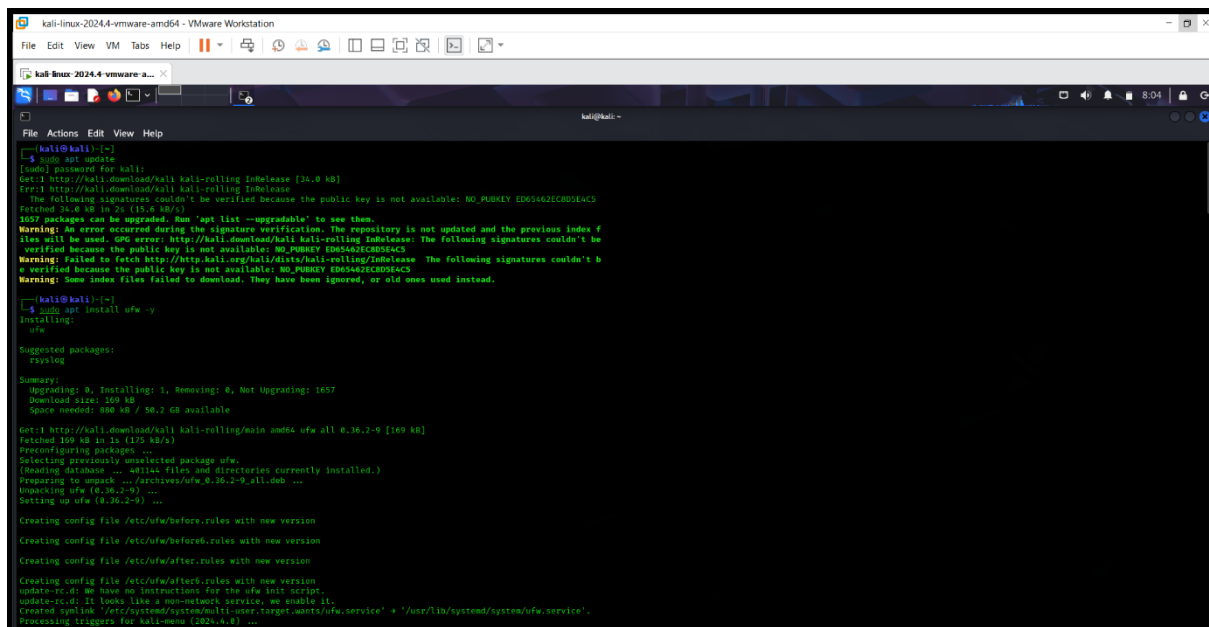


## **Task 4: Setup and Use a Firewall on Windows/Linux**

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

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

### **Screenshots (Outcome):**



```
kali@kali:~$ sudo apt update
[sudo] password for kali:
Get:1 http://kali.download/kali kali-rolling InRelease [34.8 kB]
Err:1 http://kali.download/kali kali-rolling InRelease
  The following signatures couldn't be verified because the public key is not available: NO_PUBKEY ED65462EC8D564C5
Retrieved 34.8 kB in 2s (15.6 kB/s)
1657 packages can be upgraded. Run 'apt list --upgradable' to see them.
Warning: An error occurred during the signature verification. The repository is not updated and the previous index f
iles will be used. GPG error: http://kali.download/kali kali-rolling InRelease: The following signatures couldn't be
verified because the public key is not available: NO_PUBKEY ED65462EC8D564C5
Warning: failed to fetch http://http.kali.org/kali/dists/kali-rolling/InRelease The following signatures couldn't b
e verified because the public key is not available: NO_PUBKEY ED65462EC8D564C5
Warning: Some index files failed to download. They have been ignored, or old ones used instead.

kali@kali:~$ sudo apt install ufw -y
Installing:
 ufw

Suggested packages:
 rsyslog

Summary:
 Upgrading: 0, Installing: 1, Removing: 0, Not Upgrading: 1657
 Download size: 169 kB
 Space needed: 888 kB / 50.2 GB available

Get:1 http://kali.download/kali kali-rolling/main amd64 ufw all 0.36.2-9 [169 kB]
Fetched 169 kB in 1s (179 kB/s)
Preconfiguring packages ...
Selecting previously unselected package ufw.
(Reading database ... 42144 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
Creating config file /etc/ufw/after6.rules with new version
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) ...
```

```
kali-linux-2024.4-vmware-amd64 - VMware Workstation
File Edit View VM Tabs Help
kali@kali: ~
File Actions Edit View Help
kali@kali:~$ ufw --version
ufw 0.36-2
Copyright 2009-2023 Canonical Ltd.

kali@kali:~$ sudo ufw status verbose
Status: inactive

kali@kali:~$ sudo ufw default deny incoming
Default incoming policy changed to 'deny'
(be sure to update your rules accordingly)

kali@kali:~$ sudo ufw default allow outgoing
Default outgoing policy changed to 'allow'
(be sure to update your rules accordingly)

kali@kali:~$ sudo ufw allow 22/tcp
Rules updated
Rules updated (v6)

kali@kali:~$ sudo ufw deny 23/tcp
Rules updated
Rules updated (v6)

kali@kali:~$ sudo ufw status numbered
Status: inactive

kali@kali:~$ sudo ufw enable
Firewall is active and enabled on system startup

kali@kali:~$ sudo apt install netcat -y
Package netcat is a virtual package provided by:
  netcat-traditional 1.10-58
  netcat-openbsd 1.228-1
You should explicitly select one to install.
Error: Package 'netcat' has no installation candidate
```

```
kali-linux-2024.4-vmware-amd64 - VMware Workstation
File Edit View VM Tabs Help
kali@kali: ~
File Actions Edit View Help
kali@kali:~$ sudo apt install netcat -y
Package netcat is a virtual package provided by:
  netcat-traditional 1.10-58
  netcat-openbsd 1.228-1
You should explicitly select one to install.
Error: Package 'netcat' has no installation candidate

kali@kali:~$ sudo nc -l -p 23
nc: invalid option -- 'l'
nc: h for help

kali@kali:~$ sudo nc -l -p 23

kali@kali:~$ sudo cat /etc/ufw/user.rules | tee ~/ufw_user_rules.txt
[snip]
#filter
ufw-user-input - [0:0]
ufw-user-output - [0:0]
ufw-user-forward - [0:0]
ufw-before-logging-input - [0:0]
ufw-before-logging-output - [0:0]
ufw-before-logging-forward - [0:0]
ufw-user-logging-input - [0:0]
ufw-user-logging-output - [0:0]
ufw-user-logging-forward - [0:0]
ufw-after-logging-input - [0:0]
ufw-after-logging-output - [0:0]
ufw-after-logging-forward - [0:0]
ufw-logging-allow - [0:0]
ufw-logging-deny - [0:0]
ufw-user-limit - [0:0]
ufw-user-limit-accept - [0:0]
### RULES ###

### tuple ### allow tcp 22 0.0.0.0/0 any 0.0.0.0/0 in
-A ufw-user-input -p tcp --sport 22 -j ACCEPT

### tuple ### deny tcp 23 0.0.0.0/0 any 0.0.0.0/0 in
-A ufw-user-input -p tcp --sport 23 -j DROP

### END RULES ###
```

