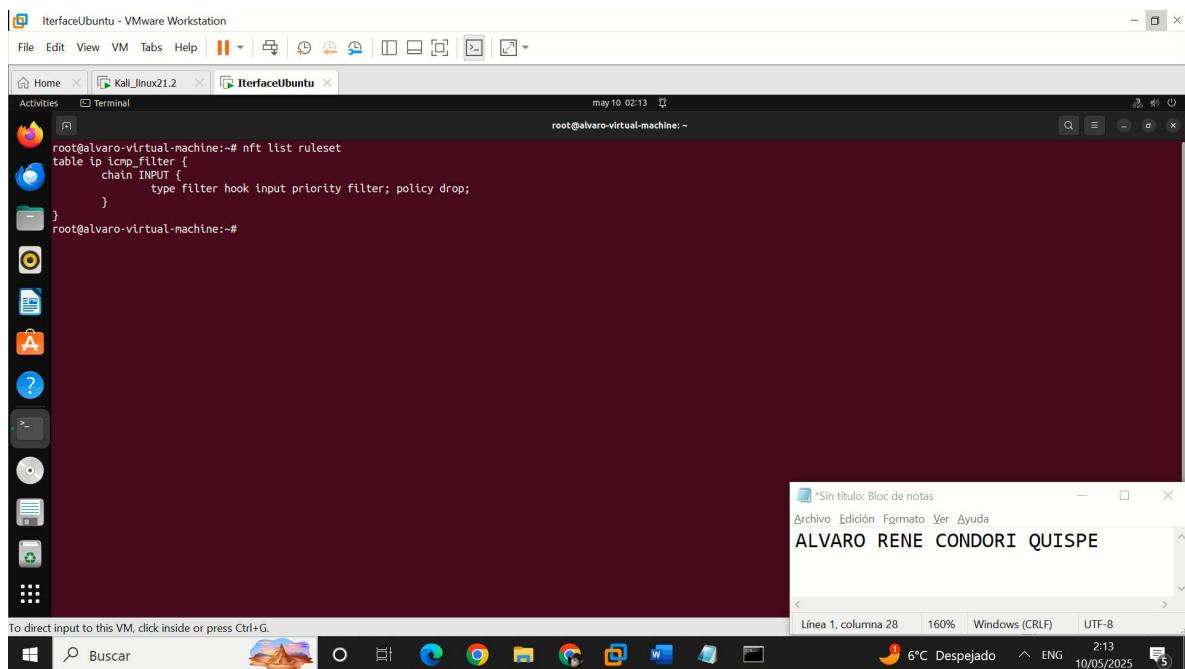
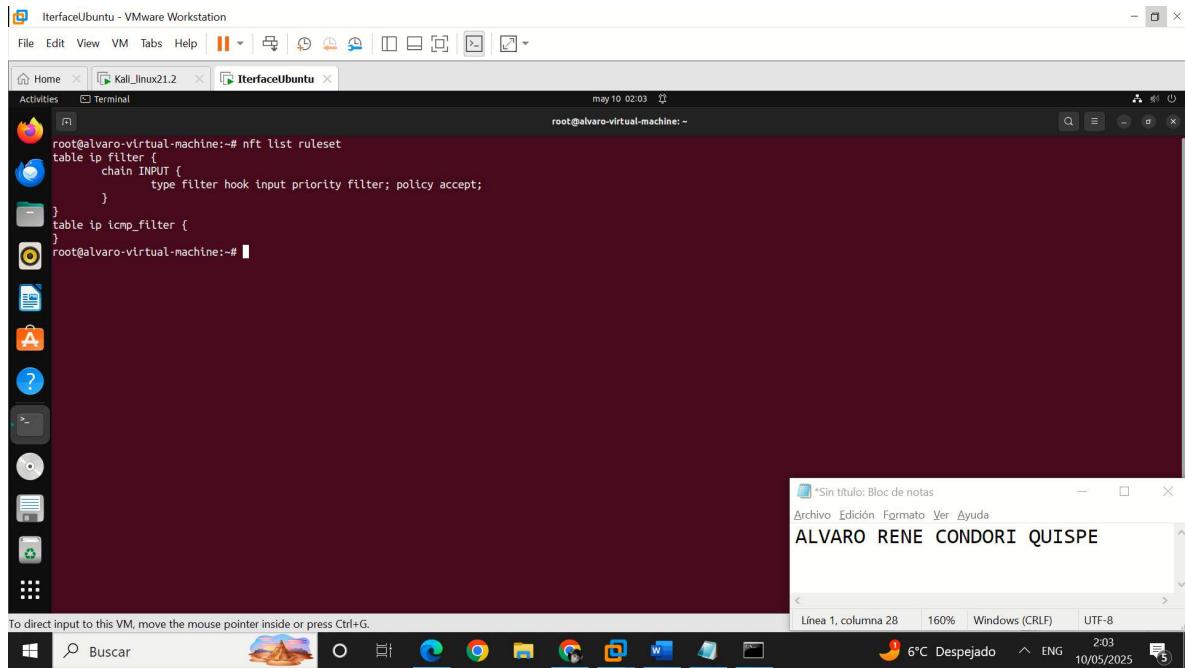
*** System restart required ***
Last login: Sun Apr 27 18:26:44 2025 from 192.168.100.102
alvaro@alvaro-virtual-machine:>\$

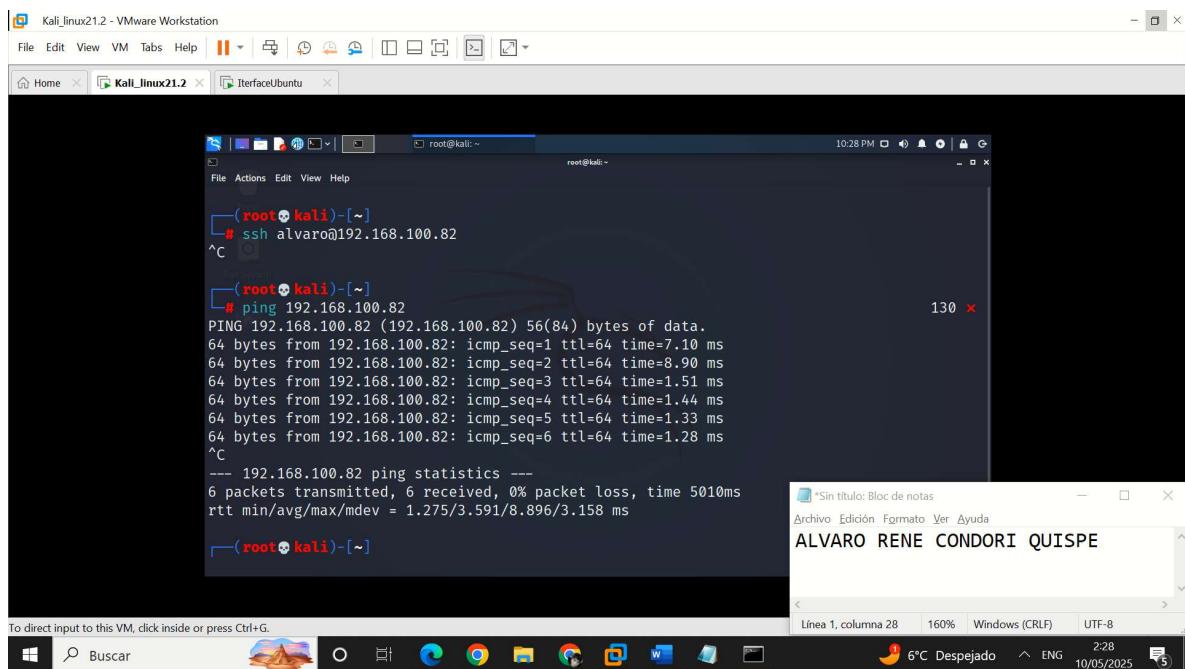
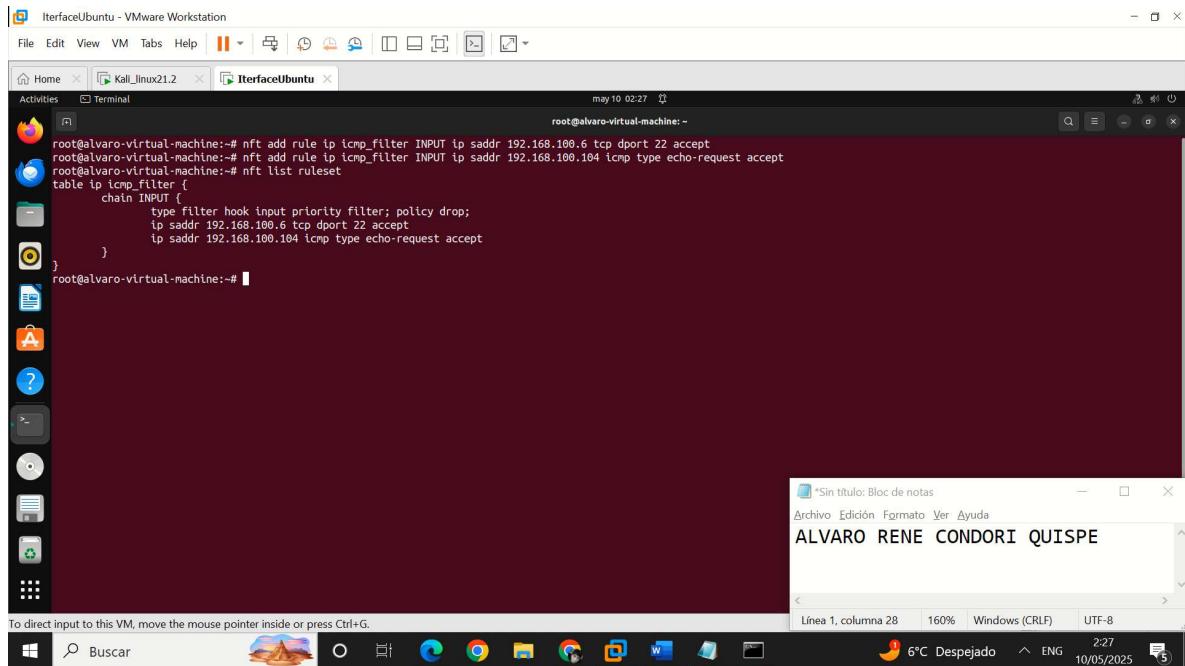




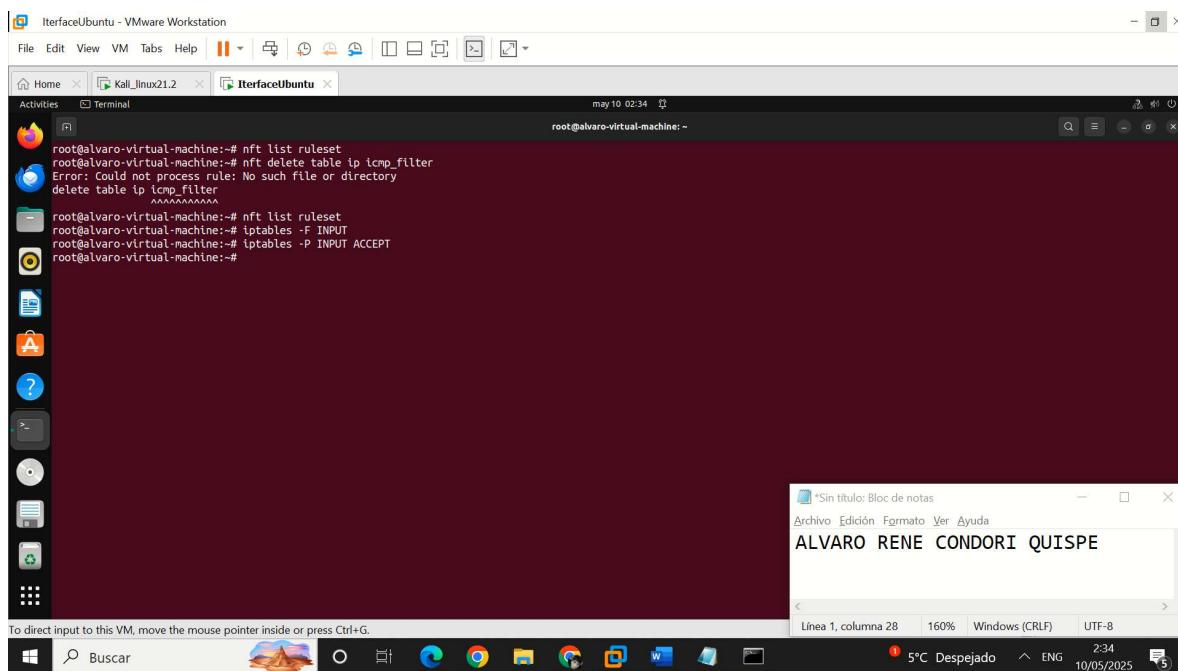
NFTABLES







```
alvaro@alvaro-virtual-machine:~  
C:\Users\USER>ping 192.168.100.82  
  
Haciendo ping a 192.168.100.82 con 32 bytes de datos:  
Tiempo de espera agotado para esta solicitud.  
  
Estadísticas de ping para 192.168.100.82:  
 Paquetes: enviados = 4, recibidos = 0, perdidos = 4  
(100% perdidos),  
  
C:\Users\USER>ssh alvaro@192.168.100.82  
alvaro@192.168.100.82's password:  
Welcome to Ubuntu 22.04.5 LTS (GNU/Linux 6.8.0-58-generic x86_64)  
  
 * Documentation: https://help.ubuntu.com  
 * Management: https://landscape.canonical.com  
 * Support: https://ubuntu.com/pro  
  
Expanded Security Maintenance for Applications is not enabled.  
  
115 updates can be applied immediately.  
48 of these updates are standard security updates.  
To see these additional updates run: apt list --upgradable  
  
19 additional security updates can be applied with ESM Apps.  
Learn more about enabling ESM Apps service at https://ubuntu.com/esm  
  
Failed to connect to https://changelogs.ubuntu.com/meta-release-lts. Check your Internet connection or proxy settings.  
*** System restart required ***  
Last login: Sat May 10 01:51:24 2025 from 192.168.100.6  
alvaro@alvaro-virtual-machine:~$  
  
* Sin título: Bloc de notas  
Archivo Edición Formato Ver Ayuda  
ALVARO RENE CONDORI QUISPE  
Línea 1, columna 28 160% Windows (CRLF) UTF-8  
Buscar                                                                                                                                                                                                                                                          
```



Parte 2

The screenshot shows a Linux desktop environment with a terminal window open in a window titled "Terminal". The terminal window has a dark background and displays a script named "iptables2.sh". The script contains several lines of code related to iptables rules, including comments about clearing the OUTPUT chain and specifying specific IP addresses and ports. Below the terminal, a dock bar contains icons for various applications like a file manager, browser, and system tools. To the right of the terminal, a small window titled "Sin título: Bloc de notas" (Untitled: Note) is open, displaying the text "ALVARO RENE CONDORI QUISPE".

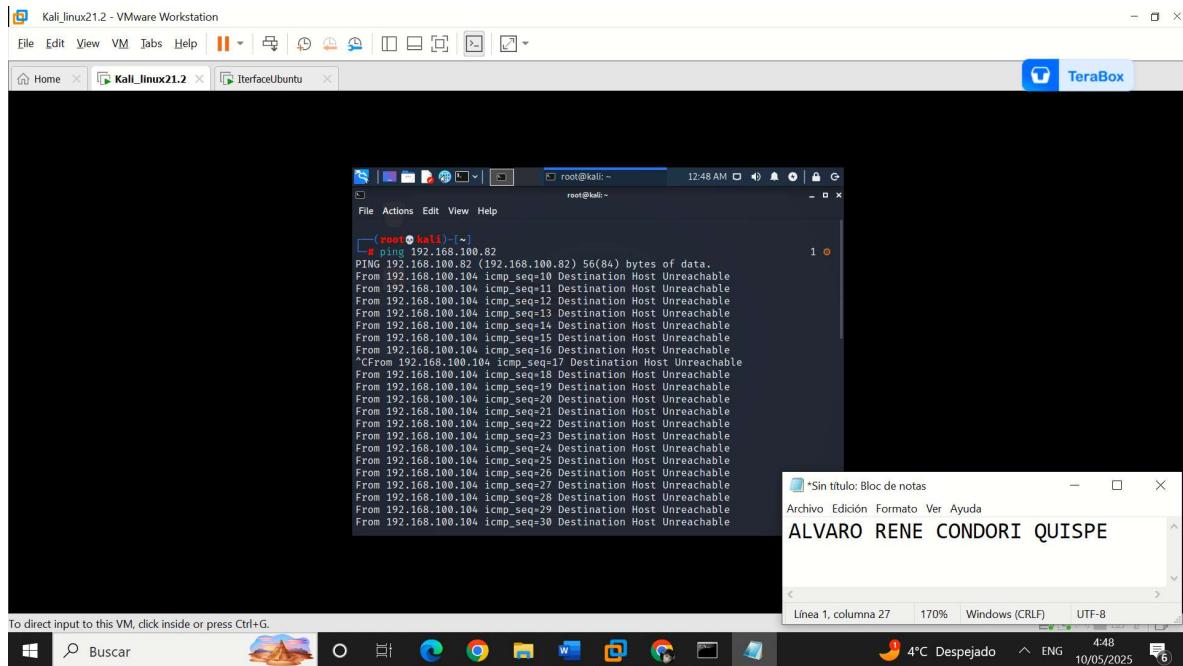
```
GNU nano 6.2
#!/bin/bash
## Script de iptables Bloqueo de acceso a ciertos sitios web con reglas permitidas
## Borramos las reglas de la cadena OUTPUT de la tabla por defecto filter para no tener conflictos
iptables -F OUTPUT
arpTables -F INPUT
##Establecemos la politica por defecto de la cadena OUTPUT a ACCEPT
iptables -P OUTPUT ACCEPT
arpTables -P INPUT DROP
##Permitimos el trafico a las direcciones IP permitidas
##en los puertos concretos
iptables -A OUTPUT -d 45.79.163.254 -j ACCEPT
##eliptocin.net
iptables -A OUTPUT -d 104.21.61.194 -j ACCEPT
iptables -A OUTPUT -d 172.67.213.89 -j ACCEPT
iptables -A OUTPUT -d 104.22.75.193 -j ACCEPT
iptables -A OUTPUT -d 172.67.20.27 -j ACCEPT
##freetorial.com
iptables -A OUTPUT -d 104.22.74.193 -j ACCEPT
iptables -A OUTPUT -d 37.59.238.221 -j ACCEPT
##permir al servidor dns
iptables -A OUTPUT -d 8.8.8.8 -j ACCEPT
##Lista de direcciones mac con acceso permitido
##mac del gateway
arpTables -A INPUT --source-mac 20:4c:9e:33:57:e4 -j ACCEPT
arpTables -A INPUT --source-mac 12:34:56:78:90:00 -j ACCEPT
arpTables -A INPUT --source-mac 99:88:77:66:55:44 -j ACCEPT
arpTables -A INPUT --source-mac 40:50:60:70:80:90 -j ACCEPT
arpTables -A INPUT --source-mac 00:ac:e0:b9:ce:d7 -j ACCEPT
arpTables -A INPUT --source-mac 94:65:9c:6a:4e:c9 -j ACCEPT
##Bloqueamos el trafico a los puertos HTTP/HTTPS para todas las demas#
To direct input to this VM, move the mouse pointer inside or press Ctrl+G.
```

The screenshot shows a Windows desktop environment with a terminal window open in a window titled "Terminal". The terminal window has a dark background and displays a command being run: "root@alvaro-virtual-machine:/tmp/my-scripts# chmod +x iptables2.sh". Below the terminal, a taskbar shows various application icons. To the right of the terminal, a small window titled "Sin título: Bloc de notas" (Untitled: Note) is open, displaying the text "ALVARO RENE CONDORI QUISPE".

```
root@alvaro-virtual-machine:/tmp/my-scripts# chmod +x iptables2.sh
root@alvaro-virtual-machine:/tmp/my-scripts# ./iptables2.sh
root@alvaro-virtual-machine:/tmp/my-scripts#
```

The screenshot shows a Linux desktop environment with a terminal window open in a window titled "Terminal". The terminal window has a dark background and displays a command being run: "root@alvaro-virtual-machine:/tmp/my-scripts# chmod +x iptables2.sh". Below the terminal, a dock bar contains icons for various applications like a file manager, browser, and system tools. To the right of the terminal, a small window titled "Sin título: Bloc de notas" (Untitled: Note) is open, displaying the text "ALVARO RENE CONDORI QUISPE".

```
root@alvaro-virtual-machine:/tmp/my-scripts# chmod +x iptables2.sh
root@alvaro-virtual-machine:/tmp/my-scripts# ./iptables2.sh
root@alvaro-virtual-machine:/tmp/my-scripts#
```



Respueta desde 192.168.100.6: Host de destino inaccesible.

```
Estadísticas de ping para 192.168.100.82:  
    Paquetes: enviados = 4, recibidos = 4, perdidos = 0  
        (0% perdidos),
```

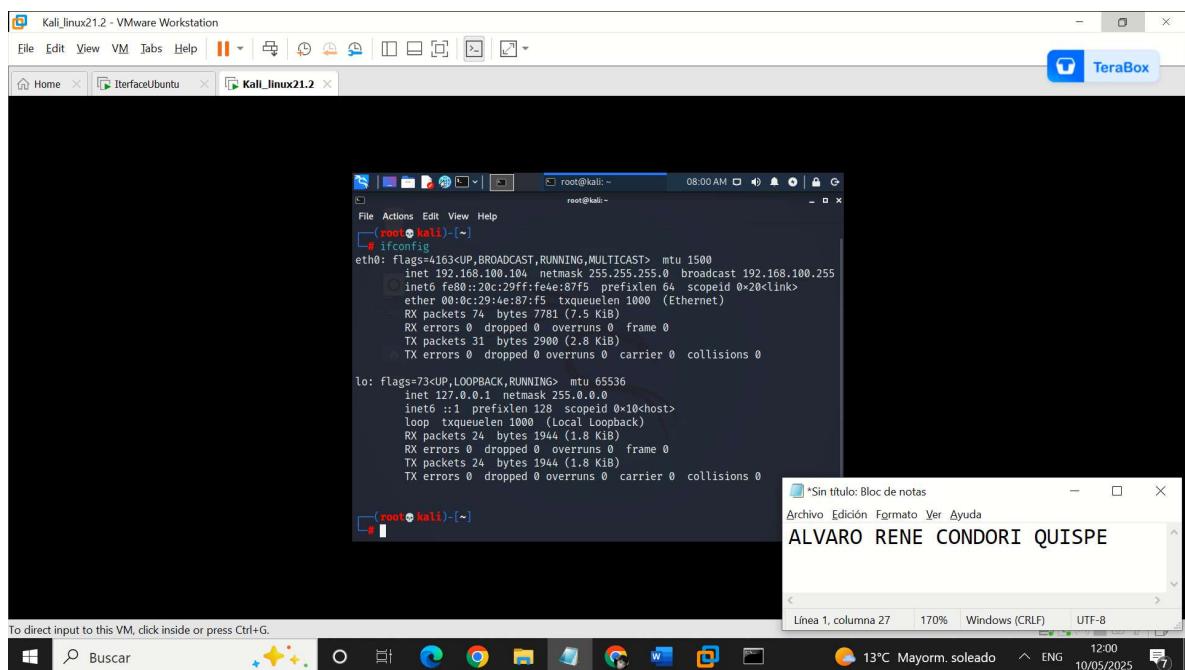
C:\Users\USER>ping 192.168.100.82

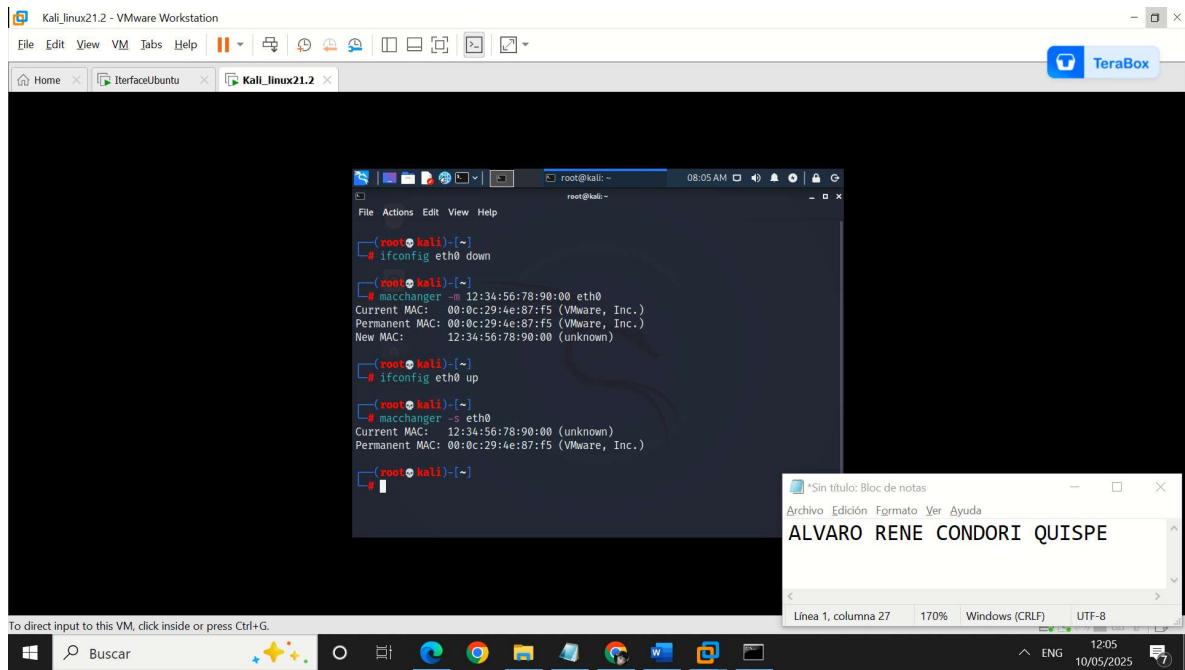
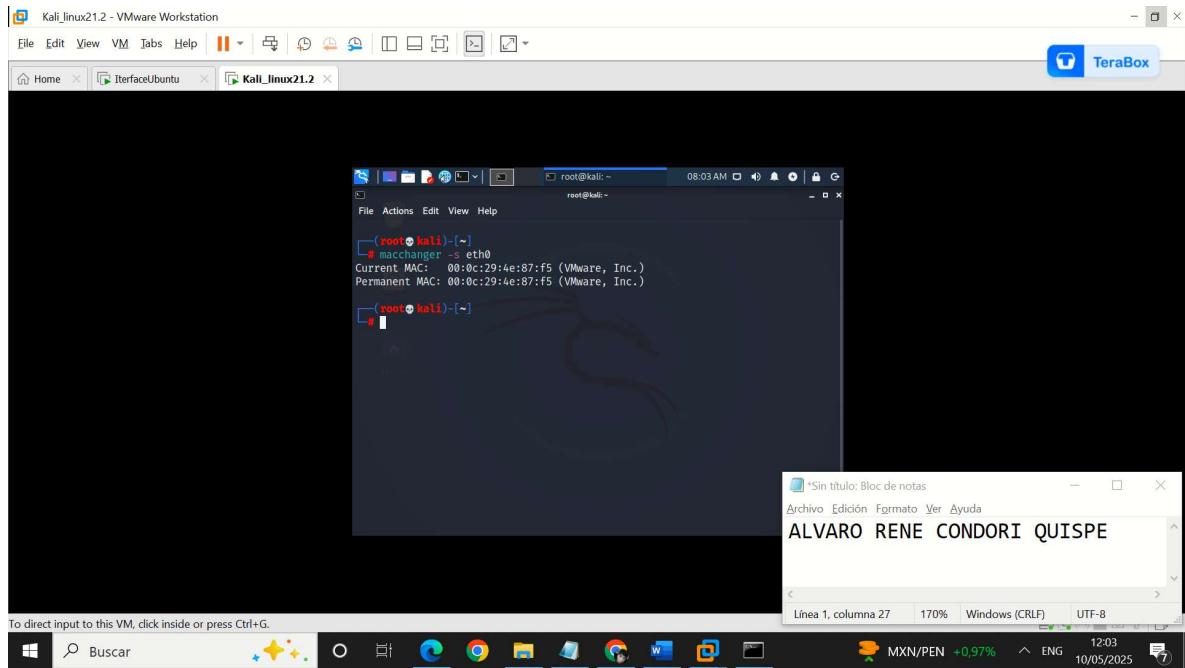
```
Haciendo ping a 192.168.100.82 con 32 bytes de datos:  
Tiempo de espera agotado para esta solicitud.  
Tiempo de espera agotado para esta solicitud.  
Tiempo de espera agotado para esta solicitud.  
Tiempo de espera agotado para esta solicitud.
```

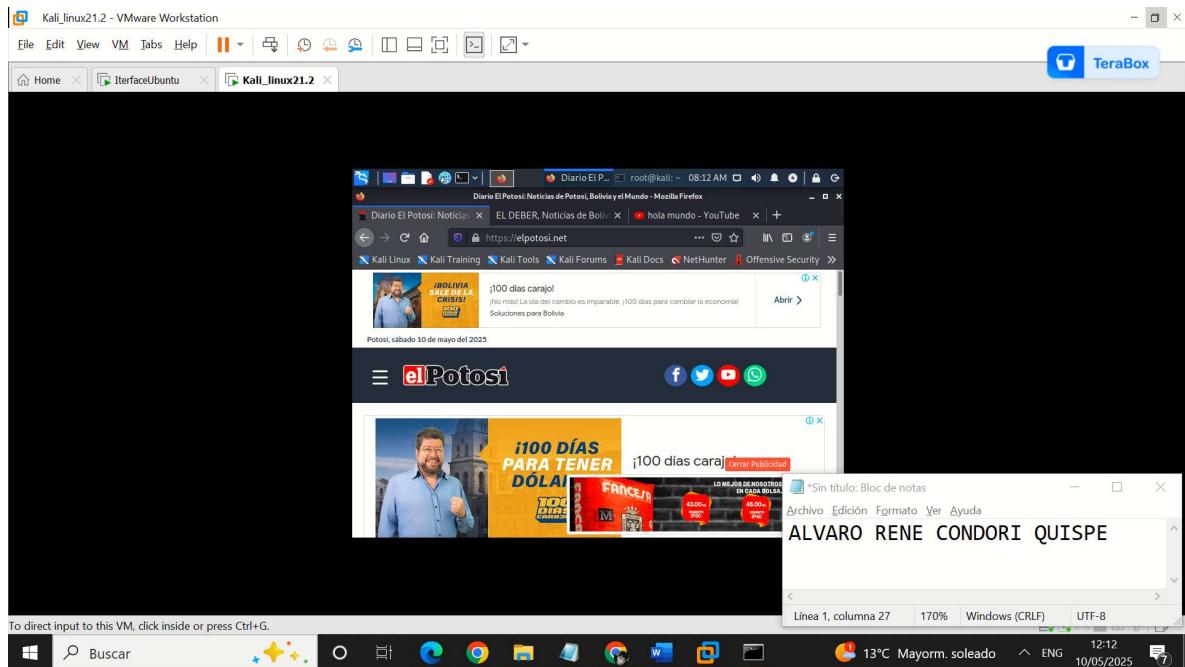
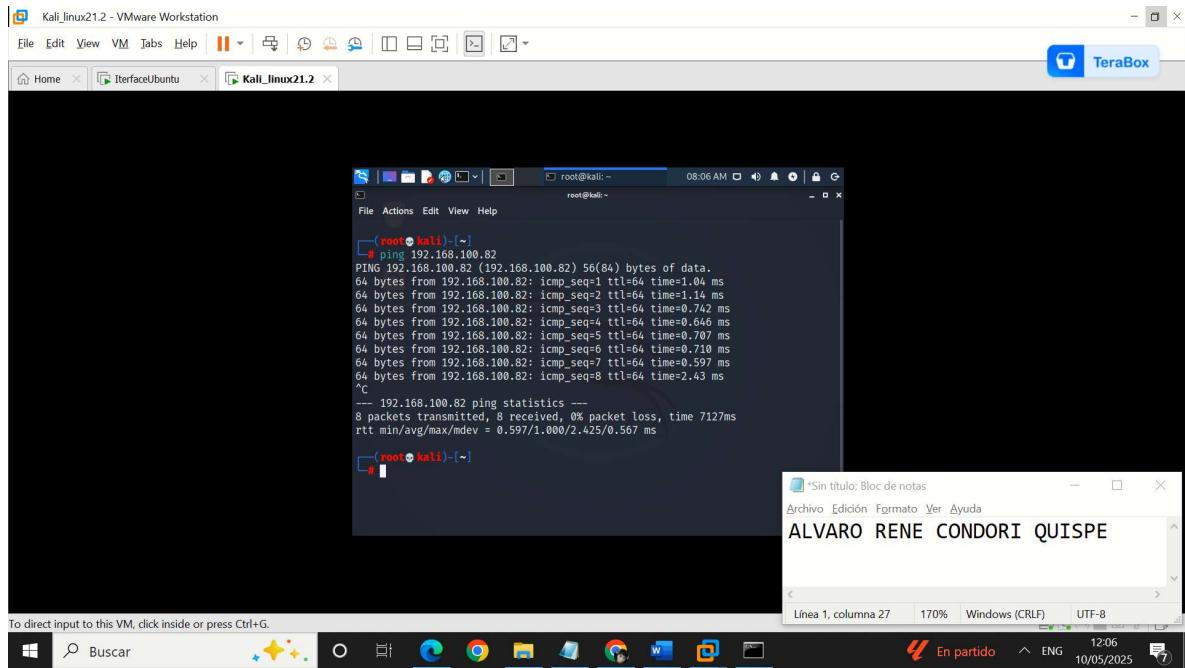
Estadísticas de ping para 192.168.100.82:
Paquetes: enviados = 4, recibidos = 0, perdidos = 4
(100% perdidos).

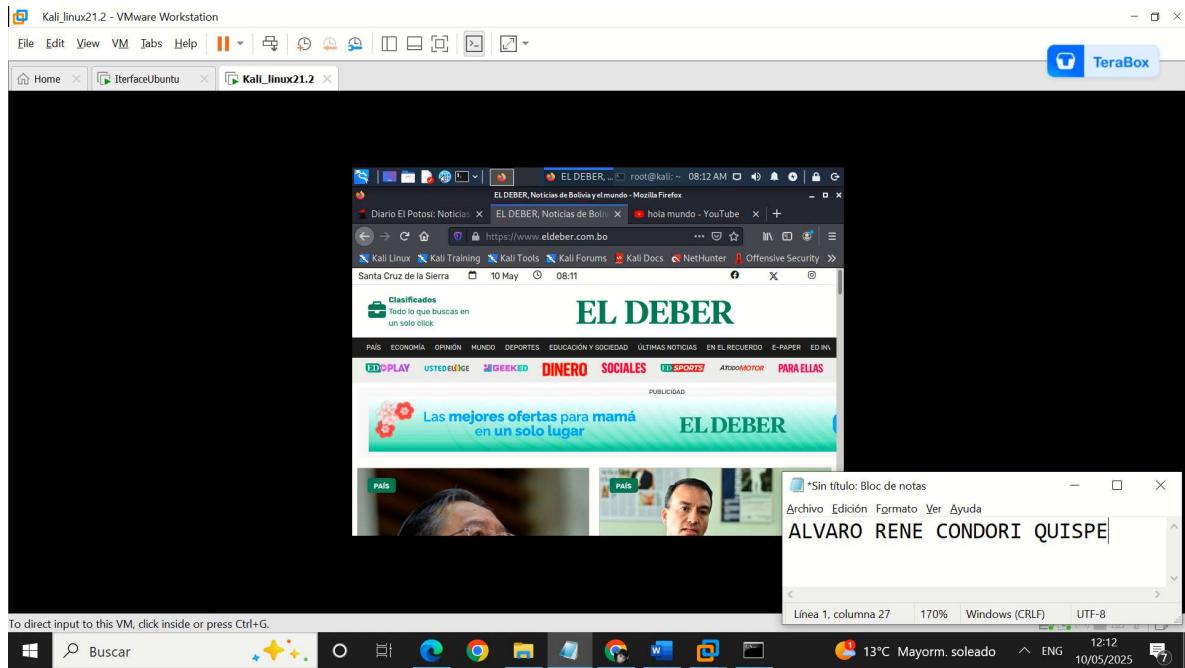
C:\Users\USER>

 *Sin título: Bloc de notas —
Archivo Edición Formato Ver Ayuda
ALVARO RENE CONDORI QUISPE



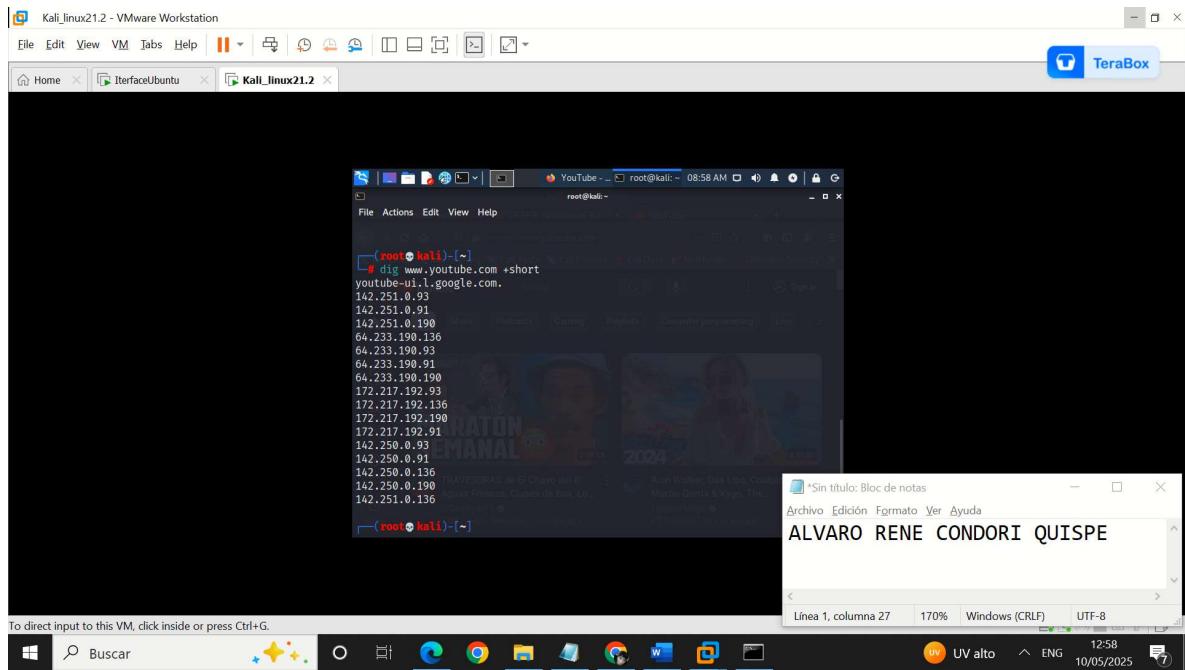




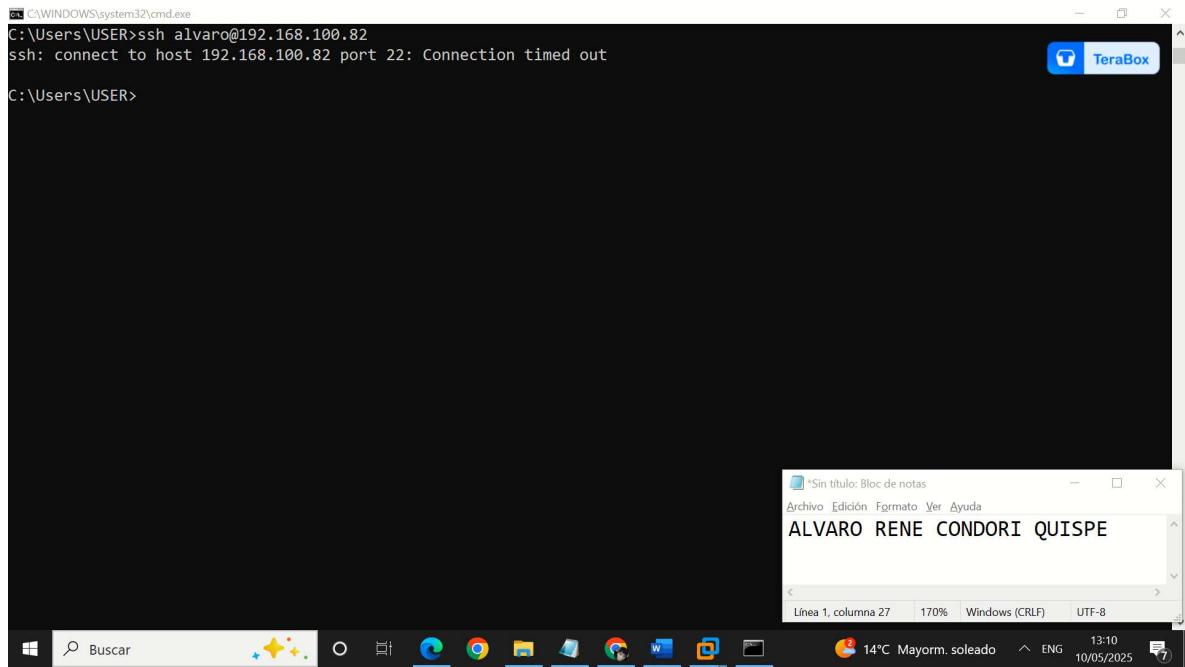


Pregunta 1 acceso a YouTube

Si tengo acceso a YouTube, pero el resultado deveria ser que no tenga acceso a YouTube, porque las reglas iptables bloquean el tráfico saliente por los puertos 80 y 443, a pesar de que la dirección MAC esta permitida por arptables. Pero sigue funcionando, esto pasa porque el scrip no esta bloqueando todas las ips que usa YouTube ya que esta misma responde a muchas direcciones ip diferentes



Pregunta 2



No tengo acceso ssh a la máquina de Ubuntu pero esto no debería pasar ya que en el script no se esta bloqueando el puerto 22

Evaluacion

Pregunta 1

saddr significa **source address** (dirección de origen).

daddr significa **destination address** (dirección de destino).

Y se usan en las reglas de nftables para **filtrar tráfico** según la dirección IP de origen o destino

Pregunta 2

La prioridad de una cadena en nftables determina el orden en que se ejecutan las cadenas que usan el mismo *hook* como input, output o forward. Las cadenas con prioridad más baja como los numeros negativos ejecutan primero. Establecer correctamente la prioridad es importante porque las decisiones tomadas en cadenas anteriores pueden evitar que se evalúen las siguientes reglas, afectando el comportamiento y la seguridad del sistema.