

Nama: Kumara Davin Valerian

NIM: 312210192

Kelas: TI.22.A.2

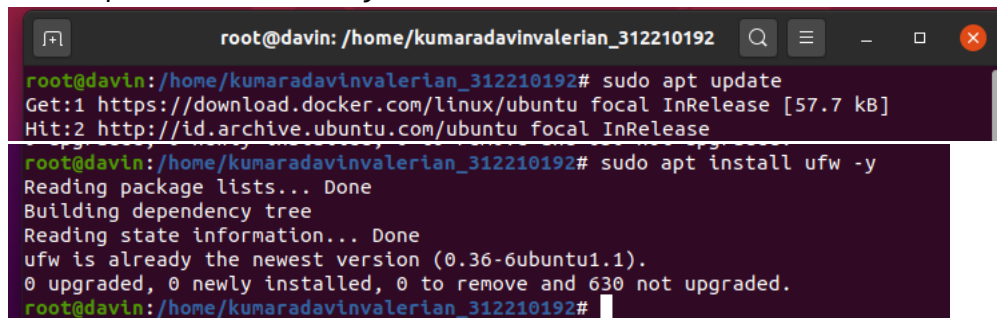
Matkul: Sistem operasi

Konfigurasi UFW

1. menginstall ufw

`sudo apt update`

`sudo apt install ufw -y`



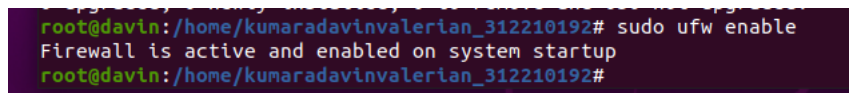
```
root@davin: /home/kumaradavinvalerian_312210192
root@davin:/home/kumaradavinvalerian_312210192# sudo apt update
Get:1 https://download.docker.com/linux/ubuntu focal InRelease [57.7 kB]
Hit:2 http://id.archive.ubuntu.com/ubuntu focal InRelease
root@davin:/home/kumaradavinvalerian_312210192# sudo apt install ufw -y
Reading package lists... Done
Building dependency tree
Reading state information... Done
ufw is already the newest version (0.36-6ubuntu1.1).
0 upgraded, 0 newly installed, 0 to remove and 630 not upgraded.
root@davin:/home/kumaradavinvalerian_312210192#
```

sudo apt update: Memperbarui daftar paket agar sistem mengetahui versi terbaru dari UFW.

sudo apt install ufw -y: Menginstal UFW tanpa konfirmasi tambahan.

2. Mengaktifkan UFW

`sudo ufw enable`



```
root@davin:/home/kumaradavinvalerian_312210192# sudo ufw enable
Firewall is active and enabled on system startup
root@davin:/home/kumaradavinvalerian_312210192#
```

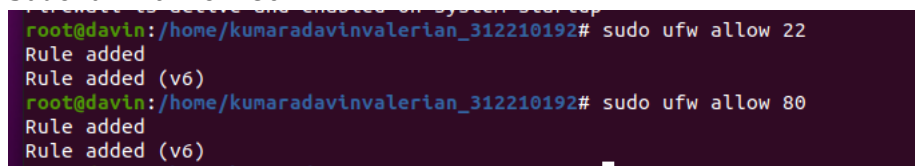
Dengan mengaktifkan UFW, semua aturan firewall yang dibuat akan mulai diterapkan.

3. Membuat Aturan Firewall

Mengizinkan port SSH (22) dan HTTP (80):

`sudo ufw allow 22`

`sudo ufw allow 80`

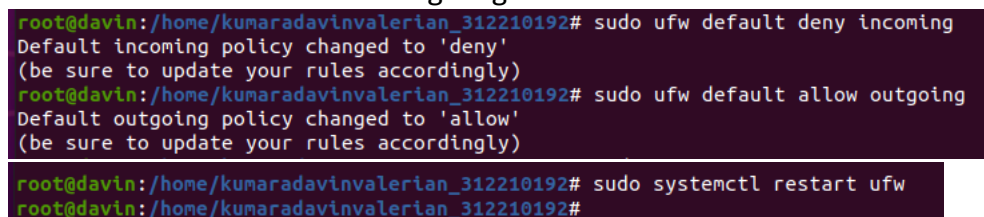


```
root@davin:/home/kumaradavinvalerian_312210192# sudo ufw allow 22
Rule added
Rule added (v6)
root@davin:/home/kumaradavinvalerian_312210192# sudo ufw allow 80
Rule added
Rule added (v6)
```

4. Menolak semua akses lain dari luar

`sudo ufw default deny incoming`

`sudo ufw default allow outgoing`



```
root@davin:/home/kumaradavinvalerian_312210192# sudo ufw default deny incoming
Default incoming policy changed to 'deny'
(be sure to update your rules accordingly)
root@davin:/home/kumaradavinvalerian_312210192# sudo ufw default allow outgoing
Default outgoing policy changed to 'allow'
(be sure to update your rules accordingly)
root@davin:/home/kumaradavinvalerian_312210192# sudo systemctl restart ufw
root@davin:/home/kumaradavinvalerian_312210192#
```

default deny incoming: Menolak semua koneksi masuk kecuali yang telah diizinkan.

default allow outgoing: Mengizinkan semua koneksi keluar dari server.

5. Melihat Status dan Konfigurasi UFW

`sudo ufw status verbose`

```
root@davin:/home/kumaradavinvalerian_312210192# sudo ufw status verbose
Status: active
Logging: on (low)
Default: deny (incoming), allow (outgoing), deny (routed)
New profiles: skip

To Action From
--
22 ALLOW IN Anywhere
80 ALLOW IN Anywhere
22 (v6) ALLOW IN Anywhere (v6)
80 (v6) ALLOW IN Anywhere (v6)

root@davin:/home/kumaradavinvalerian_312210192#
```

ufw status verbose: Menampilkan aturan firewall yang aktif dan detail tambahan seperti kebijakan default.

Hasil akhir dari konfigurasi ini adalah:

- Hanya port 22 (SSH) dan 80 (HTTP) yang dapat diakses dari luar.
- Semua koneksi masuk lainnya ditolak, sehingga server lebih aman.

Praktik 2: Konfigurasi SSH

SSH (Secure Shell) adalah protokol yang memungkinkan koneksi remote yang aman ke server.

Secara default, SSH menggunakan port **22**, tetapi menggantinya dapat meningkatkan keamanan dengan mencegah serangan brute-force otomatis.

1. Menginstal dan Mengaktifkan SSH

```
sudo apt update
sudo apt install openssh-server -y
sudo systemctl enable ssh
sudo systemctl start ssh
```

```
root@davin:/home/kumaradavinvalerian_312210192# sudo apt install openssh-server -y
Reading package lists... Done
Building dependency tree
Reading state information... Done
openssh-server is already the newest version (1:8.2p1-4ubuntu0.11).
0 upgraded, 0 newly installed, 0 to remove and 630 not upgraded.
root@davin:/home/kumaradavinvalerian_312210192# sudo systemctl enable ssh
Synchronizing state of ssh.service with SysV service script with /lib/systemd/systemd-sysv-install.
Executing: /lib/systemd/systemd-sysv-install enable ssh
Created symlink /etc/systemd/system/ssh.service -> /lib/systemd/system/ssh.service.
Created symlink /etc/systemd/system/multi-user.target.wants/ssh.service -> /lib/systemd/system/ssh.service.
root@davin:/home/kumaradavinvalerian_312210192# sudo systemctl start ssh
root@davin:/home/kumaradavinvalerian_312210192#
```

openssh-server: Paket yang menyediakan layanan SSH.

systemctl enable ssh: Mengatur SSH untuk berjalan otomatis saat server dinyalakan.

systemctl start ssh: Memulai layanan SSH secara manual.

2. Mengganti Port Default SSH

Buka file konfigurasi SSH:

```
sudo nano /etc/ssh/sshd_config
```

Ubah baris:

#Port 22

Menjadi:

Port 2222

```
root@davin:/home/kumaradavinvalerian_312210192# sudo systemctl start ssh
root@davin:/home/kumaradavinvalerian_312210192# sudo nano /etc/ssh/sshd_config
```

```
Include /etc/ssh/sshd_config.d/*.conf
```

```
Port 2222
#AddressFamily any
#ListenAddress 0.0.0.0
#ListenAddress ::
```

Mengganti port default dari **22** ke **2222** membantu mengurangi risiko serangan brute-force otomatis.

Restart layanan SSH untuk menerapkan perubahan:

```
sudo systemctl restart ssh
```

```
root@davin:/home/kumaradavinvalerian_312210192# sudo systemctl restart ssh
root@davin:/home/kumaradavinvalerian_312210192#
```

3. Menyesuaikan Aturan UFW untuk Port Baru

Izinkan port **2222** dan hapus aturan port **22**:

```
sudo ufw allow 2222
```

```
sudo ufw delete allow 22
```

```
root@davin:/home/kumaradavinvalerian_312210192# sudo systemctl restart ssh
root@davin:/home/kumaradavinvalerian_312210192# sudo ufw allow 2222
Rule added
Rule added (v6)
root@davin:/home/kumaradavinvalerian_312210192# sudo ufw delete allow 22
Rule deleted
Rule deleted (v6)
root@davin:/home/kumaradavinvalerian_312210192#
```

ufw allow 2222: Mengizinkan koneksi SSH menggunakan port baru.

ufw delete allow 22: Menghapus izin koneksi pada port lama.

4. Verifikasi Konfigurasi SSH

Periksa apakah layanan SSH berjalan di port **2222**:

```
sudo netstat -tuln | grep 2222
```

```
root@davin:/home/kumaradavinvalerian_312210192# sudo netstat -tuln | grep 2222
tcp        0      0 0.0.0.0:2222        0.0.0.0:*        LISTEN
tcp6       0      0 :::2222           :::*              LISTEN
root@davin:/home/kumaradavinvalerian_312210192#
```

netstat: Menampilkan port dan layanan yang sedang aktif.

grep 2222: Menyaring hanya baris yang menunjukkan port **2222**.

Hasil akhir dari konfigurasi ini adalah:

- Layanan SSH berjalan di port **2222**.
- Mengurangi risiko serangan brute-force pada port **22**