

# **ELEVATE LABS INTERNSHIP**

## **Day-4**

Name : Mohamed Riyas

Role: Cyber Security Analyst

Task: 04

Title: Setup and Use a Firewall on Windows/Linux

Date: 27-06-2025

**Objective:** Configure and test basic firewall rules to allow or block traffic.

**Tools:** Windows Firewall / UFW (Uncomplicated Firewall) on Linux.

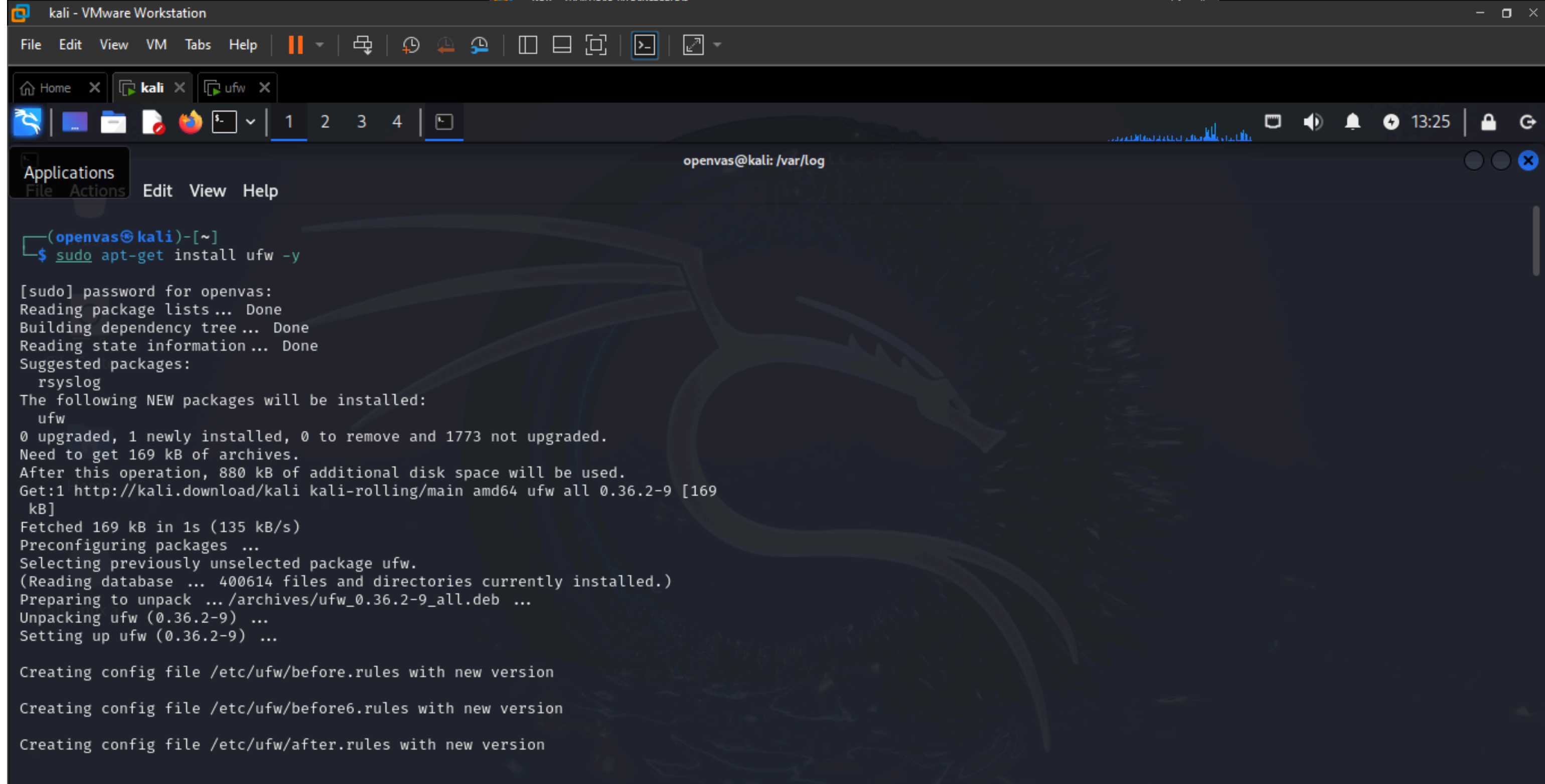
**Deliverables:** Screenshot/configuration file showing firewall rules applied.

## **Step by step procedure to complete the task**

**Step-1 :** Open firewall configuration tool on terminal for UFW.

- UFW stands for (Uncomplicated Firewall) filters traffic by allowing or denying network packets based on port, protocol, and direction (inbound/outbound). Rules are processed in order, and UFW blocks anything not explicitly allowed.

**Step-2 :** Open Kali Terminal Install UFW

A screenshot of a Kali Linux terminal window. The window title is 'kali - VMware Workstation'. The terminal shows the command 'sudo apt-get install ufw -y' being executed. The output indicates that ufw is being installed, including details about package lists, disk space requirements, and the creation of configuration files. The terminal background features a large, faint dragon logo. The window has a menu bar with 'File', 'Edit', 'View', 'VM', 'Tabs', and 'Help'. The top bar shows the 'kali' and 'ufw' tabs. The bottom status bar displays the time '13:25' and system icons.

```
kali - VMware Workstation
File Edit View VM Tabs Help
Home kali ufw
Applications
File Actions Edit View Help
openvas@kali: /var/log
(openvas@kali)-[~]
$ sudo apt-get install ufw -y

[sudo] password for openvas:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Suggested packages:
  rsyslog
The following NEW packages will be installed:
  ufw
0 upgraded, 1 newly installed, 0 to remove and 1773 not upgraded.
Need to get 169 kB of archives.
After this operation, 880 kB of additional disk space will be used.
Get:1 http://kali.download/kali kali-rolling/main amd64 ufw all 0.36.2-9 [169
kB]
Fetched 169 kB in 1s (135 kB/s)
Preconfiguring packages ...
Selecting previously unselected package ufw.
(Reading database ... 400614 files and directories currently installed.)
Preparing to unpack .../archives/ufw_0.36.2-9_all.deb ...
Unpacking ufw (0.36.2-9) ...
Setting up ufw (0.36.2-9) ...

Creating config file /etc/ufw/before.rules with new version

Creating config file /etc/ufw/before6.rules with new version

Creating config file /etc/ufw/after.rules with new version
```

**Step3 :** List current firewall rules.

```
kali - VMware Workstation
File Edit View VM Tabs Help
Home kali ufw
1 2 3 4
openvas@kali: /var/log Computer
File Actions Edit View Help
update-rc.d: We have no instructions for the ufw init script.
update-rc.d: It looks like a non-network service, we enable it.
Created symlink '/etc/systemd/system/multi-user.target.wants/ufw.service' ->
/usr/lib/systemd/system/ufw.service'.
Processing triggers for kali-menu (2024.4.0) ...
Processing triggers for man-db (2.13.0-1) ...
(openvas@kali)-[~]
$ sudo ufw enable
Firewall is active and enabled on system startup
(openvas@kali)-[~]
$ sudo ufw status numbered
Status: active
(openvas@kali)-[~]
$ sudo ufw deny 23
Rule added
Rule added (v6)
(openvas@kali)-[~]
$ telnet localhost 23
Trying ::1...
Connection failed: Connection refused
Trying 127.0.0.1...
telnet: Unable to connect to remote host: Connection refused
```

**Step4 :** Add a rule to block inbound traffic on a specific port

```
(openvas@kali)-[~]
$ sudo ufw deny 23
Rule added
Rule added (v6)
```

**Block Telnet Port 23**

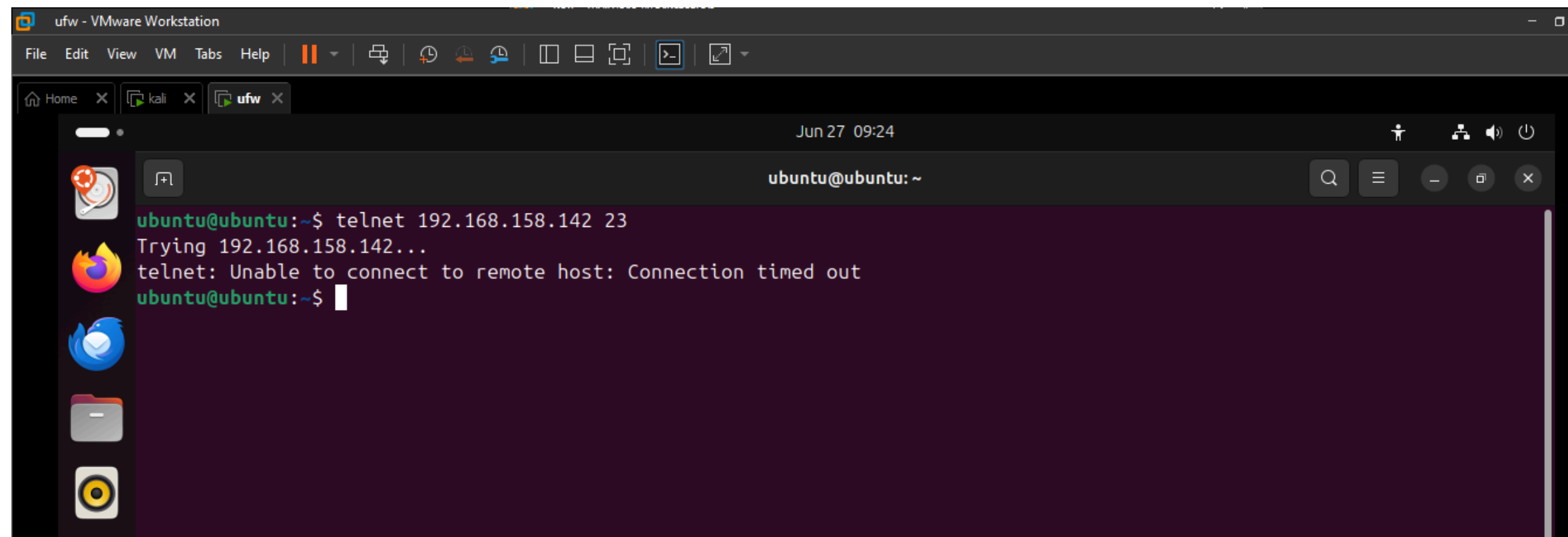
```
(openvas@kali)-[~]
$ sudo ufw status verbose

Status: active
Logging: on (low)
Default: deny (incoming), allow (outgoing), disabled (routed)
New profiles: skip

To Action From
--
23 DENY IN Anywhere
22 ALLOW IN Anywhere
23 (v6) DENY IN Anywhere (v6)
22 (v6) ALLOW IN Anywhere (v6)
```

**Step5 :** Test the rule by attempting to connect to that port locally or remotely.

- Now create another Virtual Machine with ubuntu try to connect remotely which is blocked by virtual machine in kali



```
ufw - VMware Workstation
File Edit View VM Tabs Help
Jun 27 09:24
ubuntu@ubuntu: ~
ubuntu@ubuntu:~$ telnet 192.168.158.142 23
Trying 192.168.158.142...
telnet: Unable to connect to remote host: Connection timed out
ubuntu@ubuntu:~$
```

- Ubuntu machine tell **Unable to connect to remote host Connection timed out** which means successfully blocked telnet 23 is worked.

## Step6 : Add rule to allow SSH (port 22)

```
(openvas@kali)-[~]
$ sudo ufw allow 22

Rule added
Rule added (v6)

(openvas@kali)-[~]
$ sudo ufw status verbose
```

## Step7 : Remove the test block rule to restore original state.

```
(openvas@kali)-[~]
$ sudo ufw status numbered

Status: active


```

	To	Action	From
	--	---	---
[ 1]	23	DENY IN	Anywhere
[ 2]	22	ALLOW IN	Anywhere
[ 3]	23 (v6)	DENY IN	Anywhere (v6)
[ 4]	22 (v6)	ALLOW IN	Anywhere (v6)

**Before Remove test block rule**

```
(openvas@kali)-[~]  
$ sudo ufw delete 1
```

Deleting:

deny 23

Proceed with operation (y|n)? y

Rule deleted

```
(openvas@kali)-[~]  
$ sudo ufw status numbered
```

Status: active

	To	Action	From
	--	---	---
[ 1]	22	ALLOW IN	Anywhere

**Successfully delete or remove the test block rule**

# Step8 : Document commands or GUI steps used.

## **1. Install UFW**

```
sudo apt update  
sudo apt install ufw -y
```

## **2. Enable the Firewall**

```
sudo ufw enable
```

## **3. Check Firewall Status**

```
sudo ufw status verbose
```

## **5. Block a Port Telnet - port 23**

```
sudo ufw deny 23
```

## **6. View UFW Rules (with numbers)**

```
sudo ufw status numbered
```

## **7. Delete a Rule (Restore Original State)**

```
sudo ufw delete 1
```

## **8. Disable Firewall (if needed)**

```
sudo ufw disable
```



**Step9 :** .Summarize how firewall filters traffic.

- A firewall acts like a security gate between your system and the network. It filters traffic based on rules that allow or deny network packets depending on conditions like port, IP address, or protocol

. **UFW Firewall Filtering Process**

- Incoming/Outgoing Traffic Check
- Rule Matching
- Action Taken

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COMPLETED DAY 4 TASK