

**ESTUDIANTE**

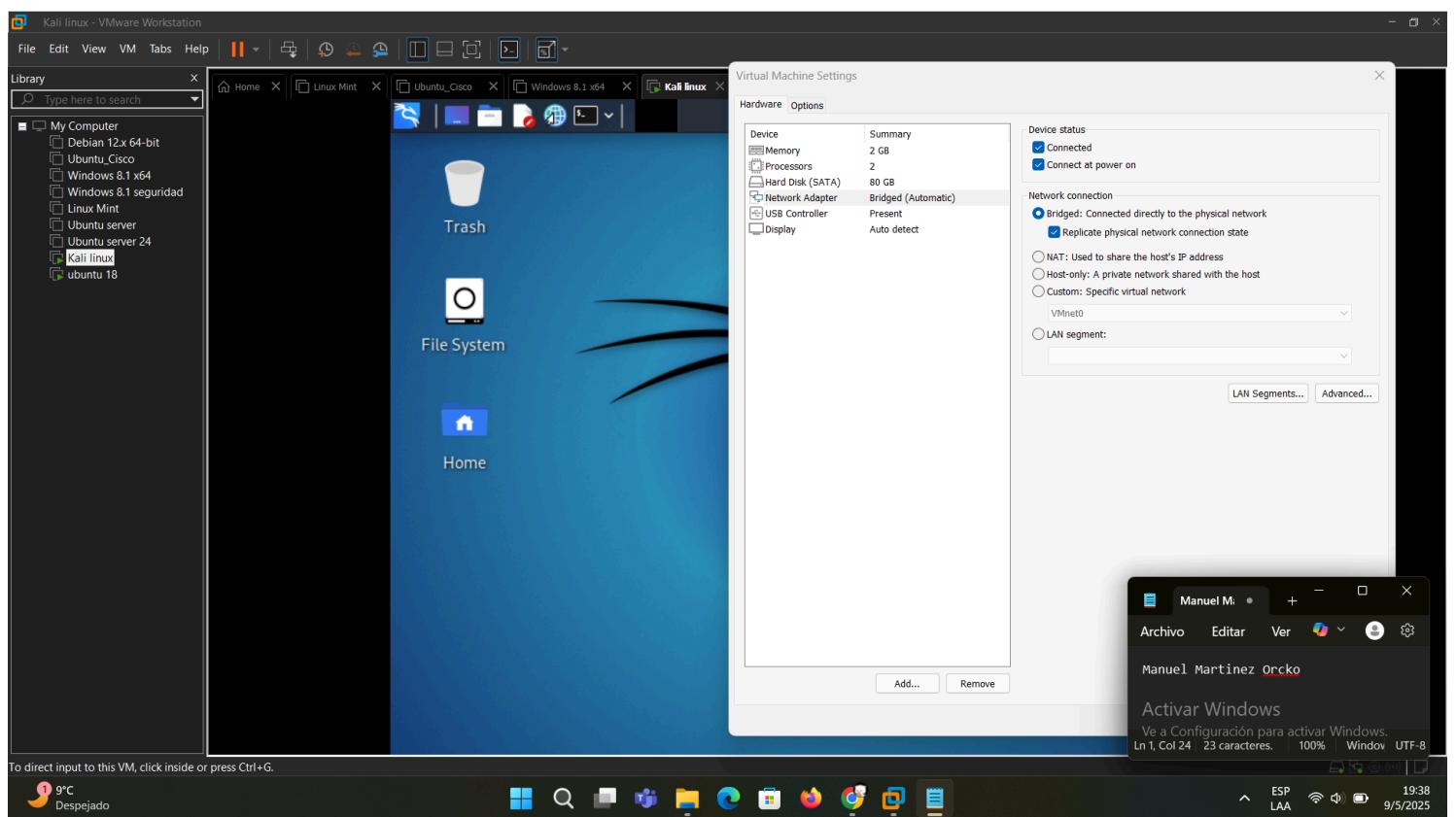
Univ. Manuel Martinez Orcko CI: 8623998 – RU: 110608

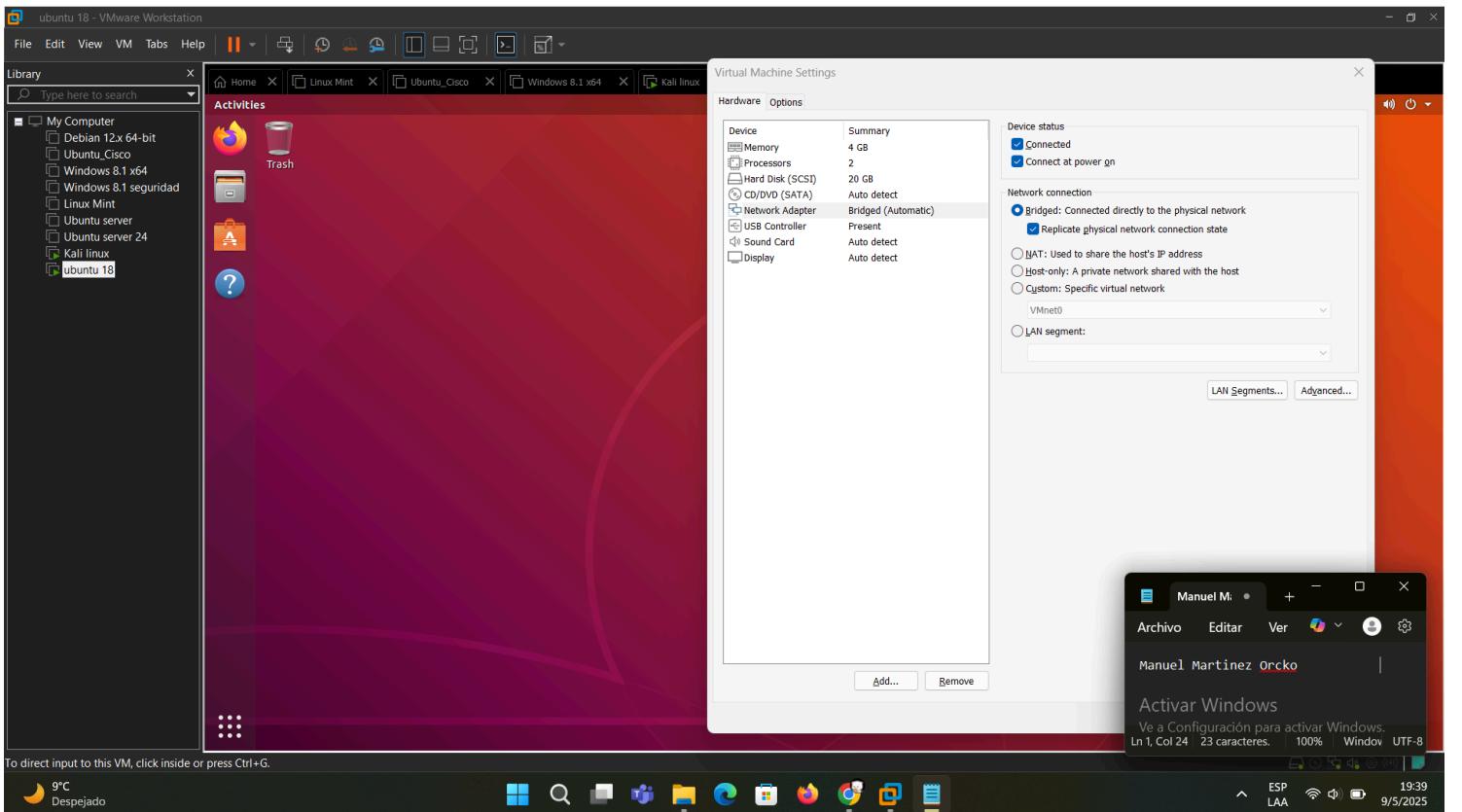
**DOCENTE**

Ing. Alexander Javier Duran Miranda

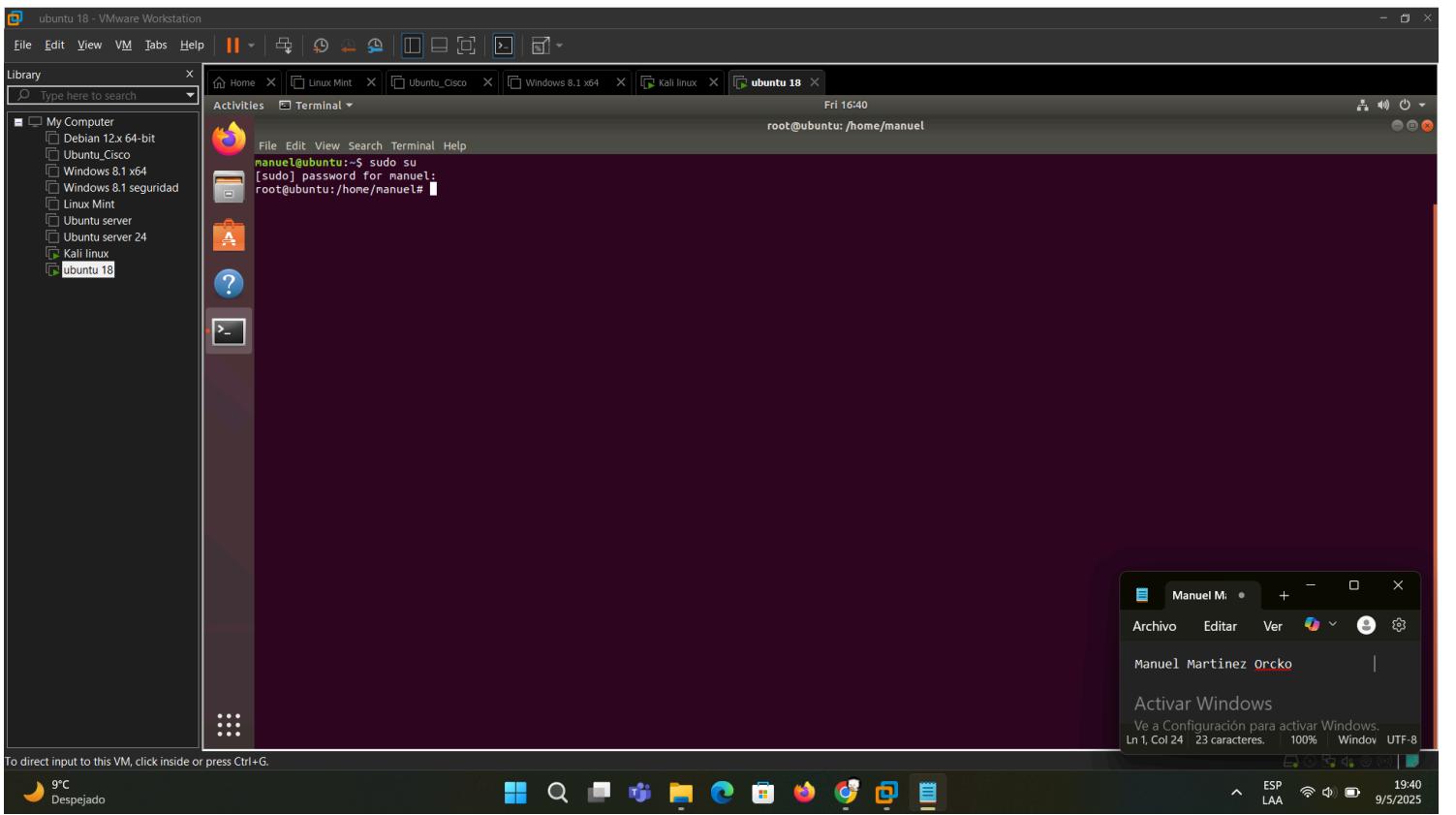
**AUXILIAR**

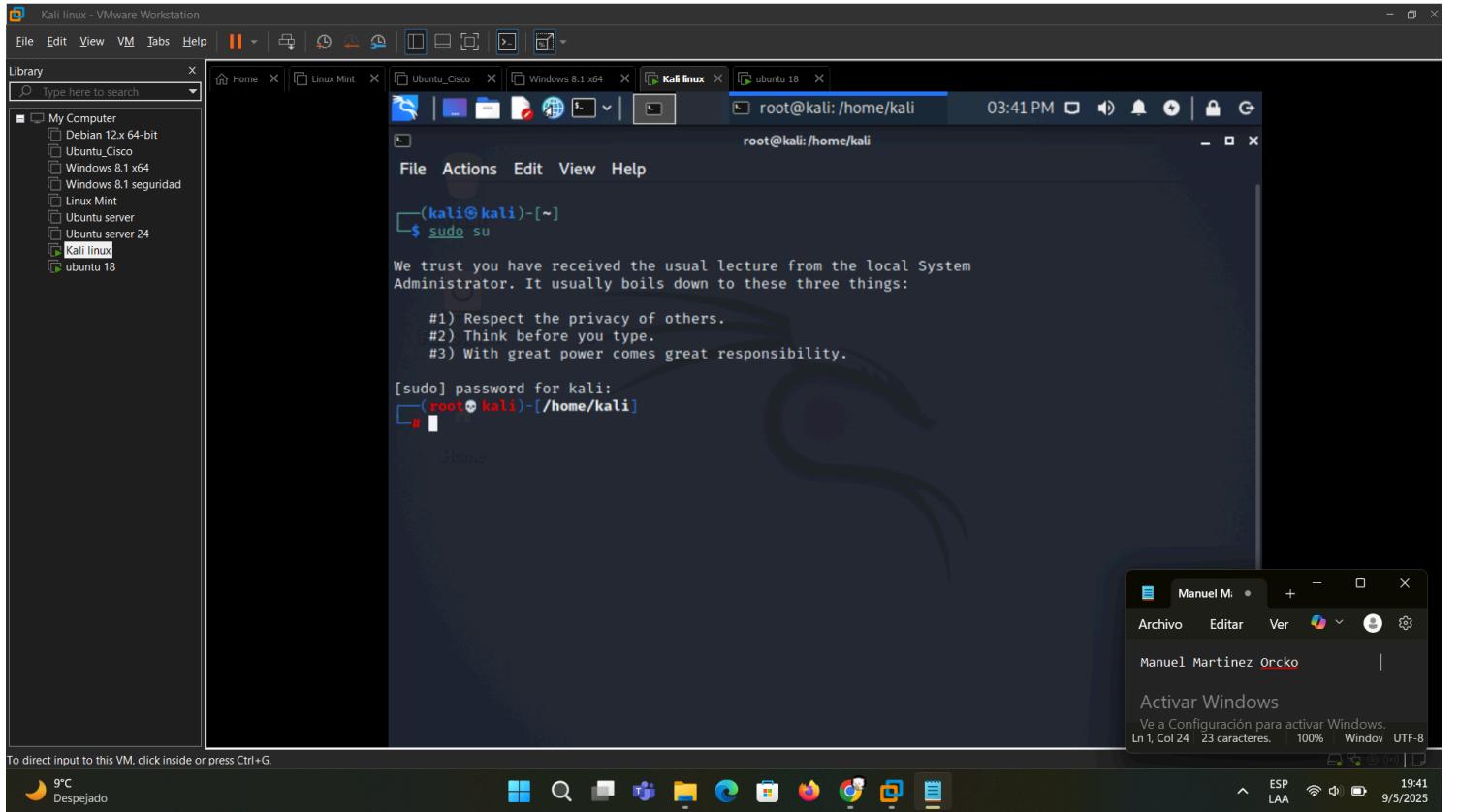
Univ. Aldrin Roger Pérez Miranda



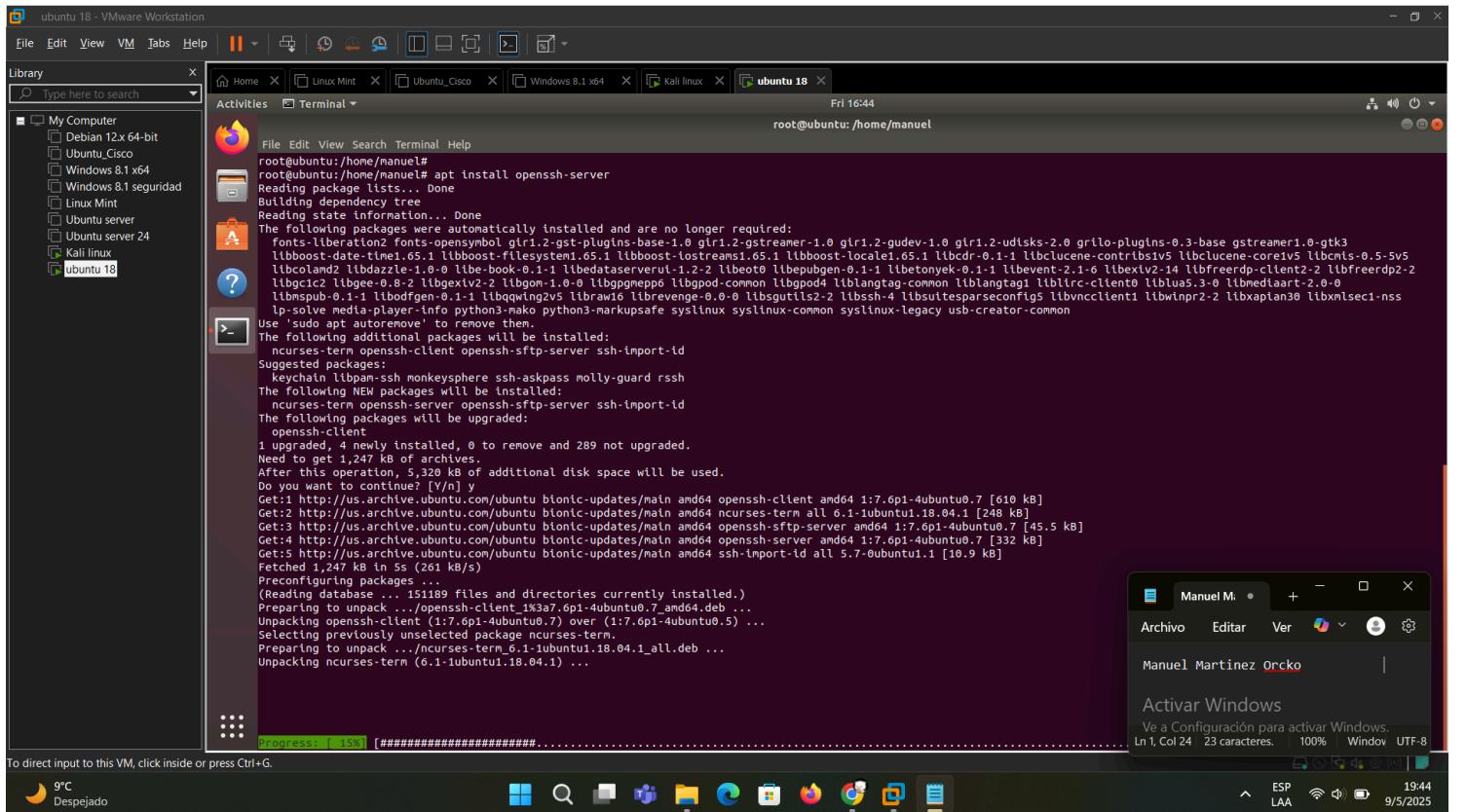


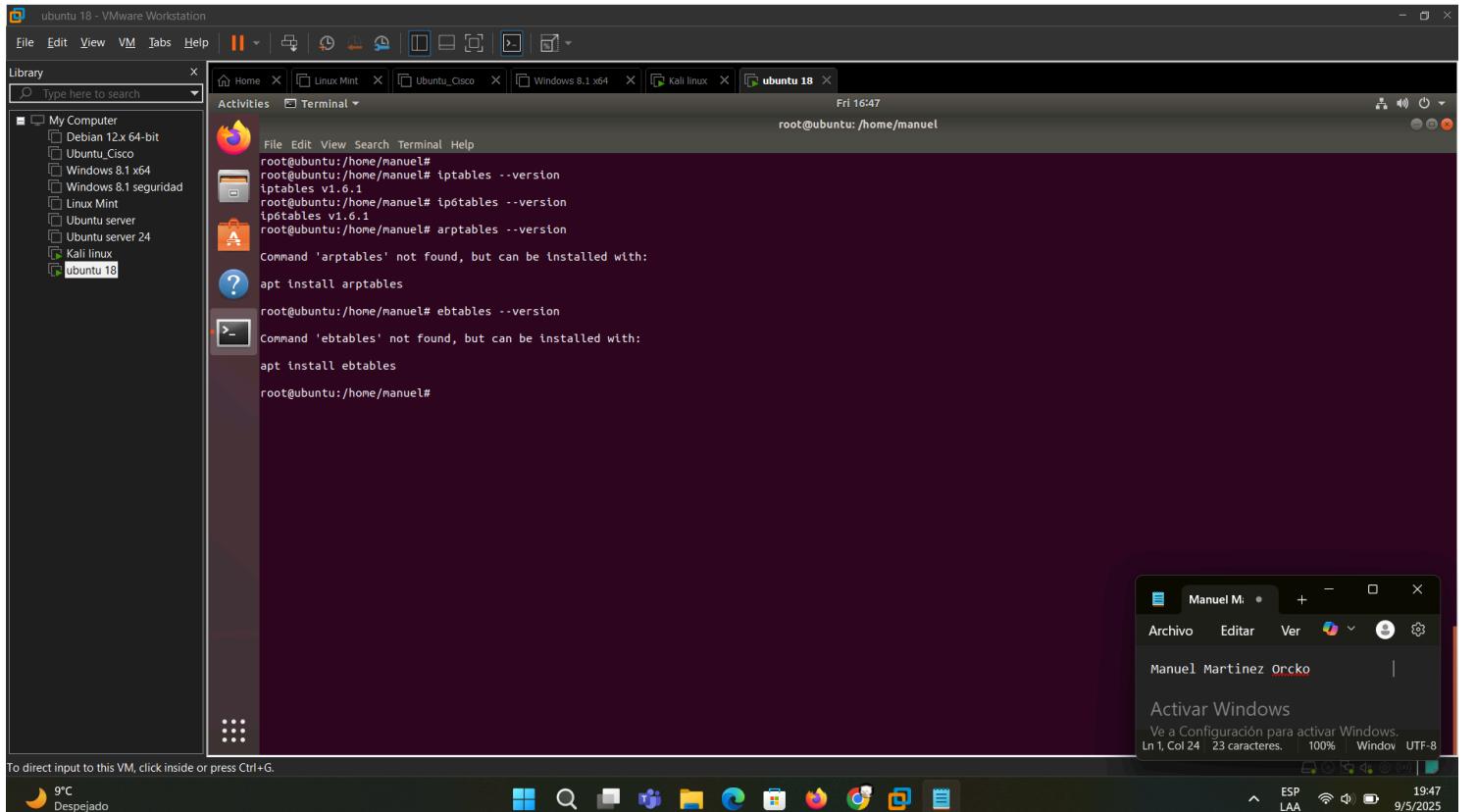
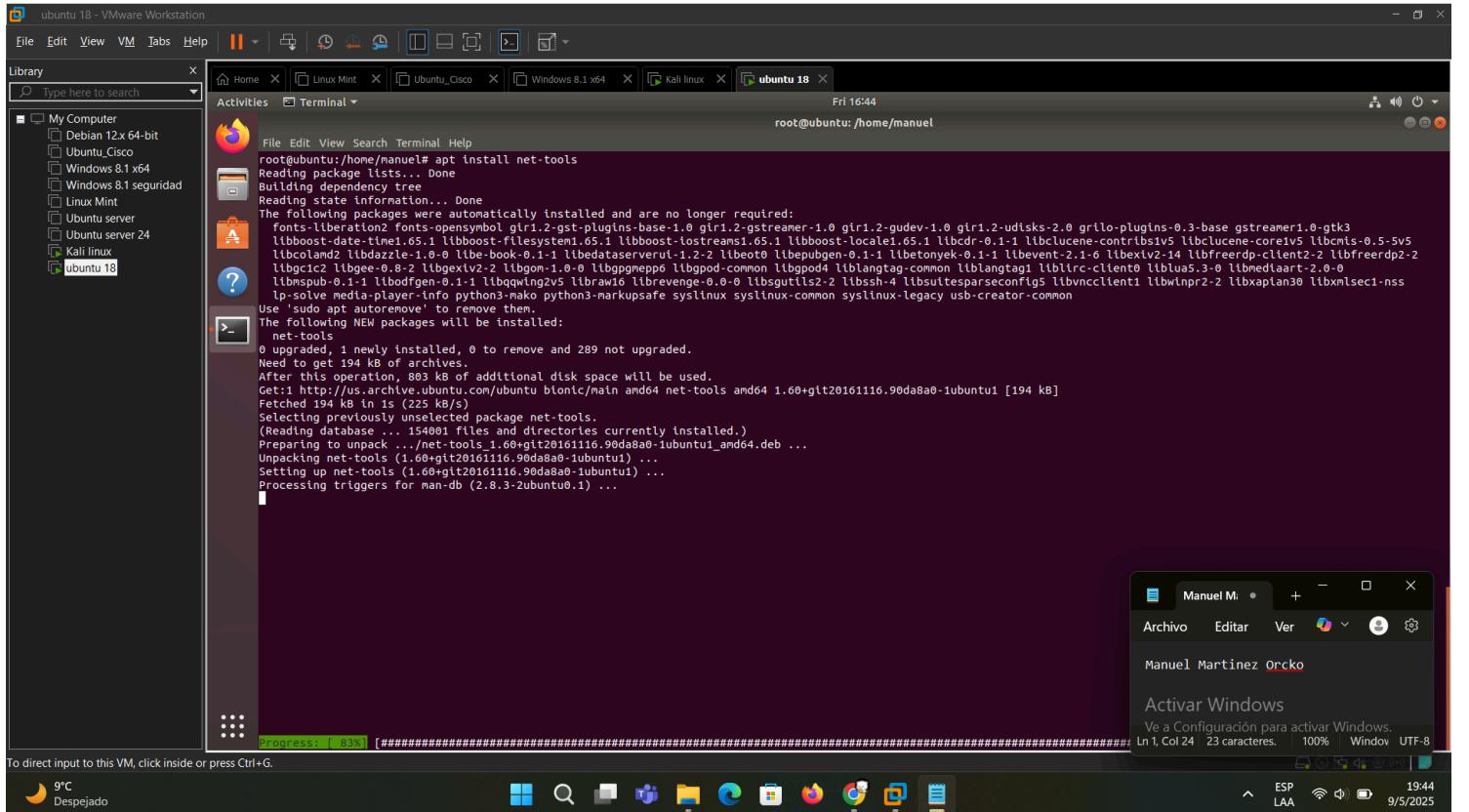
## PASO 1

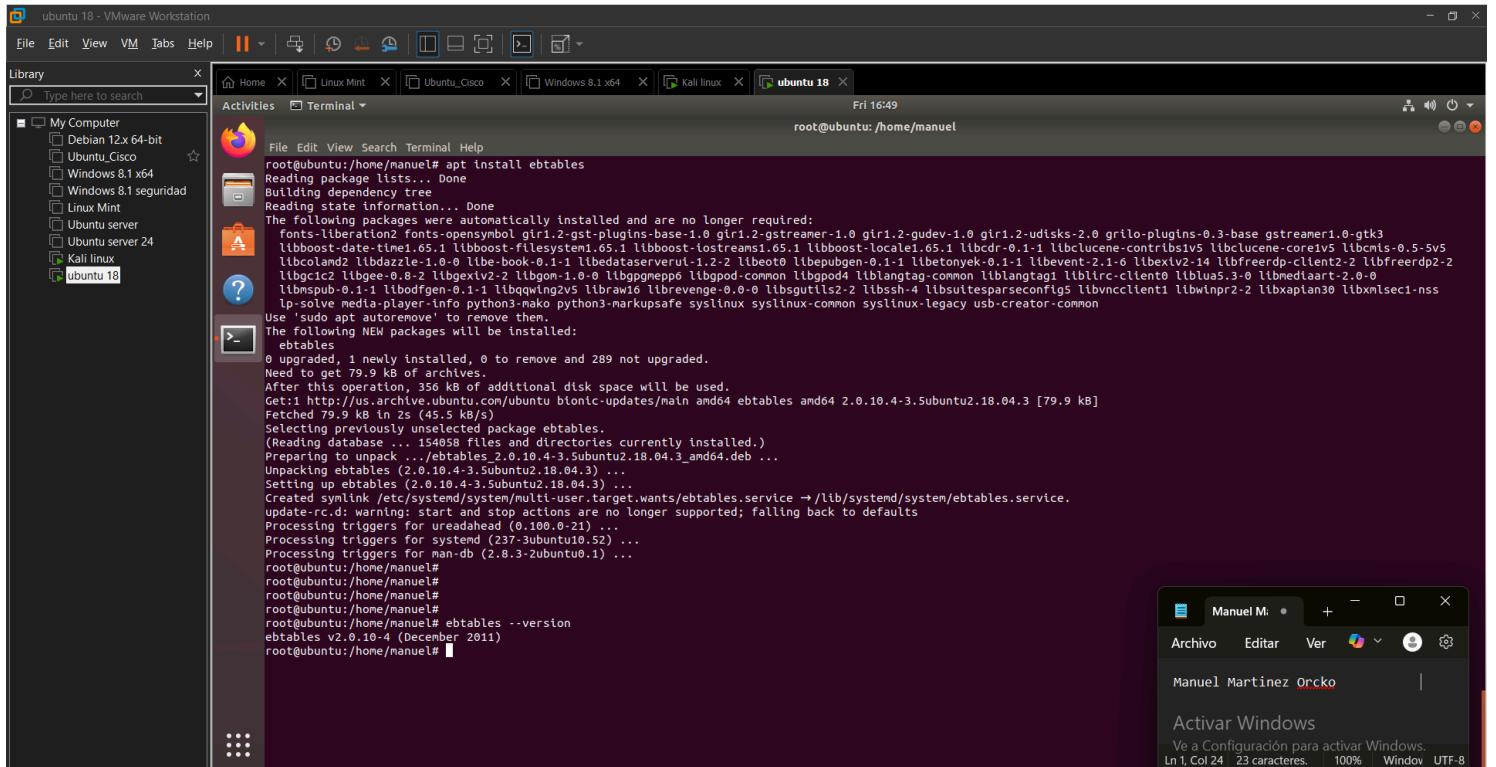
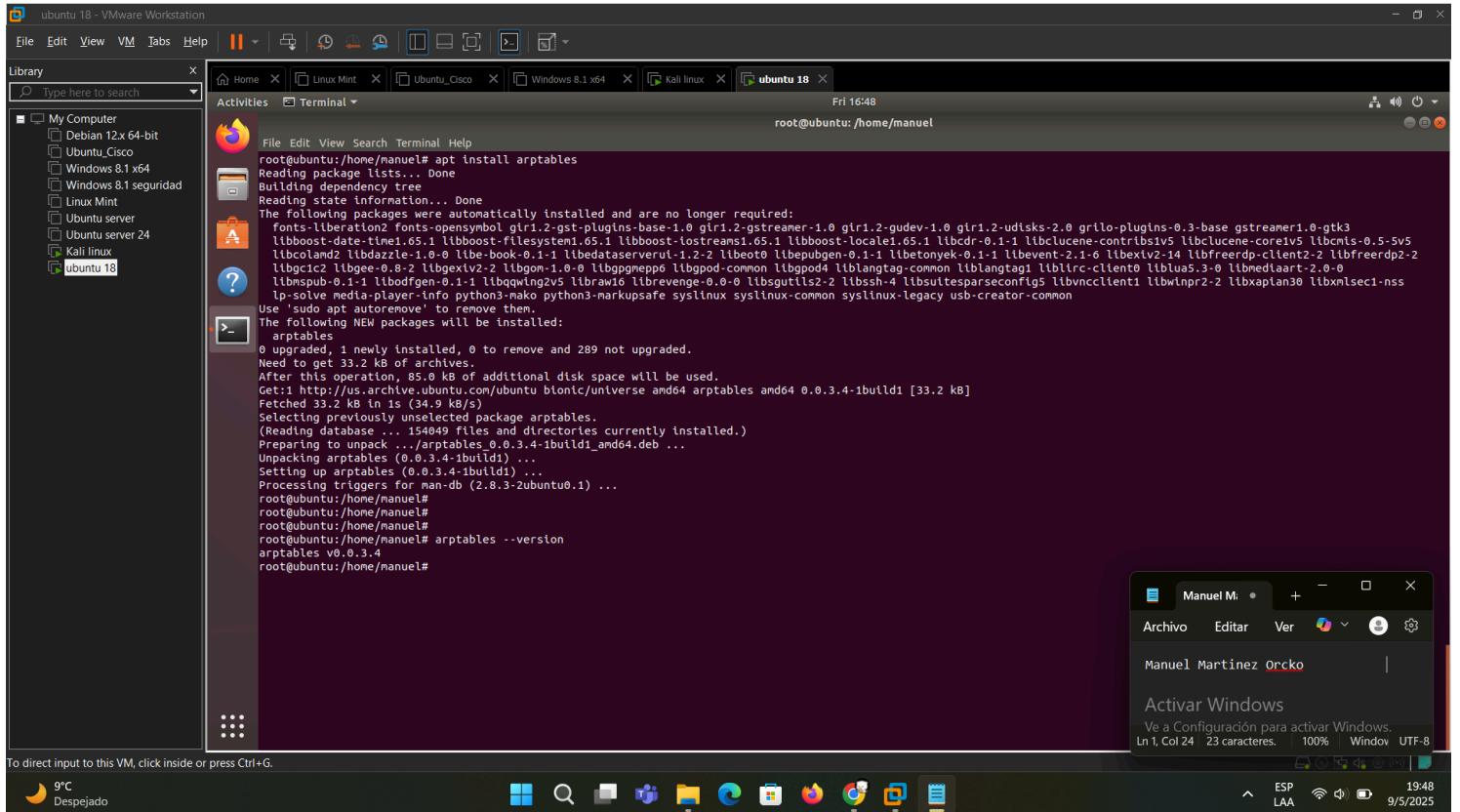


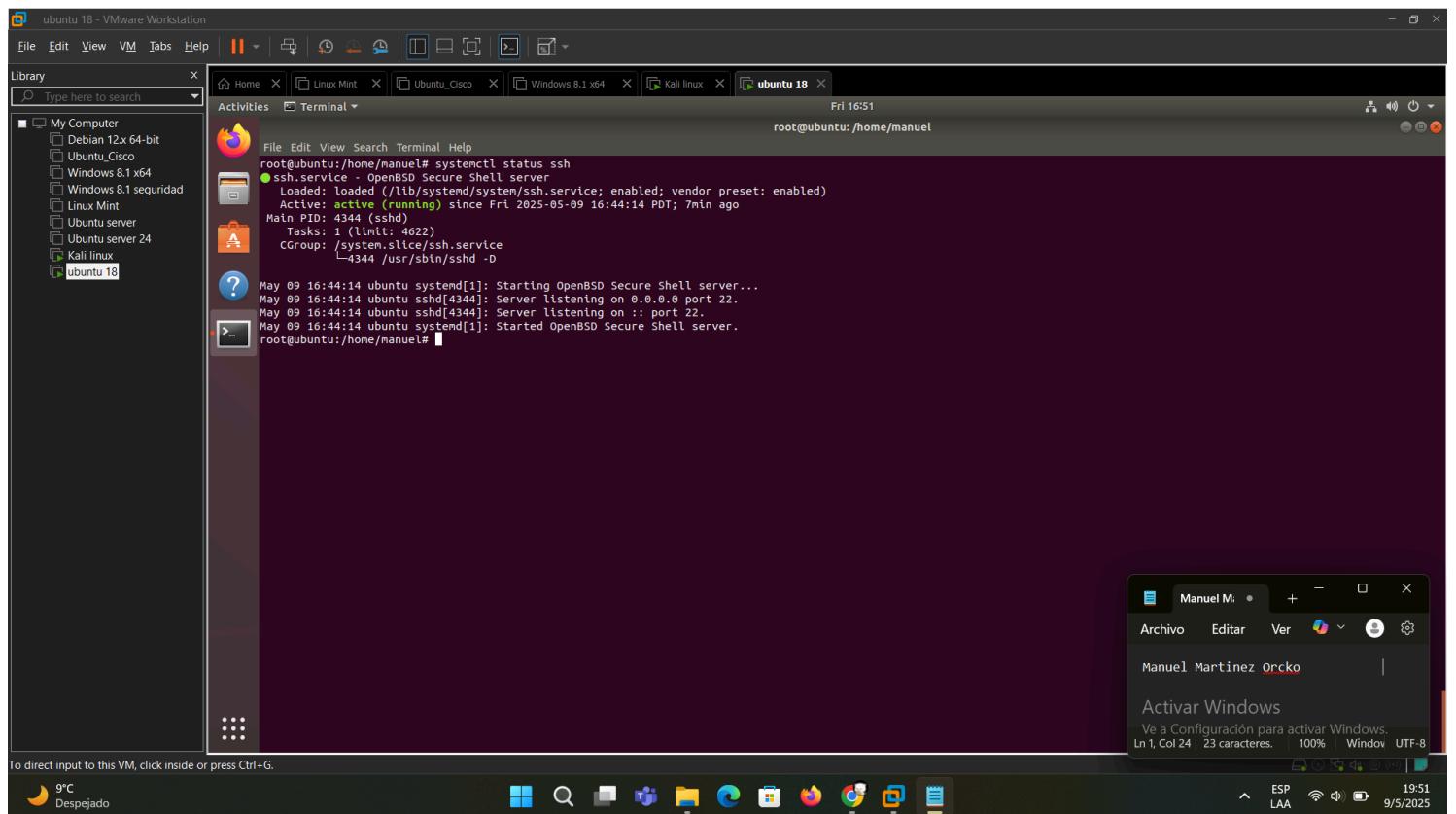


## PASO 2

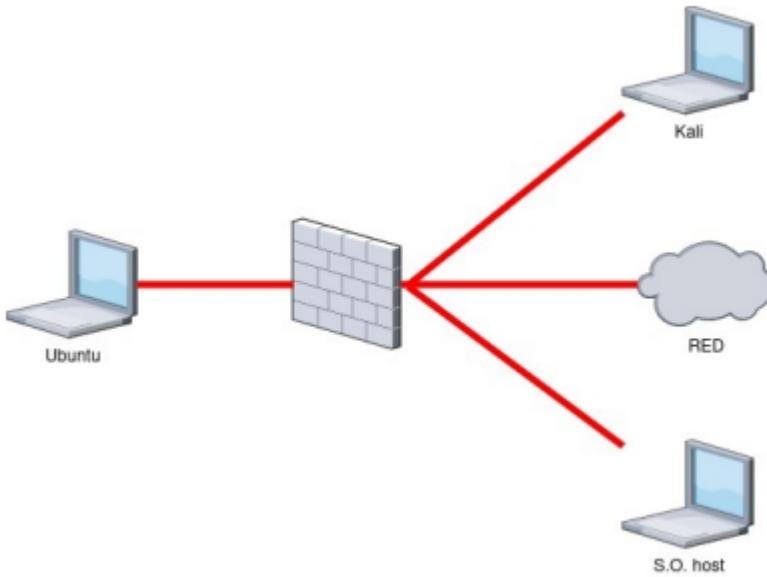




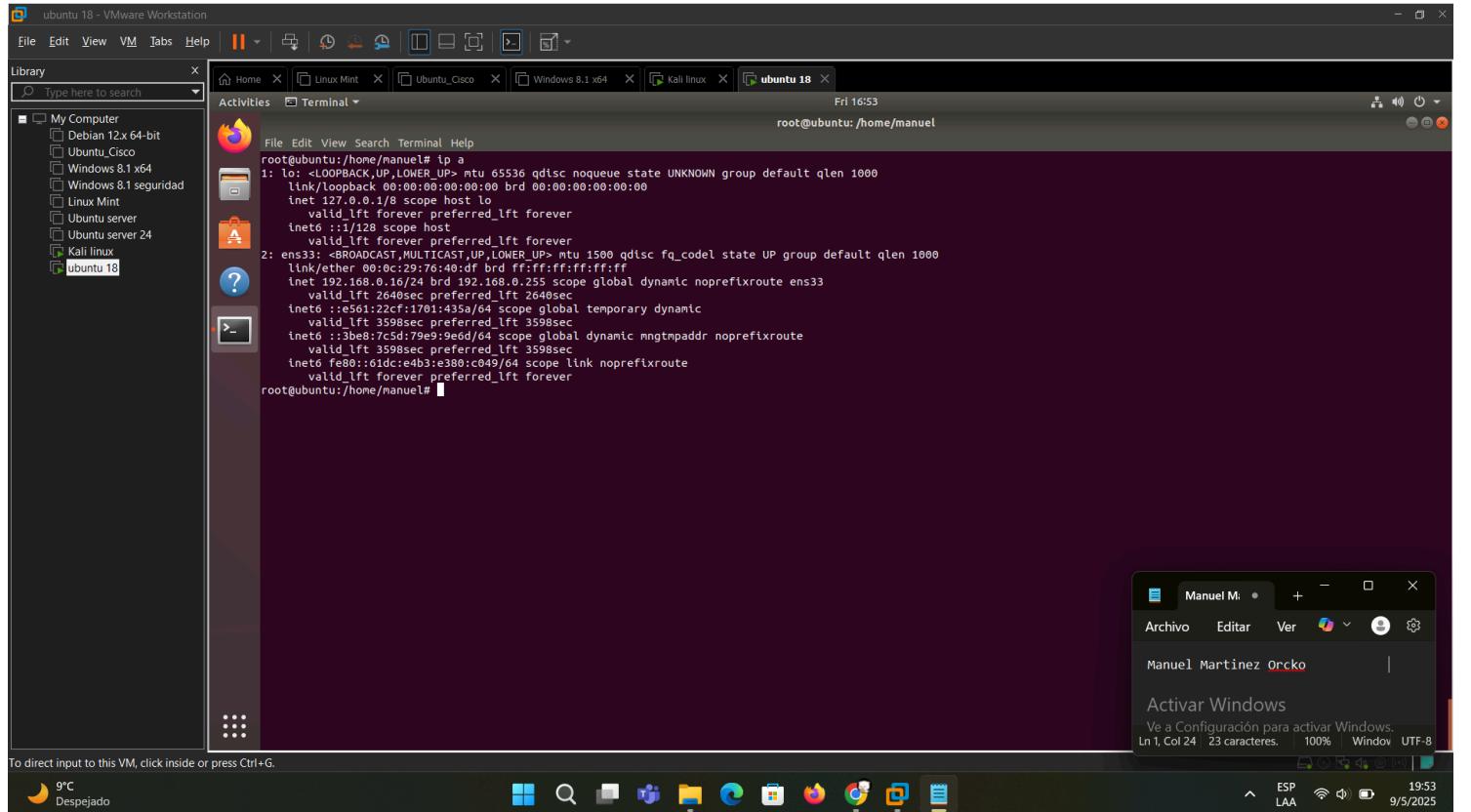




## PARTE 3



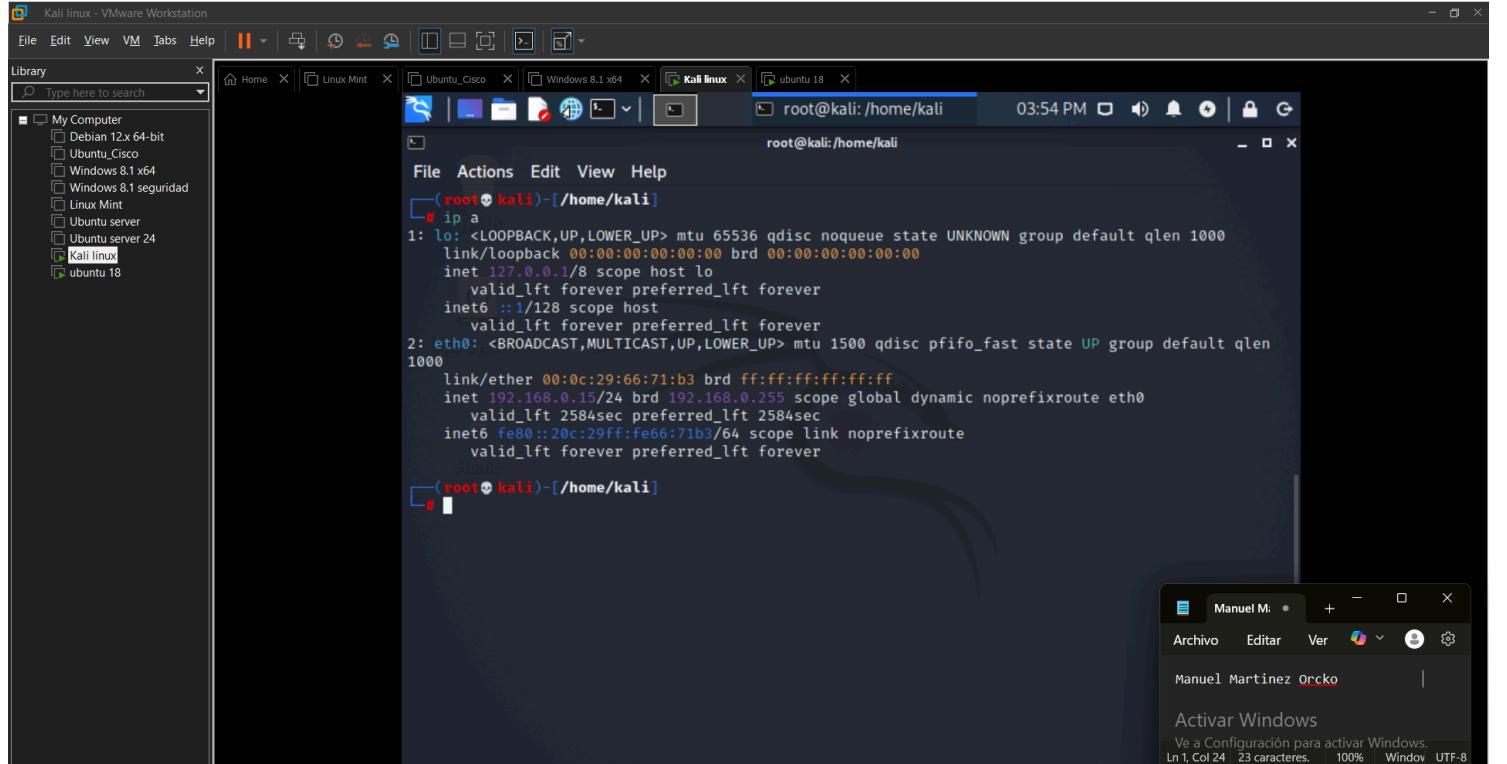
## PARTE 4



To direct input to this VM, click inside or press Ctrl+G.

9°C Despejado

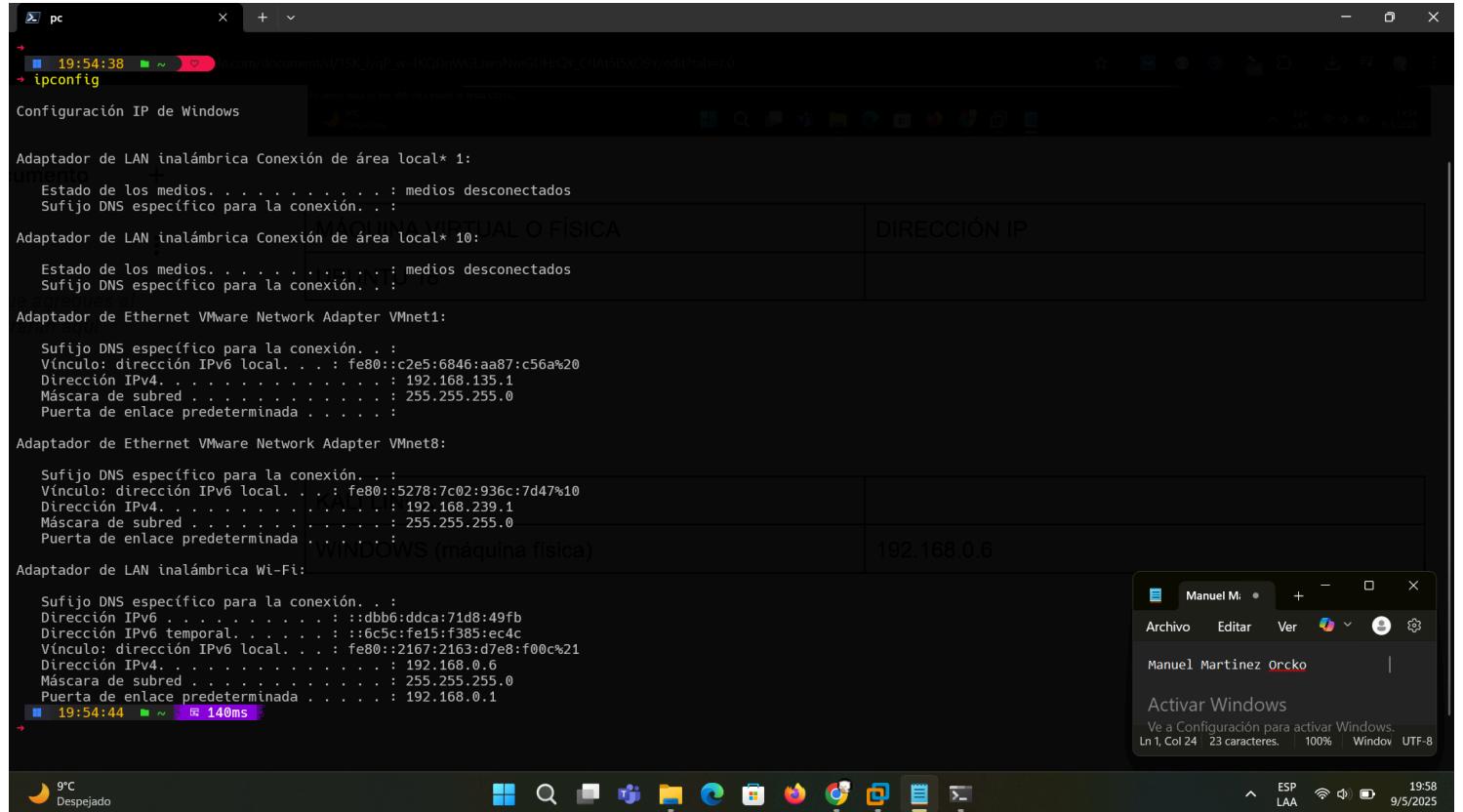
19:53



To direct input to this VM, click inside or press Ctrl+G.

9°C Despejado

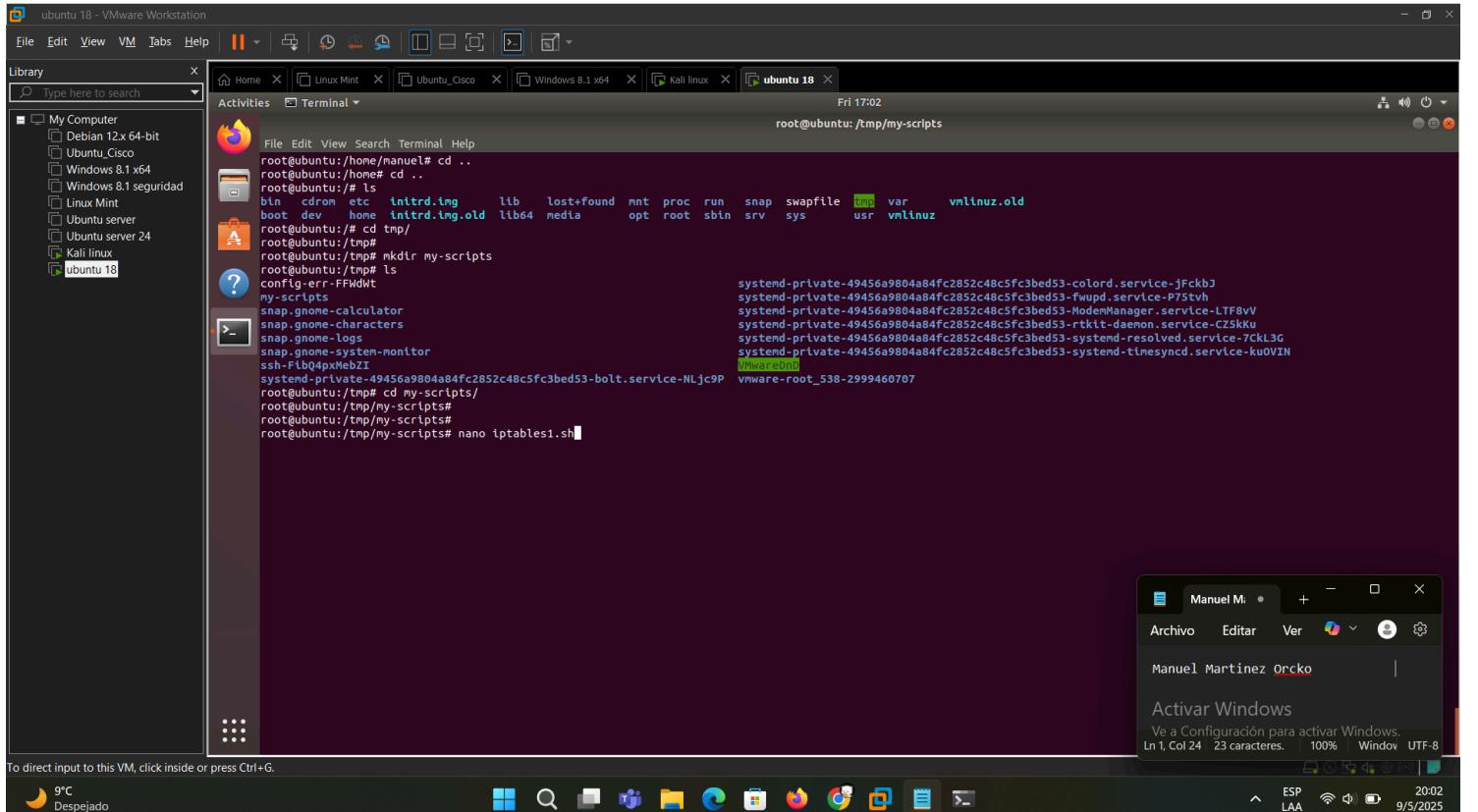
19:54



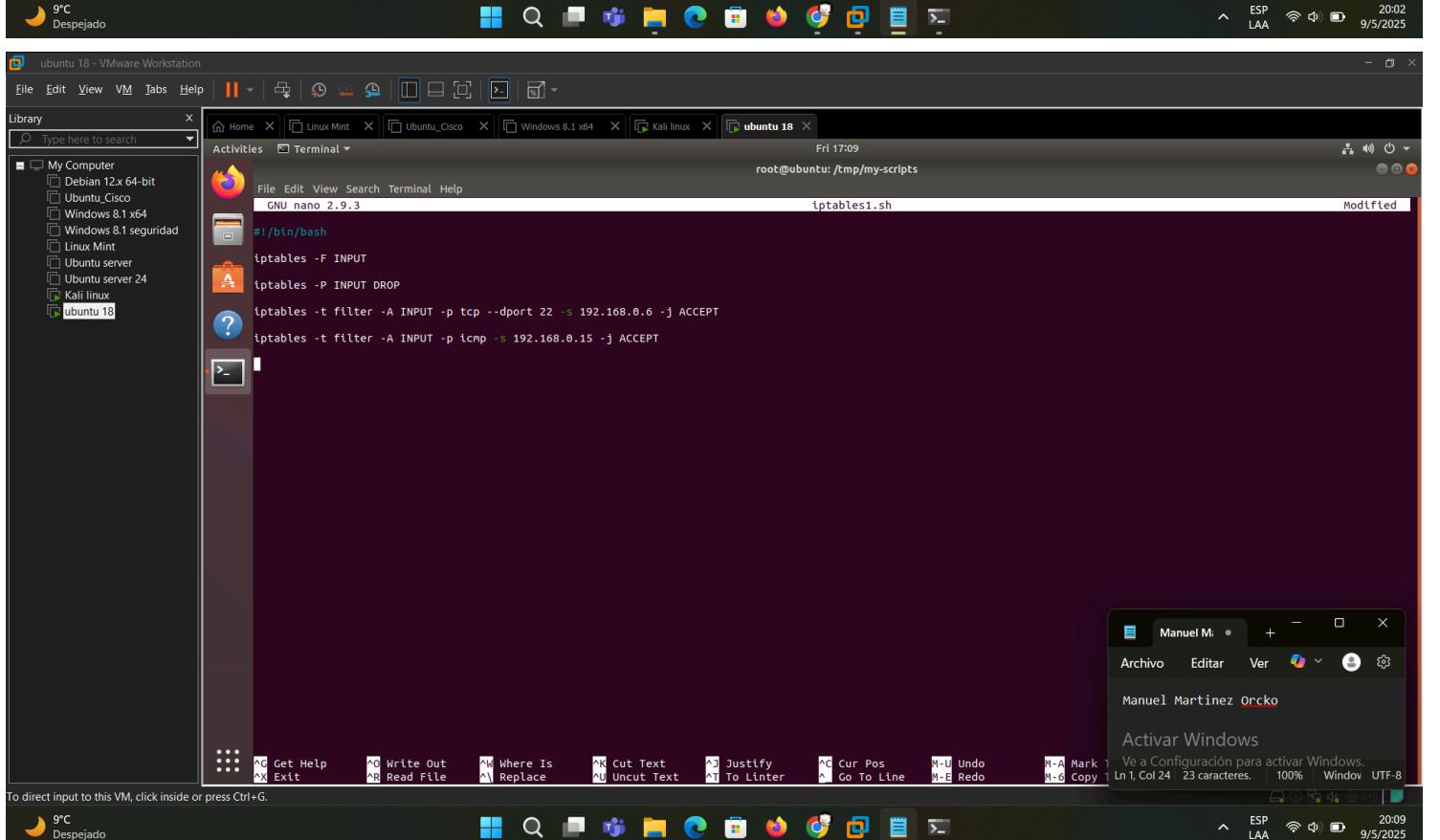
MÁQUINA VIRTUAL O FÍSICA	DIRECCIÓN IP
UBUNTU 18	192.168.0.16
KALI LINUX	192.168.0.15
WINDOWS (máquina física)	192.168.0.6

## PARTE 1

### Escenario 1: IPTABLES



To direct input to this VM, click inside or press Ctrl+G.



To direct input to this VM, click inside or press Ctrl+G.



20:02  
9/5/2025

9°C  
Despejado

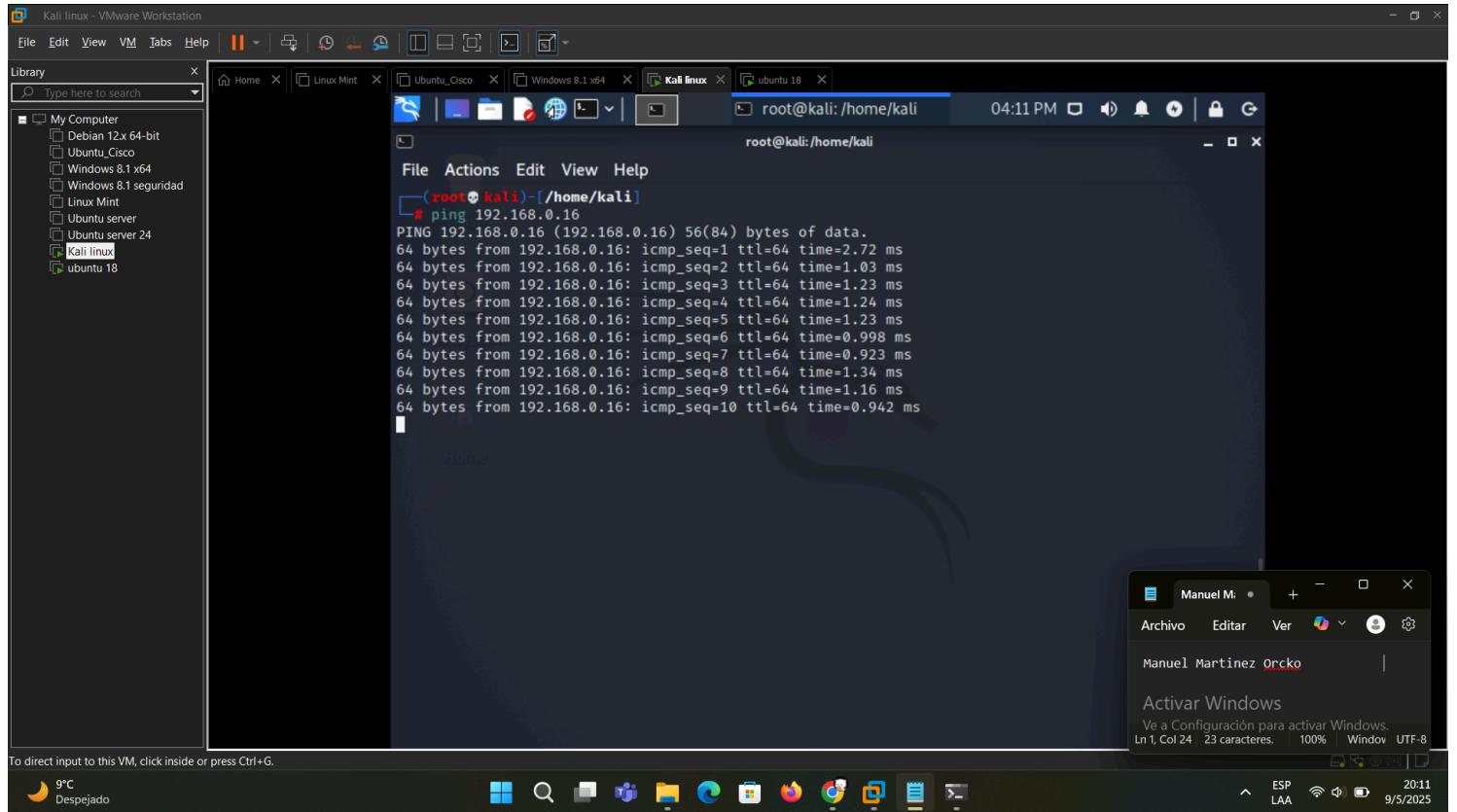
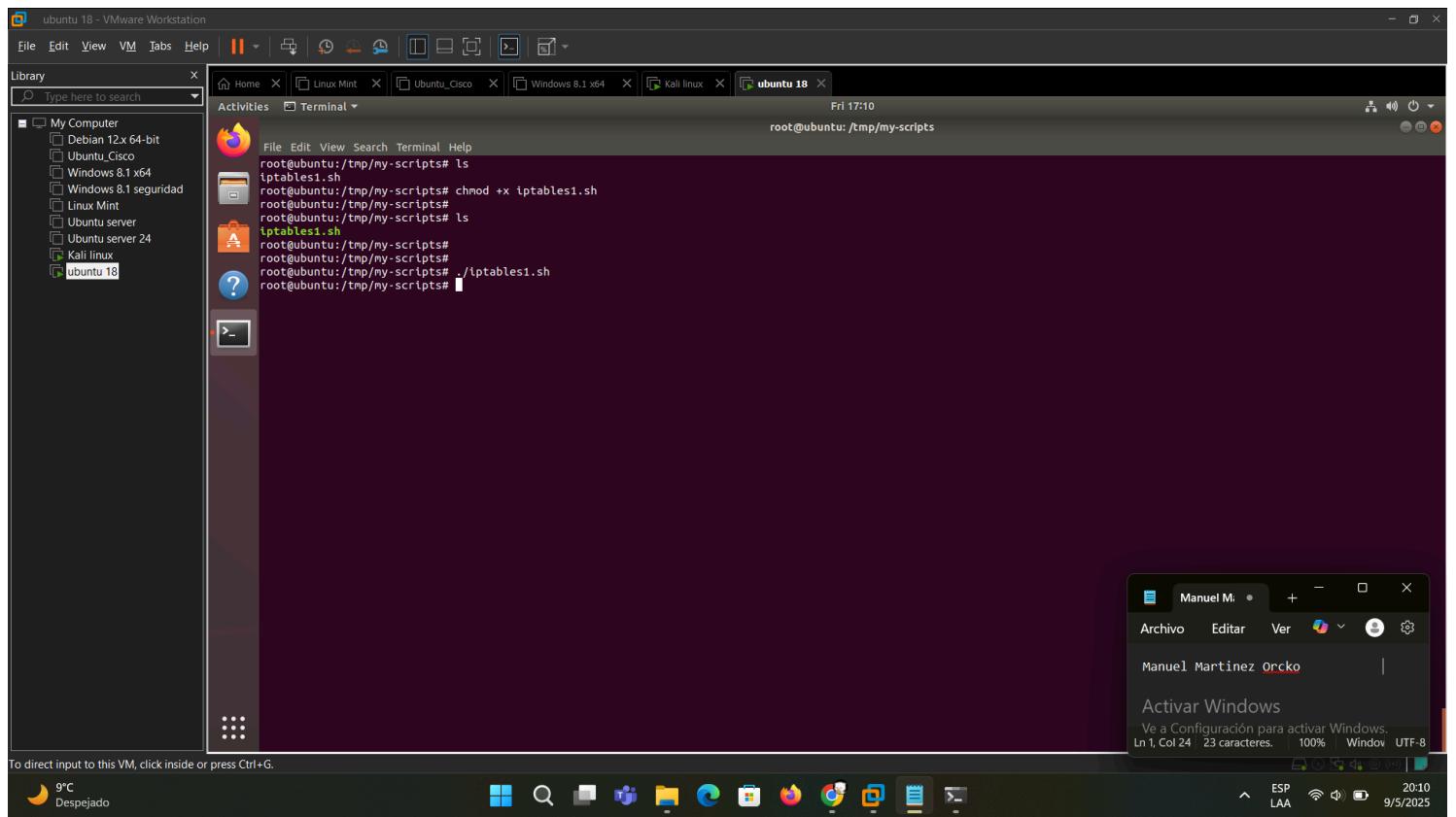
Get Help Write Out Where Is Cut Text Justify Cur Pos Undo

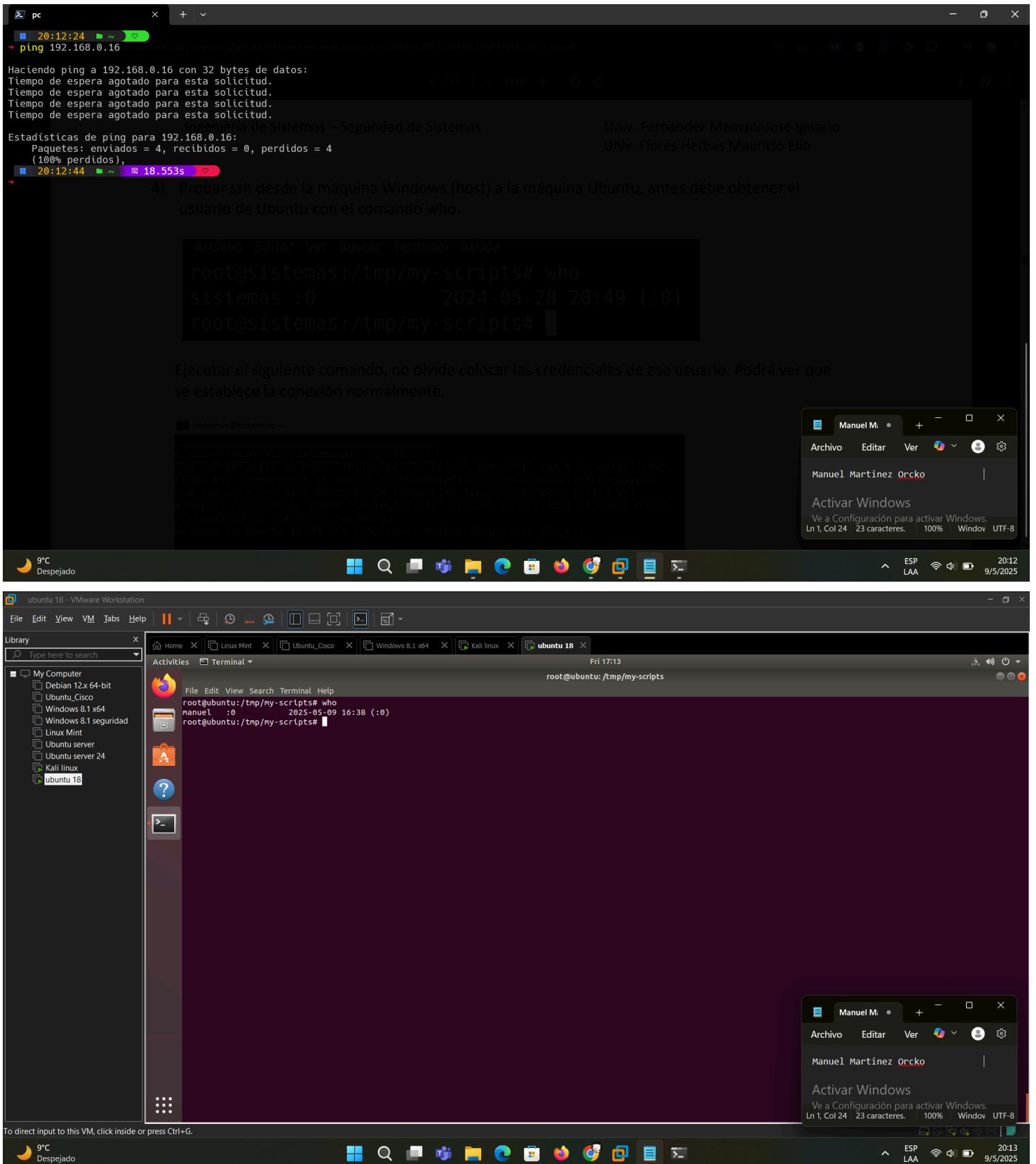
Mark Copy

Write Out Read File Replace Uncut Text To Linter Go To Line Undo

Copy Paste Find All Go To Line Undo

20:09  
9/5/2025





```
manuel@ubuntu: ~ 20:14:00 + - x
↳ ssh manuel@192.168.0.16
The authenticity of host '192.168.0.16 (192.168.0.16)' can't be established.
ED25519 key fingerprint is SHA256:2UawYr/QFt9vJ0fTeXg2CZGiITjvaZLrozLpGHgawI.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? y
Please type 'yes', 'no' or the fingerprint: yes
Warning: Permanently added '192.168.0.16' (ED25519) to the list of known hosts.
manuel@192.168.0.16's password:
Welcome to Ubuntu 18.04.6 LTS (GNU/Linux 5.4.0-150-generic x86_64)

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

286 updates can be applied immediately.
250 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable
Your Hardware Enablement Stack (HWE) is supported until April 2023.

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

manuel@ubuntu:~$
```

```
manuel@ubuntu: ~ 20:14:00 + - x
↳ canonical-livespatch is available for installation.
  - Reduce system reboots and improve kernel security. Activate at:
    https://ubuntu.com/livespatch

Pueden actualizarse 317 paquetes.
317 actualizaciones son de seguridad.

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

manuel@ubuntu:~$
```

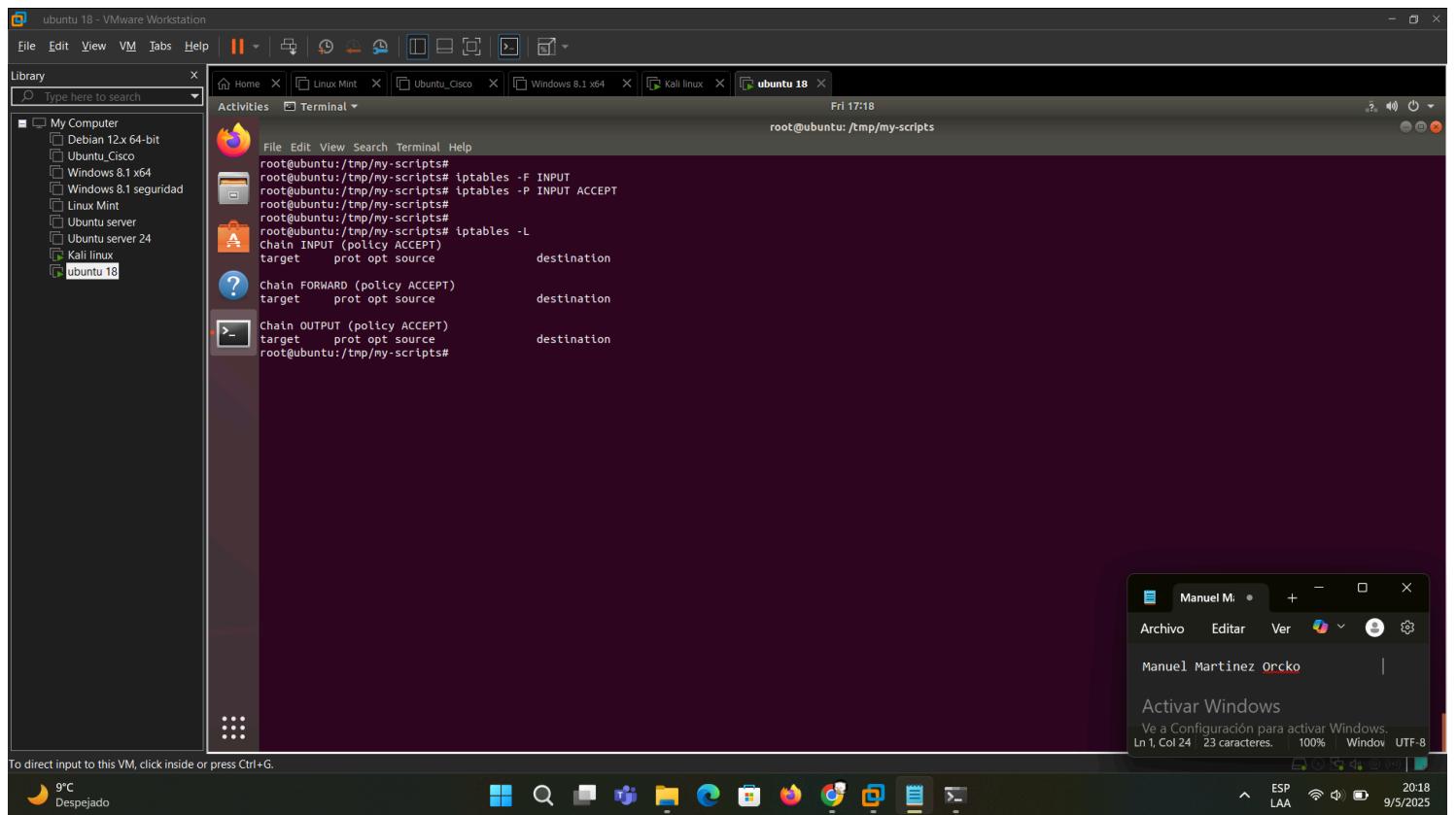
```
manuel@ubuntu: ~ 20:14:00 + - x
↳ Activar Windows
Vé a Configuración para activar Windows.
Ln 1, Col 24 | 23 caracteres. | 100% | Windows | UTF-8
```

```
9°C Despejado 20:14 9/5/2025
```

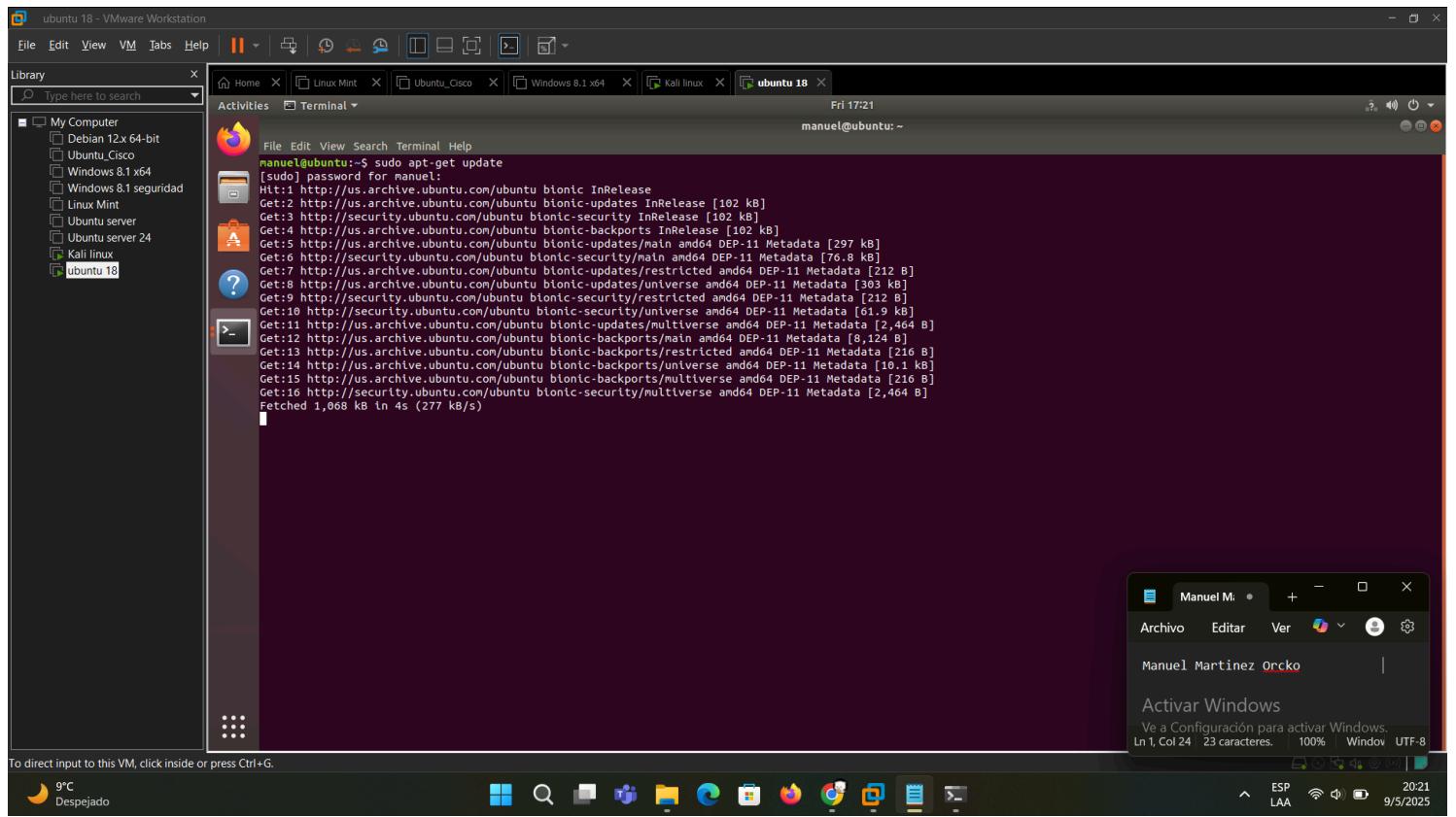
```
Kali linux - VMware Workstation
File Edit View VM Tabs Help || + - x
Library Type here to search
My Computer
  My Computer
    Debian 12x 64-bit
    Ubuntu.Cisco
    Windows 8.1 x64
    Windows 8.1 seguridad
    Linux Mint
    Ubuntu server
    Ubuntu server 24
    Kali linux
    ubuntu 18
Home X Linux Mint X Ubuntu_Cisco X Windows 8.1 x64 X Kali linux X ubuntu 18 X
root@kali:/home/kali 04:17 PM
File Actions Edit View Help
[root@kali ~]# ssh manuel@192.168.0.16
ssh: connect to host 192.168.0.16 port 22: Connection timed out
[root@kali ~]#
```

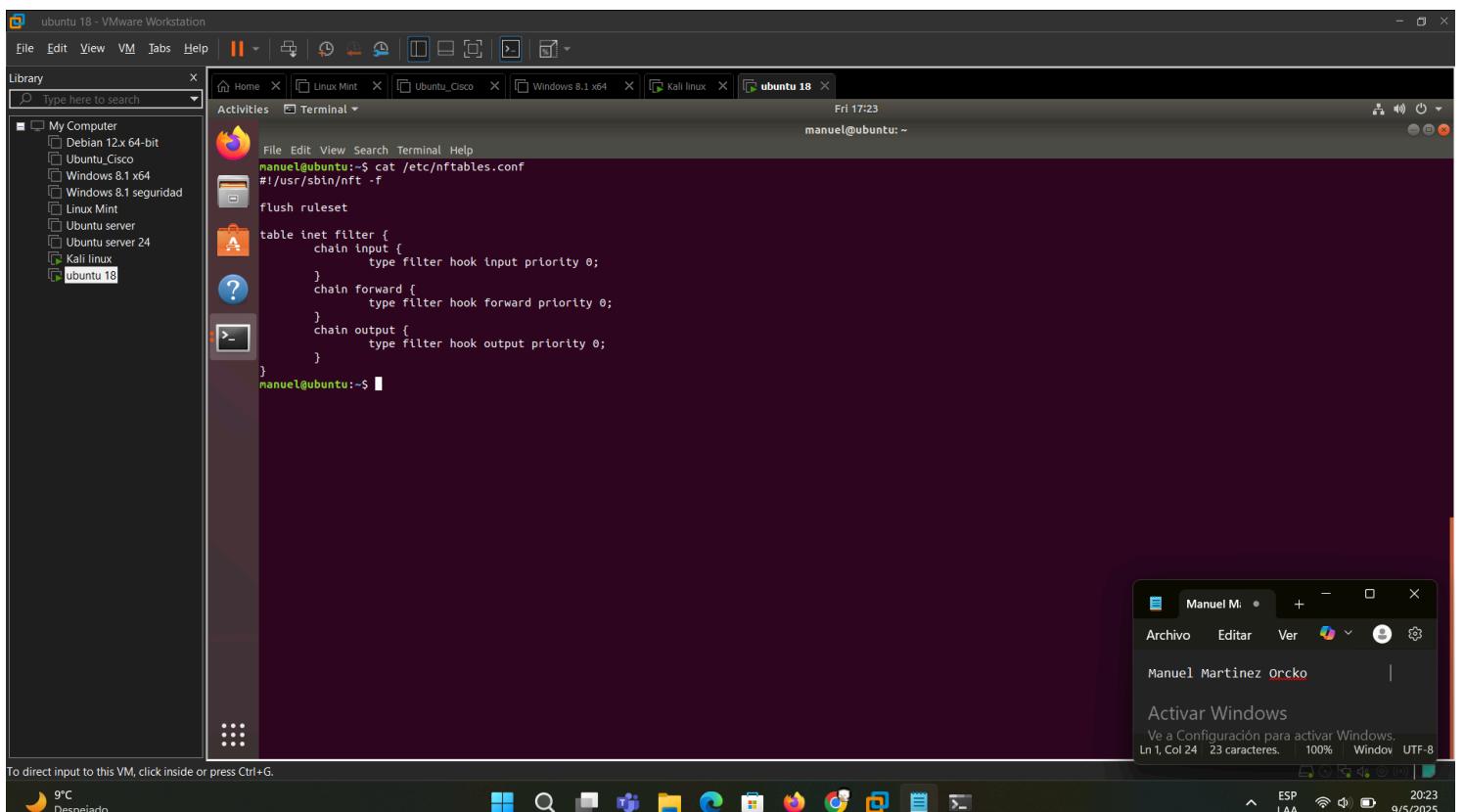
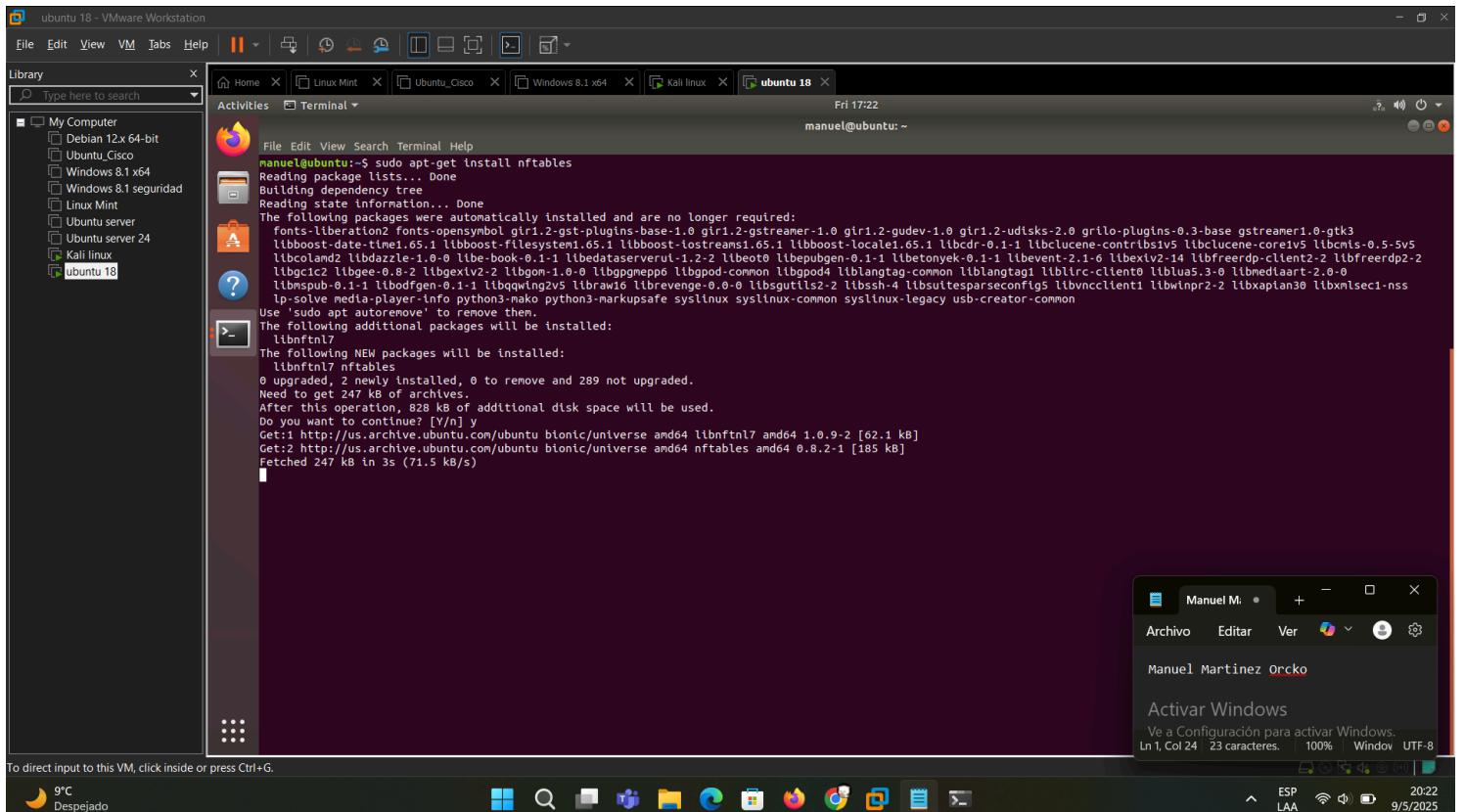
```
manuel@kali: ~ 20:14:00 + - x
Archivo Editar Ver ESP LAA WiFi 20:14 9/5/2025
Manuel Martinez Orcko
Activar Windows
Vé a Configuración para activar Windows.
Ln 1, Col 24 | 23 caracteres. | 100% | Windows | UTF-8
```

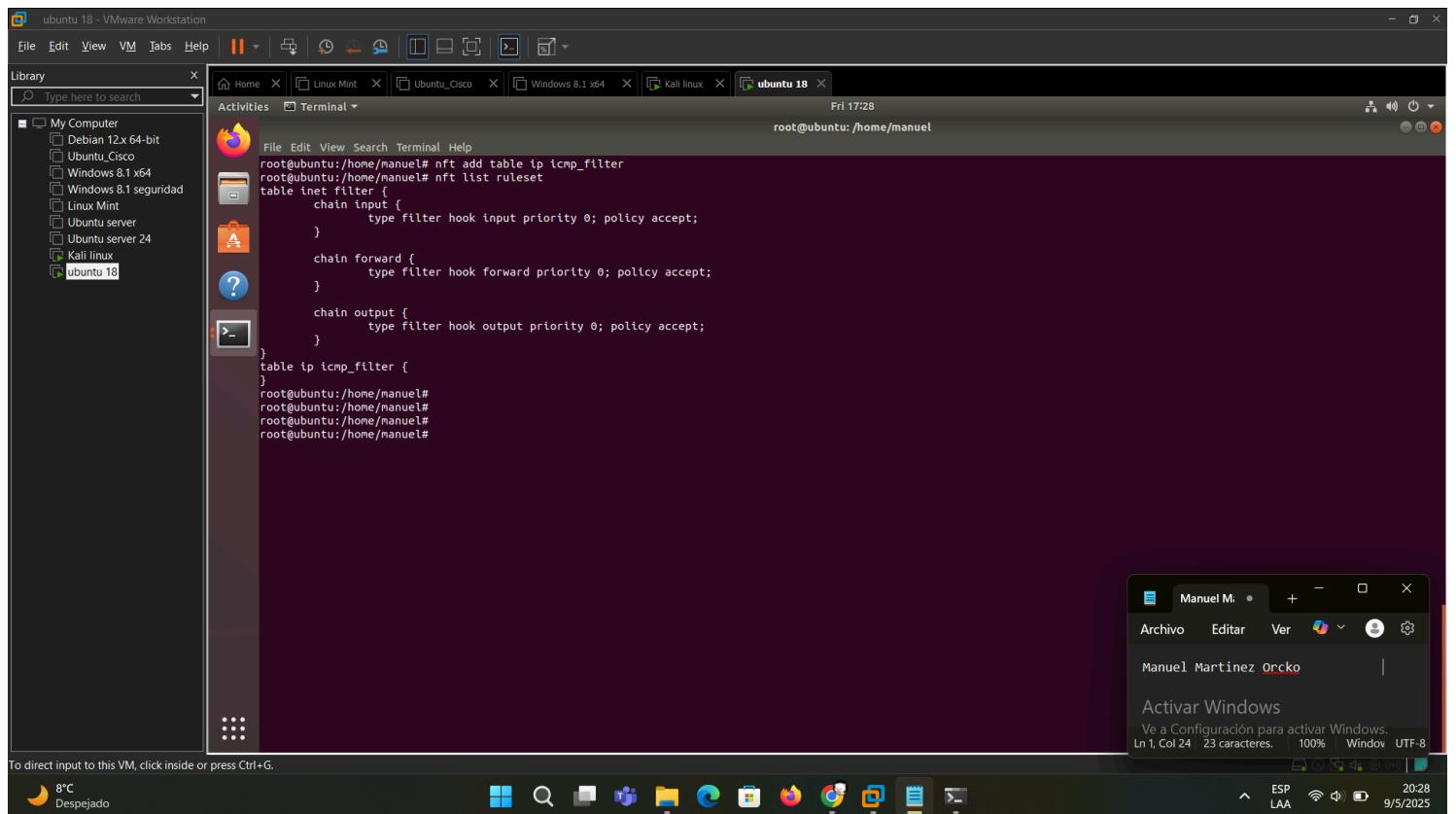
```
9°C Despejado 20:17 9/5/2025
```



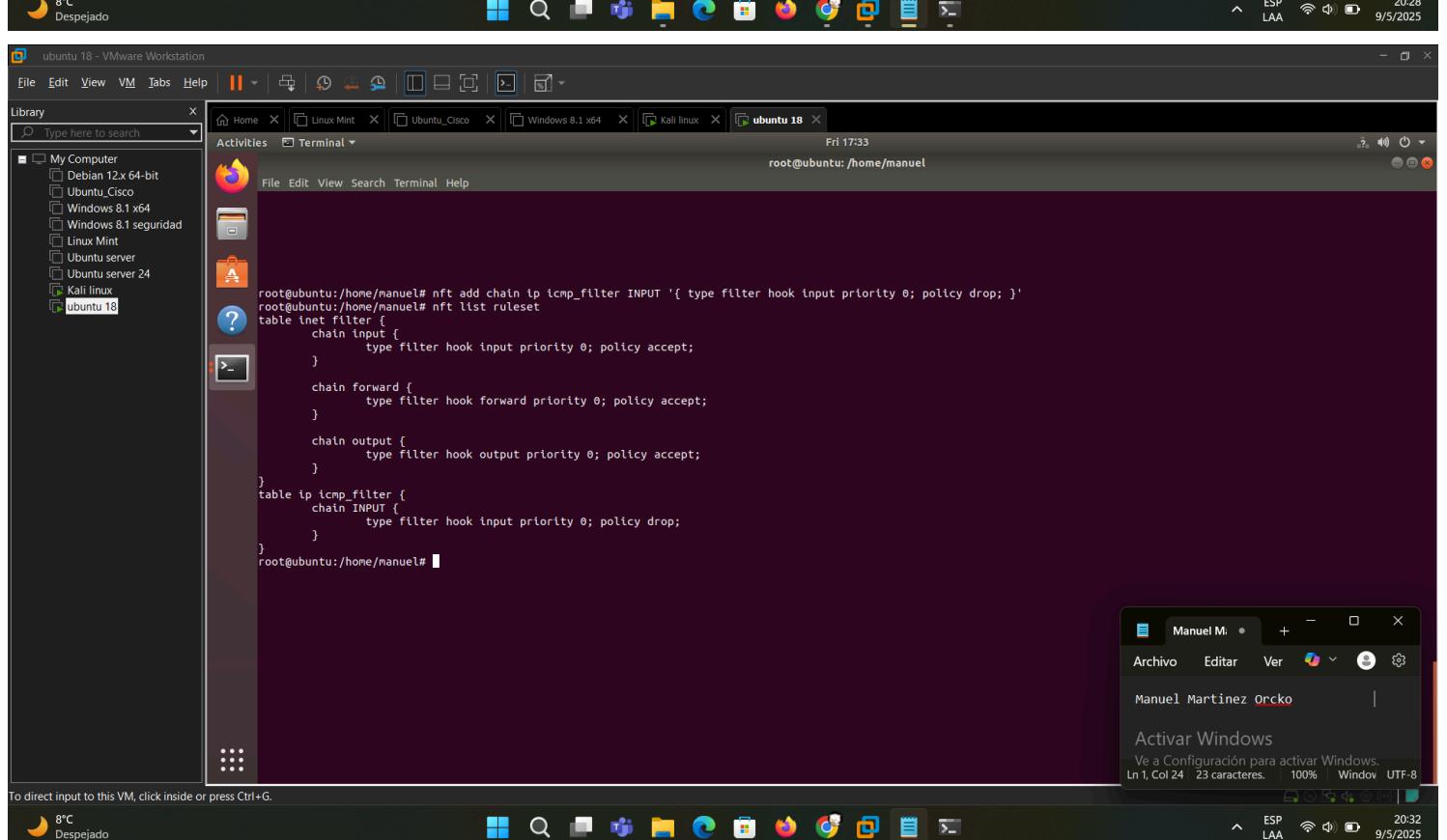
## Escenario 2: NFTABLES



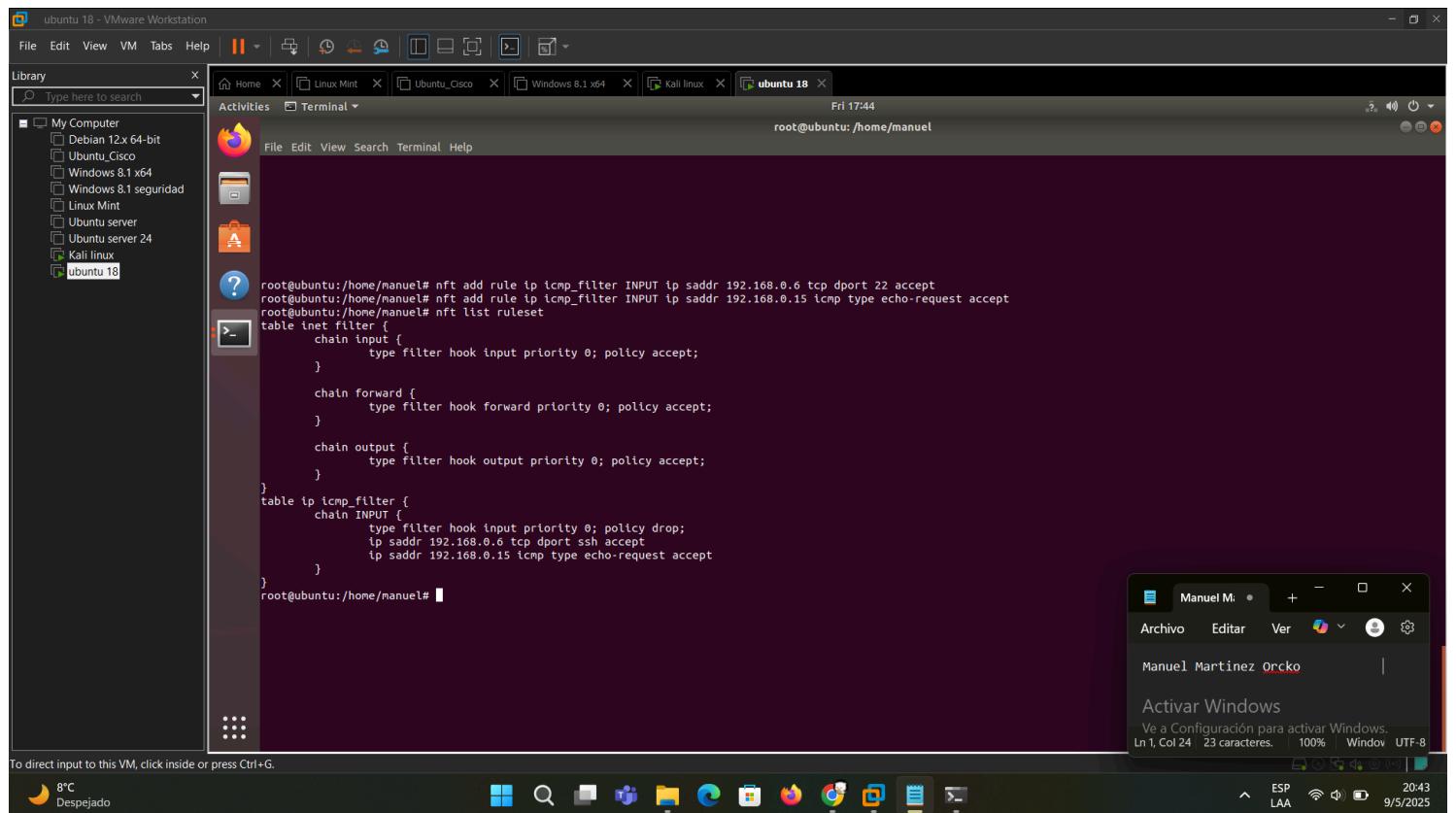




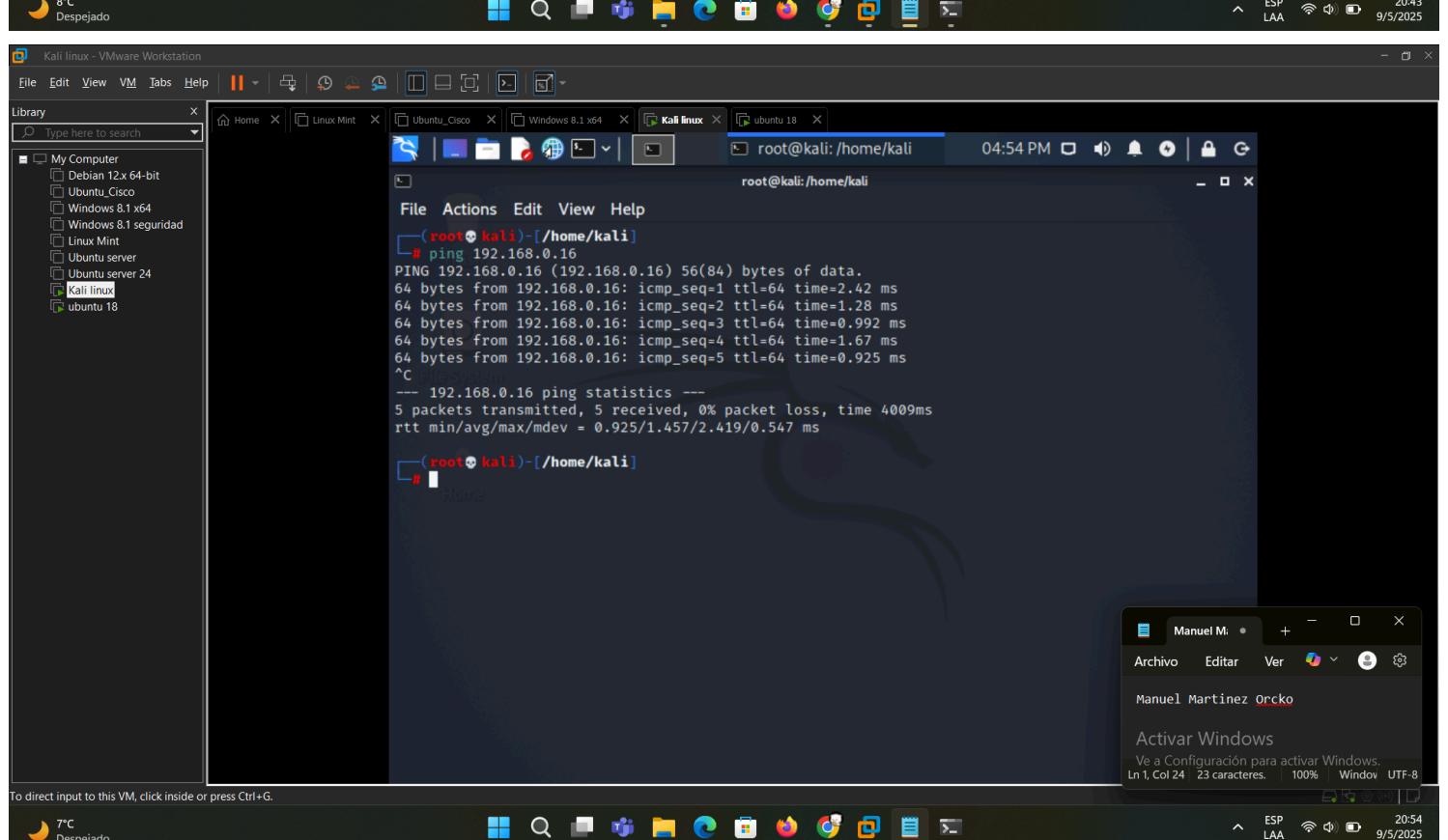
To direct input to this VM, click inside or press Ctrl+G.



To direct input to this VM, click inside or press Ctrl+G.



To direct input to this VM, click inside or press Ctrl+G.



To direct input to this VM, click inside or press Ctrl+G.



The screenshot shows a Windows desktop environment. At the top, there is a taskbar with several pinned icons. The main area features two windows: a PowerShell window titled 'PowerShell 7.5.1' and a Microsoft Edge browser window titled 'Manuel M.'.

**PowerShell Window:**

- Time: 20:56:42
- Command: `ping 192.168.0.16`
- Output:
  - Haciendo ping a 192.168.0.16 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. Copyright © Microsoft Corporation. Todos los derechos reservados.
  - Tiempo de espera agotado para esta solicitud.
- Statistics for 192.168.0.16:
  - Paquetes: enviados = 4, recibidos = 0, perdidos = 4 (100% perdidos),
  - Paquetes: enviados = 2, recibidos = 0, perdidos = 2 (100% perdidos),
- Output for 10.10.214.248:
  - Paquetes: enviados = 2, recibidos = 0, perdidos = 2 (100% perdidos),
- Output for 10.10.214.249:
  - Paquetes: enviados = 2, recibidos = 0, perdidos = 2 (100% perdidos),
- Output for 10.10.214.250:
  - Paquetes: enviados = 2, recibidos = 0, perdidos = 2 (100% perdidos),
- Output for 10.10.214.251:
  - Paquetes: enviados = 2, recibidos = 0, perdidos = 2 (100% perdidos),
- Output for 10.10.214.252:
  - Paquetes: enviados = 2, recibidos = 0, perdidos = 2 (100% perdidos),
- Output for 10.10.214.253:
  - Paquetes: enviados = 2, recibidos = 0, perdidos = 2 (100% perdidos),
- Output for 10.10.214.254:
  - Paquetes: enviados = 2, recibidos = 0, perdidos = 2 (100% perdidos),
- Output for 10.10.214.255:
  - Paquetes: enviados = 2, recibidos = 0, perdidos = 2 (100% perdidos),

**Microsoft Edge Browser Window:**

- Title: Manuel M.
- Address bar: `Manuel Martinez Orcko`
- Content:
  - Archivo
  - Editar
  - Ver
  - ...
  - Manuel Martinez Orcko
  - Activar Windows
  - Va a Configuración para activar Windows.
  - Ln 1, Col 24 | 23 caracteres | 100% | Windows | UTF-8

**Taskbar:**

- Icons: File Explorer, File History, Task View, Taskbar settings, Taskbar search, Taskbar preview, Taskbar pinned items, Taskbar notifications, Taskbar status bar.

**System tray:**

- Icons: Volume, Network, Battery, Power, Taskbar settings.

```
manuel@ubuntu:~ 20:58:06 ~ ~ ~
+ - x
+ ssh manuel@192.168.0.16 /usr/bin/php /14344/mod_resource/content/1/LAB9-%20IPTABLES%20IN%20TABLES2025_51.pdf
manuel@192.168.0.16's password:
Welcome to Ubuntu 18.04.6 LTS (GNU/Linux 5.4.0-150-generic x86_64)

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

286 updates can be applied immediately.
250 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

Failed to connect to https://changelogs.ubuntu.com/meta-release-lts. Check your Internet connection or proxy settings

Your Hardware Enablement Stack (HWE) is supported until April 2023.
Last login: Fri May  9 17:14:33 2025 from 192.168.0.6
manuel@ubuntu:~$
```

7°C Despegado 20:58  
9/5/2025

```
File Edit View VM Tabs Help | || Library Activities Terminal Fri 18:01
root@ubuntu:/home/manuel
File Edit View Search Terminal Help
root@ubuntu:/home/manuel# nft delete table ip icmp_filter
root@ubuntu:/home/manuel# nft list ruleset
table inet filter {
    chain input {
        type filter hook input priority 0; policy accept;
    }
    chain forward {
        type filter hook forward priority 0; policy accept;
    }
    chain output {
        type filter hook output priority 0; policy accept;
    }
}
root@ubuntu:/home/manuel#
```

```
File Edit View VM Tabs Help | || Library Activities Terminal Fri 18:03
root@ubuntu:/home/manuel
File Edit View Search Terminal Help
root@ubuntu:/home/manuel# iptables -F INPUT
root@ubuntu:/home/manuel# iptables -P INPUT ACCEPT
root@ubuntu:/home/manuel# iptables -L
Chain INPUT (policy ACCEPT)
target     prot opt source          destination
Chain FORWARD (policy ACCEPT)
target     prot opt source          destination
Chain OUTPUT (policy ACCEPT)
target     prot opt source          destination
root@ubuntu:/home/manuel#
```

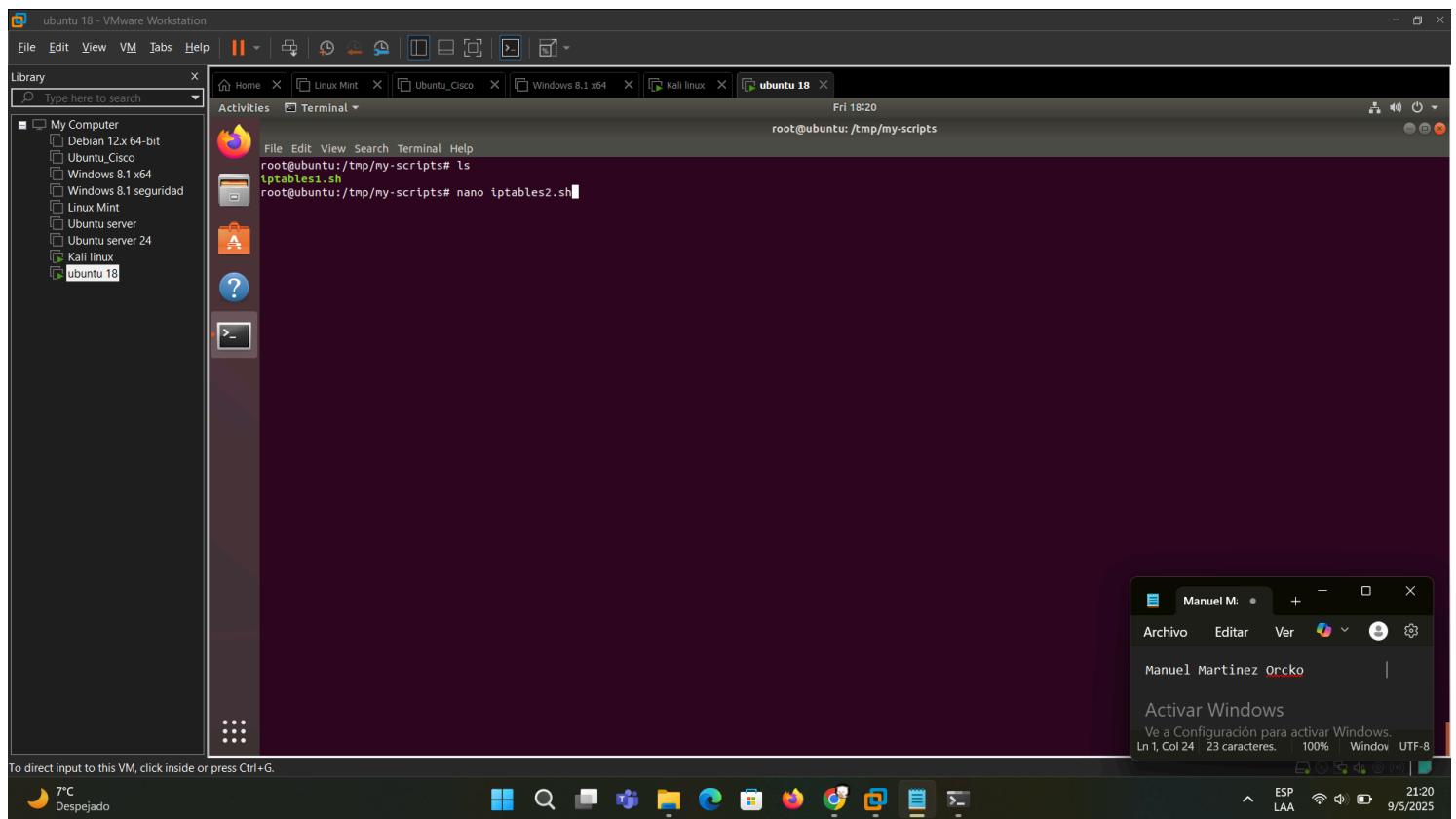
## PARTE 2

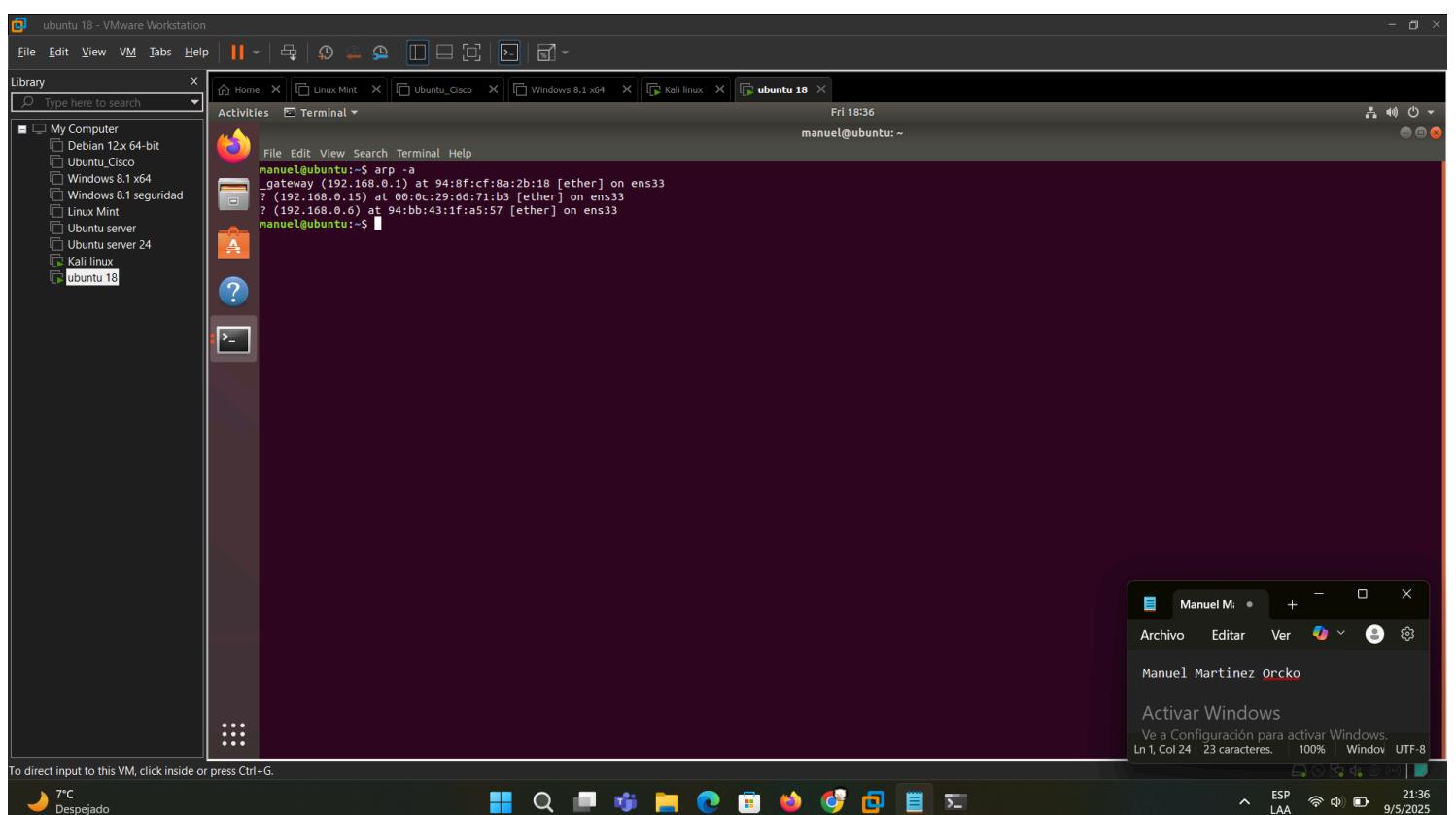
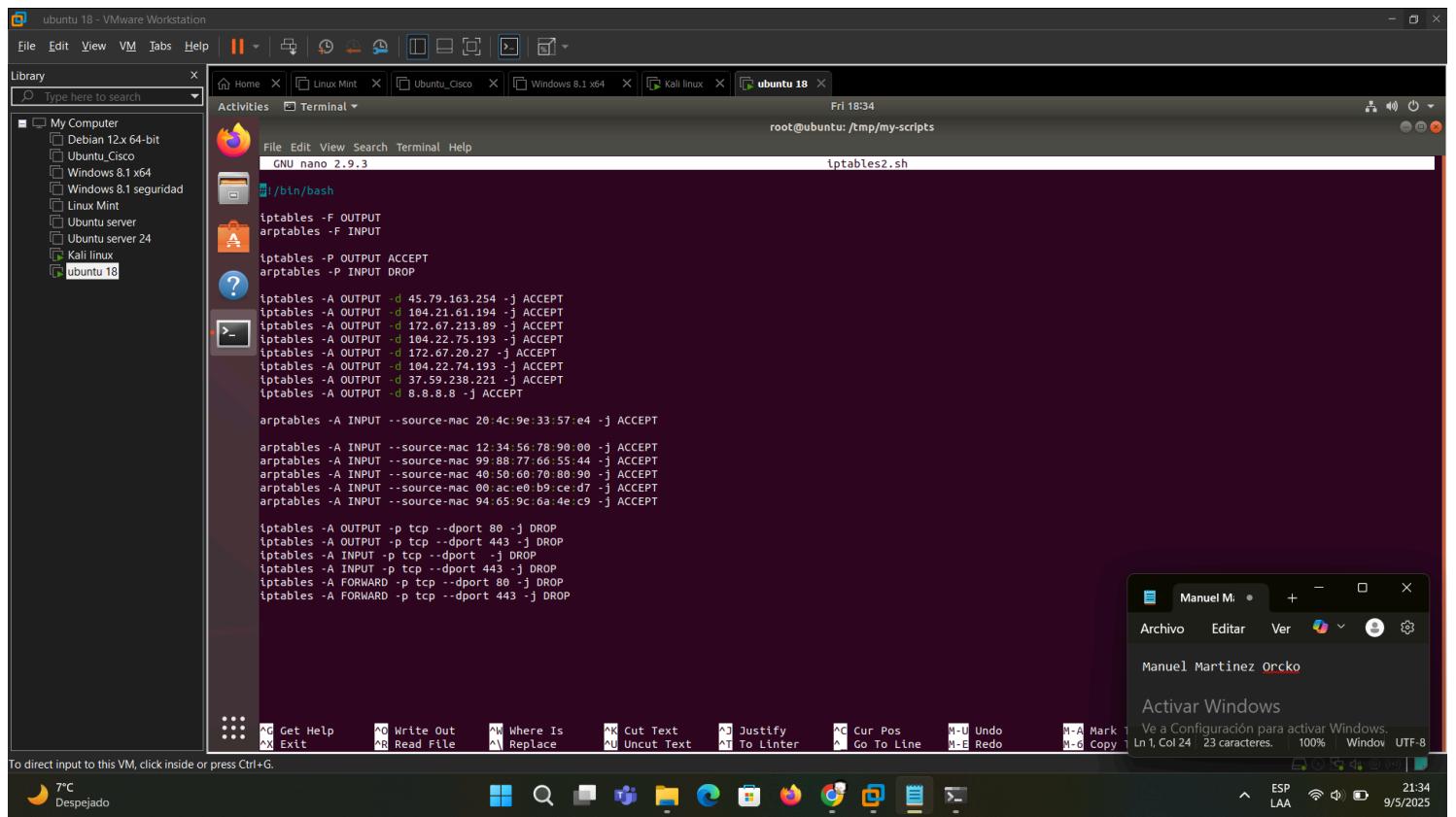
### Escenario 3: IPTABLES

Dominios	Dirección ip
lostiempos.com	45.79.163.254
elpotosi.net	104.21.61.194

	172.67.213.89
eldeber.com.bo	104.22.75.193
	104.22.74.193
	172.67.20.27
freeditorial.com	37.59.238.221

Dispositivo	MAC
Kali	12:34:56:78:90:00
Kali	99:88:77:66:55:44
Kali	40:50:60:70:80:90





ubuntu 18 - VMware Workstation

File Edit View VM Tabs Help

Library Type here to search

My Computer

- Debian 12x 64-bit
- Ubuntu.Cisco
- Windows 8.1 x64
- Windows 8.1 seguridad
- Linux Mint
- Ubuntu server
- Ubuntu server 24
- Kali Linux
- ubuntu 18

Activities Terminal

Fri 18:55 root@ubuntu:/tmp/my-scripts

```
#!/bin/bash

# iptables -F OUTPUT
# arptables -F INPUT

# iptables -P OUTPUT ACCEPT
# arptables -P INPUT DROP

iptables -A OUTPUT -d 45.79.163.254 -j ACCEPT
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 172.67.29.27 -j ACCEPT
iptables -A OUTPUT -d 104.22.74.193 -j ACCEPT
iptables -A OUTPUT -d 37.59.238.221 -j ACCEPT
iptables -A OUTPUT -d 8.8.8.8 -j ACCEPT

## gateway
arptables -A INPUT --source-mac 94:8f:cf:8a:2b:18 -j ACCEPT

arptables -A INPUT --source-mac 12:34:56:78:90:00 -j ACCEPT
arpables -A INPUT --source-mac 99:88:77:66:55:44 -j ACCEPT
arpables -A INPUT --source-mac 40:50:60:70:80:90 -j ACCEPT
arpables -A INPUT --source-mac 00:ac:e0:b9:ce:d7 -j ACCEPT
arpables -A INPUT --source-mac 94:65:9c:6a:4e:c9 -j ACCEPT

iptables -A OUTPUT -p tcp --dport 80 -j DROP
iptables -A OUTPUT -p tcp --dport 443 -j DROP
iptables -A INPUT -p tcp --dport 80 -j DROP
iptables -A INPUT -p tcp --dport 443 -j DROP
iptables -A FORWARD -p tcp --dport 80 -j DROP
iptables -A FORWARD -p tcp --dport 443 -j DROP
```

To direct input to this VM, click inside or press Ctrl+G.

7°C Despejado

Manuel M. • + - □ ×

Archivo Editar Ver ☰ 🔍 ⚙️

Manuel Martinez Orcko

Activar Windows

Vé a Configuración para activar Windows.

Ln 1, Col 24 23 caracteres. 100% Windows UTF-8

ESP LAA 21:55 9/5/2025

ubuntu 18 - VMware Workstation

File Edit View VM Tabs Help

Library Type here to search

My Computer

- Debian 12x 64-bit
- Ubuntu.Cisco
- Windows 8.1 x64
- Windows 8.1 seguridad
- Linux Mint
- Ubuntu server
- Ubuntu server 24
- Kali Linux
- ubuntu 18

Activities Terminal

Fri 18:56 root@ubuntu:/tmp/my-scripts

```
root@ubuntu:/tmp/my-scripts# chmod +x iptables2.sh
root@ubuntu:/tmp/my-scripts# ls
iptables1.sh  iptables2.sh
root@ubuntu:/tmp/my-scripts# ./iptables2.sh
root@ubuntu:/tmp/my-scripts#
```

To direct input to this VM, click inside or press Ctrl+G.

7°C Despejado

Manuel M. • + - □ ×

Archivo Editar Ver ☰ 🔍 ⚙️

Manuel Martinez Orcko

Activar Windows

Vé a Configuración para activar Windows.

Ln 1, Col 24 23 caracteres. 100% Windows UTF-8

ESP LAA 21:56 9/5/2025

```
PowerShell 7.5.1
Loading personal and system profiles took 2003ms. https://content.11LAB9-%20IPTABLES%20IN%20TABLES%2025_51.pdf
21:56:51 ~ ping 192.168.0.16
ping 192.168.0.16 con 32 bytes de datos:
Respueta desde 192.168.0.6: Host de destino inaccesible.
Respueta desde 192.168.0.6: Host de destino inaccesible.
Tiempo de espera agotado para esta solicitud.
Tiempo de espera agotado para esta solicitud.

Estadísticas de ping para 192.168.0.16:
Paquetes: enviados = 4, recibidos = 2, perdidos = 2
(50% perdidos),
21:57:10 ~ 14.255s

Haciendo ping a 10.10.214.237 con 32 bytes de datos:
Tiempo de espera agotado para esta solicitud.

root@kali:~# ping 10.10.214.237
PING 10.10.214.237 (10.10.214.237) 56(84) bytes of data.
From 10.10.214.239 icmp_seq=28 Destination Host Unreachable
From 10.10.214.239 icmp_seq=29 Destination Host Unreachable
```

- 4) Trabajaremos con Kali para asignar direcciones mac, primero observe su dirección mac actual en interfaz.

```
root@kali:~# ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.10.214.239 netmask 255.255.255.0 broadcast 10.10.214.255
        ...
```



```
7°C Despejado
Manuel M. • Archivo Editar Ver ESP LAA Activar Windows
Manuel Martinez Orcko
Activar Windows
Vé a Configuración para activar Windows.
Ln1, Col 24 23 caracteres. 100% Windows UTF-8
21:57 9/5/2025
```

Kali linux - VMware Workstation

File Edit View VM Tabs Help

Library Type here to search

My Computer

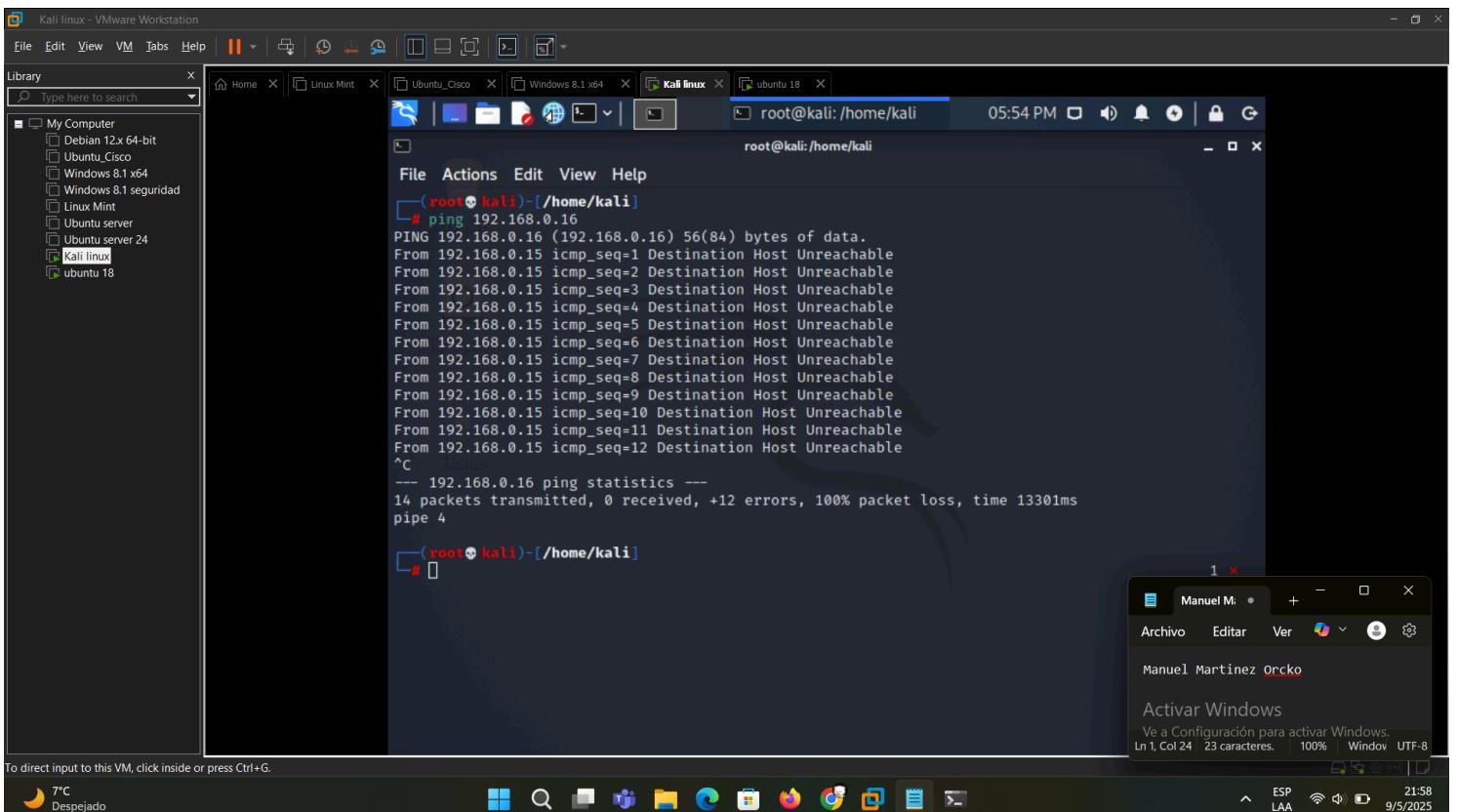
- Debian 12x 64-bit
- Ubuntu.Cisco
- Windows 8.1 x64
- Windows 8.1 seguridad
- Linux Mint
- Ubuntu server
- Ubuntu server 24
- Kali linux
- ubuntu 18

File Actions Edit View Help

(root@kali:[/home/kali]) # ping 192.168.0.16

```
PING 192.168.0.16 (192.168.0.16) 56(84) bytes of data.
From 192.168.0.15 icmp_seq=1 Destination Host Unreachable
From 192.168.0.15 icmp_seq=2 Destination Host Unreachable
From 192.168.0.15 icmp_seq=3 Destination Host Unreachable
From 192.168.0.15 icmp_seq=4 Destination Host Unreachable
From 192.168.0.15 icmp_seq=5 Destination Host Unreachable
From 192.168.0.15 icmp_seq=6 Destination Host Unreachable
From 192.168.0.15 icmp_seq=7 Destination Host Unreachable
From 192.168.0.15 icmp_seq=8 Destination Host Unreachable
From 192.168.0.15 icmp_seq=9 Destination Host Unreachable
From 192.168.0.15 icmp_seq=10 Destination Host Unreachable
From 192.168.0.15 icmp_seq=11 Destination Host Unreachable
From 192.168.0.15 icmp_seq=12 Destination Host Unreachable
^C
--- 192.168.0.16 ping statistics ---
14 packets transmitted, 0 received, +12 errors, 100% packet loss, time 13301ms
pipe 4
```

(root@kali:[/home/kali]) #



```
05:54 PM 21:57 9/5/2025
```

To direct input to this VM, click inside or press Ctrl+G.

7°C Despejado

Manuel M. • Archivo Editar Ver ESP LAA Activar Windows
Manuel Martinez Orcko
Activar Windows
Vé a Configuración para activar Windows.
Ln1, Col 24 23 caracteres. 100% Windows UTF-8
21:58 9/5/2025

Kali linux - VMware Workstation

File Edit View VM Tabs Help

Library Type here to search

My Computer

- Debian 12x 64-bit
- Ubuntu.Cisco
- Windows 8.1 x64
- Windows 8.1 seguridad
- Linux Mint
- Ubuntu server
- Ubuntu server 24
- Kali Linux
- ubuntu 18

Home X Linux Mint X Ubuntu\_Cisco X Windows 8.1 x64 X Kali linux X ubuntu 18 X

root@kali:/home/kali 05:57 PM

```
File Actions Edit View Help
[root@kali ~]# ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
        inet 192.168.0.15 netmask 255.255.255.0 broadcast 192.168.0.255
          inet6 fe80::20c:29ff:fe66:71b3 prefixlen 64 scopeid 0x20<link>
            ether 00:0c:29:66:71:b3 txqueuelen 1000 (Ethernet)
              RX packets 2191 bytes 247835 (242.0 KiB)
              RX errors 0 dropped 0 overruns 0 frame 0
              TX packets 119 bytes 18584 (18.1 KiB)
              TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
        inet 127.0.0.1 netmask 255.0.0.0
        inet6 ::1 prefixlen 128 scopeid 0x10<host>
          loop txqueuelen 1000 (Local Loopback)
            RX packets 26 bytes 2168 (2.1 KiB)
            RX errors 0 dropped 0 overruns 0 frame 0
            TX packets 26 bytes 2168 (2.1 KiB)
            TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

[root@kali ~]#
```

To direct input to this VM, click inside or press Ctrl+G.

Manuel M. • + - ×

Archivo Editar Ver ☰ Manuel Martinez Orcko

Activar Windows

Vé a Configuración para activar Windows.

Ln 1, Col 24 23 caracteres. 100% Windows UTF-8

22:01 LAA 9/5/2025

Kali linux - VMware Workstation

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- Linux Mint
- Ubuntu server
- Ubuntu server 24
- Kali Linux
- ubuntu 18

Home X Linux Mint X Ubuntu\_Cisco X Windows 8.1 x64 X Kali linux X ubuntu 18 X

root@kali:/home/kali 05:59 PM

```
File Actions Edit View Help
[root@kali ~]# macchanger -s eth0
Current MAC: 00:0c:29:66:71:b3 (VMware, Inc.)
Permanent MAC: 00:0c:29:66:71:b3 (VMware, Inc.)

[root@kali ~]#
```

To direct input to this VM, click inside or press Ctrl+G.

Manuel M. • + - ×

Archivo Editar Ver ☰ Manuel Martinez Orcko

Activar Windows

Vé a Configuración para activar Windows.

Ln 1, Col 24 23 caracteres. 100% Windows UTF-8

22:03 LAA 9/5/2025

Kali linux - VMware Workstation

File Edit View VM Tabs Help

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- Windows 8.1 seguridad
- Linux Mint
- Ubuntu server
- Ubuntu server 24
- Kali Linux
- ubuntu 18

Home X Linux Mint X Ubuntu\_Cisco X Windows 8.1 x64 X Kali linux X ubuntu 18 X

root@kali:/home/kali 06:04 PM

```
# ifconfig eth0 down
# macchanger -m 12:34:56:78:90:00 eth0
Current MAC: 00:0c:29:66:71:b3 (VMware, Inc.)
Permanent MAC: 00:0c:29:66:71:b3 (VMware, Inc.)
New MAC: 12:34:56:78:90:00 (unknown)

# ifconfig eth0 up
# macchanger -s eth0
Current MAC: 12:34:56:78:90:00 (unknown)
Permanent MAC: 00:0c:29:66:71:b3 (VMware, Inc.)

#
```

To direct input to this VM, click inside or press Ctrl+G.

Manuel M. • + - ×

Archivo Editar Ver

Manuel Martinez Orcko

Activar Windows

Vé a Configuración para activar Windows.

Ln 1, Col 24 23 caracteres. 100% Windows UTF-8

22:08 9/5/2025

Kali linux - VMware Workstation

File Edit View VM Tabs Help

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My Computer

- Debian 12x 64-bit
- Ubuntu.Cisco
- Windows 8.1 x64
- Windows 8.1 seguridad
- Linux Mint
- Ubuntu server
- Ubuntu server 24
- Kali Linux
- ubuntu 18

Home X Linux Mint X Ubuntu\_Cisco X Windows 8.1 x64 X Kali linux X ubuntu 18 X

root@kali:/home/kali 06:06 PM

```
# ping 192.168.0.16
PING 192.168.0.16 (192.168.0.16) 56(84) bytes of data.
64 bytes from 192.168.0.16: icmp_seq=1 ttl=64 time=2.88 ms
64 bytes from 192.168.0.16: icmp_seq=2 ttl=64 time=0.850 ms
64 bytes from 192.168.0.16: icmp_seq=3 ttl=64 time=0.914 ms
64 bytes from 192.168.0.16: icmp_seq=4 ttl=64 time=1.02 ms
64 bytes from 192.168.0.16: icmp_seq=5 ttl=64 time=1.34 ms
64 bytes from 192.168.0.16: icmp_seq=6 ttl=64 time=0.640 ms
64 bytes from 192.168.0.16: icmp_seq=7 ttl=64 time=1.64 ms
^C
--- 192.168.0.16 ping statistics ---
7 packets transmitted, 7 received, 0% packet loss, time 6013ms
rtt min/avg/max/mdev = 0.640/1.326/2.880/0.704 ms

#
```

To direct input to this VM, click inside or press Ctrl+G.

Manuel M. • + - ×

Archivo Editar Ver

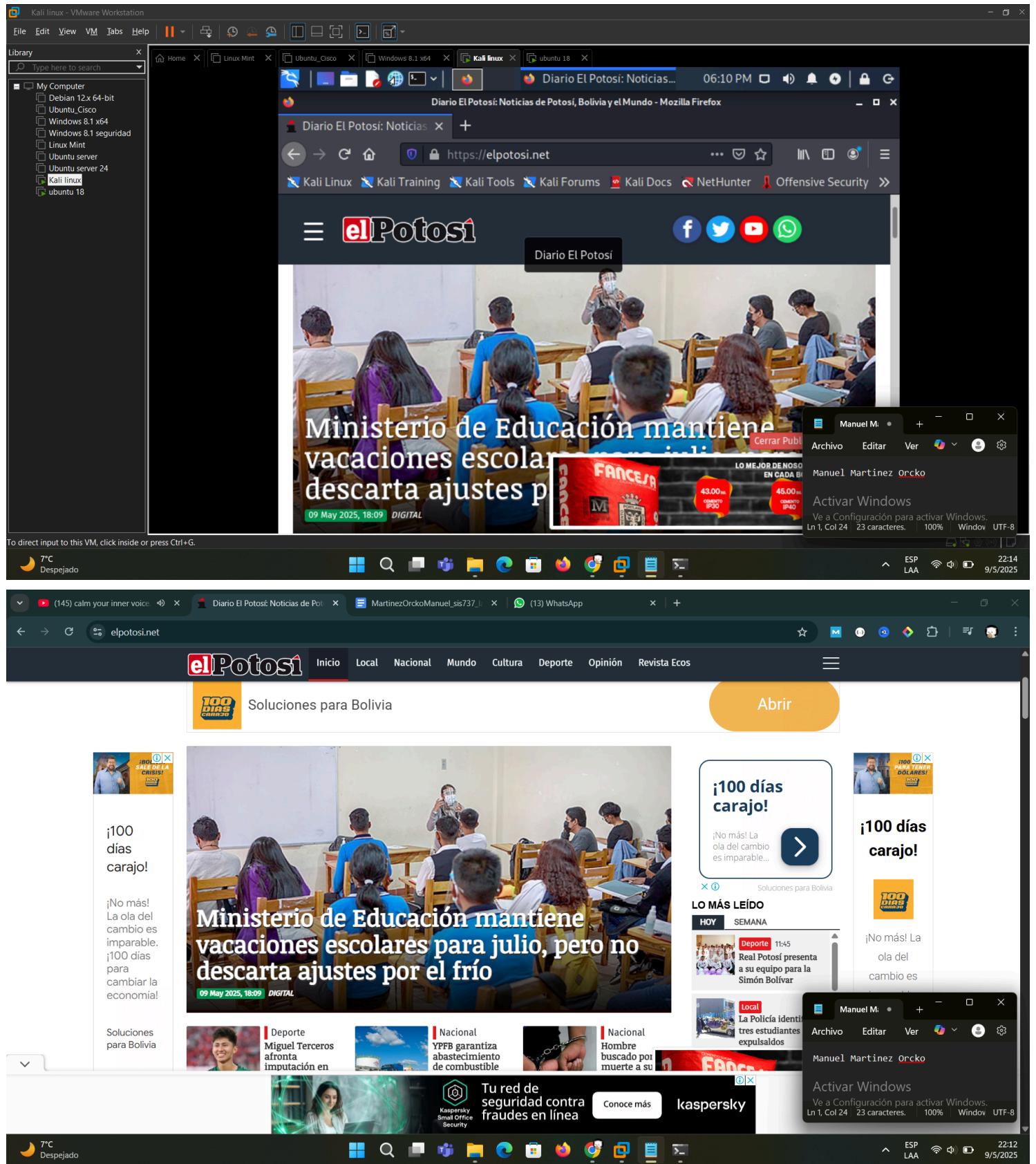
Manuel Martinez Orcko

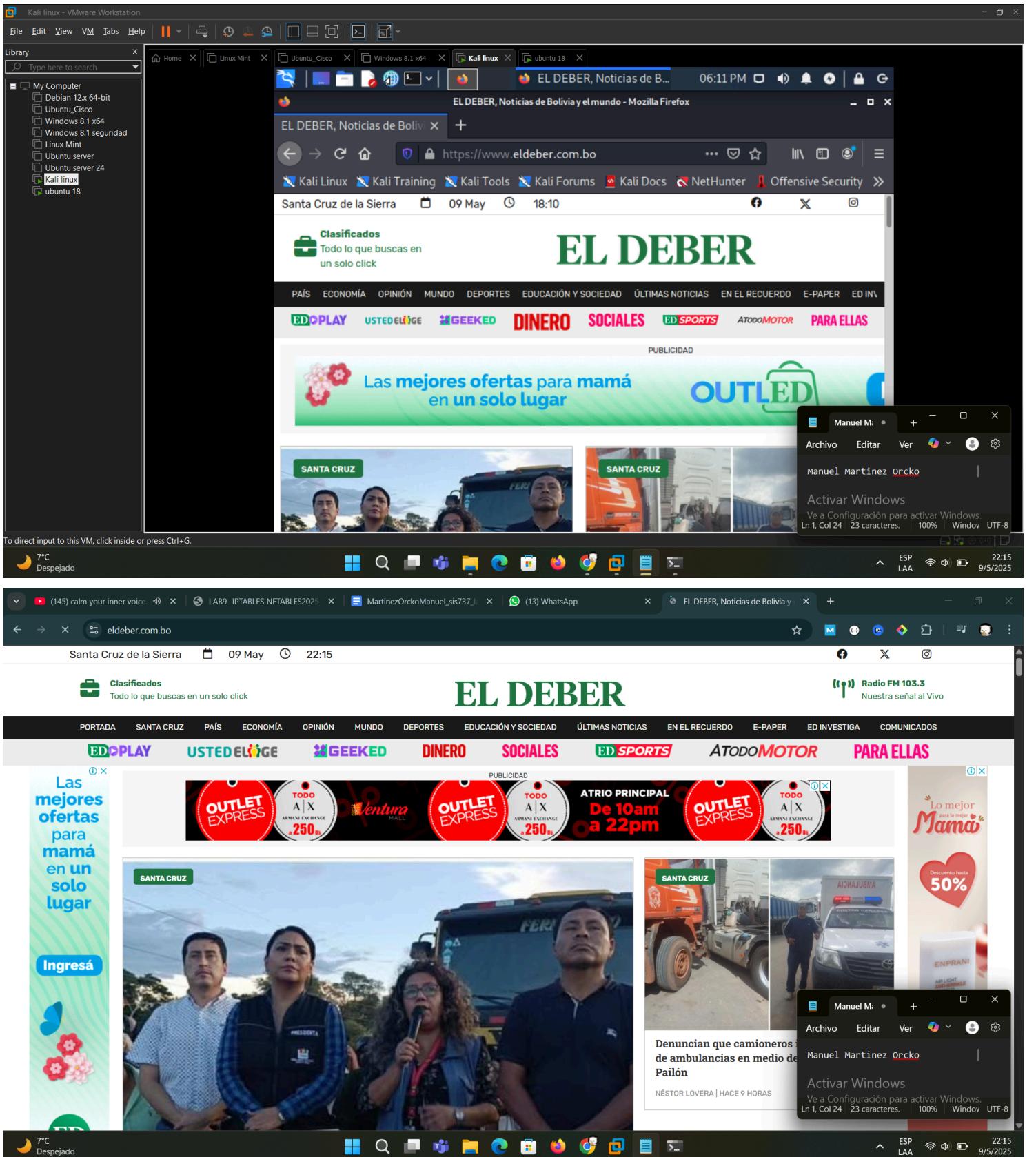
Activar Windows

Vé a Configuración para activar Windows.

Ln 1, Col 24 23 caracteres. 100% Windows UTF-8

22:10 9/5/2025



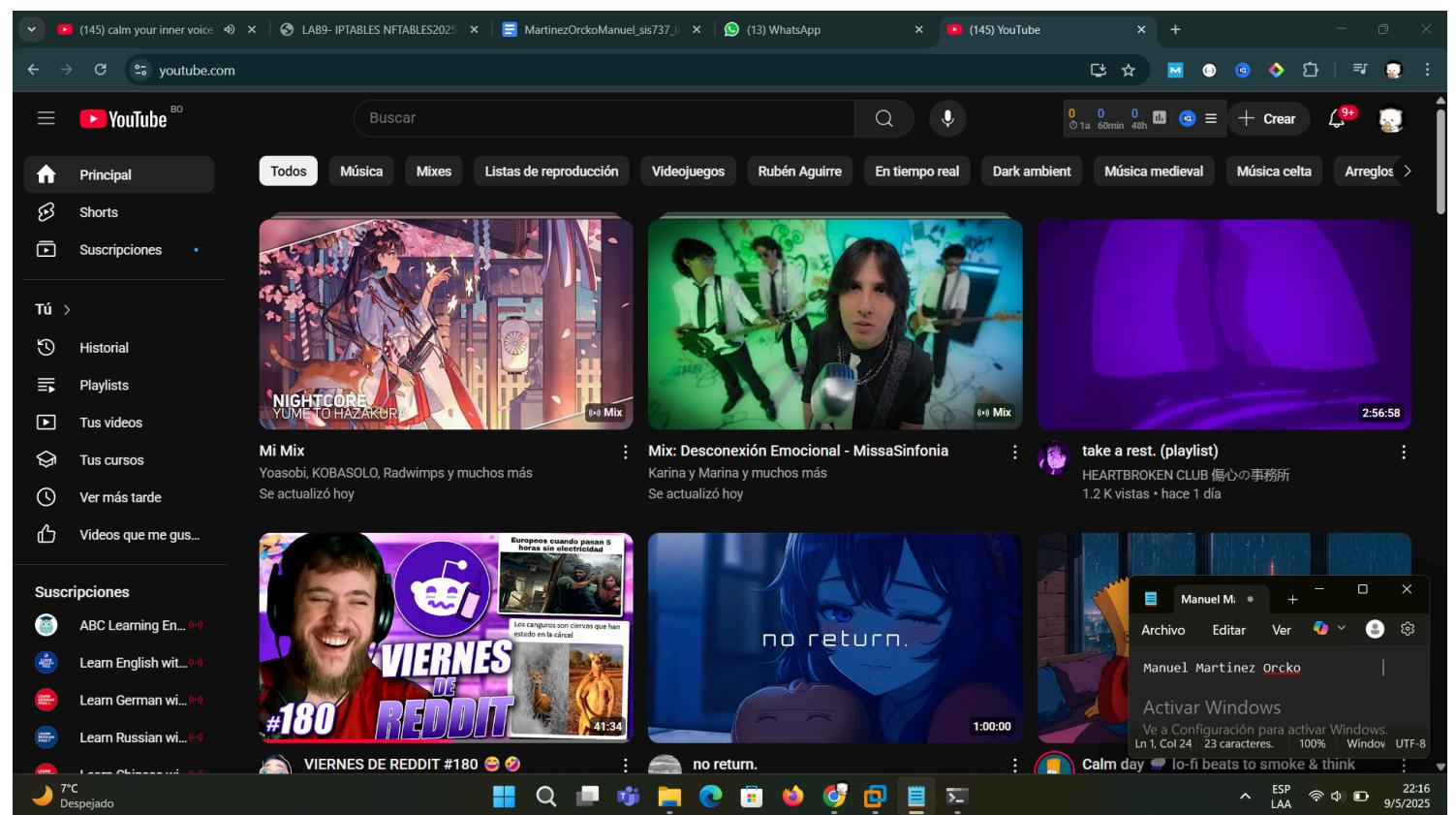
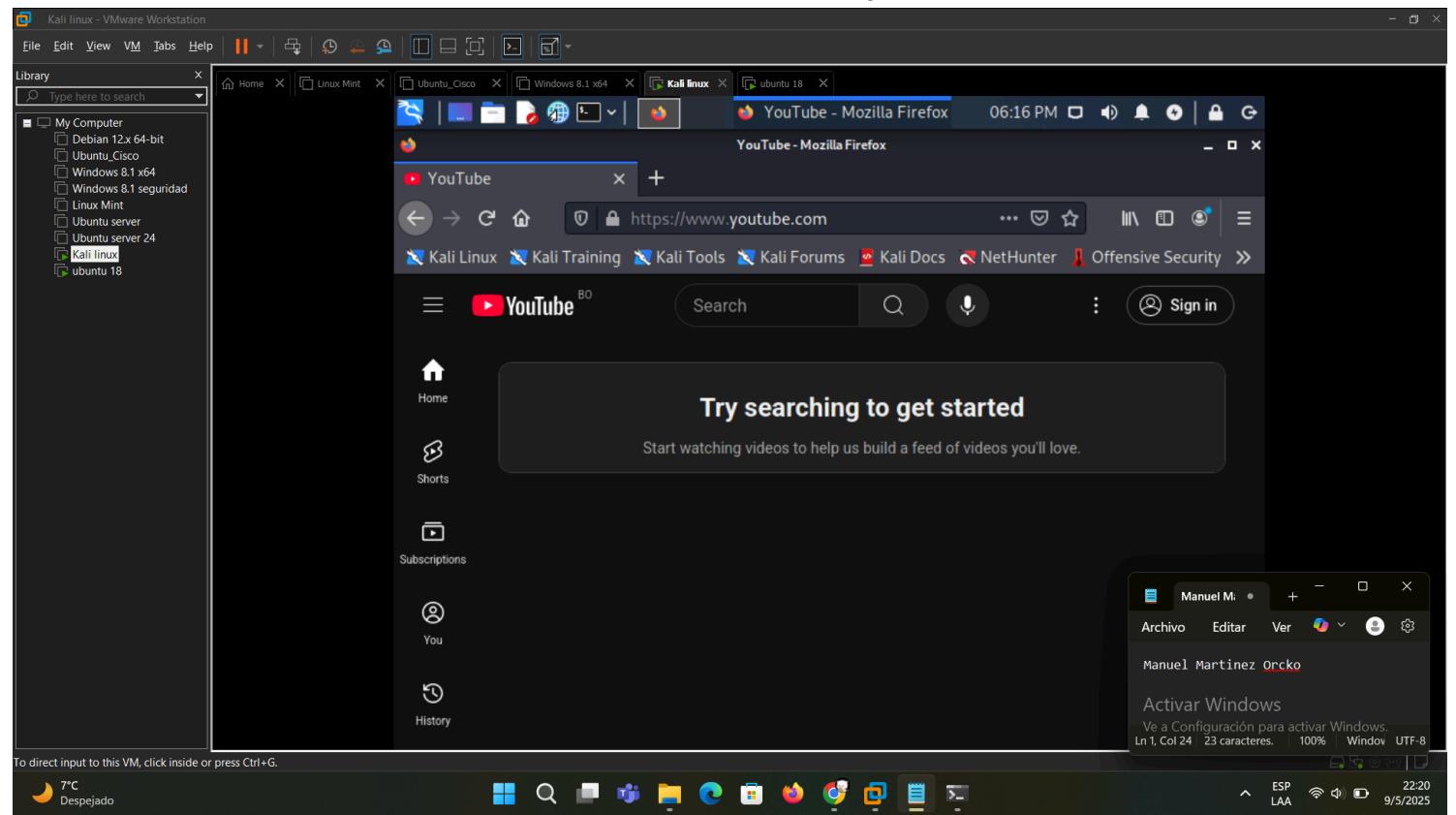


**PREGUNTA 1:** Sí, se puede acceder a YouTube desde otras máquinas.

Aunque el script establece reglas para bloquear el tráfico HTTP/HTTPS y permitir solo ciertas MAC, la máquina con Ubuntu no está actuando realmente como gateway, ya que no tiene habilitado el reenvío de paquetes (ip\_forward) ni configuración de NAT.

Por lo tanto, el tráfico de otras máquinas no pasa a través de ella y las reglas de iptables no afectan su conexión a YouTube.

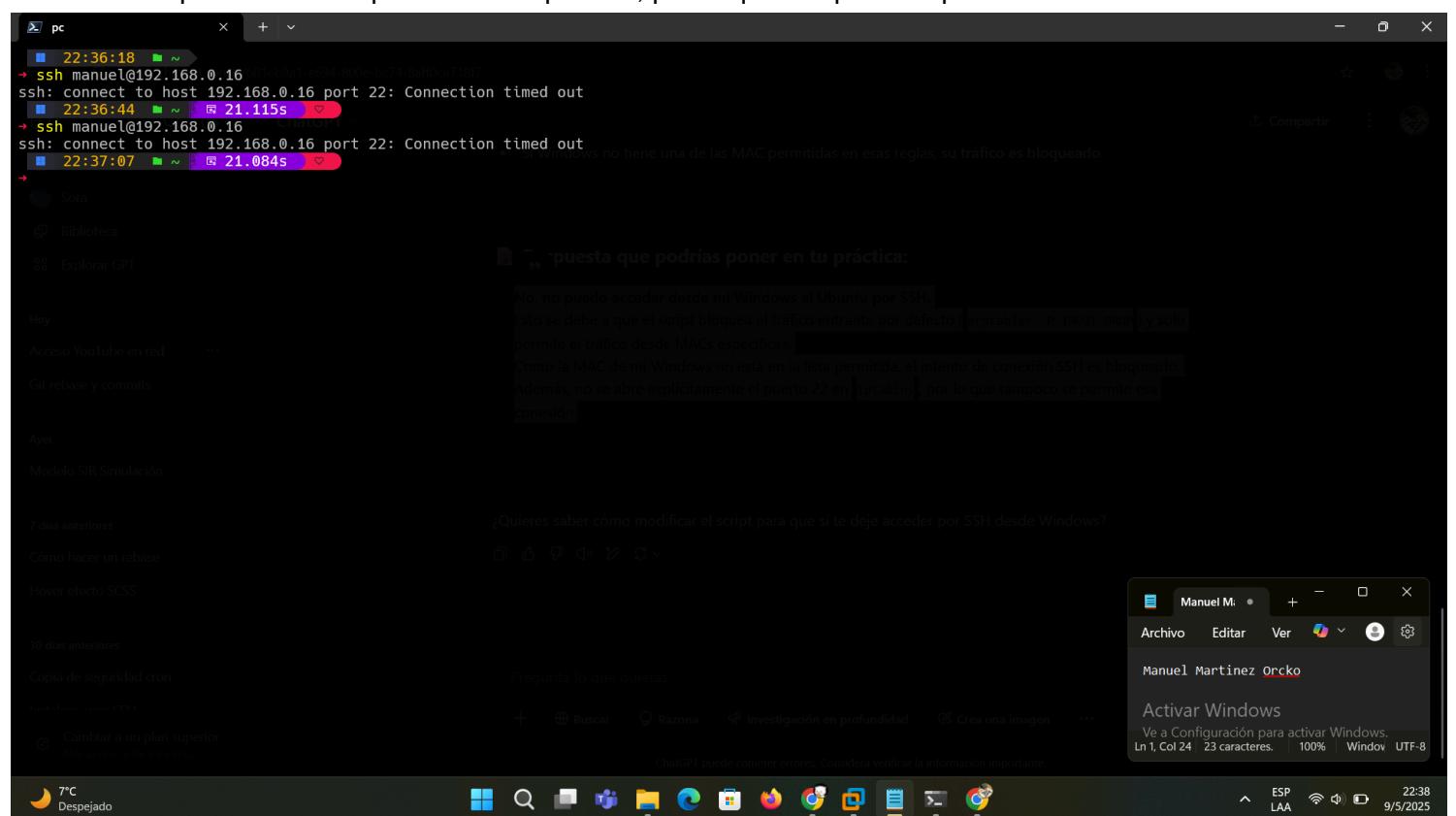
Pero la máquina de ubuntu sería la única que es afectada por las reglas.



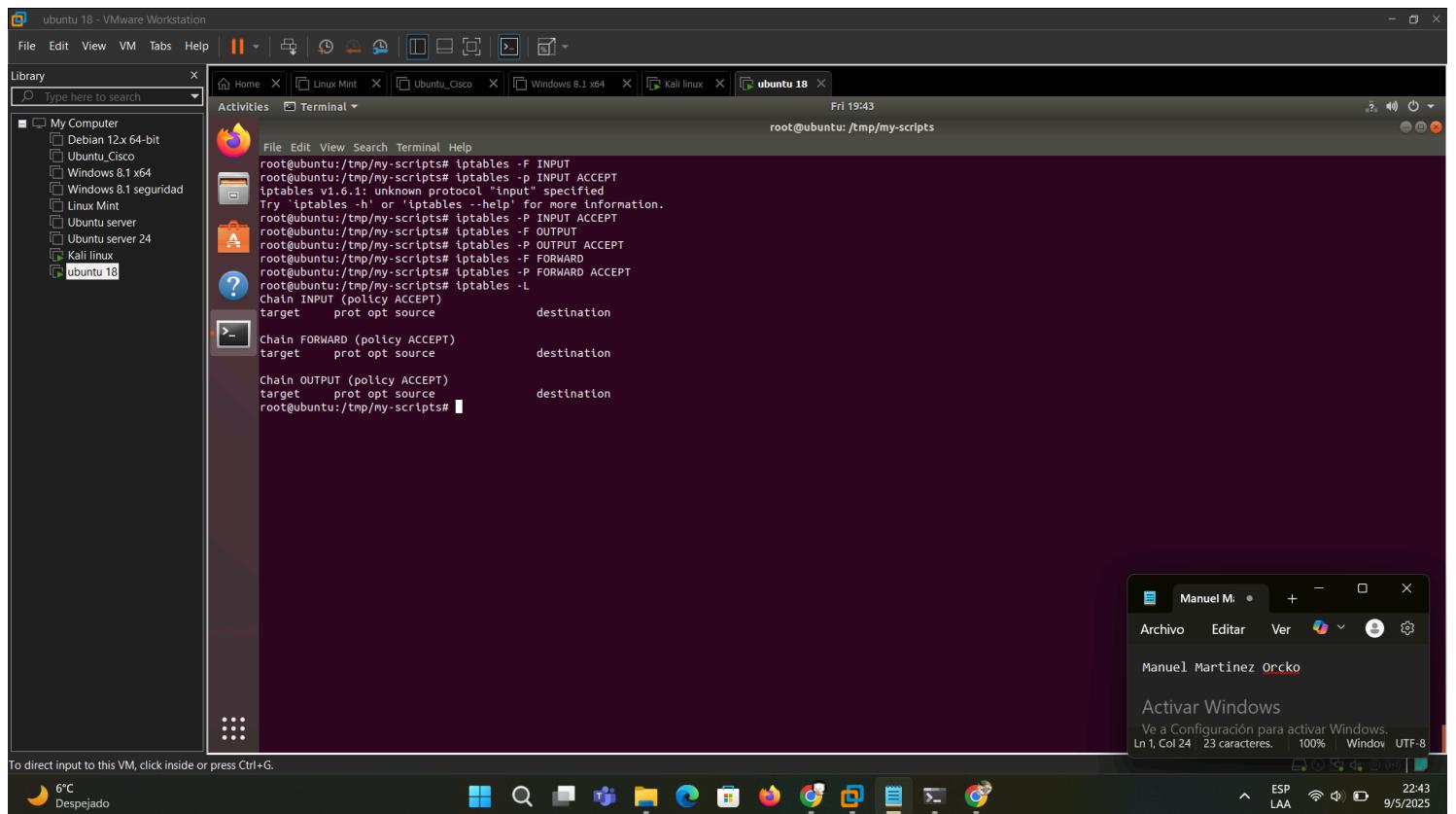
**PREGUNTA 2:** No, no puedo acceder desde mi Windows al Ubuntu por SSH.

Esto se debe a que el script bloquea el tráfico entrante por defecto (arpTables -P INPUT DROP) y solo permite el tráfico desde MACs específicas.

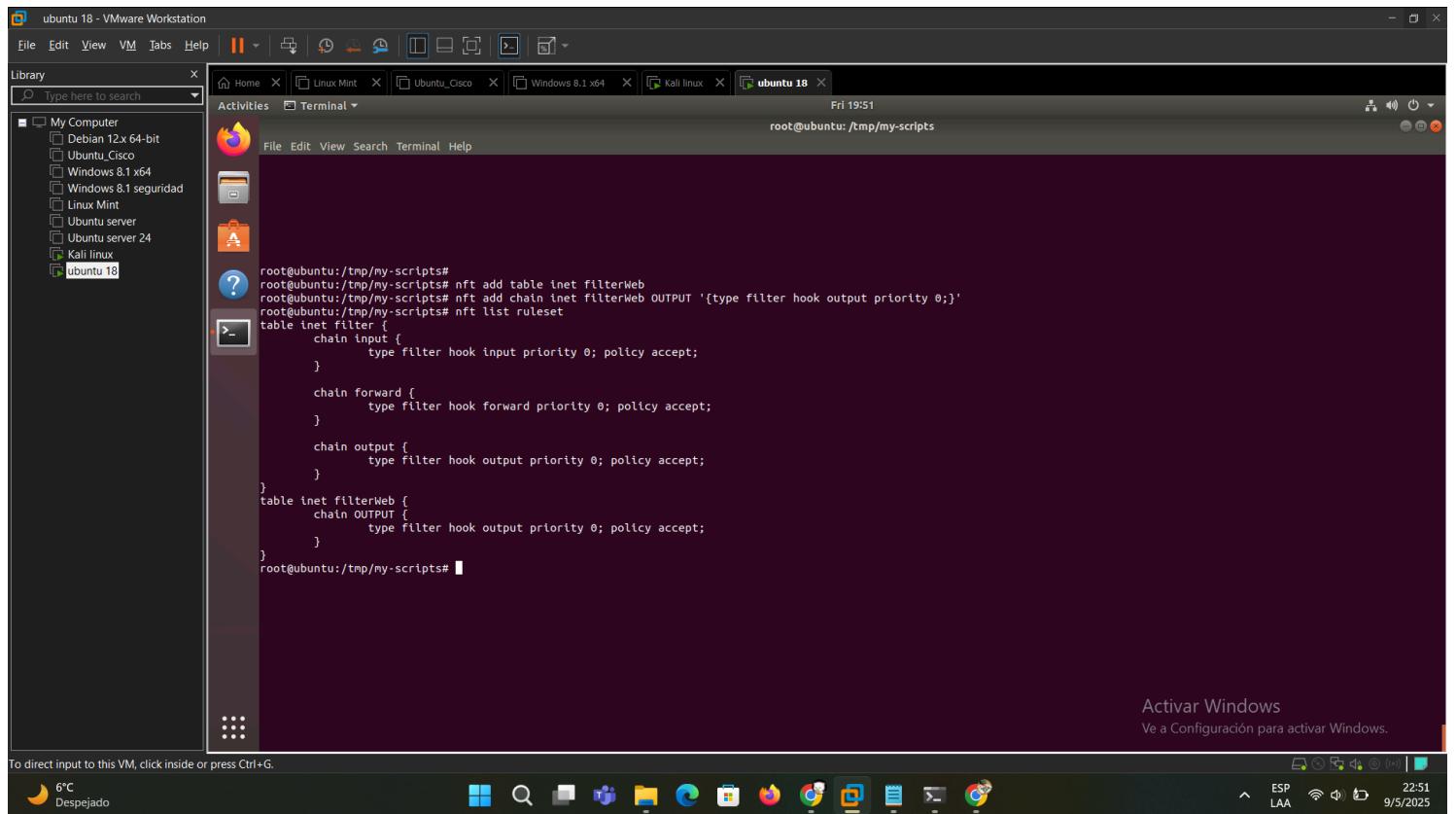
Como la MAC de mi Windows no está en la lista permitida, el intento de conexión SSH es bloqueado. Además, no se abre explícitamente el puerto 22 en iptables, por lo que tampoco se permite esa conexión.



continuando con el lab...



## ESCENARIO 4: NFTABLES



ubuntu 18 - VMware Workstation

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- Debian 12x 64-bit
- Ubuntu.Cisco
- Windows 8.1 x64
- Windows 8.1 seguridad
- Linux Mint
- Ubuntu server
- Ubuntu server 24
- Kali Linux
- ubuntu 18

Activities Terminal Fri 19:55 root@ubuntu:/tmp/my-scripts

```
root@ubuntu:/tmp/my-scripts# nft add set inet filterWeb http_ports '{type inet_service;}'  
root@ubuntu:/tmp/my-scripts# nft add set inet filterWeb allowed_ips '{type ipv4_addr;}'  
root@ubuntu:/tmp/my-scripts# nft list ruleset  
table inet filter {  
    chain input {  
        type filter hook input priority 0; policy accept;  
    }  
  
    chain forward {  
        type filter hook forward priority 0; policy accept;  
    }  
  
    chain output {  
        type filter hook output priority 0; policy accept;  
    }  
}  
table inet filterWeb {  
    set http_ports {  
        type inet_service  
    }  
  
    set allowed_ips {  
        type ipv4_addr  
    }  
  
    chain OUTPUT {  
        type filter hook output priority 0; policy accept;  
    }  
}  
root@ubuntu:/tmp/my-scripts#
```

To direct input to this VM, click inside or press Ctrl+G.

Manuel M. • + - ×

Archivo Editar Ver

Manuel Martinez Orcko

Activar Windows

Vé a Configuración para activar Windows.

Ln1, Col24 23 caracteres. 100% Windows UTF-8

6°C Despejado

22:54

9/5/2025

ubuntu 18 - VMware Workstation

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- Windows 8.1 seguridad
- Linux Mint
- Ubuntu server
- Ubuntu server 24
- Kali Linux
- ubuntu 18

Activities Terminal Fri 20:03 root@ubuntu:/tmp/my-scripts

```
root@ubuntu:/tmp/my-scripts# nft add element inet filterWeb http_ports { 80,443 }  
root@ubuntu:/tmp/my-scripts# nft add element inet filterWeb allowed_ips { 45.79.163.254,104.21.61.194,172.67.213.89,104.22.75.193,104.22.74.193,172.67.20.27,37.59.238.221 }  
root@ubuntu:/tmp/my-scripts# nft list ruleset  
table inet filter {  
    chain input {  
        type filter hook input priority 0; policy accept;  
    }  
  
    chain forward {  
        type filter hook forward priority 0; policy accept;  
    }  
  
    chain output {  
        type filter hook output priority 0; policy accept;  
    }  
}  
table inet filterWeb {  
    set http_ports {  
        type inet_service  
        elements = { http, https }  
    }  
  
    set allowed_ips {  
        type ipv4_addr  
        elements = { 37.59.238.221, 45.79.163.254,  
                    104.21.61.194, 104.22.74.193,  
                    104.22.75.193, 172.67.20.27,  
                    172.67.213.89 }  
    }  
  
    chain OUTPUT {  
        type filter hook output priority 0; policy accept;  
    }  
}  
root@ubuntu:/tmp/my-scripts#
```

To direct input to this VM, click inside or press Ctrl+G.

Manuel M. • + - ×

Archivo Editar Ver

Manuel Martinez Orcko

Activar Windows

Vé a Configuración para activar Windows.

Ln1, Col24 23 caracteres. 100% Windows UTF-8

6°C Despejado

23:03

9/5/2025

ubuntu 18 - VMware Workstation

File Edit View VM Tabs Help | || | | | | | | | | |

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- Windows 8.1 x64
- Windows 8.1 seguridad
- Linux Mint
- Ubuntu server
- Ubuntu server 24
- Kali Linux
- ubuntu 18

Activities Terminal Fri 20:07 root@ubuntu:/tmp/my-scripts

File Edit View Search Terminal Help

```
root@ubuntu:/tmp/my-scripts# nft add rule inet filterWeb OUTPUT ip daddr @allowed_ips accept
root@ubuntu:/tmp/my-scripts# nft add rule inet filterWeb OUTPUT tcp dport @http_ports drop
root@ubuntu:/tmp/my-scripts# nft list ruleset
table inet filter {
    chain input {
        type filter hook input priority 0; policy accept;
    }
    chain forward {
        type filter hook forward priority 0; policy accept;
    }
    chain output {
        type filter hook output priority 0; policy accept;
    }
}
table inet filterWeb {
    set http_ports {
        type inet_service
        elements = { http, https }
    }

    set allowed_ips {
        type ipv4_addr
        elements = { 37.59.238.221, 45.79.163.254,
                     104.21.61.194, 104.22.74.193,
                     104.22.75.193, 172.67.20.27,
                     172.67.213.89 }
    }

    chain OUTPUT {
        type filter hook output priority 0; policy accept;
        ip daddr @allowed_ips accept
        tcp dport @http_ports drop
    }
}
root@ubuntu:/tmp/my-scripts#
```

To direct input to this VM, click inside or press Ctrl+G.

Manuel M. • Archivo Editar Ver Manuel Martinez Orcko Activar Windows Ve a Configuración para activar Windows. Ln 1, Col 24 23 caracteres. 100% Windov UTF-8

6°C Despejado 23:07 9/5/2025

Kali linux - VMware Workstation

File Edit View VM Tabs Help | || | | | | | | | | |

Library Type here to search

My Computer

- Debian 12x 64-bit
- Ubuntu.Cisco
- Windows 8.1 x64
- Windows 8.1 seguridad
- Linux Mint
- Ubuntu server
- Ubuntu server 24
- Kali Linux
- ubuntu 18

Activities Terminal Fri 20:07 EL DEBER, Noticias de Bolivia y el mundo - Mozilla Firefox

File Edit View Search Terminal Help

EL DEBER, Noticias de Bolív YouTube x +

EL DEBER, Noticias de Bolív x https://www.eldeber.com.bo ... | +

Santa Cruz de la Sierra 09 May 19:43

Clasificados Todo lo que buscas en un solo click

# EL DEBER

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Manuel M. • Archivo Editar Ver Manuel Martinez Orcko Activar Windows Ve a Configuración para activar Windows. Ln 1, Col 24 23 caracteres. 100% Windov UTF-8

6°C Despejado 23:48 9/5/2025



Como ubuntu no esta como gateway las demas maquinas siguen ingresando a las diferentes paginas pero la maquina de ubuntu seria la unica que se vería afectada por las reglas siendo la única que no logra ingresar a las paginas que estan fuera de las reglas.

## EVALUACIÓN

### PREGUNTA 1:

saddr significa source address (dirección de origen).

daddr significa destination address (dirección de destino).

Se utilizan en reglas de nftables para filtrar paquetes según su dirección IP de origen o destino.

### PREGUNTA 2:

La prioridad de una cadena en nftables determina el orden en que se procesan las reglas dentro del mismo hook (como input, output, forward, etc.).

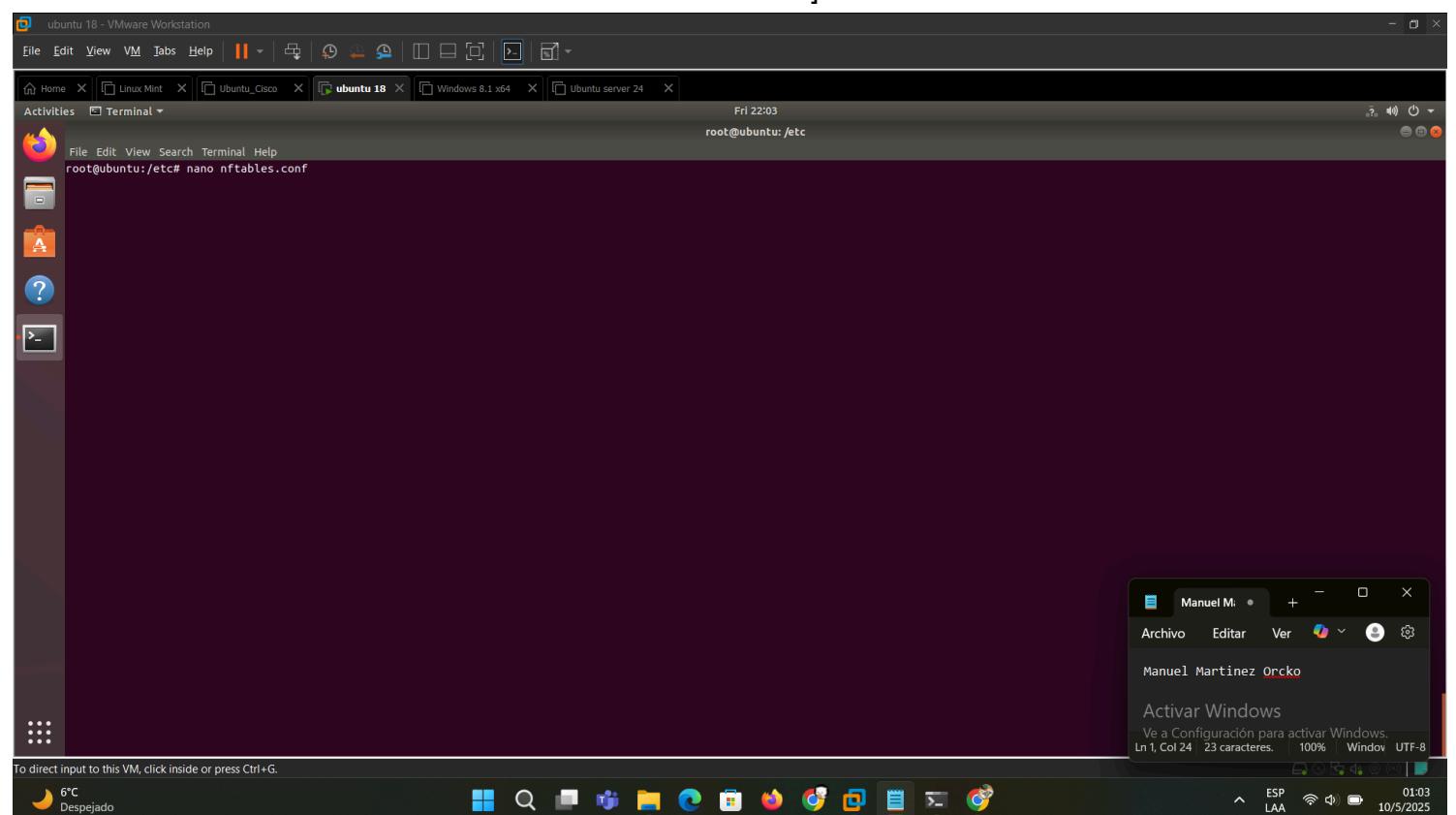
- Es especialmente importante cuando hay múltiples conjuntos de reglas aplicándose al mismo tipo de tráfico.
- Una prioridad más baja (por ejemplo, priority -100) significa que esa cadena se evalúa antes que una con mayor valor (como priority 0).

Importancia:

- Si no se establece correctamente, podrías permitir tráfico antes de filtrarlo o aplicar reglas en un orden incorrecto que invalide tu política de seguridad.

### PREGUNTA 3:

[Primero nos dirigimos a la carpeta `/etc/` donde se encuentra el archivo `nftables.conf`, antes de hacer los pasos nos aseguramos de que tenemos nftables instalados si no, instalamos con el comando `apt install nftables` y seguimos con el proceso, después de ingresar a la carpeta `/etc/` abrimos el archivo con el comando `nano nftables.conf` ]



[Luego copiamos el código que se muestra a continuación que bloquea todas las páginas menos la página que se necesita para la prueba]

The screenshot shows a Linux desktop environment with a terminal window open in the background. The terminal window displays the following nftables configuration script:

```
root@ubuntu: /home/manuel
/etc/nftables.conf
#!/usr/sbin/ft -f
table inet filter {
    chain input {
        type filter hook input priority 0;
        if lo accept
        ct state established,related accept
        reject with icmpx type admin-prohibited
    }
    chain forward {
        type filter hook forward priority 0;
        ct state established,related accept
        ip daddr 147.156.223.81 tcp dport { 80,443 } accept
        ip daddr 181.188.165.42 tcp dport { 80,443 } accept
        reject with icmpx type admin-prohibited
    }
    chain output {
        type filter hook output priority 0;
        if lo accept
        ct state established,related accept
        ip daddr 147.156.223.81 tcp dport { 80,443 } accept
        reject with icmpx type admin-prohibited
    }
}
```

In the foreground, there is a file editor window titled "Manuel Martinez Orcko" containing the same nftables configuration code. The status bar at the bottom of the screen shows the following information:

To direct input to this VM, click inside or press Ctrl+G.

Llovizna  
Por la tarde

Get Help Write Out Where Is Cut Text Uncut Text Justify Cur Pos Undo Mark Copy Text

Exit Read File Replace Go To Line Go To Line

Archivo Editar Ver Activar Windows

11:58 ESP LAA 10/5/2025

[Para obtener la ip de la página hacemos ping a www.mclibre.org]

The screenshot shows a Linux desktop environment with a terminal window open in the background. The terminal window displays the following ping command output:

```
Fri 22:08
root@ubuntu: /etc
root@ubuntu:/etc# ping www.mclibre.org
PING www.mclibre.org (147.156.223.81) 56(84) bytes of data.
64 bytes from snagr3s3.irobot.uv.es (147.156.223.81): icmp_seq=1 ttl=51 time=244 ms
64 bytes from snagr3s3.irobot.uv.es (147.156.223.81): icmp_seq=2 ttl=51 time=230 ms
64 bytes from snagr3s3.irobot.uv.es (147.156.223.81): icmp_seq=3 ttl=51 time=225 ms
64 bytes from snagr3s3.irobot.uv.es (147.156.223.81): icmp_seq=4 ttl=51 time=225 ms
64 bytes from snagr3s3.irobot.uv.es (147.156.223.81): icmp_seq=5 ttl=51 time=226 ms
^C
--- www.mclibre.org ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4004ms
rtt min/avg/max/mdev = 225.048/230.243/244.137/7.263 ms
root@ubuntu:/etc#
```

In the foreground, there is a file editor window titled "Manuel Martinez Orcko" containing the same ping command output. The status bar at the bottom of the screen shows the following information:

To direct input to this VM, click inside or press Ctrl+G.

6°C Despejado

Get Help Write Out Where Is Cut Text Uncut Text Justify Cur Pos Undo Mark Copy Text

Exit Read File Replace Go To Line Go To Line

Archivo Editar Ver Activar Windows

Vé a Configuración para activar Windows.
Ln 1, Col 24 23 caracteres. 100% Windows UTF-8

11:08 ESP LAA 10/5/2025

[Para aplicar los cambios lo hacemos con el comando `nft -f nftables.conf` estando dentro de la carpeta `/etc/` y si no, hacemos el comando `nft -f /etc/nftables.conf` y revisamos con `nft list ruleset` ]

The screenshot shows a Linux desktop environment with a dark theme. A terminal window is open with the command:

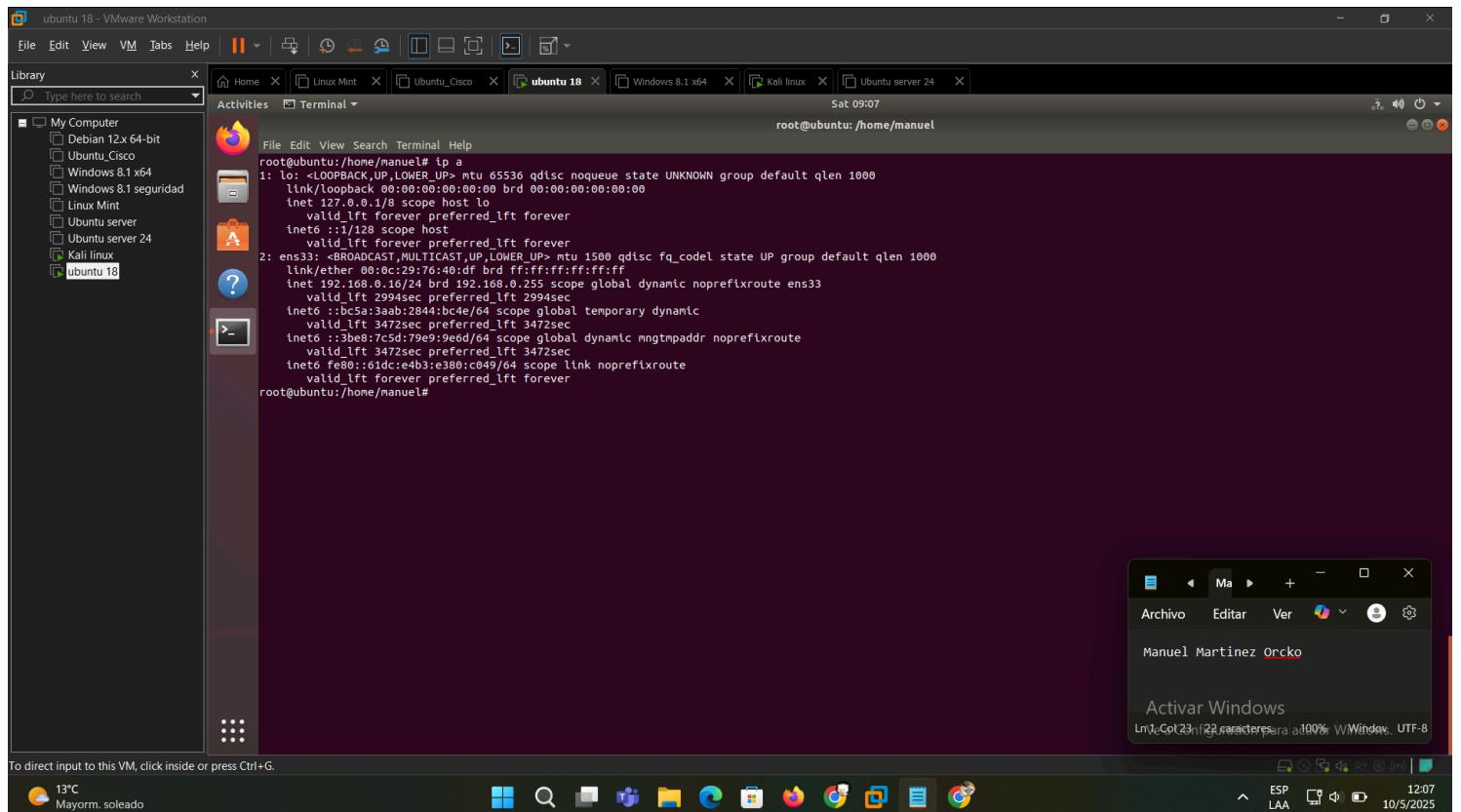
```
root@ubuntu:/home/manuel# nft list ruleset
root@ubuntu:/home/manuel# nft -f /etc/nftables.conf
root@ubuntu:/home/manuel# nft list ruleset
table inet filter {
    chain input {
        type filter hook input priority 0; policy accept;
        if "lo" accept
        ct state established,related accept
        reject with icmpx type admin-prohibited
    }
    chain forward {
        type filter hook forward priority 0; policy accept;
        ct state established,related accept
        ip daddr 147.156.223.81 tcp dport { http, https } accept
        ip daddr 181.188.165.42 tcp dport { http, https } accept
        reject with icmpx type admin-prohibited
    }
    chain output {
        type filter hook output priority 0; policy accept;
        if "lo" accept
        ct state established,related accept
        ip daddr 147.156.223.81 tcp dport { http, https } accept
        reject with icmpx type admin-prohibited
    }
}
root@ubuntu:/home/manuel#
```

A file browser window is also visible, showing a list of local drives and network shares.

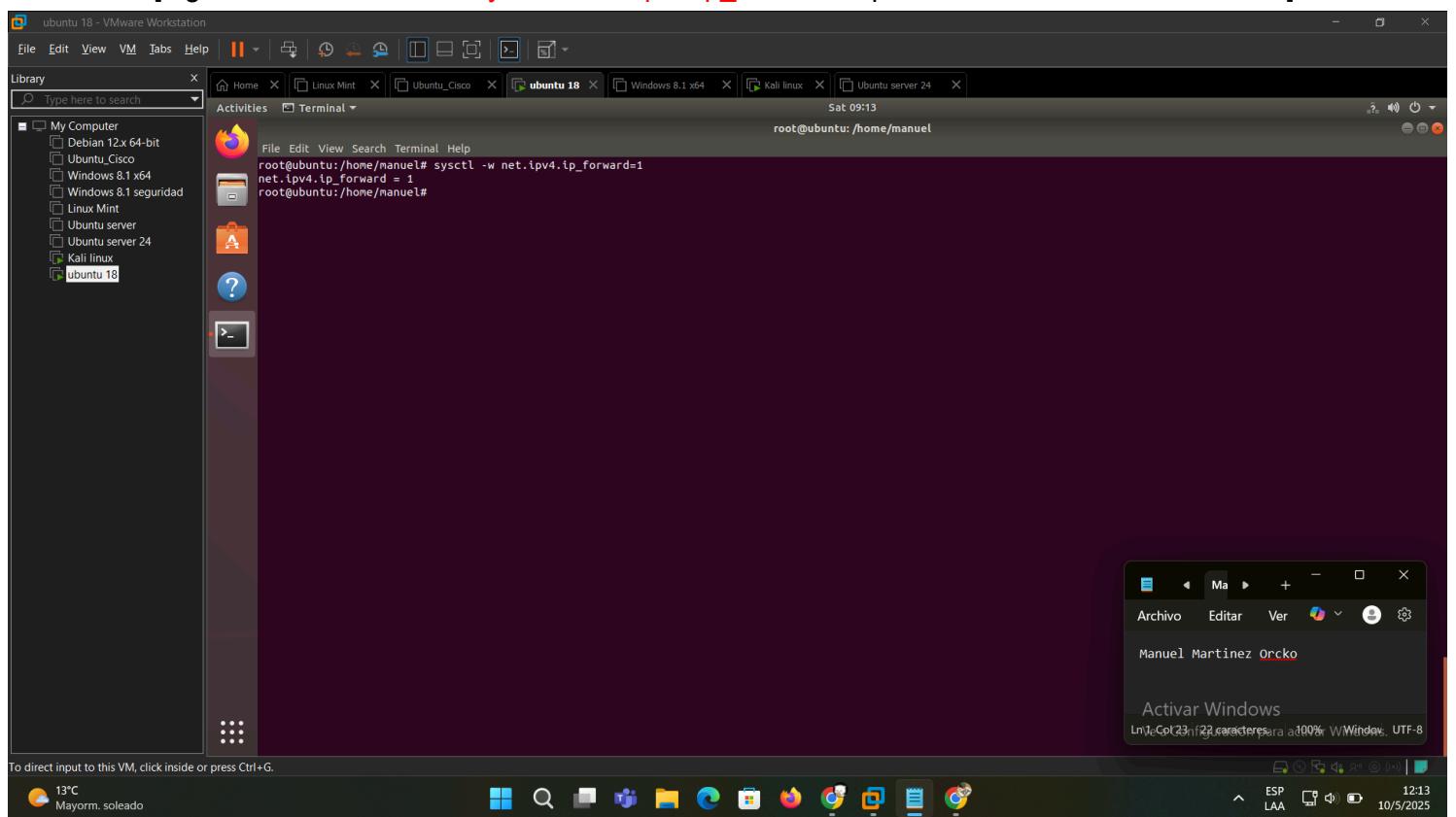
[Probamos que solo podamos conectarnos a la página que se necesita para la prueba y verificar que las demás no sean accesibles, pero esto solo se aplica a la máquina de ubuntu, necesitamos que las demás maquinas solo puedan ingresar a esa pagina y no a las demás]

The screenshot shows a Linux desktop environment with a dark theme. A web browser window is open to [mclibre.org](https://www.mclibre.org), displaying the homepage for 'MATERIAL CURRICULAR LIBRE'. The page features sections for 'Apuntes de clase 2024/2025' and 'Otros', each with several links to various educational resources. A file manager window is also visible, showing a list of files and folders.

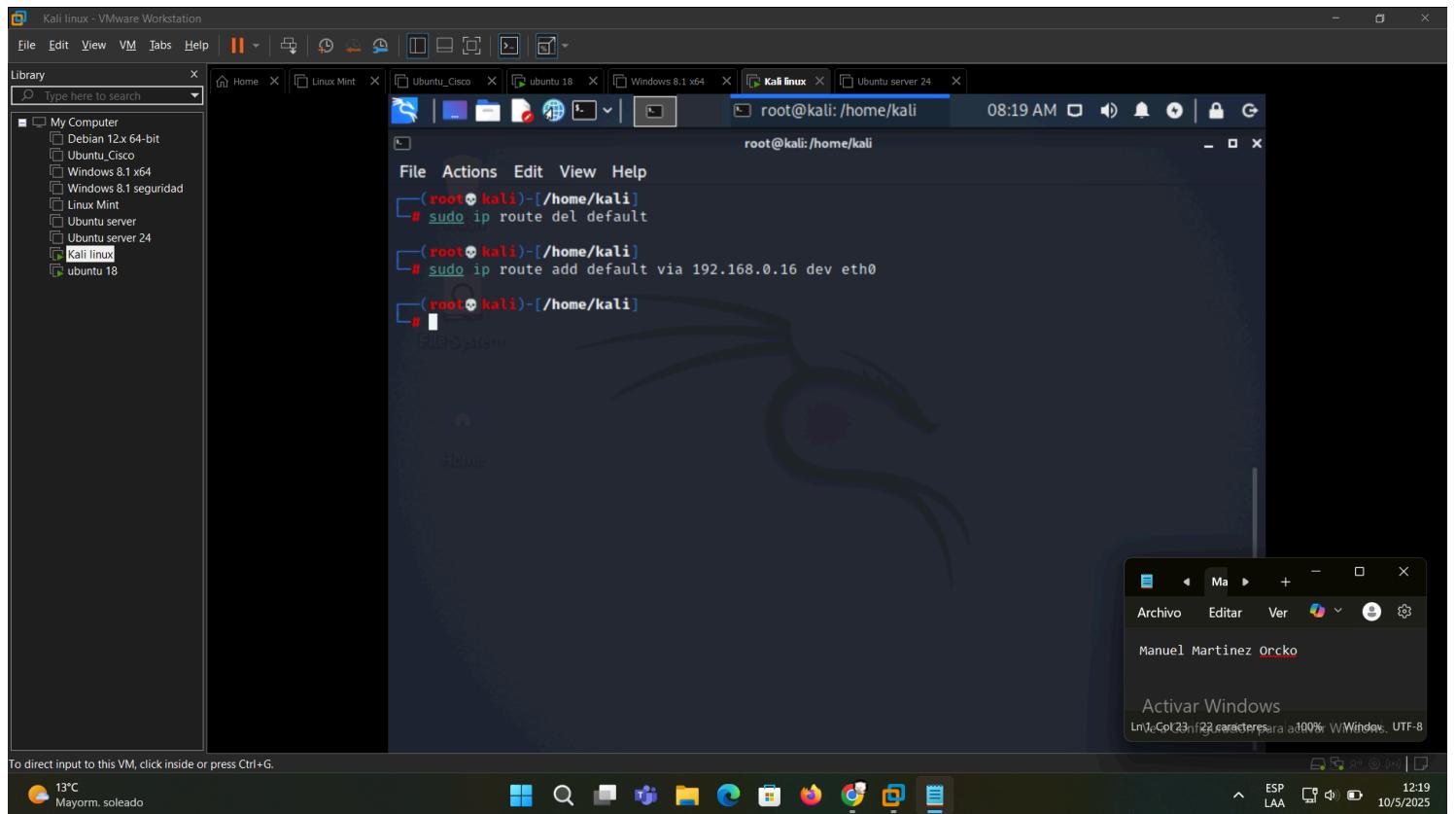
## [Revisamos la ip de ubuntu que funcionara como gateway para las demás maquinas]



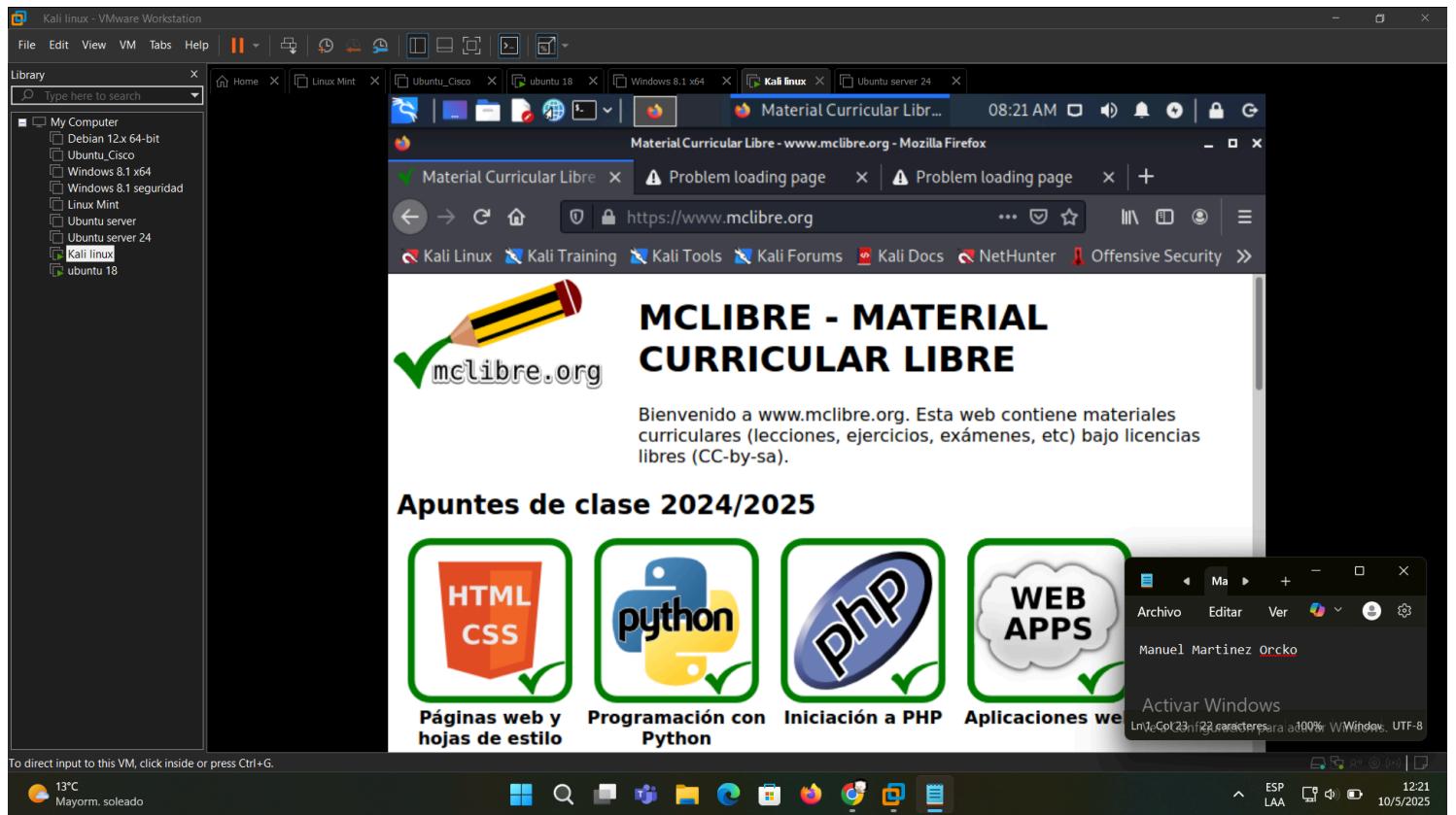
[Ingresamos el comando `sysctl -w net.ipv4.ip_forward=1` para activar el reenvío de ubuntu]



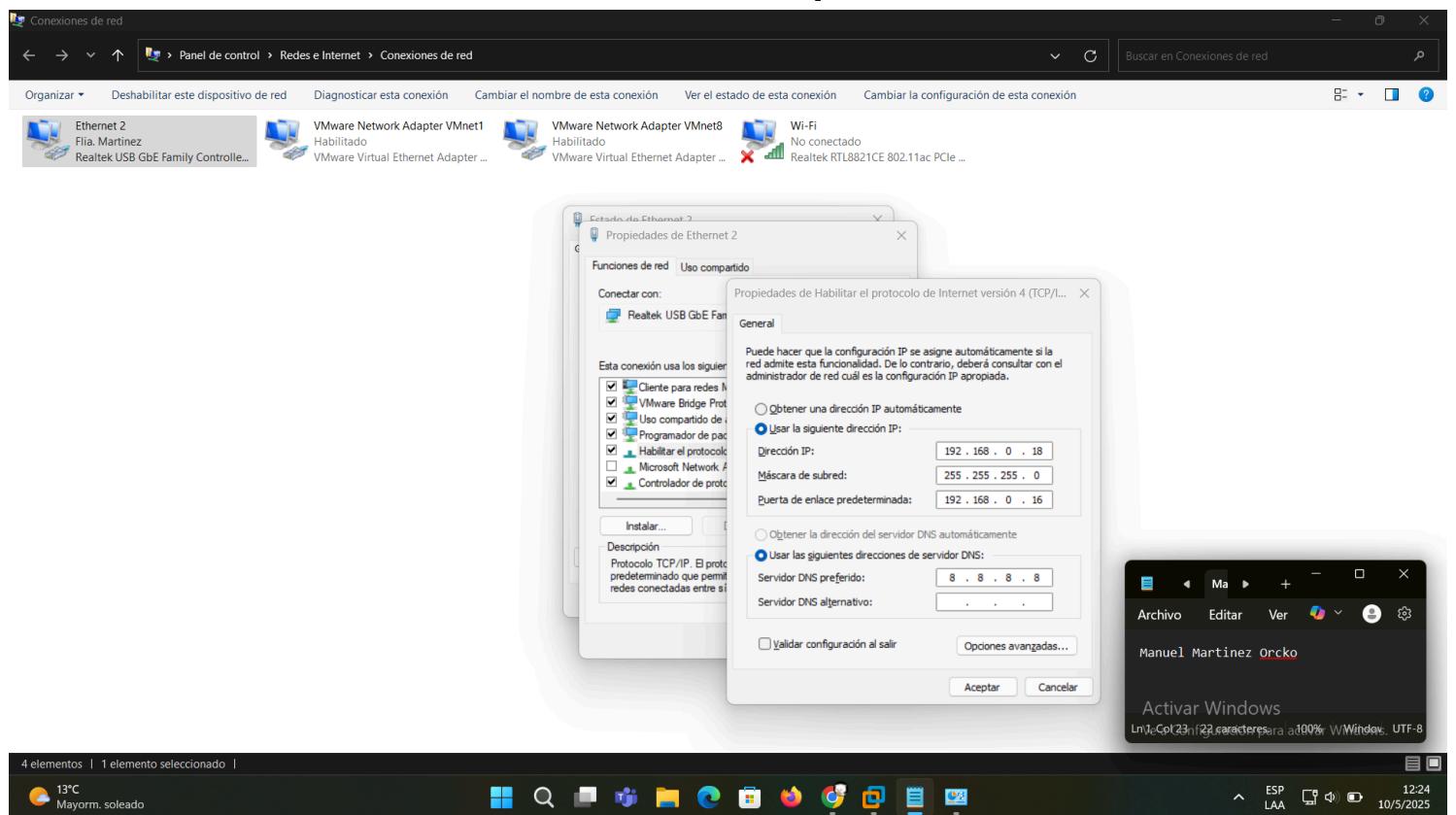
## [Cambiamos el gateway de kali linux por la ip de ubuntu]



[Ahora probamos en un navegador que solo pueda acceder a la página que se necesita, y que las otras sean bloqueadas, ingresamos a [www.mclibre.org](http://www.mclibre.org) para probar]



[En windows cambiamos el gateway manteniéndonos en la misma red y poner como gateway la ip de ubuntu, y el dns en 8.8.8.8 ]



[Y por último probamos en el navegador y vemos que no pueden ingresar a otras páginas que no sean la de la prueba]

