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

Objective

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

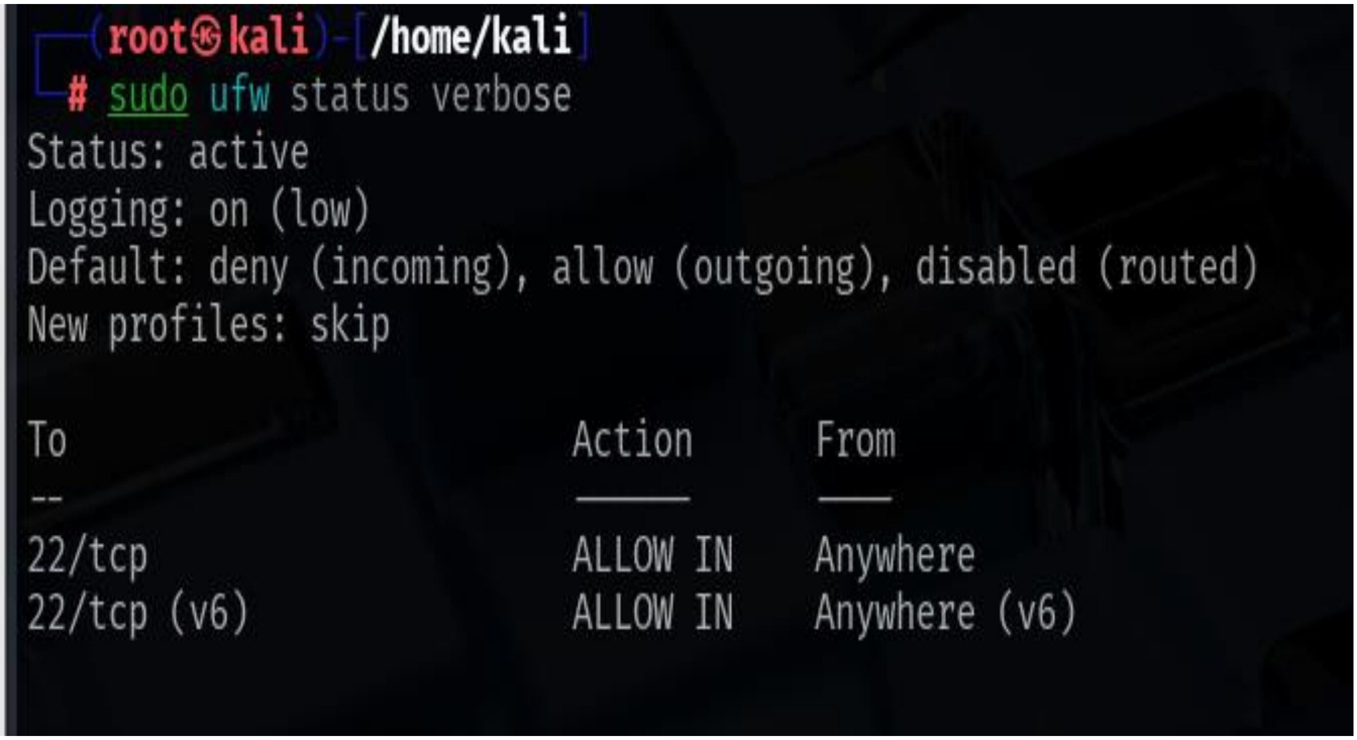
Tools Used

- Linux: UFW (Uncomplicated Firewall)
- Windows: Windows Defender Firewall

Step 1: Open Firewall Configuration Tool

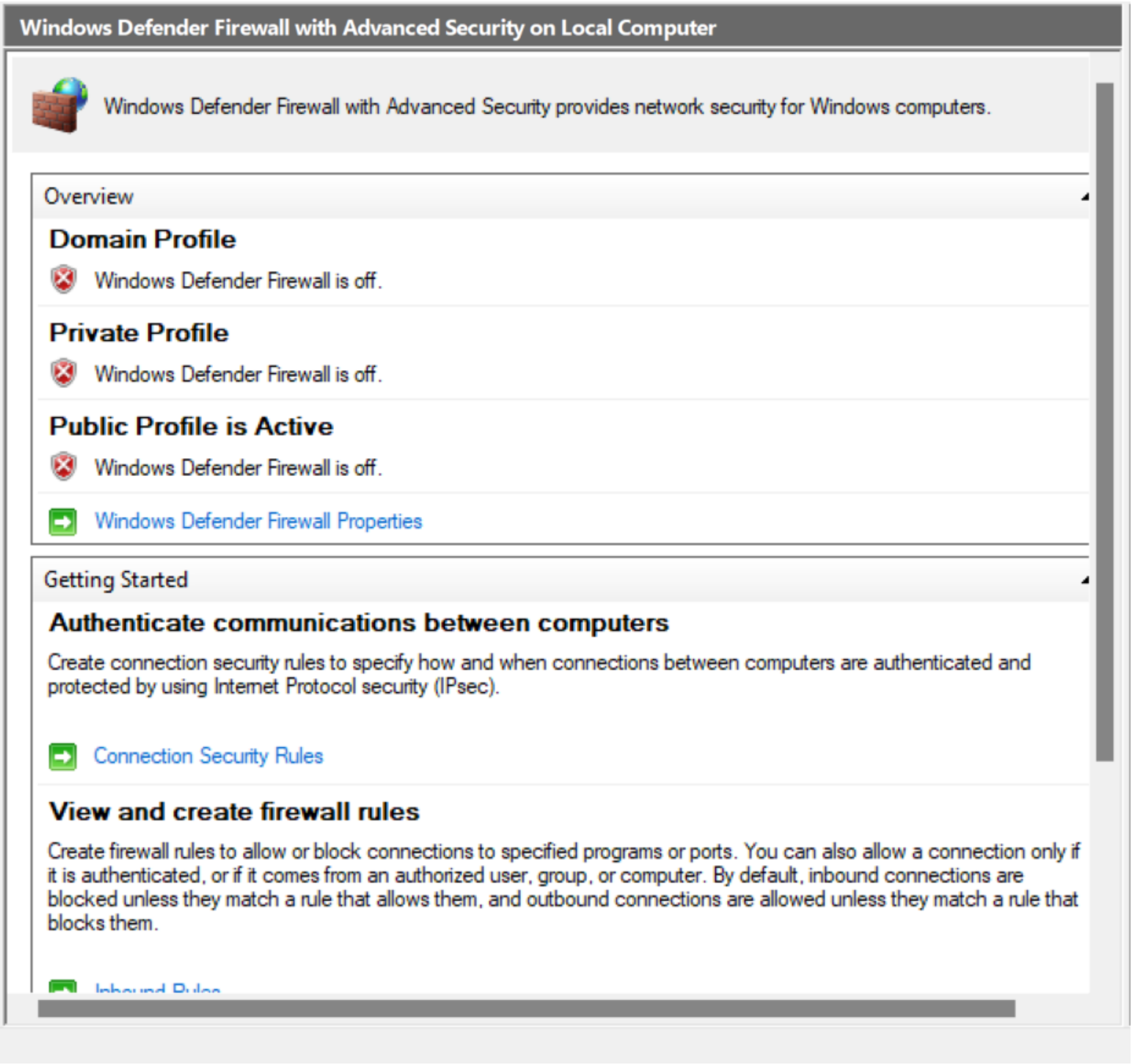
Linux:
Command:

sudo ufw status verbose



```
┌──(root㉿kali)-[/home/kali]
└─# sudo ufw status verbose
Status: active
Logging: on (low)
Default: deny (incoming), allow (outgoing), disabled (routed)
New profiles: skip

To                         Action      From
--                         ------      ----
22/tcp                     ALLOW IN    Anywhere
22/tcp (v6)                ALLOW IN    Anywhere (v6)
```

Windows:
Open Windows Defender Firewall with Advanced Security.



Windows Defender Firewall with Advanced Security on Local Computer

Windows Defender Firewall with Advanced Security provides network security for Windows computers.

Overview

Domain Profile

Windows Defender Firewall is off.

Private Profile

Windows Defender Firewall is off.

Public Profile is Active

Windows Defender Firewall is off.

Windows Defender Firewall Properties

Getting Started

Authenticate communications between computers

Create connection security rules to specify how and when connections between computers are authenticated and protected by using Internet Protocol security (IPsec).

Connection Security Rules

View and create firewall rules

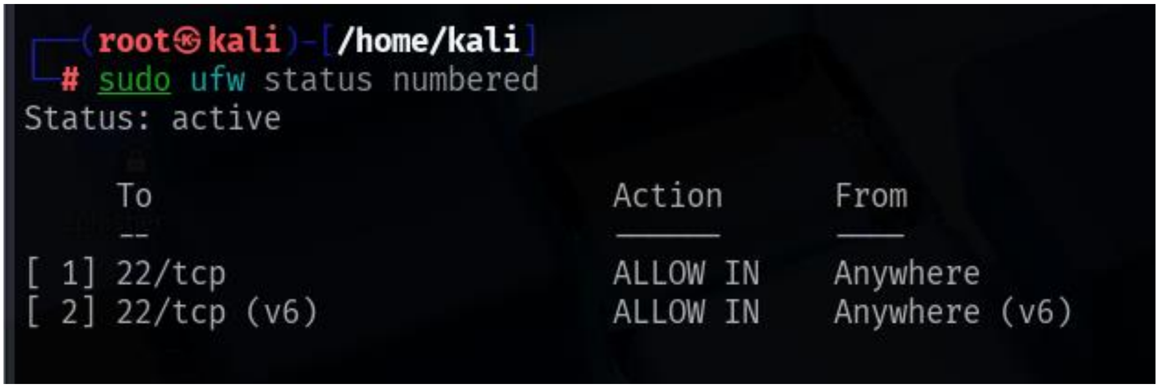
Create firewall rules to allow or block connections to specified programs or ports. You can also allow a connection only if it is authenticated, or if it comes from an authorized user, group, or computer. By default, inbound connections are blocked unless they match a rule that allows them, and outbound connections are allowed unless they match a rule that blocks them.

Inbound Rules

Step 2: List Current Firewall Rules

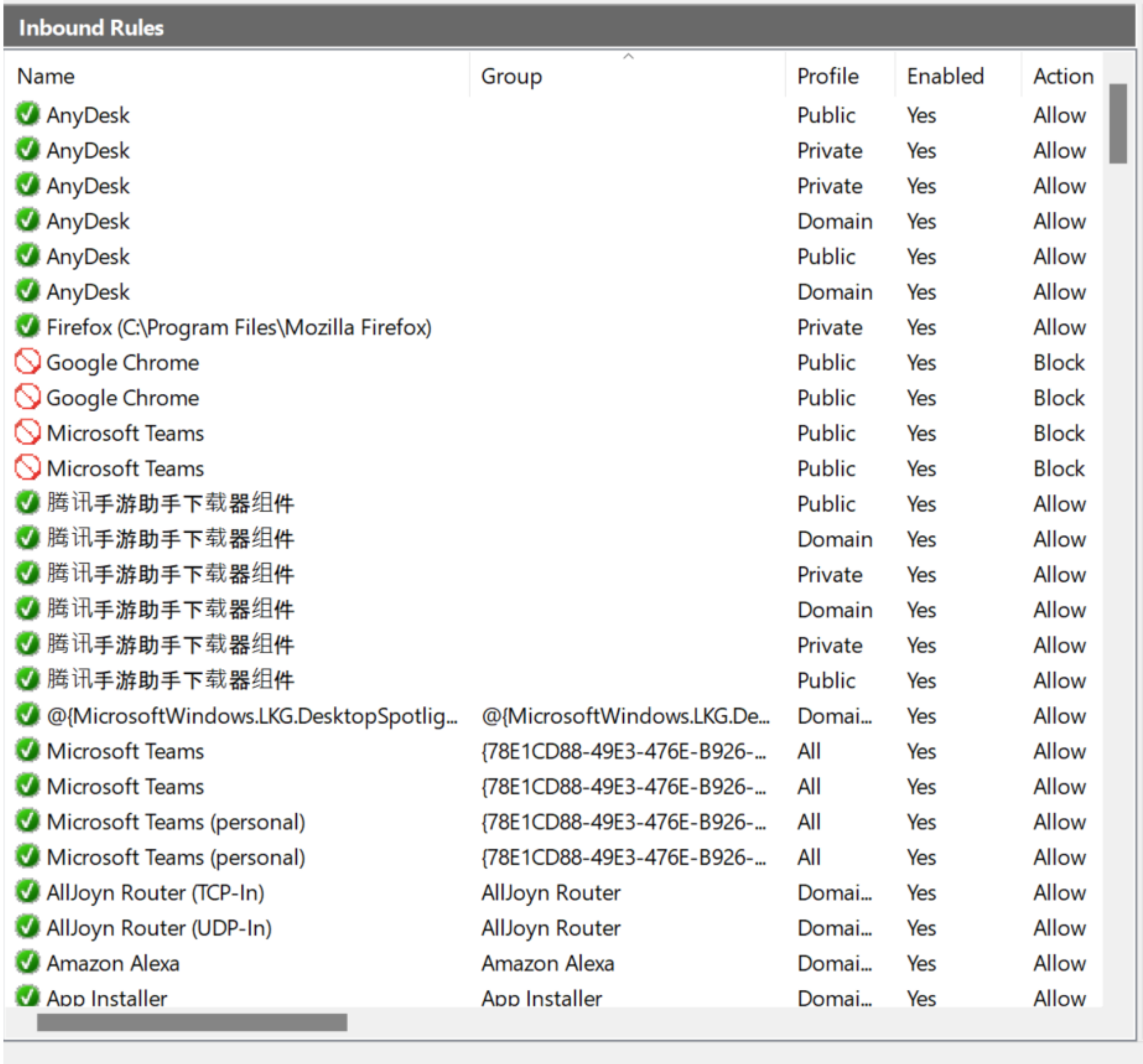
Linux:

```
sudo ufw status numbered
```



```
┌──(root㉿kali)-[/home/kali]
└─# sudo ufw status numbered
Status: active

     To                         Action      From
     --                         ------      ----
[ 1] 22/tcp                     ALLOW IN    Anywhere
[ 2] 22/tcp (v6)                ALLOW IN    Anywhere (v6)
```

Windows:
View Inbound Rules list.



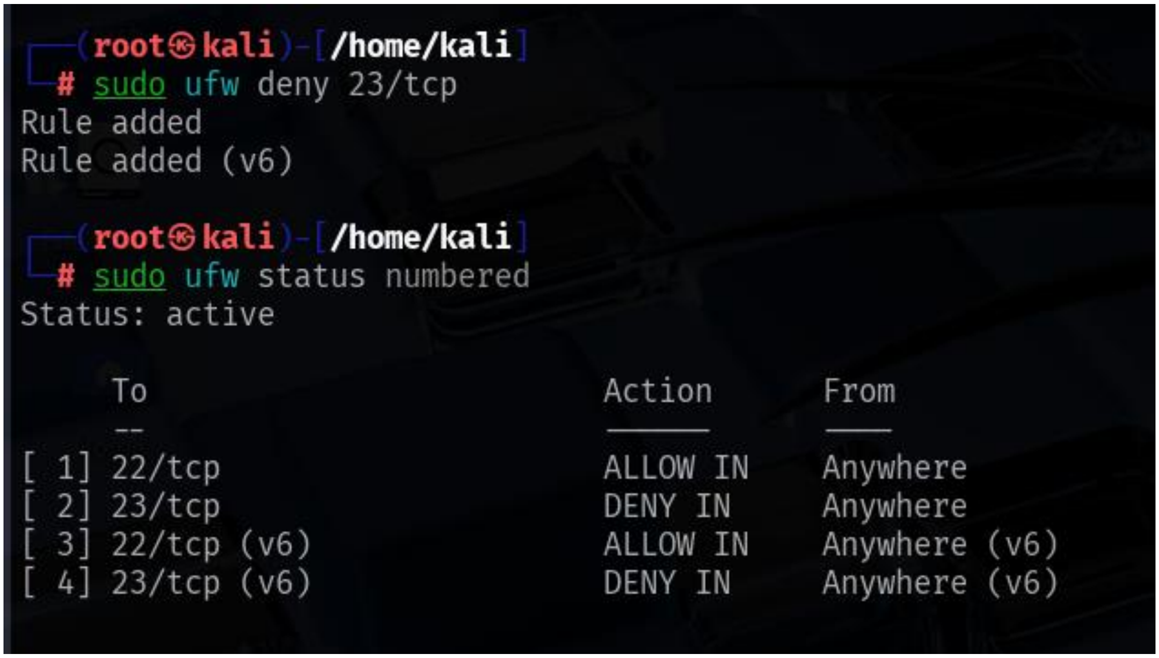
Inbound Rules

Name	Group	Profile	Enabled	Action
✓ AnyDesk		Public	Yes	Allow
✓ AnyDesk		Private	Yes	Allow
✓ AnyDesk		Private	Yes	Allow
✓ AnyDesk		Domain	Yes	Allow
✓ AnyDesk		Public	Yes	Allow
✓ AnyDesk		Domain	Yes	Allow
✓ Firefox (C:\Program Files\Mozilla Firefox)		Private	Yes	Allow
🚫 Google Chrome		Public	Yes	Block
🚫 Google Chrome		Public	Yes	Block
🚫 Microsoft Teams		Public	Yes	Block
🚫 Microsoft Teams		Public	Yes	Block
✓ 腾讯手游助手下载器组件		Public	Yes	Allow
✓ 腾讯手游助手下载器组件		Domain	Yes	Allow
✓ 腾讯手游助手下载器组件		Private	Yes	Allow
✓ 腾讯手游助手下载器组件		Domain	Yes	Allow
✓ 腾讯手游助手下载器组件		Private	Yes	Allow
✓ 腾讯手游助手下载器组件		Public	Yes	Allow
✓ @{MicrosoftWindows.LKG.DesktopSpotlig...	@{MicrosoftWindows.LKG.De...	Domai...	Yes	Allow
✓ Microsoft Teams	{78E1CD88-49E3-476E-B926-...	All	Yes	Allow
✓ Microsoft Teams	{78E1CD88-49E3-476E-B926-...	All	Yes	Allow
✓ Microsoft Teams (personal)	{78E1CD88-49E3-476E-B926-...	All	Yes	Allow
✓ Microsoft Teams (personal)	{78E1CD88-49E3-476E-B926-...	All	Yes	Allow
✓ AllJoyn Router (TCP-In)	AllJoyn Router	Domai...	Yes	Allow
✓ AllJoyn Router (UDP-In)	AllJoyn Router	Domai...	Yes	Allow
✓ Amazon Alexa	Amazon Alexa	Domai...	Yes	Allow
✓ App Installer	App Installer	Domai...	Yes	Allow

Step 3: Add Rule to Block Port 23 (Telnet)

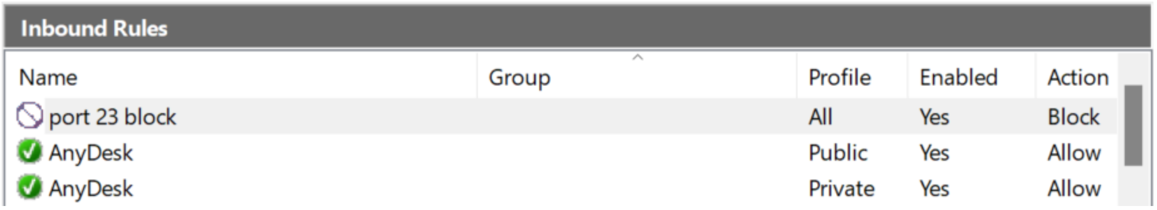
Linux:

sudo ufw deny 23/tcp
sudo ufw status numbered



```
┌──(root㉿kali)-[/home/kali]
└─# sudo ufw deny 23/tcp
Rule added
Rule added (v6)

┌──(root㉿kali)-[/home/kali]
└─# sudo ufw status numbered
Status: active

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

Windows:
Inbound Rules → New Rule → Port → TCP → Port 23 → Block.



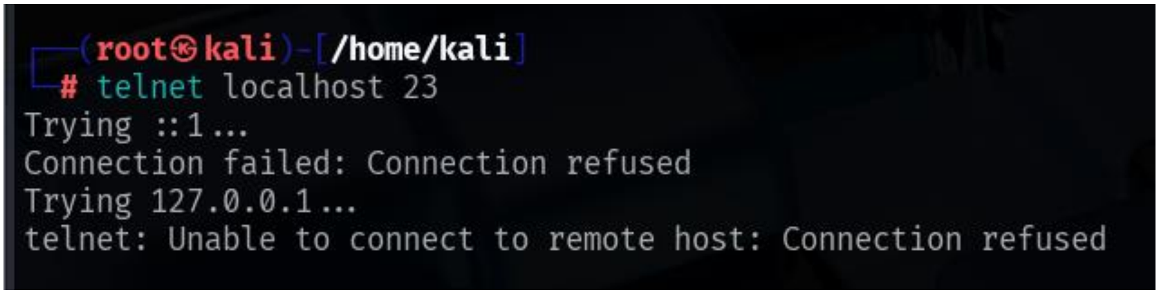
Inbound Rules

Name	Group	Profile	Enabled	Action
⃠ port 23 block		All	Yes	Block
✓ AnyDesk		Public	Yes	Allow
✓ AnyDesk		Private	Yes	Allow

Step 4: Test the Block Rule

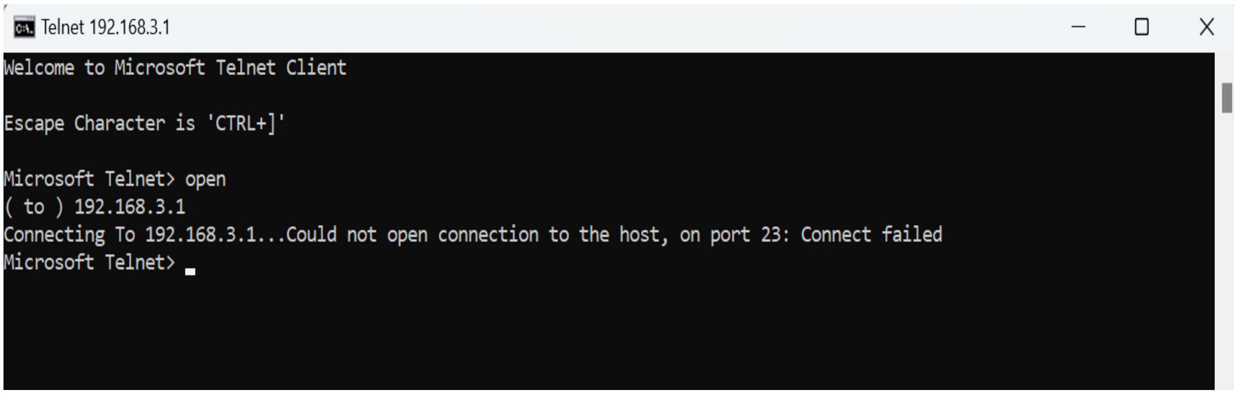
Linux:

telnet localhost 23



```
┌──(root㉿kali)-[/home/kali]
└─# telnet localhost 23
Trying ::1...
Connection failed: Connection refused
Trying 127.0.0.1...
telnet: Unable to connect to remote host: Connection refused
```

Windows:
Attempt Telnet on port 23.



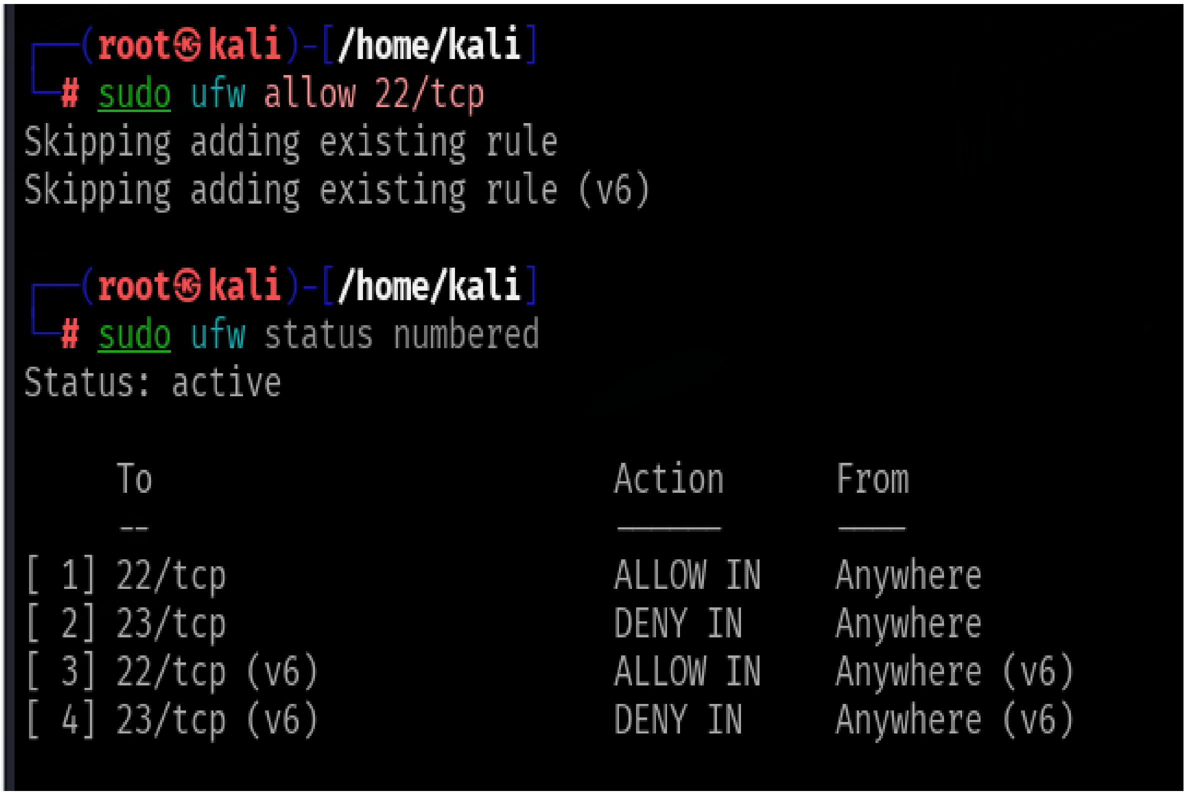
Telnet 192.168.3.1

```
Welcome to Microsoft Telnet Client

Escape Character is 'CTRL+]'

Microsoft Telnet> open
( to ) 192.168.3.1
Connecting To 192.168.3.1...Could not open connection to the host, on port 23: Connect failed
Microsoft Telnet> _
```

Step 5: Add Rule to Allow SSH (Port 22)

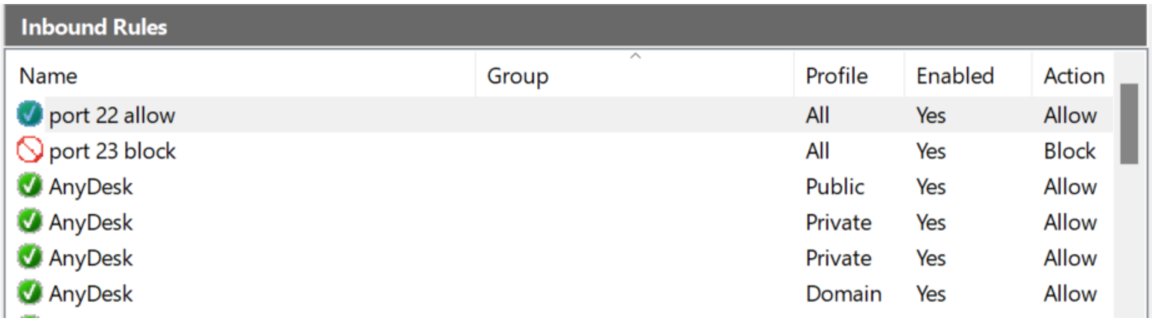
Linux:

sudo ufw allow 22/tcp
sudo ufw status numbered



```
┌──(root㉿kali)-[/home/kali]
└─# sudo ufw allow 22/tcp
Skipping adding existing rule
Skipping adding existing rule (v6)

┌──(root㉿kali)-[/home/kali]
└─# sudo ufw status numbered
Status: active

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

Windows:
Inbound Rules → New Rule → Port → TCP → Port 22 → Allow.



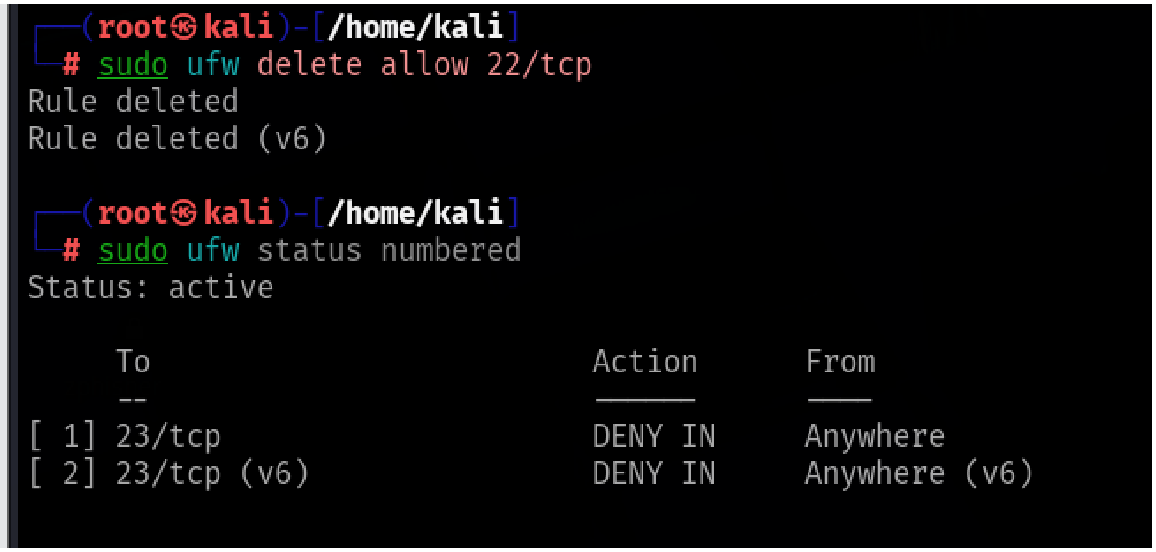
Inbound Rules

Name	Group	Profile	Enabled	Action
✓ port 22 allow		All	Yes	Allow
⊘ port 23 block		All	Yes	Block
✓ AnyDesk		Public	Yes	Allow
✓ AnyDesk		Private	Yes	Allow
✓ AnyDesk		Private	Yes	Allow
✓ AnyDesk		Domain	Yes	Allow

Step 6: Remove Test Block Rule

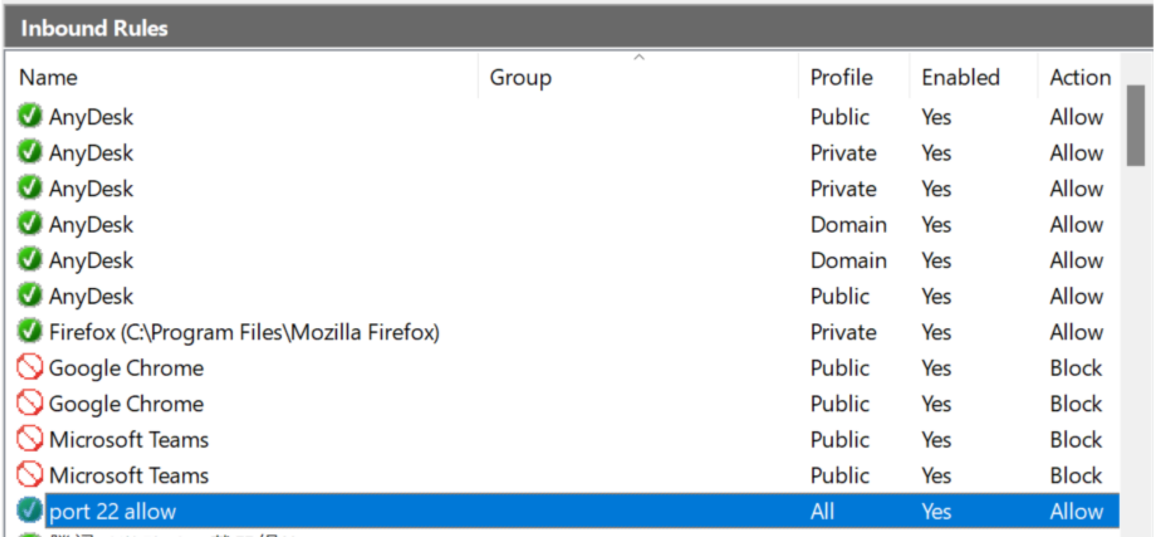
Linux:

sudo ufw delete <rule-number>
sudo ufw status numbered



```
┌──(root㉿kali)-[/home/kali]
└─# sudo ufw delete allow 22/tcp
Rule deleted
Rule deleted (v6)

┌──(root㉿kali)-[/home/kali]
└─# sudo ufw status numbered
Status: active

     To                         Action      From
     --                         ------      ----
[ 1] 23/tcp                     DENY IN     Anywhere
[ 2] 23/tcp (v6)                DENY IN     Anywhere (v6)
```

Windows:
Right-click “Block Telnet 23” → Delete.



Inbound Rules

Name	Group	Profile	Enabled	Action
AnyDesk		Public	Yes	Allow
AnyDesk		Private	Yes	Allow
AnyDesk		Private	Yes	Allow
AnyDesk		Domain	Yes	Allow
AnyDesk		Domain	Yes	Allow
AnyDesk		Public	Yes	Allow
Firefox (C:\Program Files\Mozilla Firefox)		Private	Yes	Allow
Google Chrome		Public	Yes	Block
Google Chrome		Public	Yes	Block
Microsoft Teams		Public	Yes	Block
Microsoft Teams		Public	Yes	Block
port 22 allow		All	Yes	Allow

Commands / GUI Steps

Linux (UFW):
sudo apt install ufw
sudo ufw status verbose
sudo ufw deny 23/tcp
sudo ufw allow 22/tcp
sudo ufw delete “allow 22/tcp”

Windows Firewall:
- Open Windows Defender Firewall with Advanced Security
- Create inbound rule for blocking port 23
- Create inbound rule for allowing port 22
- Delete the test block rule

Summary – How Firewall Filters Traffic

A firewall inspects incoming and outgoing network packets and decides whether to allow or block traffic based on configured rules.
- Example: SSH (22) is allowed for remote management.
- Example: Telnet (23) is blocked because it is insecure.
This ensures only authorized traffic reaches the system, reducing the attack surface and improving security.