# PRÁCTICA 6 (almellonesfernandez-practica6) – UD 4. U.D.4. COMUNICACIÓN DE DISPOSITIVOS Y SISTEMAS INFORMÁTICOS (I). SEGURIDAD PERIMETRAL. IPTABLES.

# COMUNICACIÓN DE DISPOSITIVOS Y SISTEMAS INFORMÁTICOS (I). SEGURIDAD PERIMETRAL. IPTABLES.

En esta práctica hay que usar toda la estructura creada en el ejercicio anterior, pero en este caso vamos a realizar la seguridad perimetral de toda nuestra empresa que recae en el servidor firewall.XXxx y por supuesto de la seguridad de host de la misma (INPUT/OUTPUT) de nuestra empresa, que está formada por tres zonas (dmz, lan y wlan), y los equipos que hemos ubicado en cada zona. Esta estructura (y algunos equipos más que pondremos) los vamos a usar durante todo el año, así que muy importante la estabilidad de la misma.

### CARACTERISTICAS GENERALES DE FIREWALL y A LA PRÁCTICA.

- El script de iptables se arrancará en el inicio de la máquina (/etc/rc.local) o mediante servicio.
- Usar comentarios en las mismas reglas de iptables, sobre todo en las de FORWARD, que son las nuevas.
- Uso de funciones, variables para facilitar el entendimiento y su modificación.
- 1. **(0,5 puntos).** Opciones por defecto y preparación del mismo.
- a) **Único** servicio instalado en la máquina, servicio SSHD.

almellor	nesferna	ndez@almellonesfernande:	z.firewall:~\$ sudo nets	stat -putan  grep	LISTEN						
tcp	0	0 127.0.0.54:53	0.0.0.0:*	LISTEN	725/systemd-resolve						
tcp	0	0 127.0.0.1:6010	0.0.0.0:*	LISTEN	1461/sshd: almellon						
tcp	0	0 127.0.0.53:53	0.0.0.0:*	LISTEN	725/systemd-resolve						
tcp6	0	0 ::1:6010	:::*	LISTEN	1461/sshd: almellon						
tcp6	0	0 :::22	:::*	LISTEN	1/init						
almellor	almellonesfernandez@almellonesfernandez-firewall:~\$										

b) Reglas defecto DROP para la tabla filter en el firewall para INPUT/OUTPUT/FORWARD en las reglas de la tabla FILTER. Reglas de borrado por defecto.

```
root@almellonesfernandez-firewall:~/scripts# iptables -L -n -v Chain INPUT (policy DROP 1 packets, 40 bytes pkts bytes target prot opt in out source 0 ACCEPT 0 -- lo * 0.0.0.0/0
                                                                                          destination
                                                                                          0.0.0.0/0
                                                               0.0.0.0/0
                                                                                          0.0.0.0/0
        1576 ACCEPT
                                                                                                                      tcp dpt:22
Chain FORWARD (policy DROP 0 packets, pkts bytes target prot opt in
                                                  0 bytes
                                                               source
                                                                                          destination
                                                    out
             0 LOG
                                          lan2
                                                    wlan2
                                                               0.0.0.0/0
                                                                                          0.0.0.0/0
                                                                                                                      LOG flags 0 level 4 prefix "LAN
 to DMZ DENIED AlmellonesF"
             0 DROP
                              0
                                          lan2
                                                    wlan2
                                                               0.0.0.0/0
                                                                                          0.0.0.0/0
     0
             0 L0G
                              0
                                                    dmz2
                                                               0.0.0.0/0
                                                                                          0.0.0.0/0
                                                                                                                      LOG flags 0 level 4 prefix "LAN
 to DMZ DENIED AlmellonesF"
             0 DROP
                                     -- lan2
                                                    dmz2
                                                               0.0.0.0/0
                                                                                          0.0.0.0/0
                              0
Chain OUTPUI (policy DROP 0 packets, pkts bytes target prot opt in 0 0 ACCEPT 0 -- *
                                                 0 bytes)
                                                                                          destination
                                                    out
                                                               source
                                                    lo
                                                               0.0.0.0/0
                                                                                          0.0.0.0/0
                                                                                                                      /* Importante para enviar a otr
os procesos. Ej. DNS local */
15 1352 ACCEPT 0 --
                                                               0.0.0.0/0
                                                                                          0.0.0.0/0
                                                                                                                      state RELATED.ESTABLISHED /* Re
spuestas INPUT */
root@almellonesfernandez-firewall:~/scripts#
```

c) Firewall consigo mismo se permitirá todo (loopback).

```
Chain INPUT (policy DROP 1 packets, 40 bytes)
pkts bytes target prot opt in out
0 0 ACCEPT 0 -- lo *
                                                                                destination
                                                       source
                                                       0.0.0.0/0
                                                                                0.0.0.0/0
        2808 ACCEPT
                                                       0.0.0.0/0
                                                                                0.0.0.0/0
                                                                                                         tcp dpt:22
Chain FORWARD (policy DROP 0 packets, 0 bytes)
                           prot opt in
 pkts bytes target
0 0 LOG
                                             out
                                                       source
                                                                                destination
                                                                                                         LOG flags 0 level 4 prefix "LAN
                                                       0.0.0.0/0
                                     lan2
                                             wlan2
                                                                                0.0.0.0/0
 to DMZ DENIED AlmellonesF"
     0
            0 DROP
                           0
                                     lan2
                                             wlan2
                                                       0.0.0.0/0
                                                                                0.0.0.0/0
            0 L0G
                                                                                                        LOG flags 0 level 4 prefix "LAN
                           0
     Θ
                                     lan2
                                              dmz2
                                                       0.0.0.0/0
                                                                                0.0.0.0/0
 to DMZ DENIED AlmellonesF"
            0 DROP
                           0
                                              dmz2
                                                       0.0.0.0/0
                                                                                0.0.0.0/0
                                    lan2
Chain OUTPUT (policy DROP 0 packets, 0 bytes)
pkts bytes target

0 0 ACCEPT
os procesos. Ei. DNS
28 2544 ACCEPT
                          prot opt in
                                                                                destination
                                                                                                         /* Importante para enviar a otr
                                             lo
                                                       0.0.0.0/0
                           0
                                                                                0.0.0.0/0
                    DNS local */
                                                       0.0.0.0/0
                                                                                0.0.0.0/0
                                                                                                         state RELATED,ESTABLISHED /* Re
spuestas INPUT */
root@almellonesfernandez-firewall:~/scripts#
```

d) El script de iptables se arrancará en el inicio de la máquina (/etc/rc.local) o mediante servicio.

```
root@almellonesfernandez-firewall:/etc/systemd/system# systemctl status iptablesalmellonesfernandez.service

iptablesalmellonesfernandez.service - Aplicar reglas de iptables

Loaded: loaded (/etc/systemd/system/iptablesalmellonesfernandez.service; enabled; preset: enabled)

Active: active (exited) since Tue 2024-12-24 12:33:13 UTC: 20s ago

Process: 2134 ExecStart=//root/scripts/firewall-almellonesfernandez.sh (code=exited, status=0/SUCCESS)

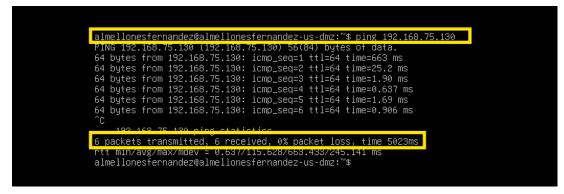
Main PID: 2134 (code=exited, status=0/SUCCESS)

CPU: 1.398s

dic 24 12:33:11 almellonesfernandez-firewall systemd[1]: Starting iptablesalmellonesfernandez.service - Aplicar reglas dic 24 12:33:12 almellonesfernandez-firewall firewall-almellonesfernandez.sh[2134]: Arrancado Cortafuegos de Alvaro Almadic 24 12:33:13 almellonesfernandez-firewall systemd[1]: Finished iptablesalmellonesfernandez.service - Aplicar reglas lines 1-10/10 (END)
```

- 2. **(1 punto)** Reglas de INPUT. Vamos asegurar nuestro servidor de posibles ataques desde las cuatro tarjetas de red, para ello se configurará de la siguiente forma.
- a) Se puede hacer ping al firewall desde cualquier sitio LAN, WLAN y DMZ, pero no desde WAN. Dejar después que se pueda hacer ping desde todas las subredes.

```
root@<mark>almellonesfernandez-firewall</mark> ~/scripts# iptables -L -n -v
Chain INPUI (policy DROP 0 packets, 0 bytes)
pkts bytes target prot opt in out
                           prot opt in
0 -- lo
                                                                                  destination
                                                         source
           0 ACCEPT
                                                        0.0.0.0/0
                                                                                  0.0.0.0/0
0.0.0.0/0
       3152 ACCEPT
                                                                                                            tcp dpt:22
                                                                                                            /* Permitir ping desde LAN */
/* Permitir ping desde WLAN *
/* Permitir ping desde DMZ */
           0 ACCEPT
                                      lan2
                                                        0.0.0.0/0
                                                                                  0.0.0.0/0
           0 ACCEPT
                           1
                                      dmz2
                                                        0.0.0.0/0
                                                                                  0.0.0.0/0
Chain FORWARD (policy DROP 0 packets, 0 bytes)
pkts bytes target prot opt in
0 0 LOG 0 -- lan2
to DMZ DENIED AlmellonesF"
                                                                                  destination
                                               out
                                                         source
                                              wlan2
                                                                                                           LOG flags 0 level 4 prefix "LAN
                                                        0.0.0.0/0
                                                                                  0.0.0.0/0
           0 DROP
0 LOG
                           0
                                               wlan2
                                                        0.0.0.0/0
                                                                                  0.0.0.0/0
 to DMZ DENIED AlmellonesF"
                                                                                                           LOG flags 0 level 4 prefix "LAN
                                                                                  0.0.0.0/0
                                              dmz2
                                                        0.0.0.0/0
           0 DROP
                           0
                                -- lan2
                                              dmz2
                                                        0.0.0.0/0
                                                                                  0.0.0.0/0
Chain OUTPUT (policy DROP 0 packets, 0 bytes)
pkts bytes target prot opt in
0 0 ACCEPT 0 -- *
                                                                                  destination
                                              out
                                                         source
                                              lo
                                                        0.0.0.0/0
                                                                                  0.0.0.0/0
                                                                                                            /* Importante para enviar a otr
os procesos. Ej. DN
27 2392 ACCEPT
spuestas INPUT */
                    DNS local */
                           0 -- *
                                                        0.0.0.0/0
                                                                                  0.0.0.0/0
                                                                                                           state RELATED.ESTABLISHED /* Re
root@almellonesfernandez-firewall:~/scripts#
```



Se ve muy mal porque todavía no tengo los output configurados y no puedo hacer ssh a las máquinas pero son los ping a la máquina firewall desde las redes que permite el ping

```
{\tt root@almellonesfern} and {\tt ez-firewall:} {\tt ~\# iptables -L -n -v} \\ {\tt Chain INPUT (policy DROP 1 packets, 328 bytes)}
 pkts bytes target
                          prot opt in 0 -- lo
                                             out
                                                       source
                                                                               destination
         616 ACCEPT
                                     lo
                                                       0.0.0.0/0
  373 35480 ACCEPT
4 336 ACCEPT
                           6
                                 ___
                                                       0.0.0.0/0
                                                                               0.0.0.0/0
                                                                                                        tcp dpt:22
                                     lan2
                                                       0.0.0.0/0
                                                                               0.0.0.0/0
                                                                                                        /* Permitir ping desde LAN */
                                                                               0.0.0.0/0
         420 ACCEPT
                                     wlan2
                                                       0.0.0.0/0
                                                                                                         /* Permitir ping desde WLAN */
                                                                                                        /* Permitir ping desde DMZ */
    6
         504 ACCEPT
                           1
                                     dmz2
                                                       0.0.0.0/0
                                                                               0.0.0.0/0
Chain FORWARD (policy DROP 1368 packets, 83316 bytes)
                          prot opt
                                             out
                                                                               destination
 pkts bytes target
                                                       source
 0 0 LOG 0
to DMZ DENIED AlmellonesF"
                                     lan2
                                             wlan2
                                                       0.0.0.0/0
                                                                               0.0.0.0/0
                                                                                                        LOG flags 0 level 4 prefix "LAN
            0 DROP
                                     lan2
                                             wlan2
                                                       0.0.0.0/0
                                                                               0.0.0.0/0
                           0
                                                                                                        LOG flags 0 level 4 prefix "LAN
            0 LOG
                                     lan2
                                             dmz2
                                                       0.0.0.0/0
                                                                               0.0.0.0/0
 to DMZ DENIED AlmellonesF"
                                                                               0.0.0.0/0
    0
           0 DROP
                          0
                                     lan2
                                             dm<sub>7</sub>2
                                                       0.0.0.0/0
Chain OUTPUT (policy DROP 167 packets, 12281 bytes)
                                                                               destination
 pkts bytes target
                          prot opt in 0 -- *
                                             out
                                                       source
         616 ACCEPT
                                                       0.0.0.0/0
                                                                               0.0.0.0/0
                                                                                                        /* Importante para enviar a otr
os procesos. Ej. DNS local */
305 33274 ACCEPT 0 --
                                                       0.0.0.0/0
                                                                               0.0.0.0/0
                                                                                                        state RELATED, ESTABLISHED /* Re
spuestas INPUT */
root@almellonesfernandez-firewall:~#
```

# WAN no puede hacer ping porque la política por defecto está en DROP y no hay ninguna regla que acepte que WAN pueda hacer ping

```
root@<mark>almellonesfernandez-firewall</mark> ~/scripts# iptables -L -n -v
Chain INPUT (policy DROP 0 packets, 0 bytes)
 pkts bytes target
                                                                          destination
                        prot opt in
                                          out
                                                   source
           0 ACCEPT
                                                   0.0.0.0/0
                                                                          0.0.0.0/0
                                  lo
   33 2088 ACCEPT
                                                   0.0.0.0/0
                                                                          0.0.0.0/0
                                                                                                 tcp dpt:22
    0
          0 ACCEPT
                                                   0.0.0.0/0
                                                                          0.0.0.0/0
                                                                                                 /* Permitir ping desde cualquie
r subred */
Chain FORWARD (policy DROP 0 packets, 0 bytes)
                        prot opt in
pkts bytes target
0 0 LOG
                                                                          destination
                                          out
                                                   source
                                  lan2
                                                   0.0.0.0/0
                                                                                                 LOG flags 0 level 4 prefix "LAN
                                                                          0.0.0.0/0
 to DMZ DENIED AlmellonesF"
           0 DROP
                                   lan2
                                          wlan2
                                                   0.0.0.0/0
                                                                          0.0.0.0/0
    0
                        0
                         0
                                                   0.0.0.0/0
                                                                          0.0.0.0/0
                                                                                                 LOG flags 0 level 4 prefix "LAN
                                  lan2
                                          dmz2
 to DMZ DENIED AlmellonesF"
          0 DROP
                                  lan2
                                          dmz2
                                                   0.0.0.0/0
                                                                          0.0.0.0/0
    0
                        0
Chain OUTPUT (policy DROP 0 packets, 0 bytes)
pkts bytes target
0 0 ACCEPT
                        prot opt in 0 -- *
                                                                          destination
                                          out
                                                   source
                                                   0.0.0.0/0
                                                                          0.0.0.0/0
                                                                                                 /* Importante para enviar a otr
                                          lo
os procesos. Ej. DNS local */
19 1688 ACCEPT 0 --
                                                   0.0.0.0/0
                                                                          0.0.0.0/0
                                                                                                 state RELATED.ESTABLISHED /* Re
spuestas INPUT */
root@almellonesfernandez-firewall:~/scripts#
```

# Finalmente dejo que todas desde todas las redes se pueda hacer ping como se pide

b) Se puede acceder al firewall vía ssh desde todas las interfaces menos desde la zona WLAN. Si la petición se realiza desde dentro (LAN y DMZ).

root@ <mark>almellonesferna</mark> Chain <mark>INPUT</mark> (policy				iptables -L -n -v		^
pkts bytes target	prot op	ot in	out	source	destination	
0 0 ACCEPT	0	- lo	*	0.0.0.0/0	0.0.0.0/0	
29 1832 ACCEPT	6	wan2	*	0.0.0.0/0	0.0.0.0/0	tcp dpt:22 /* Permitir SSH desd
e WAN */ 0 0 ACCEPT	1	*	*	0.0.0.0/0	0.0.0.0/0	/* Permitir ping desde cualquie
r subred */ 0 0 ACCEPT	6	lan2	*	0.0.0.0/0	0.0.0.0/0	tcp dpt:22 /* Permitir SSH desd
e LAN */ 0 0 ACCEPT e DMZ */	6	- dmz2	*	0.0.0.0/0	0.0.0.0/0	tcp dpt:22 /* Permitir SSH desd
Chain FORWARD (polic	y DROP 7 p	ackets.	424 byt	es)		
pkts bytes target	prot or		out	source	destination	
0 0 LOG		lan2	wlan2	0.0.0.0/0	0.0.0.0/0	LOG flags 0 level 4 prefix "LAN
to DMZ DENIED Almel				,	,	
0 0 DROP	0	lan2	wlan2	0.0.0.0/0	0.0.0.0/0	
0 0 LOG	0		dmz2	0.0.0.0/0	0.0.0.0/0	LOG flags 0 level 4 prefix "LAN
to DMZ DENIED Almel	•	Canz	dilizz	0.0.0.070	0.0.0.070	Loo reags o cever 4 prerex EAN
0 0 DROP		lan2	dmz2	0.0.0.0/0	0.0.0.0/0	
Chain OUTPUT (policy	DROP 1 pa	ackets.	60 bytes	)		
pkts bytes target	prot or		out	source	destination	
0 0 ACCEPT		*	lo	0.0.0.0/0	0.0.0.0/0	/* Importante para enviar a otr
os procesos. Ej. DNS	local */			, •	, 0	,para onvear a ver
18 1680 ACCEPT		*	*	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* Re
spuestas INPUT */	Ü				2.0.0.0,0	TITE NEETHED, ESTREETSHED / NO
root@almellonesferna	andez-firev	vall:~/s	cripts#	1		
-			•	_		A etime Windows

# He permitido que WAN pueda hacer ssh para que las capturas de firewall se vean en blanco

```
almellonesfernandez@almellonesfernandez-us-dmz:~$ ssh almellonesfernandez@192.168.75.130
The authenticity of host '192.168.75.130 (192.168.75.130)' can't be established.
ED25519 key fingerprint is SHA256:BjipMtMZmAj4tR6Wxt0/9tJ9TR/uWQhE+knS8vD73G8.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '192.168.75.130' (ED25519) to the list of known hosts.
almellonesfernandez@192.168.75.130's password:
Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.8.0-49-generic x86_64)
 * Documentation: https://help.ubuntu.com
 * Management:
                     https://landscape.canonical.com
                     https://ubuntu.com/pro
 * Support:
 System information as of mar 24 dic 2024 16:26:13 UTC
                                                                 221
  System load: 0.0
                                      Processes:
  Usage of /: 49.6% of 9.75GB Users logged in:
                                      IPv4 address for wan2: 192.168.75.130
  Memory usage: 31%
  Swap usage: 0%
 * Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s
   just raised the bar for easy, resilient and secure K8s cluster deployment.
   https://ubuntu.com/engage/secure-kubernetes-at-the-edge
El mantenimiento de seguridad expandido para Applications está desactivado
Se pueden aplicar 62 actualizaciones de forma inmediata.
Para ver estas actualizaciones adicionales, ejecute: apt list --upgradable
Active ESM Apps para recibir futuras actualizaciones de seguridad adicionales.
Vea https://ubuntu.com/esm o ejecute «sudo pro status»
The list of available updates is more than a week old.
To check for new updates run: sudo apt update
Last login: Tue Dec 24 11:48:32 2024 from 192 168,75.1
almellonesfernandez<mark>.</mark>almellonesfernandez-firewall:<mark>`</mark>$ _
```

```
almellonesfernandez@almellonesfernandez-us-intranet:~$ ssh almellonesfernandez@192.168.75.130
The authenticity of host '192.168.75.130 (192.168.75.130)' can't be established.
ED25519 key fingerprint is SHA256:BjipMtMZmAj4tR6Wxt0/9tJ9TR/uWQhE+knS8vD73G8.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '192.168.75.130' (ED25519) to the list of known hosts.
almellonesfernandez@192.168.75.130's password:
Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.8.0-49-generic x86_64)
  * Documentation: https://help.ubuntu.com

* Management: https://landscape.canonical.com
  * Management:
                        https://ubuntu.com/pro
  * Support:
 System information as of mar 24 dic 2024 16:28:13 UTC
  System load: 0.03
Usage of /: 49.6% of 9.75GB
                                                                         223
                                            Processes:
                                           Users logged in:
   Memory usage: 31%
                                           IPv4 address for wan2: 192.168.75.130
   Swap usage:
                    0%
  * Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s
    just raised the bar for easy, resilient and secure K8s cluster deployment.
    https://ubuntu.com/engage/secure-kubernetes-at-the-edge
El mantenimiento de seguridad expandido para Applications está desactivado
Se pueden aplicar 62 actualizaciones de forma inmediata.
Para ver estas actualizaciones adicionales, ejecute: apt list --upgradable
Active ESM Apps para recibir futuras actualizaciones de seguridad adicionales.
Vea https://ubuntu.com/esm o ejecute «sudo pro status»
 The list of available updates is more than a week old.
 To check for new updates run: sudo apt update
 Last login: Tue Dec 24 16:26:13 2024 from
almellonesfernandez(almellonesfernandez-firewall:~$
```

Como no tengo los outputs configurados no puedo poner el fondo blanco para las capturas pero como se observa son los ssh desde las redes que si permito.

root@almellonesfer	nandez-fir	rewall ~,	scripts#	iptables -L -n -	·V	Δ.
Chain INPUT (polic						
pkts bytes target	prot	opt in	out	source	destination	
68 5212 ACCEPT	Ō	lo	*	0.0.0.0/0	0.0.0.0/0	
53 3320 ACCEPT e WAN */	6	wani	*	0.0.0.0/0	0.0.0.0/0	tcp dpt:22 /* Permitir SSH desd
0 0 ACCEPT	1	*	*	0 0 0 0/0	0 0 0 0/0	/* Permitir ping desde cualquie
r subred */ 77 9654 ACCEPT e LAN */	6	lani	<u>*</u>	0.0.0.0/0	0.0.0.0/0	tcp dpt:22 /* Permitir SSH desd
85 10270 ACCEPT	6	dmz2	<u>*</u>	0.0.0.0/0	0.0.0.0/0	tcp dpt:22 /* Permitir SSH desd
Chain FORWARD (pol	icy DROP 2	205 packe	ets, 12392	2 bytes)		
pkts bytes target	prot	opt in	out	source	destination	
0 0 LOG	0	lan	wlan2	0.0.0.0/0	0.0.0.0/0	LOG flags 0 level 4 prefix "LAN
to DMZ DENIED Alm				0 0 0 0 0	0 0 0 0 0	
0 0 DROP	0	lani			0.0.0.0/0	100.57
0 0 LOG	0	lan	dmz2	0.0.0.0/0	0.0.0.0/0	LOG flags 0 level 4 prefix "LAN
to DMZ DENIED Almo	ellonesi" 0	lani	dmz2	0.0.0.0/0	0.0.0.0/0	
Chain OUTPUT (poli	cv DROP 21	10 packe	s, 14468	bvtes)		
pkts bytes target		opt in	out	source	destination	
68 5212 ACCEPT		*	lo	0.0.0.0/0	0.0.0.0/0	/* Importante para enviar a otr
os procesos. Ej. Di	NS local >	*/				. , , , , , , , , , , , , , , , , , , ,
184 25640 ACCEPT spuestas INPUT */		*	*	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* Re
root@almellonesfer	nandez fil	rewall	ecripte#			
1 00 tga tille t tolles lel	nanuez-1 (1	i ∈wall:~,	ser thre			

Como podemos observar los contadores de las dos redes que permite hacer ssh aumenta

c) No se permitirá **nada** más.

Al poner las políticas por defecto en DROP no se permite nada más a menos de que aplique en iptables una regla ACCEPT

- 3. Reglas de OUTPUT, de la siguiente forma.
- a) (0,5 puntos) Por todas las tarjetas de red, podrá:
- Realizar ping a todas las subredes a cualquier equipo que haya en dicha subred.

```
Chain INPUT (policy DROP 0 packets, 0 bytes)
pkts bytes target
2 166 ACCEPT
                        prot opt in 0 -- lo
                                         out
                                                  source
                                                                        destination
                                                  0.0.0.0/0
      1712 ACCEPT
                                                                                               tcp dpt:22 /* Permitir SSH desd
   26
                                                                        0.0.0.0/0
                        6
                                  wan2
                                                  0.0.0.0/0
e WAN */
    Θ
          0 ACCEPT
                        1
                                                  0.0.0.0/0
                                                                        0.0.0.0/0
                                                                                               /* Permitir ping desde cualquie
r subred */
          0 ACCEPT
                        6
                                                  0.0.0.0/0
                                                                        0.0.0.0/0
                                                                                               tcp dpt:22 /* Permitir SSH desd
                                  lan2
e LAN */
          0 ACCEPT
                        6
                                  dmz2
                                                  0.0.0.0/0
                                                                        0.0.0.0/0
                                                                                               tcp dpt:22 /* Permitir SSH desd
e DMZ */
         0 ACCEPT
                        0
                                                  0.0.0.0/0
                                                                        0.0.0.0/0
                                                                                               state RELATED, ESTABLISHED /* Re
spuestas OUTPUT */
Chain FORWARD (policy DROP 7 packets, 443 bytes)
pkts bytes target
0 0 LOG
                       prot opt in
0 -- lan2
                                         out
                                                                        destination
                                         wlan2
                                                                                               LOG flags 0 level 4 prefix "LAN
                                                  0.0.0.0/0
                                                                        0.0.0.0/0
 to DMZ DENIED AlmellonesF"
                                  lan2
          0 DROP
                                         wlan2
                                                  0.0.0.0/0
                                                                        0.0.0.0/0
                        0
          0 LOG
    Θ
                        0
                                                  0.0.0.0/0
                                                                        0.0.0.0/0
                                  lan2
                                         dmz2
                                                                                               LOG flags 0 level 4 prefix "LAN
 to DMZ DENIED AlmellonesF"
          0 DROP
                                  lan2
                                         dmz2
                                                  0.0.0.0/0
                                                                        0.0.0.0/0
Chain OUTPUT (policy DROP 7 packets, 503 bytes)
                       prot opt in
pkts bytes target
                                                                        destination
                                                  source
        166 ACCĒPT
                                         10
                                                  0.0.0.0/0
                                                                        0.0.0.0/0
                                                                                               /* Importante para enviar a otr
os procesos. Ej. DN
16 1424 ACCEPT
                 DNS local */
                                                  0.0.0.0/0
                                                                        0.0.0.0/0
                                                                                               state RELATED, ESTABLISHED /* Re
                        0
spuestas INPUT */
          0 ACCEPT
                                                  0.0.0.0/0
                                                                        0.0.0.0/0
                                                                                               /* OUTPUT todas interfaces ping
root@almellonesfernandez-firewall:~/scripts#
```

```
root@almellonesfernandez-firewall:~/scripts# ping 192.168.102.2
PING 192.168.102.2 (192.168.102.2) 56(84) bytes of data.
64 bytes from 192.168.102.2: icmp_seq=1 ttl=64 time=280 ms
64 bytes from 192.168.102.2: icmp_seq=2 ttl=64 time=29.4 ms
64 bytes from 192.168.102.2: icmp_seq=3 ttl=64 time=7.56 ms
^C
    192 168 102 2 ping statistics
3 packets transmitted, 3 received, 0% packet loss, time 2003ms
rtt min/avg/max/mdev = 7.558/105.713/280.221/123.716 ms
root@almellonesfernandez-firewall:~/scripts# ping 10.0.102.2
PING 10.0.102.2 (10.0.102.2) 56(84) bytes of data.
64 bytes from 10.0.102.2: icmp_seq=1 ttl=64 time=53.9 ms
64 bytes from 10.0.102.2: icmp_seq=2 ttl=64 time=411 ms
--- 10.0.102.2 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1001ms rtt min/avg/max/mdev = 53.939/232.242/410.545/178.303 ms
root@almellonesfernandez-firewall:~/scripts# ping 172.16.102.2
PING 172.16.102.2 (172.16.102.2) 56(84) bytes of data.
64 bytes from 172.16.102.2: icmp seq=1 ttl=64 time=48.8 ms
64 bytes from 172.16.102.2: icmp_seq=2 ttl=64 time=0.404 ms
64 bytes from 172.16.102.2: icmp_seq=3 ttl=64 time=0.487 ms
^C
3 packets transmitted, 3 received, 0% packet loss, time 2007ms
rtt min/avg/max/mdev = 0.404/16.573/48.829/22.808 ms
root@almellonesfernandez-firewall:~/scripts#
```

Chain INPUT (policy I pkts bytes target 126 9714 ACCEPT	prot opt 0	in´ lo	out *	source 0.0.0.0/0	destination 0.0.0.0/0	Ann data 22 to Donnithin CCU dead
278 17744 ACCEPT e WAN */	6	wan2	*	0.0.0.0/0	0.0.0.0/0	tcp dpt:22 /* Permitir SSH desd
8 672 ACCEPT	1	*	*	0.0.0.0/0	0.0.0.0/0	/* Permitir ping desde cualquie
0 0 ACCEPT e LAN */	6	lan2	*	0.0.0.0/0	0.0.0.0/0	tcp dpt:22 /* Permitir SSH desd
0 0 ACCEPT e DMZ */	6	dmz2	*	0.0.0.0/0	0.0.0.0/0	tcp dpt:22 /* Permitir SSH desd
0 0 ACCEPT spuestas OUTPUT */	0	*	*	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* Re
Chain FORWARD (polic	y DROP 539	packets	, 33018	bytes)		
pkts bytes target	prot opt	in	out	source	destination	I
0 0 LOG	0	lan2	wlan2	0.0.0.0/0	0.0.0.0/0	LOG flags 0 level 4 prefix "LAN
to DMZ <b>DENIED</b> Almel	lonesF"					I
0 0 DROP	0		wlan2	0.0.0.0/0	0.0.0.0/0	I
0 0 LOG	0	lan2	dmz2	0.0.0.0/0	0.0.0.0/0	LOG flags 0 level 4 prefix "LAN
to DMZ <b>DENIED</b> Almel	lonesF"					I
0 0 DROP	0	lan2	dmz2	0.0.0.0/0	0.0.0.0/0	I
Chain OUTPUT (policy	DROP 388 p	ackets,	26194 b	ytes)		
pkts bytes target	prot opt	in	out	source	destination	I
126 9714 ACCEPT	0	*	lo	0.0.0.0/0	0.0.0.0/0	/* Importante para enviar a otr
os procesos. Ej. DNS	local */					· · · · · · · · · · · · · · · · · · ·
172 15620 ACCEPT spuestas INPUT */	0	*	*	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* Re
3 252 ACCEPT	1	*	*	0.0.0.0/0	0.0.0.0/0	/* OUTPUT todas interfaces ping Activar Windows
^/ root@ <mark>almellonesferna</mark>	ndez-firewa	ll <mark>:</mark> ~/sc	ripts# 📗			Ve a Configuración para activar Windows.

• Conectarse por ssh a cualquier equipo de la red wan, y únicamente a las IP (que tenemos ahora, habrá que ir añadiendo a lo largo del curso, caso de que haga falta) de la zona DMZ, LAN y WLAN.

spuestas OUTPUT */							
Chain FORWARD (policy	DROP 1	1 pa	ackets.	668 byt	es)		
pkts bytes target	prot			out	source	destination	
0 0 LOG				wlan2	0.0.0.0/0	0.0.0.0/0	LOG flags 0 level 4 prefix "LAN
to DMZ DENIED Almel	-		cunz	wcanz	0.0.0.0,0	0.0.0.0,0	Loo reago o cever 4 prerex EAN
0 0 DROP			lan2	wlan2	0.0.0.0/0	0.0.0.0/0	
0 0 LOG	_		lan2	dmz2			LOG flags 0 level 4 prefix "LAN
	•		Laliz	ullizz	0.0.0.0/0	0.0.0.0/0	Lou itags o tevet 4 prefix LAN
to DMZ DENIED Almel					0 0 0 0 0	0 0 0 0 0	
0 0 DROP	0		lan2	dmz2	0.0.0.0/0	0.0.0.0/0	I
ar i arrana ( a i					,		I
Chain OUTPUT (policy							I
pkts bytes target	prot			out	source	destination	
4 308 ACCEPT	•		*	lo	0.0.0.0/0	0.0.0.0/0	/* Importante para enviar a otr ▮
os procesos. Ej. DNS	local *	/					
17 1528 ACCEPT	0		*	*	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* Re
spuestas INPUT */							·
0 0 ACCEPT	1		*	*	0.0.0.0/0	0.0.0.0/0	/* OUTPUT todas interfaces ping
*/						, -	, h
0 0 ACCEPT	6		*	wan2	0.0.0.0/0	0.0.0.0/0	tcp dpt:22 /* Permitir SSH a eq
uipos en WAN */	•				, .	0.0.0.0,0	top aptitie , tormitte out a oq
0 0 ACCEPT	6		*	dmz2	0.0.0.0/0	10.0.102.2	tcp dpt:22 /* Permitir SSH a eq
uipo en DMZ */	O			dill22	0.0.0.0,0	10.0.102.2	tep uptizz / Termetti SSIT u eq
0 0 ACCEPT	6		*	lan2	0.0.0.0/0	172.16.102.2	tcp dpt:22 /* Permitir SSH a eq
uipo en LAN */	O			Callz	0.0.0.070	172.10.102.2	tep uptizz / " Termiteti 3311 a eq
0 0 ACCEPT	6		4	lan2	0.0.0.0/0	172.16.102.3	tcp dpt:22 /* Permitir SSH a eq
	O		^	Lanz	0.0.0.0/0	1/2.10.102.5	tcp upt:22 /^ Permittir SSR a eq
uipo en LAN */	6			1 2	0 0 0 0 0	472 46 402 4	to det 22 (t. Boneitie 66H a co
0 0 ACCEPT	6		*	lan2	0.0.0.0/0	172.16.102.4	tcp dpt:22 /* Permitir SSH a eq
uipo en LAN */							
0 0 ACCEPT	6		*	wlan2	0.0.0.0/0	192.168.102.2	tcp dpt:22 /* Permitir SSH a eq
uipo en WLAN */							Activar Windows
root@almellonesfernar	ndez-fir	ewa	ll ~/sc	ripts#			Ve a Configuración para activar Windows.

```
★ 5. 192.168.75.130
 root@almellonesfernandez-firewall:~/scripts# ssh 192.168.1.106
The authenticity of host '192.168.1.106 (192.168.1.106)' can't be established.
ED25519 key fingerprint is SHA256:Y70bJzRSU9JtrcNTVAawcXzeYSr5B4IsC+63MyIdkH0.
This key is not known by any other names.

Are you sure you want to continue connecting (yes/no/[fingerprint])? yes

Warning: Permanently added '192.168.1.106' (ED25519) to the list of known hosts.

root@192.168.1.106's password:
Símbolo del sistema
      Vínculo: dirección IPv6 local. . . : fe80::d859:16dd:d1ee:4992%5
Dirección IPv4. . . . . . . . : 192.168.75.1
Máscara de subred . . . . . : 255.255.255.0
Puerta de enlace predeterminada . . . . :
 Adaptador de LAN inalámbrica Wi-Fi:
      Puerta de enlace predeterminada . . . . : 192.168.1.1
 Adaptador de Ethernet Conexión de red Bluetooth:
      Sufijo DNS específico para la conexión. :
 Adaptador de Ethernet vEthernet (WSL (Hyper-V firewall)):
  root@almellonesfernandez-firewall:~/scripts# ssh almellonesfernandez@10.0.102.2
  almellonesfernandez@10.0.102.2's password:
Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.8.0-49-generic x86_64)
     * Documentation: <a href="https://help.ubuntu.com">https://help.ubuntu.com</a>
    * Management:
                                                        https://landscape.canonical.com
     * Support:
                                                        https://ubuntu.com/pro
    System information as of mar 24 dic 2024 17:15:47 UTC
                                                                                                                                                                           223
       System load: 0.8
                                                                                                    Processes:
       Usage of /: 45.7% of 9.75GB
                                                                                                    Users logged in:
                                                                                                    IPv4 address for ens33: 10.0.102.2
       Memory usage: 59%
       Swap usage:
root@almellonesfernandez-firewall:~/scripts# ssh almellonesfernandez@172.16.102.2 almellonesfernandez@172.16.102.2's password:
Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.8.0-49-generic x86_64)
   * Documentation: https://help.ubuntu.com

* Management: https://landscape.canonical.com
  * Management: https://lanuscape.cs...

* Sunport: https://ubuntu.com/pro
   System information as of mar 24 dic 2024 17:12:00 UTC
    System load: 1.0 Processes: Usage of /: 51.8% of 9.75GB Users logged in: 1
The result of the result 
 root@almellonesfernandez-firewall;~/scripts# ssh almellonesfernandez@192.168.102.2 almellonesfernandez@192.168.102.2 s password:
 Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.8.0-49-generic x86_64)
    * Documentation: <a href="https://help.ubuntu.com">https://help.ubuntu.com</a>
    * Management:
                                                     https://landscape.canonical.com
    * Support:
                                                      https://ubuntu.com/pro
    System information as of mar 24 dic 2024 17:17:53 UTC
       System load: 2.06
                                                                                                                                                                    217
      Usage of /: 43.7% of 9.75GB
                                                                                                Users logged in:
                                                                                                                                                                    0
                                                                                                IPv4 address for ens33: 192.168.102.2
      Memory usage: 60%
      Swap usage:
```

spuestas OUTPUT */							
Chain FORWARD (policy					bytes)		
pkts bytes target	prot	opt		out	source	destination	
0 0 LOG	0		lan2	wlan2	0.0.0.0/0	0.0.0.0/0	LOG flags 0 level 4 prefix "LAN
to DMZ DENIED Almell							
0 0 DROP	0		lan2	wlan2	0.0.0.0/0	0.0.0.0/0	100 floor 0 lovel 4 months III AN
0 0 LOG	0		lan2	dmz2	0.0.0.0/0	0.0.0.0/0	LOG flags 0 level 4 prefix "LAN
to DMZ DENIED Almell 0 0 DROP	0		lan2	dmz2	0.0.0.0/0	0.0.0.0/0	
0 0 DROP	U		taliz	ullizz	0.0.0.0/0	0.0.0.0/0	I
Chain OUTPUT (policy	DROP 1	218	packets	. 82660	bytes)		
pkts bytes target	prot			out	source	destination	I
414 31866 ACCÉPT	Ō			lo	0.0.0.0/0	0.0.0.0/0	/* Importante para enviar a otr
os procesos. Ej. DNS	local	*/					· · · · · · · · · · · · · · · · · · ·
1316 144K ACCEPT	0		*	*	0.0.0.0/0	0.0.0.0/0	state RELATED,ESTABLISHED /* Re
spuestas INPUT */							· I
0 0 ACCEPT	1		*	*	0.0.0.0/0	0.0.0.0/0	/* OUTPUT todas interfaces ping ▮
*/							
1 60 ACCEPT	6		*	wan2	0.0.0.0/0	0.0.0.0/0	tcp dpt:22 /* Permitir SSH a eq
uip <mark>os en WAN</mark> */					0 0 0 0 0	10 0 100 0	
2 120 ACCEPT	6		*	dmz2	0.0.0.0/0	10.0.102.2	tcp dpt:22 /* Permitir SSH a eq
uipo en DMZ */ 1 60 ACCEPT	6		_	lan2	0.0.0.0/0	172.16.102.2	tcp dpt:22 /* Permitir SSH a eq
uipo en LAN */	O		^	LdIIZ	0.0.0.0/0	1/2.16.102.2	tcp upt:22 /^ Permittir SSH a eq
0 0 ACCEPT	6		*	lan2	0.0.0.0/0	172.16.102.3	tcp dpt:22 /* Permitir SSH a eq
uipo en LAN */	O			Canz	0.0.0.0/0	172.10.102.5	tep upt.22 / " Termiteti SSII a eq
0 0 ACCEPT	6		*	lan2	0.0.0.0/0	172.16.102.4	tcp dpt:22 /* Permitir SSH a eq
uipo en LAN */	-						
1 60 ACCEPT	6		*	wlan2	0.0.0.0/0	192.168.102.2	tcp dpt:22 /* Permitir SSH a eq
uipo en WLAN */					•		Activar Windows
root@almellonesfernan	dez-fi	rewa	ıll:~/sc	ripts#	l		Ve a Configuración para activar Windows.

# Como podemos ver los contadores que permiten ssh que he comprobado han aumentado

- b) **(0,5 puntos)** Por la tarjeta wan, únicamente como es obvio, podrá:
- Actualizarse (DNS, HTTP, HTTPS) y descargar páginas web (wget, curl, etc.)

Chain <mark>OUTPUT</mark> (policy				, 120 bytes	s)		
pkts bytes target	prot	t opt	in	out	source	destination	
42 6418 ACCEPT	0		*	lo	0.0.0.0/0	0.0.0.0/0	/* Importante para enviar a otr
os procesos. Ej. DNS	local	*/					
31 2873 ACCEPT	0		*	*	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* Re
spuestas INPUT */							
0 0 ACCEPT	1		*	*	0.0.0.0/0	0.0.0.0/0	/* OUTPUT todas interfaces ping
*/							
0 0 DROP	6		*	wan2	0.0.0.0/0	0.0.0.0/0	tcp dpt:22 /* Permitir SSH a eq
uipos en WAN */							
0 0 ACCEPT	6		*	dmz2	0.0.0.0/0	10.0.102.2	tcp dpt:22 /* Permitir SSH a eq 📗
uipo en DMZ */							
0 0 ACCEPT	6		*	lan2	0.0.0.0/0	172.16.102.2	tcp dpt:22 /* Permitir SSH a eq
uipo en LAN */							
0 0 ACCEPT	6		*	lan2	0.0.0.0/0	172.16.102.3	tcp dpt:22 /* Permitir SSH a eq
uipo en LAN */							· · · · · · · · · · · · · · · · · · ·
0 0 ACCEPT	6		*	lan2	0.0.0.0/0	172.16.102.4	tcp dpt:22 /* Permitir SSH a eq
uipo en LAN */							· · · · · · · · · · · · · · · · · · ·
0 0 ACCEPT	6		*	wlan2	0.0.0.0/0	192.168.102.2	tcp dpt:22 /* Permitir SSH a eq
_uipo_en_WLAN_*/							
4 240 ACCEPT	6		*	wan2	0.0.0.0/0	0.0.0.0/0	multiport dports 53,80,443 /* P
ermitir actualizacio	nes DNS	S. HT	TP v	HTTPS en V			,,
6 452 ACCEPT	17			wan2	0.0.0.0/0	0.0.0.0/0	udp dpt:53 /* Permitir DNS UDP
en WAN */						,	,
2 152 ACCEPT	17		*	wan2	0.0.0.0/0	0.0.0.0/0	udp dpt:123 /* Permitir sincron
ización NTP en WAN *	/						
0 0 ACCEPT	6		*	wan2	0.0.0.0/0	0.0.0.0/0	tcp dpt:25 /* Permitir envío de
correos SMTP en WAN	_						Activar Windows
root@almellonesferna		irewa	11:~	/scrints#	1		Ve a Configuración para activar Windows.
1 00 264 21110 2 20110 3 1 2 1 114	11402-1	c, cwa	,	30. cp c3#			

• Actualizar su hora.

Chain OUTPUT (policy	DROP 2	packet	ts, 120 byte	s)		
pkts bytes target	prot	opt in	n out	source	destination	
42 6418 ACCEPT	0	*	lo	0.0.0.0/0	0.0.0.0/0	/* Importante para enviar a otr
os procesos. Ej. DNS	local *	/				· · · · ·
31 2873 ACCEPT	0	*	*	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* Re
spuestas INPUT */						
0 0 ACCEPT	1	*	*	0.0.0.0/0	0.0.0.0/0	/* OUTPUT todas interfaces ping
*/						
0 0 DROP	6	*	wan2	0.0.0.0/0	0.0.0.0/0	tcp dpt:22 /* Permitir SSH a eq
uipos en WAN */						
0 0 ACCEPT	6	*	dmz2	0.0.0.0/0	10.0.102.2	tcp dpt:22 /* Permitir SSH a eq
uipo en DMZ */						
0 0 ACCEPT	6	*	lan2	0.0.0.0/0	172.16.102.2	tcp dpt:22 /* Permitir SSH a eq
uipo en LAN */	•					top aptitude, it of mitted to out at our
0 0 ACCEPT	6	*	lan2	0.0.0.0/0	172.16.102.3	tcp dpt:22 /* Permitir SSH a eq
uipo en LAN */	J		cuitz	0.0.0.0,0	172.10.102.5	tep upt.22 / Termeter 3311 u eq
0 0 ACCEPT	6	*	lan2	0.0.0.0/0	172.16.102.4	tcp dpt:22 /* Permitir SSH a eq
	U	"	tanz	0.0.0.0/0	172.10.102.4	tep upt.22 / Termiteti 55ii a eq
uipo en LAN */	-		1 2	0 0 0 0 0	102 160 102 2	ton data 22 (to Donnitin CCII - an
0 0 ACCEPT	6	*	wlan2	0.0.0.0/0	192.168.102.2	tcp dpt:22 /* Permitir SSH a eq
uipo en WLAN */						
4 240 ACCEPT	6	*	wan2	0.0.0.0/0	0.0.0.0/0	multiport dports 53,80,443 /* P
ermitir actualizacion						
6 452 ACCEPT	17	*	wan2	0.0.0.0/0	0.0.0.0/0	udp dpt:53 /* Permitir DNS UDP
en WAN */						
2 152 ACCEPT	17	*	wan2	0.0.0.0/0	0.0.0.0/0	udp dpt:123 /* Permitir sincron
ización NTP en WAN */	/					
0 0 ACCEPT	6	*	wan2	0.0.0.0/0	0.0.0.0/0	tcp dpt:25 /* Permitir envío de
correos SMTP en WAN	*/					Activar Windows
root@almellonesfernar		ewal1	:~/scripts#			Ve a Configuración para activar Windows.
				_		

## • Enviar email (puerto smtp 25).

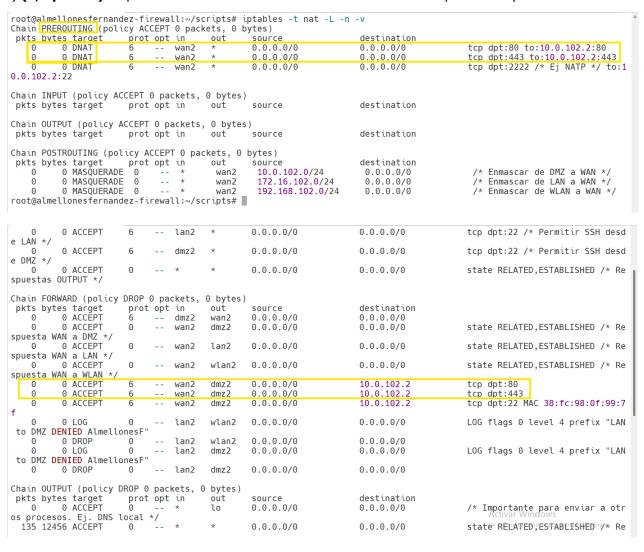
Chain OUTPUT (policy [	ROP 2	pac	kets	, 120 bytes	s )		
pkts bytes target	prot	opt	in	out	source	destination	
42 6418 ACCEPT	0		*	lo	0.0.0.0/0	0.0.0.0/0	/* Importante para enviar a otr
os procesos. Ej. DNS 1	local	*/					· · · · ·
31 2873 ACCEPT	0		*	*	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* Re
spuestas INPUT */							
0 0 ACCEPT	1		*	*	0.0.0.0/0	0.0.0.0/0	/* OUTPUT todas interfaces ping
*/							
0 0 DROP	6		*	wan2	0.0.0.0/0	0.0.0.0/0	tcp dpt:22 /* Permitir SSH a eq
uipos en WAN */							
0 0 ACCEPT	6		*	dmz2	0.0.0.0/0	10.0.102.2	tcp dpt:22 /* Permitir SSH a eq
uipo en DMZ */							
0 0 ACCEPT	6		*	lan2	0.0.0.0/0	172.16.102.2	tcp dpt:22 /* Permitir SSH a eq
uipo en LAN */							
0 0 ACCEPT	6		*	lan2	0.0.0.0/0	172.16.102.3	tcp dpt:22 /* Permitir SSH a eq
uipo en LAN */							
0 0 ACCEPT	6		*	lan2	0.0.0.0/0	172.16.102.4	tcp dpt:22 /* Permitir SSH a eq
uipo en LAN */	_						
0 0 ACCEPT	6		*	wlan2	0.0.0.0/0	192.168.102.2	tcp dpt:22 /* Permitir SSH a eq
uipo en WLAN */	_						
4 240 ACCEPT	6		*	wan2	0.0.0.0/0	0.0.0.0/0	multiport dports 53,80,443 /* P
ermitir actualizacione							
6 452 ACCEPT	17		*	wan2	0.0.0.0/0	0.0.0.0/0	udp dpt:53 /* Permitir DNS UDP
en WAN */							
2 152 ACCEPT	17		*	wan2	0.0.0.0/0	0.0.0.0/0	udp dpt:123 /* Permitir sincron
ización NTP en WAN */	•				0 0 0 0 0	0.0.0.0	
0 0 ACCEPT	6		×	wan2	0.0.0.0/0	0.0.0/0	tcp dpt:25 /* Permitir envío de Activar Windows
correos SMTP en WAN			11.	/	_		Ve a Configuración para activar Windows.
root@ <mark>almellonesfernan</mark> d	aez-fi	.rewa	L L : ~	/scripts#			ve a configuración para actival villidows.

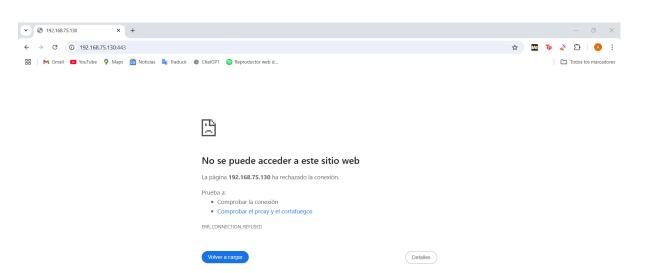
## • Conectarse por ssh a todos los equipos de todas las zonas, menos a la WAN.

Chain OUTPUT (policy				120 bytes	)		
pkts bytes target	prot			out	source	destination	
42 6418 ACCEPT	0		*	lo	0.0.0.0/0	0.0.0.0/0	/* Importante para enviar a otr
os procesos. Ej. DNS	local	*/					
31 2873 ACCEPT	0		*	*	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* Re
spuestas INPUT */							
0 0 ACCEPT	1		*	*	0.0.0.0/0	0.0.0.0/0	/* OUTPUT todas interfaces ping
*/							
0 0 DROP	6		*	wan2	0.0.0.0/0	0.0.0.0/0	tcp dpt:22 /* Permitir SSH a eq
uipos en WAN */							
0 0 ACCEPT	6		*	dmz2	0.0.0.0/0	10.0.102.2	tcp dpt:22 /* Permitir SSH a eq
uipo en DMZ */							
0 0 ACCEPT	6		*	lan2	0.0.0.0/0	172.16.102.2	tcp dpt:22 /* Permitir SSH a eq
uipo en LAN */							
0 0 ACCEPT	6		*	lan2	0.0.0.0/0	172.16.102.3	tcp dpt:22 /* Permitir SSH a eq
uipo en LAN */							
0 0 ACCEPT	6		*	lan2	0.0.0.0/0	172.16.102.4	tcp dpt:22 /* Permitir SSH a eq
uipo en LAN */							
O 0 ACCEPT	6		*	wlan2	0.0.0.0/0	192.168.102.2	tcp dpt:22 /* Permitir SSH a eq
uipo en WLAN */							
4 240 ACCEPT	6		*	wan2	0.0.0.0/0	0.0.0.0/0	multiport dports 53,80,443 /* P
ermitir actualizacion	es DNS	, HT	TP v H	TTPS en W	AN */		, , , ,
6 452 ACCEPT	17	´		wan2	0.0.0.0/0	0.0.0.0/0	udp dpt:53 /* Permitir DNS UDP
en WAN */					•	•	' ' '
2 152 ACCEPT	17		*	wan2	0.0.0.0/0	0.0.0.0/0	udp dpt:123 /* Permitir sincron
ización NTP en WAN */	,				•	•	
0 0 ACCEPT	6		*	wan2	0.0.0.0/0	0.0.0.0/0	tcp dpt:25 /* Permitir envío de
correos SMTP en WAN	*/			-	· · · · · · · ·	· · · · · · ·	Activar Windows
root@almellonesfernan		rewa	ll:~/so	cripts#			Ve a Configuración para activar Windows.

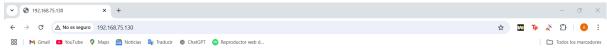
4. Reglas Filter Forward y NAT: Accesos a la zona DMZ desde exclusivamente wan:

a) (1,5 puntos) Se puede acceder al servidor Web de la zona DMZ en los puertos 80 y 443.





# En el puerto 443 no aparece nada porque no tengo ningun servidor alojado



Nombre: Alvaro

**Apellidos: Almellones Fernandez** 

Clase: 2

IP del Servidor: 10.0.102.2 IP del Cliente: 192.168.75.1

root@almellonesfernan					1 -V	Δ
Chain PREROUTING (pol	nrot opt		ets, ⊍ b out	ytes) source	destination	
7 364 DNAT 35 1820 DNAT	6 6		*	0.0.0.0/0 0.0.0.0/0	0.0.0.0/0 0.0.0.0/0	tcp dpt:80 to:10.0.102.2:80 tcp dpt:443 to:10.0.102.2:443
0 0 DNAT 0.0.102.2:22	6	wan2	*	0.0.0.0/0	0.0.0.0/0	tcp dpt:2222 /* Ej NATP */ to:1
0.0.102.2.22						
Chain INPUT (policy A	CCEPT 0 pa	ckets,	0 bytes)			
pkts bytes target	prot opt	in	out	source	destination	
Chain OUTPUT (policy	ACCEPT 0 p	ackets.	0 bytes	)		
pkts bytes target	prot opt		out	source	destination	
Charles DOCTROLITING (and	1 ACCED	T 42	-14 3	404 batas)		
Chain POSTROUTING (po pkts bytes target	prot opt		out	184 bytes) source	destination	
0 0 MASOUERAD		*	wan2	10.0.102.0/24	0.0.0.0/0	/* Enmascar de DMZ a WAN */
0 0 MASQUERAD		*	wan2	172.16.102.0/24	0.0.0.0/0	/* Enmascar de LAN a WAN */
0 0 MASQUERAD		*	wan2	192.168.102.0/24	0.0.0.0/0	/* Enmascar de WLAN a WAN */
root@almellonesfernan	dez-firewa	ll:~/sc	ripts# 🏻			
e LAN */						
0 0 ACCEPT	6	dmz2	*	0.0.0.0/0	0.0.0.0/0	tcp dpt:22 /* Permitir SSH desd
e DMZ */						
0 0 ACCEPT	0	*	*	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* Re
spuestas OUTPUT */						
Chain FORWARD (policy	DROP 0 pa	ckets,	0 bytes	)		
pkts bytes target	prot opt		out	source	destination	
61 3318 ACCEPT	6	dmz2	wan2	0.0.0.0/0	0.0.0.0/0	
27 2008 ACCEPT	0	wan2	dmz2	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* Re
spuesta WAN a DMZ */	_					
0 0 ACCEPT	0	wan2	lan2	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* Re
spuesta WAN a LAN */ 0 0 ACCEPT	0	wan2	wlan2	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* Re
spuesta WAN a WLAN */	-	WallZ	wtanz	0.0.0.0/0	0.0.0.0/0	State NELATED, ESTABLISHED 7" NE
7 364 ACCEPT	6	wan2	dmz2	0.0.0.0/0	10.0.102.2	tcp dpt:80
35 1820 ACCEPT	6	wan2	dmz2	0.0.0.0/0	10.0.102.2	tcp dpt:443
0 0 ACCEPT	6	wan2	dmz2	0.0.0.0/0	10.0.102.2	tcp dpt:22 MAC 38:fc:98:0f:99:7
f 0 0 LOG	0	lan2	wlan2	0.0.0.0/0	0.0.0.0/0	LOG flags 0 level 4 prefix "LAN
to DMZ DENIED Almell	-	Lanz	Wtallz	0.0.0.070	0.0.0.070	Log reags of tever 4 prefex LAN
0 0 DROP	0	lan2	wlan2	0.0.0.0/0	0.0.0.0/0	
0 0 LOG	0	lan2	dmz2	0.0.0.0/0	0.0.0.0/0	LOG flags 0 level 4 prefix "LAN
to DMZ DENIED Almell						
0 0 DROP	0	lan2	dmz2	0.0.0.0/0	0.0.0.0/0	
Chain OUTPUT (policy	DROP 0 pag	kets. 6	) hvtes)			
pkts bytes target	prot opt		out	source	destination	
0 0 ACCEPT	0		lo	0.0.0.0/0	0.0.0.0/0	/* Importante para enviar a otr
os procesos. Ej. DNS	-					,
186 17872 ACCEPT	0	*	*	0.0.0.0/0	0.0.0.0/0	state RELATED ESTABLISHED /* Re
spuestas INPUT */						Ve a Configuración para activar Windows.

Como podemos observar ha funcionado ya que los paquetes tanto de nat como de filter han aumentado, en el puerto 443 no ha aparecido nada ya que no tengo ningún index todavía

b) **(1,5 puntos)** Desde la zona WAN y desde únicamente los equipos de vuestra confianza (por ejemplo, mac de vuestro equipo anfitrión, etc), se podrá acceder al servidor SSH en la zona DMZ, por el puerto que se desee, ya que os recuerdo que el 22 está ocupado para el cortafuegos (INPUT). Se recomienda uso de variable.

```
root@almellonesfernandez-firewall:~/scripts# ./firewall-almellonesfernandez.sh
Arrancado Cortafuegos de Alvaro Almellones. Bastionado de Redes y Sistemas
root@almellonesfernandez-firewall:~/scripts# iptables -t nat -L -n -v
Chain PREROUTING (policy ACCEPT 0 packets, 0 bytes)
 pkts bytes target
0 0 DNAT
                               prot opt in
6 -- wa
                                                     out
                                                                source
                                                                                             destination
                                      -- wan2
                                                                0.0.0.0/0
                                                                                             0.0.0.0/0
                                                                                                                          tcp dpt:80 to:10.0.102.2:80
                                                                                                                          tcp dpt:443 to:10.0.102.2:443
tcp dpt:2222 /* Ej NATP */ to:1
             0 DNAT
                                            wan2
                                                                0.0.0.0/0
0.0.102.2 22
Chain INPUT (policy ACCEPT 0 packets, 0 bytes)
                                                                source
 pkts bytes target
                               prot opt in
                                                                                             destination
Chain OUTPUT (policy ACCEPT 0 packets, 0 bytes) pkts bytes target prot opt in out
                                                                                             destination
Chain POSTROUTING (policy ACCEPT 0 packets, 0
             ... carget protopt in 0 MASQUERADE 0
                                                                                             destination
 pkts bytes target
                                                     out
                                                                source
                                                                                                                           /* Enmascar de DMZ a WAN */
/* Enmascar de LAN a WAN */
/* Enmascar de WLAN a WAN */
                                                                 10.0.102.0/24
172.16.102.0/24
                                                                                              0.0.0.0/0
                                                       wan2
              0 MASQUERADE 0
                                                       wan2
              O MASOUERADE O
                                                       wan2
                                                                  192.168.102.0/24
                                                                                              0.0.0.0/0
root@almellonesfernandez-firewall:~/scripts#
root@almellonesfernandez-firewall:~/scripts# iptables -t filter -L -n -v Chain INPUT (policy DROP 0 packets, 0 bytes)
pkts bytes target prot opt in out source dest

0 0 ACCEPT 0 -- lo * 0.0.0.0/0 0.0.0
                                                                                             destination
                                                                                             0.0.0.0/0
    0
                                                                                                                          tcp dpt:22 MAC 38:fc:98:0f:99:7
              0 ACCEPT
                                6
                                            wan2
                                                                0.0.0.0/0
f /* Permitir SSH desde WAN */
0 0 ACCEPT 1 --
                                                                0.0.0.0/0
                                                                                             0.0.0.0/0
                                                                                                                          /* Permitir ping desde cualquie
r subred */
              0 ACCEPT
                               6
                                       -- lan2
                                                                0.0.0.0/0
                                                                                             0.0.0.0/0
                                                                                                                          tcp dpt:22 /* Permitir SSH desd
e LAN */
             0 ACCEPT
                               6
                                           dmz2
                                                                0.0.0.0/0
                                                                                             0.0.0.0/0
                                                                                                                          tcp dpt:22 /* Permitir SSH desd
e DMZ */
100 6544 ACCEPT
spuestas OUTPUT */
                               0
                                                                0.0.0.0/0
                                                                                             0.0.0.0/0
                                                                                                                          state RELATED, ESTABLISHED /* Re
Chain FORWARD (policy DROP 0 packets, 0 bytes)
 pkts bytes target
0 0 ACCEPT
                               prot opt in
6 -- dmz2
                                                     out
                                                                 source
                                                                                             destination
                                                     wan2
                                                                 0.0.0.0/0
                                                                                                                          state RELATED.ESTABLISHED /* Re
     0
              0 ACCEPT
                                0
                                           wan2
                                                     dmz2
                                                                0.0.0.0/0
                                                                                             0.0.0.0/0
spuesta WAN a DMZ 7
                                                                                                                          state RELATED, ESTABLISHED /* Re
                               0
                                           wan2
                                                     lan2
                                                                0.0.0.0/0
                                                                                             0.0.0.0/0
spuesta WAN a LAN */
0 0 ACCEPT
                               0
                                                                0.0.0.0/0
                                                                                             0.0.0.0/0
                                                                                                                          state RELATED, ESTABLISHED /* Re
                                                     wlan2
                                            wan2
spuesta WAN a WLAN */
0 0 ACCEPT
                                                      dmz2
                                                                 0.0.0.0/0
                                                                                             10.0.102.2
                                                                                                                          tcp dpt:80
                                            wan2
                                                                                                                          tcp dpt:443
tcp dpt:22
LOG flags 0 level 4 prefix "LAN
              0
                ACCEP1
                                            wan2
                                                      dmz2
                                                                0.0.0.0/0
0.0.0.0/0
                                                                                             10.0.102.2
                                                                0.0.0.0/0
              0 LOG
                                             lan2
                                                     wlan2
                                                                                             0.0.0.0/0
 to DMZ DENIED AlmellonesF"
                                            lan2
                                                     wlan2
                                                                0.0.0.0/0
                                                                                             0.0.0.0/0
                                                                                                                          LOG frags Wilevers 4 prefix "LAN
              0 LOG
                                O
                                            lan2
                                                     dmz2
                                                                0.0.0.0/0
                                                                                             0.0.0.0/0
  to DMZ DENIED AlmellonesF"
```

```
Microsoft Windows [Versión 10.0.22631.4602]
(c) Microsoft Corporation. Todos los derechos reservados.
C:\Users\alvariessh -p 2222 almellonesfernandez@192.168.75.130

The authenticity of host '[192.168.75.130]:2222 ([192.168.75.130]:2222)' can't be established. EDZ5519 key fingerprint is SHA256:WHJW1cfYtTVaVepR52KonLTK0y5jZlZSQVQ0Ampw5wM. This key is not known by any other names.

Are you sure you want to continue connecting (yes/no/[fingerprint])? yes Warning: Permanently added '[192.168.75.130]:2222' (ED25519) to the list of known hosts. almellonesfernandez@192.168.75.130's password:

Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.8.0-49-generic x86_64)
  * Documentation: https://help.ubuntu.com
                     https://landscape.canonical.com
https://ubuntu.com/pro
  * Support:
  System information as of jue 26 dic 2024 15:02:34 UTC
  System load: 0.66
Usage of /: 46.1% of 9.75GB
Memory usage: 62%
Swap usage: 0%
                                        Processes:
                                                                      219
                                          Users logged in: 0
IPv4 address for ens33: 10.0.102.2
El mantenimiento de seguridad expandido para Applications está desactivado
Se pueden aplicar 85 actualizaciones de forma inmediata.
14 de estas son actualizaciones de seguridad estándares.
Para ver estas actualizaciones adicionales, ejecute: apt list --upgradable
Active ESM Apps para recibir futuras actualizaciones de seguridad adicionales
Vea https://ubuntu.com/esm o ejecute «sudo pro status»
The list of available updates is more than a week old.
To check for new updates run: sudo apt update
Failed to connect to https://changelogs.ubuntu.com/meta-release-lts. Check your Internet connection or proxy settings
Last login: Thu Dec 26 13:07:46 2024 from 10.0.102.1 almellonesfernandez@almellonesfernandez-us-dmz] ~$
 root@almellonesfernandez-firewall:~/scripts# iptables -t nat -L -n -v
Chain PREROUTING (policy ACCEPT 1 packets, 328 bytes)
pkts bytes target prot opt in out source
0 0 DNAT 6 -- wan2 * 0.0.0.0
                                                                                                          destination
                                                                                                                                          tcp dpt:80 to:10.0.102.2:80
                                                                         0.0.0.0/0
                                                                                                         0.0.0.0/0
                                                                                                                                          tcp dpt:443 to:10.0.102.2:443
tcp dpt:2222 /* Ej NATP */ to:1
                O DNAT
                                                 wan2
                                                                                                         0.0.0.0/0
              52 DNAT
                                                 wan2
                                                                         0.0.0.0/0
                                                                                                         0.0.0.0/0
0.0.102.2:22
Chain INPUT (policy ACCEPT 0 packets, 0 bytes)
  pkts bytes target
                                   prot opt in
                                                                                                         destination
Chain OUTPUT (policy ACCEPT 0 packets, 0 bytes)
  pkts bytes target
                                   prot opt in
                                                                                                         destination
Chain POSTROUTING (policy ACCEPT 1 packets, 52 bytes)
  pkts bytes target prot opt in 0 0 MASQUERADE 0 -- *
                                                            out
                                                                                                         destination
                                                                         source
                                                                                                                                            /* Enmascar de DMZ a WAN */
/* Enmascar de LAN a WAN */
/* Enmascar de WLAN a WAN */
                                                              wan2
                                                                           10.0.102.0/24
                                                                                                           0.0.0.0/0
       0
                0 MASQUERADE 0
                                                                           172.16.102.0/24
                                                                                                           0.0.0.0/0
                                                                           192.168.102.0/24
                                                                                                           0.0.0.0/0
       0
                0 MASQUERADE 0
                                                              wan2
root@almellonesfernandez-firewall:~/scripts#
Chain INPUT (policy DROP 1 packets, 328 bytes)
pkts bytes target prot opt in out
                                                                                                        destination
                                                                        source
               0 ACCEPT
                                                                        0.0.0.0/0
               0 ACCEPT
                                                wan2
                                                                        0.0.0.0/0
                                                                                                                                       tcp dpt:22 MAC 38:fc:98:0f:99:7
      0
                                   6
                                                                                                       0.0.0.0/0
f /* Permitir SSH desde WAN */
                                                                        0.0.0.0/0
                                                                                                       0.0.0.0/0
                                                                                                                                       /* Permitir ping desde cualquie
      0
               0 ACCEPT
                                   1
r subred */
      0
               0 ACCEPT
                                   6
                                           -- lan2
                                                                        0.0.0.0/0
                                                                                                       0.0.0.0/0
                                                                                                                                       tcp dpt:22 /* Permitir SSH desd
e LAN */
      0
               0 ACCEPT
                                   6
                                           -- dmz2
                                                                        0.0.0.0/0
                                                                                                       0.0.0.0/0
                                                                                                                                       tcp dpt:22 /* Permitir SSH desd
e DMZ */
   272 17072 ACCEPT
                                   0
                                                                        0.0.0.0/0
                                                                                                       0.0.0.0/0
                                                                                                                                       state RELATED,ESTABLISHED /* Re
spuestas OUTPUT */
Chain FORWARD (policy DROP 0 packets, 0 bytes)
 pkts bytes target
530 50356 ACCEPT
                                  prot opt in
                                                           out
                                                                                                        destination
                                                 dm<sub>7</sub>2
                                                           wan2
                                                                        0 0 0 0/0
                                                                                                        0 0 0 0/0
   667 53734 ACCEPT
                                                                        0.0.0.0/0
                                   0
                                                wan2
                                                           dmz2
                                                                                                        0.0.0.0/0
                                                                                                                                       state RELATED,ESTABLISHED /* Re
spuesta WAN a DMZ */
0 0 ACCEPT
                                   0
                                                                                                        0.0.0.0/0
                                                                                                                                       state RELATED, ESTABLISHED /* Re
                                                wan2
                                                           lan2
                                                                        0.0.0.0/0
spuesta WAN a LAN */
               0 ACCEPT
                                   0
                                                                       0.0.0.0/0
                                                                                                       0.0.0.0/0
                                                                                                                                       state RELATED.ESTABLISHED /* Re
      0
                                                wan2
                                                           wlan2
spuesta WAN a WLAN */
0 0 ACCEPT
                                                                        0.0.0.0/0
                                   6
                                                           dmz2
                                                                                                        10.0.102.2
                                                                                                                                       tcp dpt:80
                                                 wan2
                                                                                                                                       tcp dpt:443
tcp dpt:22
LOG flags 0 level 4 prefix "LAN
                                                                       0.0.0.0/0
                                                 wan2
                                                            dmz2
             104 ACCEPT
                                                            dmz2
                                                 wan2
                                                                        0.0.0.0/0
                                                 lan2
                                                            wlan2
  to DMZ DENIED AlmellonesF"
               0 DROP
                                                 lan2
                                                           wlan2
                                                                       0.0.0.0/0
                                                                                                        0.0.0.0/0
                                   0
               0 LOG
                                   0
                                                 lan2
                                                           dmz2
                                                                        0.0.0.0/0
                                                                                                       0.0.0.0/0
                                                                                                                                       LOG flags 0 level 4 prefix "LAN
  to DMZ DENIED AlmellonesF"
               0 DROP
                                                 lan2
                                                                        0.0.0.0/0
                                                                                                       0.0.0.0/0
```

Al empezar la actividad 6 me he dado cuenta de que me estaba funcionando esto porque de dmz a wan lo estaba permitiendo todo,

}

# pero lo que me faltaba era la regla RELATED ESTABLISHED. Lo he modificado y ya me funciona

5. (2 puntos) Filter Forward y NAT desde LAN y WLAN. Accesos desde la zona LAN/WLAN a Internet (wan) permitidos (hay que usar para cara regla su interfaz correspondiente) y únicamente a los equipos que existan actualmente instalados en las diferentes zonas por su IP (172.16.102.2, 172.16.102.3, 192.168.0.102.2), usando para ello un único bucle (para las dos interfaces) que lea un fichero donde estarán escritas esas IP y que habrá que ir añadiendo a lo largo del curso cuando aparezcan más equipos. Únicamente se permitirá.

```
GNU nano 7.2
                                                                          firewall-almellonesfernandez.sh
 #<mark>!/b</mark>in/bash
variables() {
wan="wan2
dmz="dmz2"
lan="lan2"
wlan="wlan2"
ServerDMZWeb="10.0.102.2"
MAC1="38:FC:98:0F:99:7F"
IPsWLAN=("192.168.102.2")
IPsLAN=("172.16.102.2" "172.16.102.3" "172.16.102.4"
}
GNU nano 7.2
                                                firewall-<mark>almellonesfernandez.sh</mark> *
lan-a-wan()
          titables -t nat -A POSTROUTING -s 172.16.102.0/24 -o $wan -j MASQUERADE -m comment --comment <mark>"Enmascar de LAN a</mark>
         for IPLAN in "${IPsLAN[@]}"; do
         iptables -t filter -A FORWARD -i $lan -o $wan -p tcp -s $IPLAN iptables -t filter -A FORWARD -i $lan -o $wan -p tcp -s $IPLAN
                                                                                   --dport 80 -j ACCEPT
--dport 443 -j ACCEPT
--dport 53 -j ACCEPT
                                                                                                      ACCEPT
          iptables -t filter -A FORWARD -i <mark>$lan</mark> -o <mark>$wan -</mark>p udp -s <mark>$IPLAN</mark>
         iptables -t filter -A FORWARD -p icmp -i $lan -o $wan -s $IPLAN -j ACCEPT iptables -t filter -A FORWARD -i $lan -o $wan -p tcp -s $IPLAN --dport 12:
                                                                                     --dport 123 -j ACCEPT
         done
         iptables -t filter -A FORWARD -i <mark>$wan</mark> -o <mark>$lan</mark> -m state --state ESTABLISHED,RELATED -j ACCEPT -m comment --comme
}
wlan-a-wan<mark>() {</mark>
         ptábles -t nat -A POSTROUTING -s 192.168.102.0/24 -o <mark>$wan</mark> -j MASQUERADE -m comment --comment "<mark>Enmascar de WLAN</mark>∑
         for IPWLAN in "${IPsWLAN[@]}";
          iptables -t filter -A FORWARD
                                            -i $wlan -o $wan -p tcp -s $IPWLAN
                                                                                       --dport 80 -i ACCEPT
                                                                                       --dport 443 -j ACCEPT
--dport 53 -j ACCEPT
          iptables -t filter -A FORWARD -i
                                                $wlan -o $wan -p tcp -s $IPWLAN
          iptables -t filter -A FORWARD -i $wlan -o $wan -p udp -s $IPWLAN
                                              -p
                                                 icmp
                                                       -i $wlan -o $wan -s
                                                                              $IPWLAN -j
         iptables -t filter -A FORWARD -i $wlan -o $wan -p tcp -s $IPWLAN done
                                                                                       --dport 123 -j ACCEPT
         iptables -t filter -A FORWARD -i $wan -o $wlan -m state --state ESTABLISHED,RELATED -j ACCEPT -m comment --com
```

0	0 ACCEPT	0	 wan2	dmz2	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* Re
		-	12		472 46 402 2	0 0 0 0 0	ttt - 0.0
0	0 ACCEPT	6	 lan2	wan2	172.16.102.2	0.0.0.0/0	tcp dpt:80
0	0 ACCEPT	6	 lan2	wan2	172.16.102.2	0.0.0.0/0	tcp dpt:443
0	0 ACCEPT	17	 lan2	wan2	172.16.102.2	0.0.0.0/0	udp dpt:53
0	0 ACCEPT	1	 lan2	wan2	172.16.102.2	0.0.0.0/0	
0	0 ACCEPT	6	 lan2	wan2	172.16.102.2	0.0.0.0/0	tcp dpt:123
0	0 ACCEPT	6	 lan2	wan2	172.16.102.3	0.0.0.0/0	tcp dpt:80
0	0 ACCEPT	6	 lan2	wan2	172.16.102.3	0.0.0.0/0	tcp dpt:443
0	0 ACCEPT	17	 lan2	wan2	172.16.102.3	0.0.0.0/0	udp dpt:53
0	0 ACCEPT	1	 lan2	wan2	172.16.102.3	0.0.0.0/0	La contraction de la contracti
0	0 ACCEPT	6	 lan2	wan2	172.16.102.3	0.0.0.0/0	tcp dpt:123
0	0 ACCEPT	6	 lan2	wan2	172.16.102.4	0.0.0.0/0	tcp dpt:80
0	0 ACCEPT	6	 lan2	wan2	172.16.102.4	0.0.0.0/0	tcp dpt:443
0	0 ACCEPT	17	 lan2	wan2	172.16.102.4	0.0.0.0/0	udp dpt:53
0	0 ACCEPT	1	 lan2	wan2	172.16.102.4	0.0.0.0/0	
0	0 ACCEPT	6	 lan2	wan2	172.16.102.4	0.0.0.0/0	tcp dpt:123
Θ	0 ACCEPT	0	 wan2	lan2	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* Re
spuest	ta WAN a LAN */						<u> </u>
. 0	0 ACCEPT	6	 wlan2	wan2	192.168.102.2	0.0.0.0/0	tcp dpt:80
0	0 ACCEPT	6	 wlan2	wan2	192.168.102.2	0.0.0.0/0	tcp dpt:443
0	0 ACCEPT	17	 wlan2	wan2	192.168.102.2	0.0.0.0/0	udp dpt:53
0	0 ACCEPT	1	 wlan2	wan2	192.168.102.2	0.0.0.0/0	
0	0 ACCEPT	6	 wlan2	wan2	192.168.102.2	0.0.0.0/0	tcp dpt:123
0	0 ACCEPT	0	 wan2	wlan2	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* Re
spuest	ta WAN a WLAN */						,
. 0	0 ACCEPT	6	 wan2	dmz2	0.0.0.0/0	10.0.102.2	tcp dpt:80
0	0 ACCEPT	6	 wan2	dmz2	0.0.0.0/0	10.0.102.2	tcp dpt:443
0	0 ACCEPT	6	 wan2	dmz2	0.0.0.0/0	10.0.102.2	tcp dpt:22
0	0 ACCEPT	0	 dmz2	wan2	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED
0	0 LOG	Ō	 lan2	wlan2	0.0.0.0/0	0.0.0.0/0	LOG frags ov level 4 prefix "LAN
to DN			 				Ve a Configuración para activar Windows.

- Actualizarse (apt-get) y visitar páginas web (80 y 443) mediante dns
- · Hacer ping.
- · Actualizar su hora del sistema.

```
almellonesfernandez@almellonesfernandez-us-intranet::

ping google.com
PING google.com (172.217.17.14) 56(84) bytes of data.
64 bytes from mad07509-in-f14.1e100.net (172.217.17.14): icmp_seq=1 ttl=127 time=16.7 ms
64 bytes from mad07509-in-f14.1e100.net (172.217.17.14): icmp_seq=2 ttl=127 time=17.9 ms
64 bytes from mad07509-in-f14.1e100.net (172.217.17.14): icmp_seq=3 ttl=127 time=16.2 ms
64 bytes from mad07509-in-f14.1e100.net (172.217.17.14): icmp_seq=3 ttl=127 time=16.2 ms
64 bytes from mad07509-in-f14.1e100.net (172.217.17.14): icmp_seq=3 ttl=127 time=16.2 ms
65 bytes from mad07509-in-f14.1e100.net (172.217.17.14): icmp_seq=3 ttl=127 time=16.2 ms
66 bytes from mad07509-in-f14.1e100.net (172.217.17.14): icmp_seq=3 ttl=127 time=16.2 ms
67 bytes from mad07509-in-f14.1e100.net (172.217.17.14): icmp_seq=3 ttl=127 time=16.2 ms
68 bytes from mad07509-in-f14.1e100.net (172.217.17.14): icmp_seq=3 ttl=127 time=16.2 ms
69 bytes from mad07509-in-f14.1e100.net (172.217.17.14): icmp_seq=3 ttl=127 time=16.2 ms
60 bytes from mad07509-in-f14.1e100.net (172.217.17.14): icmp_seq=3 ttl=127 time=16.2 ms
61 bytes from mad07509-in-f14.1e100.net (172.217.17.14): icmp_seq=3 ttl=127 time=16.2 ms
62 bytes from mad07509-in-f14.1e100.net (172.217.17.14): icmp_seq=3 ttl=127 time=16.2 ms
64 bytes from mad07509-in-f14.1e100.net (172.217.17.14): icmp_seq=3 ttl=127 time=16.2 ms
64 bytes from mad07509-in-f14.1e100.net (172.217.17.14): icmp_seq=3 ttl=127 time=16.2 ms
64 bytes from mad07509-in-f14.1e100.net (172.217.17.14): icmp_seq=3 ttl=127 time=16.2 ms
64 bytes from mad07509-in-f14.1e100.net (172.217.17.14): icmp_seq=3 ttl=127 time=16.2 ms
64 bytes from mad07509-in-f14.1e100.net (172.217.17.14): icmp_seq=3 ttl=127 time=16.2 ms
64 bytes from mad07509-in-f14.1e100.net (172.217.17.14): icmp_seq=3 ttl=127 time=16.2 ms
64 bytes from mad07509-in-f14.1e10.net (172.217.17.14): icmp_seq=3 ttl=127 time=16.2 ms
64 bytes from mad07509-in-f14.1e10.net (172.217.17.14): icmp_seq=3 ttl=127 time=16.2 ms
64 bytes from mad07509-in-f14.1e10.net (172.217.17.14)
```

```
almellonesfernandez@almellonesfernandez-us-intranet:~$ sudo apt-get update
sudo apt-get install ntpdate
Obj:1 http://archive.ubuntu.com/ubuntu noble InRelease
Des: 2 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Des:3 <a href="http://security.ubuntu.com/ubuntu">http://security.ubuntu.com/ubuntu</a> noble-security InRelease [126 kB]
Des:4 http://archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Des:5 <a href="http://archive.ubuntu.com/ubuntu">http://archive.ubuntu.com/ubuntu</a> noble-updates/main amd64 Packages [761 kB]
Des:6 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [572 kB]
Des:7 <a href="http://archive.ubuntu.com/ubuntu">http://archive.ubuntu.com/ubuntu</a> noble-updates/main Translation-en [173 kB]
Des:8 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [151 kB]
Des:9 http://archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Packages [572 kB]
Des:10 http://archive.ubuntu.com/ubuntu noble-updates/restricted Translation-en [110 kB
Des:11 http://archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Components [212 B]
Des:12 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [965 kB]
Des:13 http://archive.ubuntu.com/ubuntu noble-updates/universe Translation-en [238 kB]
Des:14 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [310 kB
Des:15 http://archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [940 B]
Des:16 http://archive.ubuntu.com/ubuntu noble-backports/main amd64 Components [208 B]
Des:17 http://archive.ubuntu.com/ubuntu noble-backports/restricted amd64 Components [216 B]
Des:18 http://archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [11,7 kB]
Des:19 http://archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 Components [212 B]
Des: 20 http://security.ubuntu.com/ubuntu noble-security/main Translation-en [111 kB]
Des:21 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [7.220 B]
Des:22 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Packages [560 kB] Des:23 http://security.ubuntu.com/ubuntu noble-security/restricted Translation-en [108 kB]
Des:24 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Components [212 B]
Des:25 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [795 kB]
Des:26 <a href="http://security.ubuntu.com/ubuntu">http://security.ubuntu.com/ubuntu</a> noble-security/universe Translation-en [169 kB]
Des:27 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [52,0 kB]
Des:28 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [212 B]
                                                                                                         Activa
Descargados 6.046 kB en 5s (1.104 kB/s)
```

Actualizar la fecha lo ejecuta pero no encuentra servidor elegible, creo que me comentaste que alomejor el sistema se actualiza solo, porque si no funcionara no creo que me respondiera el comando

```
almellonesfernandez@almellonesfernandez-us-wlan:~$ sudo apt-get update
[sudo] password for almettonesfernandez:

Obj:1 http://archive.ubuntu.com/ubuntu noble InRelease

Des:2 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]

Des:3 http://archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]

Des:4 http://archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]

Des:5 http://archive.ubuntu.com/ubuntu noble/main Translation-es [325 kB]

Des:6 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [572 kB]

Des:7 http://archive.ubuntu.com/ubuntu noble-security/main amd64 Packages [572 kB]

Des:8 http://archive.ubuntu.com/ubuntu noble/restricted Translation-es [816 B]

Des:8 http://security.ubuntu.com/ubuntu noble-security/main Translation-en [111 kB]

Des:9 http://security.ubuntu.com/ubuntu noble-security/main Translation-en [111 kB]

Des:10 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [7.216 B]

Des:11 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Packages [560 kB]

Des:12 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [761 kB]

Des:14 http://security.ubuntu.com/ubuntu noble-updates/main amd64 Packages [761 kB]

Des:15 http://archive.ubuntu.com/ubuntu noble-updates/main Translation-en [173 kB]

Des:16 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [151 kB]

Des:17 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Packages [775 kB]

Des:18 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [775 kB]

Des:20 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [775 kB]

Des:21 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [775 kB]

Des:22 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [775 kB]

Des:21 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [212 B]
```

```
224K ACCEPT
                                        lan2
                                                  wan2
                                                            172.16.102.2
                                                                                        0.0.0.0/0
                                                                                                                    tcp dpt:80
 155 12325 ACCEPT
69 5078 ACCEPT
                                        lan2
                                                  wan2
                                                            172.16.102.2
172.16.102.2
                                                                                        0.0.0.0/0 0.0.0/0
                                                                                                                   tcp dpt:443
udp dpt:53
                             17
                                                  wan2
                                         lan2
                                                            172.16.102.2
172.16.102.2
          252
              ACCEPT
                                         lan2
                                                  wan2
                                                                                        0.0.0.0/0
                                         lan2
                                                  wan2
                                                                                                                    tcp dpt:123
                                                            172.16.102.3
                                                                                        0.0.0.0/0
                                                                                                                   tcp dpt:80
tcp dpt:443
    0
            0
              ACCEPT
                                         lan2
                                                  wan2
    0
              ACCEPT
                                                            172.16.102.3
172.16.102.3
                                                                                        0.0.0.0/0
                                         lan2
              ACCEPT
                             17
                                                                                        0.0.0.0/0
    0
                                         lan2
                                                  wan2
                                                                                                                   udp dpt:53
                                                            172.16.102.3
172.16.102.3
                                                                                        0.0.0.0/0
0.0.0.0/0
    0
            0 ACCEPT
                                         lan2
                                                  wan2
              ACCEPT
                                                                                                                    tcp dpt:123
                                         lan2
                                                  wan2
                                                            172.16.102.4
172.16.102.4
                                                                                                                   tcp dpt:80
tcp dpt:443
    0
            0 ACCEPT
                                         lan2
                                                  wan2
                                                                                        0.0.0.0/0
              ACCEPT
                                                                                        0.0.0.0/0
                                         lan2
                                                  wan2
                                                            172.16.102.4
172.16.102.4
    0
            0
              ACCEPT
                             17
                                         lan2
                                                  wan2
                                                                                        0.0.0.0/0
                                                                                                                   udp dpt:53
    0
            0 ACCEPT
                                        lan2
                                                  wan2
                                                            172.16.102.4
                                                                                        0.0.0.0/0
                                                                                                                   tcp dpt:123
5858 216M ACCEPT
                             0
                                                            0.0.0.0/0
                                                                                                                    state RELATED, ESTABLISHED /* Re
spuesta WAN a LAN */
  365 24029 ACCEPT
108 11977 ACCEPT
                             6
                                        wlan2
wlan2
                                                  wan2
                                                            192.168.102.2
192.168.102.2
                                                                                        0.0.0.0/0
                                                                                                                   tcp dpt:80
tcp dpt:443
                                                                                        0.0.0.0/0
                                                  wan2
   41 3071 ACCEPT
3 252 ACCEPT
0 0 ACCEPT
                                                            192.168.102.2
192.168.102.2
192.168.102.2
                             17
                                   --
                                        wlan2
                                                  wan2
                                                                                        0.0.0.0/0
                                                                                                                   udp dpt:53
                                                                                        0.0.0.0/0
                                        wlan2
                                                  wan2
                                                                                                                   tcp dpt:123
                                        wlan2
                                                  wan2
                                                                                        0.0.0.0/0
  537 8704K ACCEPT
                                                  wlan2
                                                           0.0.0.0/0
                                                                                                                    state RELATED, ESTABLISHED /* Re
```

Solo ha aumentado en las ips de los Ubuntu Server porque son las máquinas que he probado, pero deben de funcionar todas. Te voy a mostrar a parte como se actualiza las horas ya que me he equivocado y le he puesto tcp en vez de udp uno me actualizaba la hora

```
almellonesfernandez@almellonesfernandez-us-intranet:~$ sudo ntpdate ntp.ubuntu.com

[sudol password for almellonesfernandez]
2024-12-26 20:42:42.424729 (+0000) -1.621859 +/- 0.059862 ntp.ubuntu.com 91.189.91.157 s2 no-leap
[CLOCK: time stepped by -1.621859
almellonesfernandez@almellonesfernandez-us-intranet:~$
```

```
almellonesfernandez(almellonesfernandez-us-wlan:~$ sudo ntpdate ntp.ubuntu.com

[sudo] password for almellonesfernandez:

2024-12-26 20:44:40.887126 (+0000) +0.014913 +/- 0.034792 ntp.ubuntu.com 185.125.190.56 s2 no-leap

almellonesfernandez@almellonesfernandez-us-wlan:~$
```

```
142 ACCEPT
                                        lan2
                                                  wan2
                                                             172.16.102.2
                                                                                        0.0.0.0/0
                                                                                                                    udp dpt:53
                                                            172.16.102.2
172.16.102.2
172.16.102.3
172.16.102.3
  0
4
0
         0 ACCEPT
304 ACCEPT
                                   --
                                        lan2
lan2
                                                                                        0.0.0.0/0
0.0.0.0/0
                                                  wan2
                            17
                                                  wan2
                                                                                                                    udp dpt:123
                                                                                                                    tcp dpt:80
tcp dpt:443
udp dpt:53
           0 ACCEPT
                            6
                                         lan2
                                                  wan2
                                                                                        0.0.0.0/0
                            6
17
           0 ACCEPT
                                         lan2
                                                  wan2
                                                                                        0.0.0.0/0
           0 ACCEPT
                                                             172.16.102.3
                                                                                        0.0.0.0/0
                                        lan2
                                                  wan2
           0 ACCEPT
0 ACCEPT
                            1
17
                                                            172.16.102.3
172.16.102.3
                                                                                        0.0.0.0/0 0.0.0/0
                                        lan2
                                                  wan2
                                                                                                                    udp dpt:123
                                         lan2
                                                  wan2
           0 ACCEPT
0 ACCEPT
                                        lan2
                                                  wan2
                                                            172.16.102.4
172.16.102.4
                                                                                        0.0.0.0/0
                                                                                                                    tcp dpt:80
tcp dpt:443
                                                  wan2
                                        lan2
                            17
                                  --
                                                                                        0.0.0.0/0 0.0.0/0
   0
           0 ACCEPT
                                        lan2
                                                  wan2
                                                            172.16.102.4
                                                                                                                    udp dpt:53
                                                            172.16.102.4
172.16.102.4
172.16.102.4
           0 ACCEPT
                                        lan2
                                                  wan2
                            1
17
                                                                                                                    udp dpt:123
state RELATED,ESTABLISHED /* Re
   0
           0 ACCEPT
                                        lan2
                                                  wan2
                                                                                        0.0.0.0/0
        594 ACCEPT
                            0
                                        wan2
                                                  lan2
                                                            0.0.0.0/0
                                                                                        0.0.0.0/0
ouesta WAN a LAN */
0 0 ACCEPT
                                        wlan2
                                                  wan2
                                                            192.168.102.2
                                                                                        0.0.0.0/0
                                 --
                                                            192.168.102.2
192.168.102.2
                                                                                                                    tcp dpt:443
   0
           0 ACCEPT
                            6
                                        wlan2
                                                  wan2
                                                                                        0.0.0.0/0
  4 284 ACCEPT
0 0 ACCEPT
6 456 ACCEPT
10 1036 ACCEPT
                            17
                                        wlan2
                                                  wan2
                                                                                        0.0.0.0/0
                                                                                                                    udp dpt:53
                                                  wan2
                                                             192.168.102.2
                                                                                        0.0.0.0/0
                                        wlan2
                             17
                                                                                                                    udp dpt:123
state RELATED,ESTABLISHED /* Re
                                        wlan2
                                                  wan2
                                                             192.168.102.2
                                                                                        0.0.0.0/0
                            0
                                                  wlan2
                                                            0.0.0.0/0
                                                                                        0.0.0.0/0
                                        wan2
ouesta WAN a WLAN */
```

Ahora si aumenta el contador , en la imagen de los contadores anteriores estaba a 0 y ahora aumente el número de las dos reglas

- 6. **Filter Forward y NAT desde DMZ** Accesos desde la zona DMZ a Internet (wan) permitidos:
- **(1 punto)** Actualizarse (apt-get) y visitar páginas web (80 y 443) mediante dns, exclusivamente al único equipo que hay actualmente en dicha zona.

0 0 ACCEPT 6 dmz2 wan2 0.0.0.0/0 0.0.0.0/0 tcp dpt:80 0 0 ACCEPT 6 dmz2 wan2 10.0.102.2 0.0.0.0/0 tcp dpt:843 0 0 ACCEPT 17 dmz2 wan2 10.0.102.2 0.0.0.0/0 tcp dpt:843 0 0 ACCEPT 17 dmz2 wan2 10.0.102.2 0.0.0.0/0 udp dpt:53 0 0 ACCEPT 0 wan2 dmz2 0.0.0.0/0 0.0.0.0/0 udp dpt:53 0 0 ACCEPT 0 wan2 dmz2 0.0.0.0/0 0.0.0.0/0 state RELATED,ESTABLISHED /spuesta WAN a DMZ */ 0 0 ACCEPT 0 wan2 lan2 0.0.0.0/0 0.0.0.0/0 state RELATED,ESTABLISHED /spuesta WAN a LAN */ 0 0 ACCEPT 0 wan2 dmz2 0.0.0.0/0 0.0.0.0/0 state RELATED,ESTABLISHED /spuesta WAN a WLAN */ 0 0 ACCEPT 6 wan2 dmz2 0.0.0.0/0 10.0.102.2 tcp dpt:80 0 0 ACCEPT 6 wan2 dmz2 0.0.0.0/0 10.0.102.2 tcp dpt:443 0 0 ACCEPT 6 wan2 dmz2 0.0.0.0/0 10.0.102.2 tcp dpt:443 0 0 ACCEPT 6 wan2 dmz2 0.0.0.0/0 10.0.102.2 tcp dpt:22 0 0 ACCEPT 6 wan2 dmz2 0.0.0.0/0 10.0.102.2 tcp dpt:22 0 0 ACCEPT 0 dmz2 wan2 0.0.0.0/0 0.0.0.0/0 state RELATED,ESTABLISHED /spuesta WAN a Lan */ 0 0 LOG 0 lan2 wlan2 0.0.0.0/0 0.0.0.0/0 LOG flags 0 level 4 prefix 10 DMZ DENIED AlmellonesF" 0 0 DROP 0 lan2 dmz2 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 LOG flags 0 level 4 prefix 10 DMZ DENIED AlmellonesF" 0 0 DROP 0 lan2 dmz2 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 LOG flags 0 level 4 prefix 10 DMZ DENIED AlmellonesF" 0 0 DROP 0 lan2 dmz2 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 10.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.	nkts h	ytes target	prot	ont	in ´	out	) source	destination	
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0 0 ACCEPT 6 wan2 dmz2 0.0.0.0/0 10.0.102.2 tcp dpt:22 0 0 0 ACCEPT 0 dmz2 wan2 0.0.0.0/0 0.0.0.0/0 state RELATED,ESTABLISHED 0 0.0.0.0/0 0.0.0.0/0 to DMZ DENIED AlmellonesF" 0 0 DROP 0 lan2 wlan2 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 LOG flags 0 level 4 prefix 0 0 DMZ DENIED AlmellonesF" 0 0 DROP 0 lan2 dmz2 0.0.0.0/0 0.0.0.0/0 LOG flags 0 level 4 prefix 0 0 DMZ DENIED AlmellonesF" 0 0 DROP 0 lan2 dmz2 0.0.0.0/0 0.0.0.0/0 LOG flags 0 level 4 prefix 0 0 DMZ DENIED AlmellonesF" 0 0 DROP 0 lan2 dmz2 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 /* Importante para enviar a sprocesos. Ej. DNS local */ 44 3968 ACCEPT 0 * * 0.0.0.0/0 0.0.0.0/0 state RELATED,ESTABLISHED // 10 DMZ DENIED AlmellonesF" 0 0 DROP 0 lan2 dmz2 0.0.0.0/0 0.0.0.0/0 /* Importante para enviar a sprocesos. Ej. DNS local */ 44 3968 ACCEPT 0 * * 0.0.0.0/0 0.0.0.0/0 state RELATED,ESTABLISHED // 10 DMZ DENIED AlmellonesF" 0 0 DROP 0 lan2 dmz2 0.0.0.0/0 0.0.0.0/0 state RELATED,ESTABLISHED //	0	0 ACCEPT	6		wan2	dmz2	0.0.0.0/0	10.0.102.2	tcp dpt:80
0 0 ACCEPT 0 dmz2 wan2 0.0.0.0/0 0.0.0.0/0 state RELATED,ESTABLISHED 0 0 LOG 0 lan2 wlan2 0.0.0.0/0 0.0.0.0/0 LOG flags 0 level 4 prefix to DMZ DENIED AlmellonesF" 0 0 DROP 0 lan2 wlan2 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0	0	0 ACCEPT	6		wan2	dmz2	0.0.0.0/0	10.0.102.2	tcp dpt:443
0 0 LOG 0 lan2 wlan2 0.0.0.0/0 0.0.0.0/0 LOG flags 0 lével 4 prefix 0.00 DROP 0 lan2 wlan2 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 LOG flags 0 level 4 prefix 0.00 DROP 0 lan2 dmz2 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0/0 0.0.0.0/0 0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0/0 0.0.0/0 0.0.0/0 0.0.0/0	0		6		wan2	dmz2	0.0.0.0/0	10.0.102.2	tcp dpt:22
to DMZ DENIED AlmellonesF"  0	0	0 ACCEPT	0		dmz2	wan2	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED
0 0 DROP 0 lan2 wlan2 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0 LOG 0 lan2 dmz2 0.0.0.0/0 0.0.0.0/0 LOG flags 0 level 4 prefix to DMZ DENIED AlmellonesF" 0 0 DROP 0 lan2 dmz2 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.	-		•		lan2	wlan2	0.0.0.0/0	0.0.0.0/0	LOG flags 0 level 4 prefix "LA
0 0 LOG 0 lan2 dmz2 0.0.0.0/0 0.0.0.0/0 LOG flags 0 level 4 prefix to DXZ DENIED AlmellonesF" 0 0 DROP 0 lan2 dmz2 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 0.0.0.0/0 /* Importante para enviar a sprocesos. Ej. DNS local */ 44 3968 ACCEPT 0 * * 0.0.0.0/0 0.0.0.0/0 state RELATED, ESTABLISHED /* DUESTAS INPUT */	to DMZ		onesF"						
to DMZ DENIED AlmellonesF" 0	0		0						
0 0 DROP 0 lan2 dmz2 0.0.0.0/0 0.0.0.0/0  main OUTPUT (policy DROP 0 packets, 0 bytes)  okts bytes target prot opt in out source destination 0 0 ACCEPT 0 * lo 0.0.0.0/0 0.0.0.0/0 /* Importante para enviar a sprocesos. Ej. DNS local */ 44 3968 ACCEPT 0 * * 0.0.0.0/0 0.0.0.0/0 state RELATED, ESTABLISHED /*  Duestas INPUT */					lan2	dmz2	0.0.0.0/0	0.0.0.0/0	LOG flags 0 level 4 prefix "LA
nain OUTPUT (policy DROP 0 packets, 0 bytes)  both bytes target prot opt in out source destination  0 0 ACCEPT 0 * lo 0.0.0.0/0 0.0.0.0/0 /* Importante para enviar a procesos. Ej. DNS local */  44 3968 ACCEPT 0 * * 0.0.0.0/0 0.0.0.0/0 state RELATED,ESTABLISHED /*  Duestas TNPUT */			onesF"						
okts bytes target ' prot opt in ' out ' source destination '	0	0 DROP	0		lan2	dmz2	0.0.0.0/0	0.0.0.0/0	
0 0 ACCÉPT 0 * lo 0.0.0.0/0 0.0.0.0/0 /* Importante para enviar a s procesos. Ej. DNS local */ 44 3968 ACCEPT 0 * * 0.0.0.0/0 0.0.0.0/0 state RELATED,ESTABLISHED /*	hain O	UTPUT (policy	DROP 0	pacl	kets, (	) bytes)			
s procesos. Ej. DNS local */ 44	kts b	ytes target	prot	opt	in	out	source	destination	
44 3968 ACCEPT 0 * * 0.0.0.0/0 0.0.0.0/0 state RELATED,ESTABLISHED /	0	0 ACCEPT	0		*	lo	0.0.0.0/0	0.0.0.0/0	/* Importante para enviar a ot
puestas INPUT */	proc	esos. Ej. DNS	local	*/					·
puestas INPUT */ * * * *	44	3968 ACCEPT	0		*	*	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* R
0 0 ACCEPT 1 * * 0.0 0.00 0.0 0.0 0.0 /* 0\partial Profit * \partial Profit	uesta	s INPUT */							A . C
	0	0 ACCEPT	1		*	*	0.0.0.0/0	0.0.0.0/0	/* OUTPUT Voldas Winterfaces pin  Ve a Configuración para activar Windows.

```
almellonesfernandez<mark>dalmellonesfernandez-</mark>
[sudo] password for almellonesfernandez:
                                            lonesfernandez-us-dmz <mark>~$ sudo apt-get update</mark>
 Obj:1 http://archive.ubuntu.com/ubuntu noble InRelease
 Des:2 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
 Des:3 http://archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Des:4 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
 Des:5 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [761 kB]
 Des:6 http://archive.ubuntu.com/ubuntu noble-updates/main Translation-en [173 kB]
 Des:7 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [151 kB]
Des:8 http://archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Packages [572 kB]
 Des:9 http://archive.ubuntu.com/ubuntu noble-updates/restricted Translation-en [110 kB]
 Des:10 http://archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Components [212 B]
Des:11 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [965 kB]
 Des:12 http://archive.ubuntu.com/ubuntu noble-updates/universe Translation-en [238 kB]
 Des:13 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [310 kB]
 Des:14 http://archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [940 B]
Des:15 http://archive.ubuntu.com/ubuntu noble-backports/main amd64 Components [208 B]
 Des:16 http://archive.ubuntu.com/ubuntu noble-backports/restricted amd64 Components [216 B]
 Des:17 http://archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [11,7 kB]
Des:18 http://archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 Components [212 B]
Des:19 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [572 kB]
 Des:20 http://security.ubuntu.com/ubuntu noble-security/main Translation-en [111 kB]
 Des:21 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [7.220 B]
Des:22 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Packages [560 kB]
 Des:23 http://security.ubuntu.com/ubuntu noble-security/restricted Translation-en [108 kB]
 Des:24 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Components [212 B]
Des:25 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [795 kB]
 Des:26 http://security.ubuntu.com/ubuntu noble-security/universe Translation-en [169 kB]
 Des:27 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [52,0 kB]
 Des:28 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [212 B]
 Descargados 6.046 kB en 59s (102 kB/s)
 Leyendo lista de paquetes... Hecho
      ellonesfernandez@almellonesfernandez-us-dmz:~$
almellonesfernandez@almellonesfernandez-us-dmz] ** wget http://elpais.com --2024-12-26 17:07:40-- http://elpais.com/
Resolving elpais.com (elpais.com). 96.16.84.14, 2a02:26f0:1380:27::5f64:6d57, 2a02:26f0:1380:27::5f64:6d5d
Connecting to elpais.com [elpais.com]) 61.6.84.14]:80... connected.
HTTP request sent, awaiting response... 301 Moved Permanently
Location: https://elpais.com/ [following] --2024-12-26 17:07:42-- https://elpais.com/
Connecting to elpais.com (elpais.com)]06.16.84.14]:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: unspecified [text/html]
Saving to: 'index.html.1'
                                                                                                                                                                ] 416,57K 1,22MB/s in 0,3s
--2024-12-26 17:07:57-- https://elpais.com/
Resolving elpais.com (elpais.com)|96.16.84.14|, 2a02:26f0:1380:27::5f64:6d5d, 2a02:26f0:1380:27::5f64:6d57
Connecting to elpais.com (elpais.com)|96.16.84.14|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: unspecified [text/html]
Saving to: 'index.html.2'
                                                                                                                                                                ] 416,57K --.-KB/s
 2024-12-26 17:07:58 (7,69 MB/s) - 'index.html.2' saved [426571]
 almellonesfernandez@almellonesfernandez-us-dmz:~$
```

	*/ 8184 ACCEPT as OUTPUT */	0		*	*	0.0.0.0/0	0.0.0.0/0	state RELATED,ESTABLISHED /* Re
Chain	FORWARD (policy	DROP	0 pa	ckets.	0 bytes	)		
	bytes target		opt		out	source	destination	
0	0 ACCEPT	17			wan2	0.0.0.0/0	0.0.0.0/0	udp dpt:123
347	21457 ACCEPT	6		dmz2	wan2	10.0.102.2	0.0.0.0/0	tcp dpt:80
83	6651 ACCEPT	6		dmz2	wan2	10.0.102.2	0.0.0.0/0	tcp dpt:443
14	1062 ACCEPT	17		dmz2	wan2	10.0.102.2	0.0.0.0/0	udp dpt:53
3098	/385K ACCEPT	0		wan2	dmz2	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* Re
spuest	a WAN a DMZ */							
. 0	0 ACCEPT	0		wan2	lan2	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* Re
spuest	a WAN a LAN */							,
. 0	<pre>0 ACCEPT</pre>	0		wan2	wlan2	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* Re
spuest	a WAN a WLAN */							
0	0 ACCEPT	6		wan2	dmz2	0.0.0.0/0	10.0.102.2	tcp dpt:80
0	0 ACCEPT	6		wan2	dmz2	0.0.0.0/0	10.0.102.2	tcp dpt:443
0	0 ACCEPT	6		wan2	dmz2	0.0.0.0/0	10.0.102.2	tcp dpt:22
2398	218K ACCEPT	0		dmz2	wan2	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED
0	0 LOG	0		lan2	wlan2	0.0.0.0/0	0.0.0.0/0	LOG flags 0 level 4 prefix "LAN
to DM	Z DENIED Almell	onesF"						
0	0 DROP	0		lan2	wlan2	0.0.0.0/0	0.0.0.0/0	
0	0 LOG	0		lan2	dmz2	0.0.0.0/0	0.0.0.0/0	LOG flags 0 level 4 prefix "LAN
to DM	Z DENIED Almell	onesF"						
0	0 DROP	0		lan2	dmz2	0.0.0.0/0	0.0.0.0/0	
	OUTPUT (policy							
	bytes target		opt		out	source	destination	
0	0 ACCEPT	0		*	lo	0.0.0.0/0	0.0.0.0/0	/* Importante para enviar a otr
	cesos. Ej. DNS							
104	10080 ACCEPT	0		*	*	0.0.0.0/0	0.0.0.0/0	state RELATED ESTABLISHED ** Re

#### • (0,5 puntos) Actualizar la hora del sistema operativo.

30 1920 ACCEPT spuestas OUTPUT */	0		*	*	0.0.0.0/0	0.0.0.0/0	state RELATED,ESTABLISHED /* Re
Chain FORWARD (polic	V DDOD	0 na	ckats	0 hytes	١		
pkts bytes target	prot			out	source	destination	
0 0 ACCEPT	6	opt	dmz2	wan2	0 0 0 0/0	0 0 0 0/0	
0 0 ACCEPT	17		dmz2	wan2	0.0.0.0/0	0.0.0.0/0	udp dpt:123
0 0 ACCEPT	0			dmz2	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* Re
spuesta WAN a DMZ */	•		wanz	dille	0.0.0.0,0	0.0.0.0,0	State RELATED, ESTABLISHED / NO
0 0 ACCEPT	0		wan2	lan2	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* Re
spuesta WAN a LAN */	•				0.0.0.0,0	0.0.0.0, 0	otato neember
0 0 ACCEPT	0		wan2	wlan2	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* Re
spuesta WAN a WLAN *	/						, , , , , , , , , , , , , , , , , , , ,
0 0 ACCEPT	6		wan2	dmz2	0.0.0.0/0	10.0.102.2	tcp dpt:80
0 0 ACCEPT	6		wan2	dmz2	0.0.0.0/0	10.0.102.2	tcp dpt:443
0 0 ACCEPT	6		wan2	dmz2	0.0.0.0/0	10.0.102.2	tcp dpt:22
0 0 LOG	0		lan2	wlan2	0.0.0.0/0	0.0.0.0/0	LOG flags 0 level 4 prefix "LAN
to DMZ DENIED Almel	lonesF"						
0 0 DROP	0		lan2	wlan2	0.0.0.0/0	0.0.0.0/0	
0 0 LOG	0		lan2	dmz2	0.0.0.0/0	0.0.0.0/0	LOG flags 0 level 4 prefix "LAN
to DMZ <b>DENIED</b> Almel	lonesF"						
0 0 DROP	0		lan2	dmz2	0.0.0.0/0	0.0.0.0/0	
Chain OUTPUT (policy	DDOD 0	nac	kots	0 bytes)			
pkts bytes target	prot			out	source	destination	
0 0 ACCEPT	0		*	10	0.0.0.0/0	0.0.0.0/0	/* Importante para enviar a otr
os procesos. Ej. DNS					0.0.0.0,0	0.0.0.070	/ Importante para enviar a otr
18 1664 ACCEPT	0		*	*	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* Re
spuestas INPUT */	3				0.0.0.0/0	3.3.3.0/0	state needites, established / ne
0 0 ACCEPT	1		*	*	0.0.0.0/0	0.0.0.0/0	/* OUTPUT todas interfaces ping
*/	-						Activar Windows
0 0 DROP	6		*	wan2	0.0.0.0/0	0.0.0.0/0	tcp dpt:22gy*ioPermittir\SSHwa eq

almellonesfernandez@almelk × + v

almellonesfernandez@almellonesfernandez-us-dmz; ~\$ sudo ntpdate ntp.ubuntu.com

2024-12-26 16:36:28.255451 (+0000) +0.023605 +/- 0.044716 ntp.ubuntu.com 185.125.190.56 s2 no-leap
almellonesfernandez@almellonesfernandez-us-dmz:~\$

spuestas OUTPUT */							
Chain FORWARD (policy				776 byt	es)		
pkts bytes target	prot	opt	in	out	source	destination	
926 71802 ACCEPT	6		dmz2	wan2	0.0.0.0/0	0.0.0.0/0	
4 304 ACCEPT	17		dmz2	wan2	0.0.0.0/0	0.0.0.0/0	udp dpt:123
1031 74410 ACCEPT	0		wan2	dmz2	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* Re
spuesta WAN a DMZ */							·
0 0 ACCEPT	0		wan2	lan2	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* Re
spuesta WAN a LAN */							·
0 0 ACCEPT	0		wan2	wlan2	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* Re
spuesta WAN a WLAN */	,						·
0 0 ACCEPT	6		wan2	dmz2	0.0.0.0/0	10.0.102.2	tcp dpt:80
0 0 ACCEPT	6		wan2	dmz2	0.0.0.0/0	10.0.102.2	tcp dpt:443
0 0 ACCEPT	6		wan2	dmz2	0.0.0.0/0	10.0.102.2	tcp dpt:22
0 0 LOG	0		lan2	wlan2	0.0.0.0/0	0.0.0.0/0	LOG flags 0 level 4 prefix "LAN
to DMZ DENIED Almell	onesF"						, ,
0 0 DROP	0		lan2	wlan2	0.0.0.0/0	0.0.0.0/0	I
0 0 LOG	0		lan2	dmz2	0.0.0.0/0	0.0.0.0/0	LOG flags 0 level 4 prefix "LAN
to DMZ DENIED Almell	onesF"				•		, ,
0 0 DROP	0		lan2	dmz2	0.0.0.0/0	0.0.0.0/0	I
Chain OUTPUT (policy	DROP 0	nac	kets 0	hytes)			ı
pkts bytes target	prot			out	source	destination	
0 0 ACCEPT	0			lo	0.0.0.0/0	0.0.0.0/0	/* Importante para enviar a otr
os procesos. Ej. DNS	•				0.0.0.070	0.0.0.0,0	, importance para enviar a oci
20 1840 ACCEPT	0		*	*	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* Re
spuestas INPUT */	0				0.0.0.070	0.0.0.0,0	State RELATED, ESTABLISHED / Ne
0 0 ACCEPT	1		*	*	0.0.0.0/0	0.0.0.0/0	/* OUTPUT todas interfaces ping
*/	_				0.0.0.070	0.0.0.0,0	, corror codds theer races pany
0 0 DROP	6		*	wan2	0.0.0.0/0	0.0.0.0/0	tcp dpti/22 WindPermittir SSH a eq
uipos en WAN */	•			WallZ	0.0.0.0,0	0.0.0.0,0	Ve a Configuración para activar Windows.
a cpos cir wan "/							

## • (1 punto) No se permitirá la conexión a <a href="https://facebook.com">https://gacebook.com</a>, <a href="https://www.marca.com">https://www.marca.com</a>.

e LAN */						
0 0 ACCEPT	6	dmz2	*	0.0.0.0/0	0.0.0.0/0	tcp dpt:22 /* Permitir SSH desd
e DMZ */	· ·	dill22		0.0.0.0,0	0.0.0.0,0	tep aperzz / Termeter SSIT desa
30 1872 ACCEPT	0	*	*	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* Re
spuestas OUTPUT */					•	,
Chain FORWARD (policy			bytes)			
pkts bytes target	prot op		out	source	destination	
0 0 REJECT	-		*	0.0.0.0/0	0.0.0.0/0	tcp dpt:443 STRING match "marc
a.com" ALGO name bm /						
0 0 REJECT			*	0.0.0.0/0	0.0.0.0/0	tcp dpt:80 STRING match "marca
.com" ALGO name kmp /						
0 0 REJECT	6		wan2	0.0.0.0/0	0.0.0.0/0	tcp dpt:443 STRING match "face
book.com" ALGO name bi						
0 0 REJECT	6		wan2	0.0.0.0/0	0.0.0.0/0	tcp dpt:80 STRING match "faceb
ook.com" ALGO name km						uda dat 122
0 0 ACCEPT	17		wan2	0.0.0.0/0	0.0.0.0/0	udp dpt:123
0 0 ACCEPT 0 0 ACCEPT	6		wan2	10.0.102.2 10.0.102.2	0.0.0.0/0	tcp dpt:80
0 0 ACCEPT 0 0 ACCEPT	17		wan2	10.0.102.2	0.0.0.0/0	tcp dpt:443
0 0 ACCEPT	0		wan2 dmz2	0.0.0.0/0	0.0.0.0/0 0.0.0.0/0	udp dpt:53 state RELATED,ESTABLISHED /* Re
spuesta WAN a DMZ */	0	WallZ	ullizz	0.0.0.0/0	0.0.0.0/0	State RELATED, ESTABLISHED /* Re
0 0 ACCEPT	0	wan2	lan2	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* Re
spuesta WAN a LAN */	0	waliz	Laliz	0.0.0.0/0	0.0.0.070	State RELATED, ESTABLISHED / ^ Re
0 0 ACCEPT	0	wan2	wlan2	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED /* Re
spuesta WAN a WLAN */	O	WallZ	wcanz	0.0.0.0/0	0.0.0.0,0	State NELATED, ESTABLISHED / THE
0 0 ACCEPT	6	wan2	dmz2	0.0.0.0/0	10.0.102.2	tcp dpt:80
0 0 ACCEPT	6		dmz2	0.0.0.0/0	10.0.102.2	tcp dpt:443
0 0 ACCEPT	6		dmz2	0.0.0.0/0	10.0.102.2	tcp dpt:22
0 0 ACCEPT	0		wan2	0.0.0.0/0	0.0.0.0/0	state RELATED, ESTABLISHED
0 0 LOG	0		wlan2	0.0.0.0/0	0.0.0.0/0	LOG frags of lever 4 prefix "LAN
to DMZ DENIED Almello	onesF"					Ve a Configuración para activar Windows.

```
almellonesfernandez@almellonesfernandez-us-dmz;~$ wget http://facebook.com
 URL transformed to HTTPS due to an HSTS policy
 --2024-12-26 18:51:50-- https://facebook.com/
 Resolving facebook.com (facebook.com)... 157.240.5.35, 2a03:2880:f178:89:face:b00c:0:25de Connecting to facebook.com (facebook.com)|157.240.5.35|:443... connected.
 almellonesfernandez@almellonesfernandez-us-dmz:~$ wget http://marca.com
 --2024-12-26 18:52:15-- http://marca.com/
 Resolving marca.com (marca.com)... 34.147.120.111, 2001:67c:2294:1000::f199
 Connecting to marca.com (marca.com)|34.147.120.111|:80... connected.
 HTTP request sent, awaiting response... No data received.
 Retrying.
 --2024-12-26 18:52:21-- (try: 2) http://marca.com/
 Connecting to marca.com (marca.com)|34.147.120.111|:80... connected.
 HTTP request sent, awaiting response... No data received.
 Retrying.
 --2024-12-26 18:52:28-- (try: 3) http://marca.com/
 Connecting to marca.com (marca.com)|34.147.120.111|:80... connected. HTTP request sent, awaiting response... No data received.
 Retrying.
 --2024-12-26 18:52:37-- (try: 4) http://marca.com/
 Connecting to marca.com (marca.com)|34.147.120.111|:80... connected.
 HTTP request sent, awaiting response... No data received.
 Retrying.
 almellonesfernandez@almellonesfernandez-us-dmz:~$
e DMZ */
67 4184 ACCEPT
                                         0 -- * *
                                                                                     0.0.0.0/0
                                                                                                                            0.0.0.0/0
                                                                                                                                                                  state RELATED, ESTABLISHED /* Re
spuestas OUTPUT
Chain FORWARD (policy DROP 0 packets, 0 bytes)
| Detail | D
                                                                                                                                                                    tcp dpt:443 STRING match "marc
                                                                                                                                                                   tcp dpt:80 STRING match "marca
tcp dpt:443 STRING match "face
                                                                                                                                                                   tcp dpt:80 STRING match "faceb
                                                                                                                  with icmp-port-unreachable
```

CR	CRITERIOS DE EVALUACIÓN						
4.a	Se ha incrementado el nivel de seguridad de una red local plana segmentándola físicamente y utilizando técnicas y dispositivos de enrutamiento.						
5.a	Se han configurado dispositivos de seguridad perimetral acorde a una serie de requisitos de seguridad.						
5.b	Se han detectado errores de configuración de dispositivos de red mediante el análisis de tráfico.						
5.c	Se han identificado comportamientos no deseados en una red a través del análisis de los registros (Logs), de un cortafuego.						
5.e	Se han caracterizado, instalado y configurado diferentes herramientas de monitorización.						
7.a	Se han enumerado y eliminado los programas, servicios y protocolos innecesarios que hayan sido instalados por defecto en el sistema.						