Actividad 10 – 03: Cortafuegos

USO DEL FIREWALL UFW

1. [1] Instala el paquete openssh-server, que es un servidor de SSH. Una vez instalado, asegúrate de que el servicio esté corriendo. Después, accede por SSH (con el comando ssh, no con putty) con tu usuario a tu propia máquina desde tu propia máquina. ¿Funciona el acceso?

```
alberto@alberto-VirtualBox:~$ sudo apt install openssh-server
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following package was automatically installed and is no longer required:
  libfwupdplugin1
Use 'sudo apt autoremove' to remove it.
The following additional packages will be installed:
```

```
alberto@alberto-VirtualBox:~$ sudo systemctl status ssh
● ssh.service - OpenBSD Secure Shell server
     Loaded: loaded (/lib/systemd/system/ssh.service; enabled; vendor preset: enabled)
     Active: active (running) since Mon 2022-03-21 13:04:20 CET; 1min 30s ago
       Docs: man:sshd(8)
             man:sshd_config(5)
   Main PID: 12381 (sshd)
      Tasks: 1 (limit: 7044)
     Memory: 1.0M
     CGroup: /system.slice/ssh.service
             └─12381 sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups

mar 21 13:04:20 alberto-VirtualBox systemd[1]: Starting OpenBSD Secure Shell server...
mar 21 13:04:20 alberto-VirtualBox sshd[12381]: Server listening on 0.0.0.0 port 22.
mar 21 13:04:20 alberto-VirtualBox sshd[12381]: Server listening on :: port 22.
mar 21 13:04:20 alberto-VirtualBox systemd[1]: Started OpenBSD Secure Shell server.
```

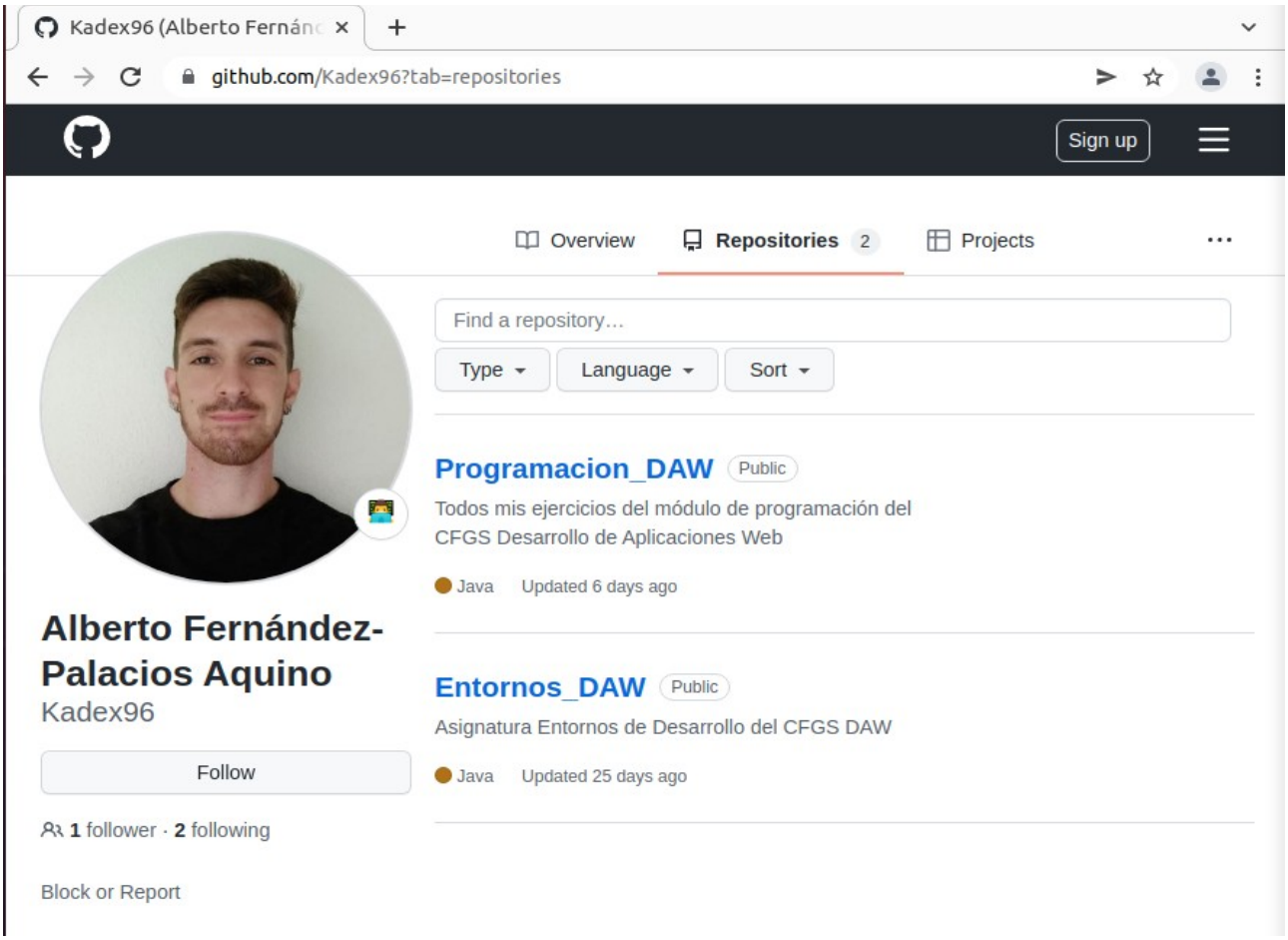
```
alberto@alberto-VirtualBox:~$ ssh localhost
The authenticity of host 'localhost (127.0.0.1)' can't be established.
ECDSA key fingerprint is SHA256:jvuSZlcCpOo1R8FF0ZibNoV6YRF0CAItbzSouYDz1Is.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'localhost' (ECDSA) to the list of known hosts.
alberto@localhost's password:
Welcome to Ubuntu 20.04.4 LTS (GNU/Linux 5.13.0-35-generic x86_64)

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

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

Your Hardware Enablement Stack (HWE) is supported until April 2025.

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

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

(Sí, funciona correctamente).

2. [2] Utiliza **ufw** para aplicar a tu ordenador la configuración típica de firewall para un Linux de Escritorio (denegar tráfico entrante y permitir tráfico saliente). Una vez aplicada la configuración muestra el estado de la configuración del firewall y comprueba que puedes navegar correctamente. Adjunta pantallazos de los comandos necesarios y de un navegador visitando una página web de tu libre elección.

```
alberto@alberto-VirtualBox:~$ sudo ufw default deny incoming
[sudo] password for alberto:
Default incoming policy changed to 'deny'
(be sure to update your rules accordingly)
alberto@alberto-VirtualBox:~$ sudo ufw default allow outgoing
Default outgoing policy changed to 'allow'
(be sure to update your rules accordingly)
alberto@alberto-VirtualBox:~$
```

```
alberto@alberto-VirtualBox:~$ sudo ufw status
Status: inactive
alberto@alberto-VirtualBox:~$ sudo ufw enable
Command may disrupt existing ssh connections. Proceed with operation (y|n)? y
Firewall is active and enabled on system startup
alberto@alberto-VirtualBox:~$ sudo ufw status
Status: active
alberto@alberto-VirtualBox:~$
```



3. [3] Intenta acceder de nuevo a tu ordenador con ssh. ¿Porqué sigue funcionando el acceso si acabamos de configurar el cortafuegos de forma que se deniegue el tráfico entrante?

```
alberto@alberto-VirtualBox:~$ ssh localhost
alberto@localhost's password:
Welcome to Ubuntu 20.04.4 LTS (GNU/Linux 5.13.0-35-generic x86_64)

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

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

Your Hardware Enablement Stack (HWE) is supported until April 2025.
Last login: Mon Mar 21 13:07:37 2022 from 127.0.0.1
alberto@alberto-VirtualBox:~$
```

(Funciona porque el SSH manda una operación de salida, y estas operaciones sí están permitidas. Al tratarse del mismo ordenador, se considera al completo como una operación de salida y se permite).

4. [3] Partiendo de la configuración anterior utiliza **ufw** para abrir los puertos necesarios para poder ofrecer los siguientes servicios:

4.a) DNS

```
alberto@alberto-VirtualBox:~$ sudo ufw allow 53/udp
Rule added
Rule added (v6)
```

4.b) FTP en modo activo

```
alberto@alberto-VirtualBox:~$ sudo ufw allow 21
Rule added
Rule added (v6)
alberto@alberto-VirtualBox:~$
```

4.c) SSH

```
alberto@alberto-VirtualBox:~$ sudo ufw allow 22
Rule added
Rule added (v6)
```

4.d) HTTP y HTTPS

```
alberto@alberto-VirtualBox:~$ sudo ufw allow http
Rule added
Rule added (v6)
alberto@alberto-VirtualBox:~$ sudo ufw allow https
Rule added
Rule added (v6)
alberto@alberto-VirtualBox:~$
```

Muestra el estado de la configuración del firewall.

```
alberto@alberto-VirtualBox:~$ sudo ufw status verbose
Status: active
Logging: on (low)
Default: deny (incoming), allow (outgoing), disabled (routed)
New profiles: skip

To                         Action      From
--                         ------      ----
80/tcp                     ALLOW IN    Anywhere
443/tcp                    ALLOW IN    Anywhere
22                         ALLOW IN    Anywhere
21                         ALLOW IN    Anywhere
53/udp                     ALLOW IN    Anywhere
80/tcp (v6)                ALLOW IN    Anywhere (v6)
443/tcp (v6)               ALLOW IN    Anywhere (v6)
22 (v6)                    ALLOW IN    Anywhere (v6)
21 (v6)                    ALLOW IN    Anywhere (v6)
53/udp (v6)                ALLOW IN    Anywhere (v6)
```

5. [4] Partiendo de la configuración anterior debes denegar (deny) los puertos asociados al servicio de FTP y DNS. Muestra el estado de configuración del firewall tras realizar los cambios.

```
alberto@alberto-VirtualBox:~$ sudo ufw deny 53/udp
Rule updated
Rule updated (v6)
alberto@alberto-VirtualBox:~$ sudo ufw deny 21
Rule updated
Rule updated (v6)
```

```
alberto@alberto-VirtualBox:~$ sudo ufw status verbose
Status: active
Logging: on (low)
Default: deny (incoming), allow (outgoing), disabled (routed)
New profiles: skip

To                         Action      From
--                         ------      ----
80/tcp                     ALLOW IN    Anywhere
443/tcp                    ALLOW IN    Anywhere
22                         ALLOW IN    Anywhere
21                         DENY IN     Anywhere
53/udp                     DENY IN     Anywhere
80/tcp (v6)                ALLOW IN    Anywhere (v6)
443/tcp (v6)               ALLOW IN    Anywhere (v6)
22 (v6)                    ALLOW IN    Anywhere (v6)
21 (v6)                    DENY IN     Anywhere (v6)
53/udp (v6)                DENY IN     Anywhere (v6)
```

6. [1] Por último, resetea el firewall para dejar el ordenador como al principio.

```
alberto@alberto-VirtualBox:~$ sudo ufw reset
Resetting all rules to installed defaults. This may disrupt existing ssh
connections. Proceed with operation (y|n)? y
Backing up 'user.rules' to '/etc/ufw/user.rules.20220321_133504'
Backing up 'before.rules' to '/etc/ufw/before.rules.20220321_133504'
Backing up 'after.rules' to '/etc/ufw/after.rules.20220321_133504'
Backing up 'user6.rules' to '/etc/ufw/user6.rules.20220321_133504'
Backing up 'before6.rules' to '/etc/ufw/before6.rules.20220321_133504'
Backing up 'after6.rules' to '/etc/ufw/after6.rules.20220321_133504'
```