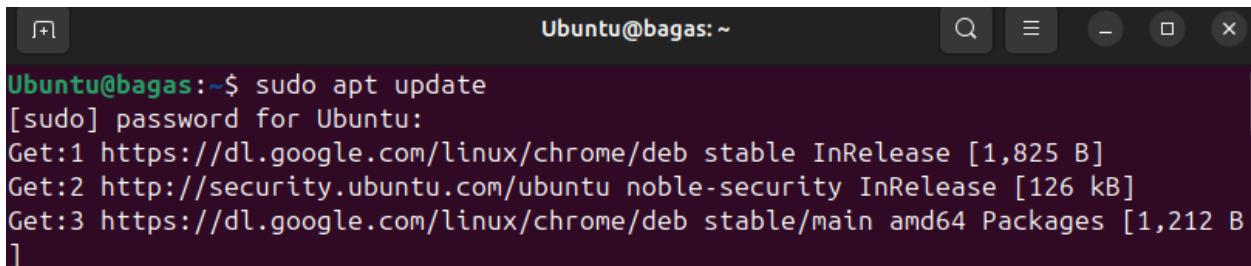


1. Melakukan Update Repository Sistem

Perintah:

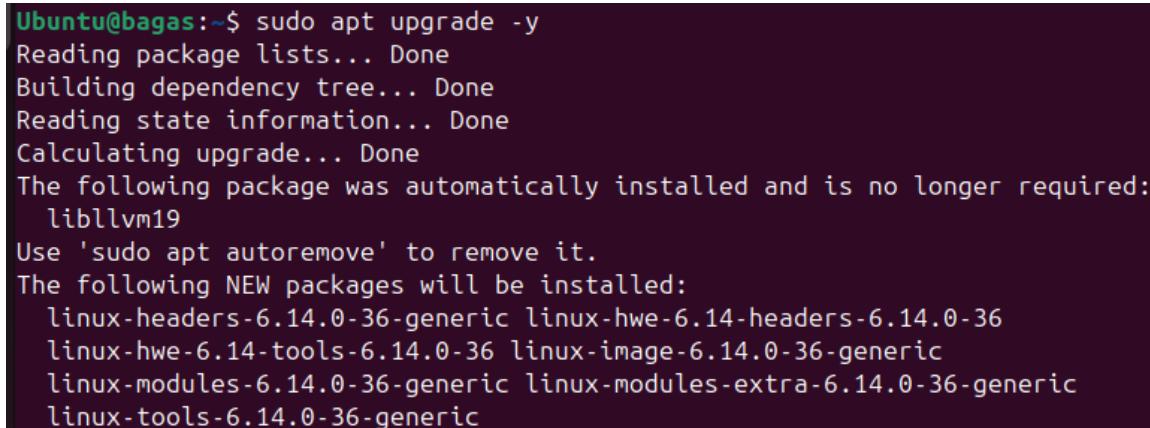


```
Ubuntu@bagas:~$ sudo apt update
[sudo] password for Ubuntu:
Get:1 https://dl.google.com/linux/chrome/deb stable InRelease [1,825 B]
Get:2 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:3 https://dl.google.com/linux/chrome/deb stable/main amd64 Packages [1,212 B]
```

Tujuan: memperbarui daftar paket agar sistem siap untuk instalasi komponen virtualisasi.

2. Melakukan Upgrade Paket Sistem

Perintah:



```
Ubuntu@bagas:~$ sudo apt upgrade -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
The following package was automatically installed and is no longer required:
  liblvm19
Use 'sudo apt autoremove' to remove it.
The following NEW packages will be installed:
  linux-headers-6.14.0-36-generic linux-hwe-6.14-headers-6.14.0-36
  linux-hwe-6.14-tools-6.14.0-36 linux-image-6.14.0-36-generic
  linux-modules-6.14.0-36-generic linux-modules-extra-6.14.0-36-generic
  linux-tools-6.14.0-36-generic
```

Tujuan: memastikan seluruh dependensi berada pada versi terbaru sebelum instalasi QEMU dan libvirt.

3. Instalasi QEMU, KVM, Libvirt, Bridge-Utils, dan Virt-Manager

Perintah:

```
Ubuntu@bagas:~$ sudo apt install qemu-kvm libvirt-daemon-system libvirt-clients  
bridge-utils virt-manager -y  
[sudo] password for Ubuntu:  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
Note, selecting 'qemu-system-x86' instead of 'qemu-kvm'  
qemu-system-x86 is already the newest version (1:8.2.2+ds-0ubuntu1.10).  
libvirt-daemon-system is already the newest version (10.0.0-2ubuntu8.9).  
libvirt-clients is already the newest version (10.0.0-2ubuntu8.9).  
bridge-utils is already the newest version (1.7.1-1ubuntu2).  
virt-manager is already the newest version (1:4.1.0-3ubuntu0.1).  
The following package was automatically installed and is no longer required:  
 liblvm19  
Use 'sudo apt autoremove' to remove it.  
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
```

Tujuan: memasang seluruh komponen yang dibutuhkan untuk membangun hypervisor mini dan mengelola VM.

4. Verifikasi Dukungan Virtualisasi CPU

```
Ubuntu@bagas:~$ lscpu | grep Virtualization  
Virtualization type: full
```

Interpretasi: guest Ubuntu berjalan dalam mode *full virtualization* karena environment menggunakan VirtualBox.

5. Pemeriksaan Ketersediaan Akselerasi KVM

Perintah:

```
Ubuntu@bagas:~$ sudo kvm-ok  
[sudo] password for Ubuntu:  
INFO: Your CPU does not support KVM extensions  
KVM acceleration can NOT be used
```

Interpretasi: akselerasi KVM tidak tersedia pada sistem ini (wajar karena Ubuntu berjalan dalam VirtualBox), namun QEMU tetap dapat digunakan.

6. Pemeriksaan Status Layanan Libvirt

Perintah:

```
Ubuntu@bagas:~$ sudo systemctl status libvirdt
● libvirdt.service - libvirt legacy monolithic daemon
  Loaded: loaded (/usr/lib/systemd/system/libvirdt.service; enabled; preset:>)
  Active: inactive (dead) since Sat 2025-12-06 11:17:44 UTC; 33min ago
    Duration: 2min 2.052s
  TriggeredBy: ● libvirdt-admin.socket
                 ● libvirdt-ro.socket
                 ● libvirdt.socket
    Docs: man:libvirdt(8)
          https://libvirt.org/
 Main PID: 1177 (code=exited, status=0/SUCCESS)
   Tasks: 2 (limit: 32768)
  Memory: 10.8M (peak: 19.9M)
    CPU: 2.421s
   CGroup: /system.slice/libvirdt.service

Dec 06 11:15:46 bagas libvirdt[1177]: Unable to open /dev/kvm: No such file or directory
```

7. Verifikasi Group User untuk Akses Libvirt

Perintah:

```
Ubuntu@bagas:~$ groups $USER
Ubuntu : Ubuntu sudo libvirt
```

Interpretasi: user telah memiliki akses untuk mengelola VM menggunakan libvirt dan virt-manager.

8. Pengujian Menjalankan Virt-Manager

Perintah:

```
Ubuntu@bagas:~$ virt-manager
```

Hasil:

