

Implementasi VPN WireGuard untuk Secure Remote Access

Kelompok 7

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Minggu 2: Instalasi WireGuard

Pada minggu 2 dilakukan proses instalasi paket VPN WireGuard pada kedua mesin Linux yang telah disiapkan pada minggu sebelumnya. Tujuan tahap ini adalah memastikan bahwa software WireGuard berhasil terpasang dan siap digunakan untuk proses konfigurasi pada minggu selanjutnya.

Tahapan dan Proses:

1. Menginstal paket WireGuard pada kedua mesin Linux

Pada tahap ini dilakukan proses instalasi paket WireGuard pada kedua mesin virtual, yaitu Ubuntu Server dan Ubuntu Client. Instalasi dilakukan melalui terminal menggunakan perintah `sudo apt install wireguard -y`.

a. VM Server

```
Ubuntu 24.04.3 LTS servervm1
servervm login: servervm
Password:
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.8.0-37-generic amd64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://ubuntu.com/server
 * Support:        https://ubuntu.com/support

System information as of Wed Nov 20 08:41:08 PM UTC 2025

System load:  0.71               Processes:    244
Usage of /:   65.1% of 5.7TB      Users logged in:  0
Memory usage: 12%                Swap usage:    0%
Power supply: 100.0%              DPM state:     for amd30: 0%

Expanded Security Maintenance for Applications is not enabled.
0 updates can be applied immediately.
Enable LVM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo apt update

servervm@servervm:~$ sudo apt install wireguard -y
```

Pada VM Server, perintah tersebut dijalankan pada lingkungan terminal berbasis teks (CLI). Sistem kemudian mengunduh dan memasang paket WireGuard beserta dependensinya untuk menyiapkan fungsi VPN pada server.

b. VM Client

```
melah@melah-vmware-vmtoolsd:~$ sudo apt install wireguard -y
[sudo] password for melah:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following package was automatically installed and is no longer required:
libllvm19
Use 'sudo apt autoremove' to remove it.
The following additional packages will be installed:
wireguard-tools
The following NEW packages will be installed:
wireguard wireguard-tools
0 upgraded, 2 newly installed, 0 to remove and 0 not upgraded.
Need to get 92.2 kB of archives.
After this operation, 345 kB of additional disk space will be used.
Get:1 http://id.archive.ubuntu.com/ubuntu noble/main amd64 wireguard-tools amd64 1.0.20210914-1ubuntu1 [89.1 kB]
Get:2 http://id.archive.ubuntu.com/ubuntu noble/universe amd64 wireguard all 1.0.20210914-1ubuntu1 [3,066 B]
Fetched 92.2 kB in 4s (21.3 kB/s)
Selecting previously unselected package wireguard-tools.
Reading database ...
```

Pada VM Client, instalasi dilakukan melalui terminal di lingkungan Ubuntu Desktop. Prosesnya serupa, sistem melakukan pembaruan daftar paket

dan menginstal komponen wireguard dan wireguard-tools yang dibutuhkan untuk membuat koneksi ke server.

2. Memverifikasi keberhasilan instalasi WireGuard

```
The following NEW packages will be installed:
  wireguard wireguard-tools
0 upgraded, 2 newly installed, 0 to remove and 0 not upgraded.
Need to get 92.2 kB of archives.
After this operation, 345 kB of additional disk space will be used.
Get:1 http://id.archive.ubuntu.com/ubuntu noble/main amd64 wireguard-tools amd64 1.0.20210914-1ubuntu1 [99.1 kB]
Get:2 http://id.archive.ubuntu.com/ubuntu noble/universe amd64 wireguard all 1.0.20210914-1ubuntu1 [5,886 B]
Fetched 92.2 kB in 2s (43.5 kB/s)
Selecting previously unselected package wireguard-tools.
(Reading database ... 87907 files and directories currently installed.)
Preparing to unpack .../wireguard-tools_1.0.20210914-1ubuntu1_amd64.deb ...
Unpacking wireguard-tools (1.0.20210914-1ubuntu1) ...
Selecting previously unselected package wireguard.
Preparing to unpack .../wireguard_1.0.20210914-1ubuntu1_all.deb ...
Unpacking wireguard (1.0.20210914-1ubuntu1) ...
Setting up wireguard-tools (1.0.20210914-1ubuntu1) ...
wg-quick.target is a disabled or a static unit, not starting it.
Setting up wireguard (1.0.20210914-1ubuntu1) ...
Processing triggers for man-db (2.12.0-4build2) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.
No services need to be restarted.
No containers need to be restarted.
No user sessions are running outdated binaries.
No VM guests are running outdated hypervisor (qemu) binaries on this host.
servervm@servervm:~$ wg --version
wireguard-tools v1.0.20210914 - https://git.zx2c4.com/wireguard-tools/
servervm@servervm:~$ dkg -l | grep wireguard
dkg: error: unknown option -l

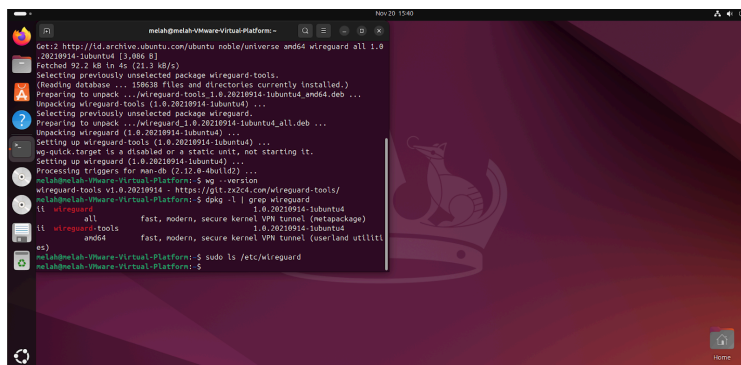
Type dkg --help for help about installing and deinstalling packages [W]:
Use apt or 'aptitude' for user-friendly package management:
Type dkg -o help for a list of dkg debug flags values:
Type dkg --force-help for a list of forcing options:
Type dkg deb --help for help about manipulating *.deb files:

Options marked [W] produce a lot of output, pipe it through 'less' or 'more' !

ii wireguard              all          fast, modern, secure kernel VPN tunnel (metapackage)
ii wireguard-tools        amd64       fast, modern, secure kernel VPN tunnel (userland utilities)
```

Pada tahap ini, sistem melakukan proses instalasi paket WireGuard untuk VM Server dan dependensinya. Setelah proses instalasi selesai:

- Terminal menunjukkan bahwa paket wireguard-tools berhasil dipasang.
- Kernel modules yang dibutuhkan (seperti wireguard ataupun wg) telah dimuat.
- Sistem siap digunakan tanpa membutuhkan reboot.



```
melah@melah-Virtual-Platform: ~
Get:2 http://id.archive.ubuntu.com/ubuntu noble/universe amd64 wireguard all 1.0
.20210914-1ubuntu1 [5,886 B]
Fetched 92.2 kB in 4s (21.3 kB/s)
Selecting previously unselected package wireguard-tools.
(Reading database ... 150038 files and directories currently installed.)
Preparing to unpack .../wireguard-tools_1.0.20210914-1ubuntu1_amd64.deb ...
Unpacking wireguard-tools (1.0.20210914-1ubuntu1) ...
Selecting previously unselected package wireguard.
Preparing to unpack .../wireguard_1.0.20210914-1ubuntu1_all.deb ...
Unpacking wireguard (1.0.20210914-1ubuntu1) ...
Setting up wireguard-tools (1.0.20210914-1ubuntu1) ...
wg-quick.target is a disabled or a static unit, not starting it.
Setting up wireguard (1.0.20210914-1ubuntu1) ...
Processing triggers for man-db (2.12.0-4build2) ...
melah@melah-Virtual-Platform:~$ wg --version
wireguard-tools v1.0.20210914 - https://git.zx2c4.com/wireguard-tools/
melah@melah-Virtual-Platform:~$ dkg -l | grep wireguard
ii wireguard              all          fast, modern, secure kernel VPN tunnel (metapackage)
ii wireguard-tools        amd64       fast, modern, secure kernel VPN tunnel (userland utilities)
melah@melah-Virtual-Platform:~$ sudo ls /etc/wireguard
melah@melah-Virtual-Platform:~$
```

Di sisi client, langkah verifikasi dilakukan dengan cara:

- Menjalankan perintah `sudo apt install wireguard` dan memastikan proses instalasi berjalan sukses.
- Mengecek apakah direktori konfigurasi `/etc/wireguard` sudah tersedia menggunakan `sudo ls /etc/wireguard`.

- c. Jika folder tersebut muncul (meski kosong), berarti instalasi WireGuard berhasil dan sistem siap untuk pembuatan file konfigurasi.

Hasil:

1. WireGuard berhasil terinstal pada kedua VM (server dan client).
2. Perintah verifikasi (`wg --version` dan `dpkg -l | grep wireguard`) menunjukkan bahwa paket terpasang dengan benar.
3. Lingkungan siap digunakan untuk tahap konfigurasi VPN WireGuard pada minggu ke-3.