How to Install KVM on Ubuntu 20.04

James Kiarie | Last Updated: July 9, 2021 | KVM, Ubuntu, Virtualization | 19 Comments

KVM, (kernel-based **Virtual Machine**) is a free and opensource virtualization platform for the Linux kernel. When installed on a Linux system, it becomes a Type-2 hypervisor.

In this article, we look at how you can install **KVM** on **Ubuntu 20.04 LTS**.

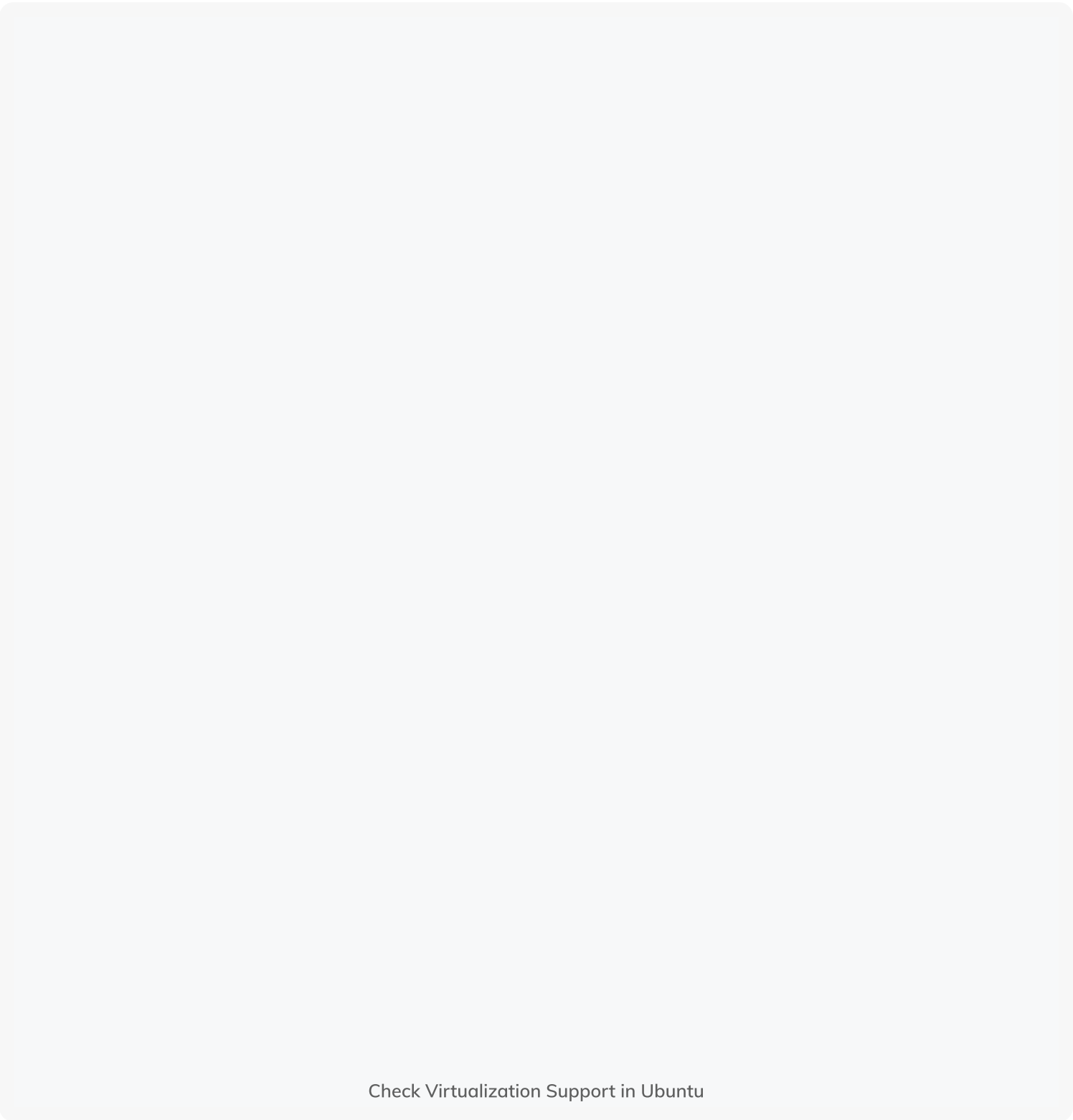
Step 1: Check Virtualization Support in Ubuntu

Before installing **KVM** on **Ubuntu**, we are first going to verify if the hardware supports **KVM**. A minimum requirement for installing **KVM** is the availability of CPU virtualization extensions such as **AMD-V** and **Intel-VT**.

To check whether the Ubuntu system supports virtualization, run the following command.

```
$ egrep -c '(vmx|svm)' /proc/cpuinfo
```

An outcome greater than **0** implies that virtualization is supported. From the output below, we have confirmed that our server is good to go.



Check Virtualization Support in Ubuntu

To check if your system supports **KVM** virtualization execute the command:

```
$ sudo kvm-ok
```

If the “**kvm-ok**” utility is not present on your server, install it by running the apt command:

```
$ sudo apt install cpu-checker
```

Now execute the “**kvm-ok**” command to probe your system.

```
$ sudo kvm-ok
```

Check KVM Support in Ubuntu

The output clearly indicates that we are on the right path and ready to proceed with the installation of KVM.

Step 2: Install KVM on Ubuntu 20.04 LTS

With the confirmation that our system can support KVM virtualization, we are going to install KVM, To install KVM, **virt-manager**, **bridge-utils** and other dependencies, run the command:

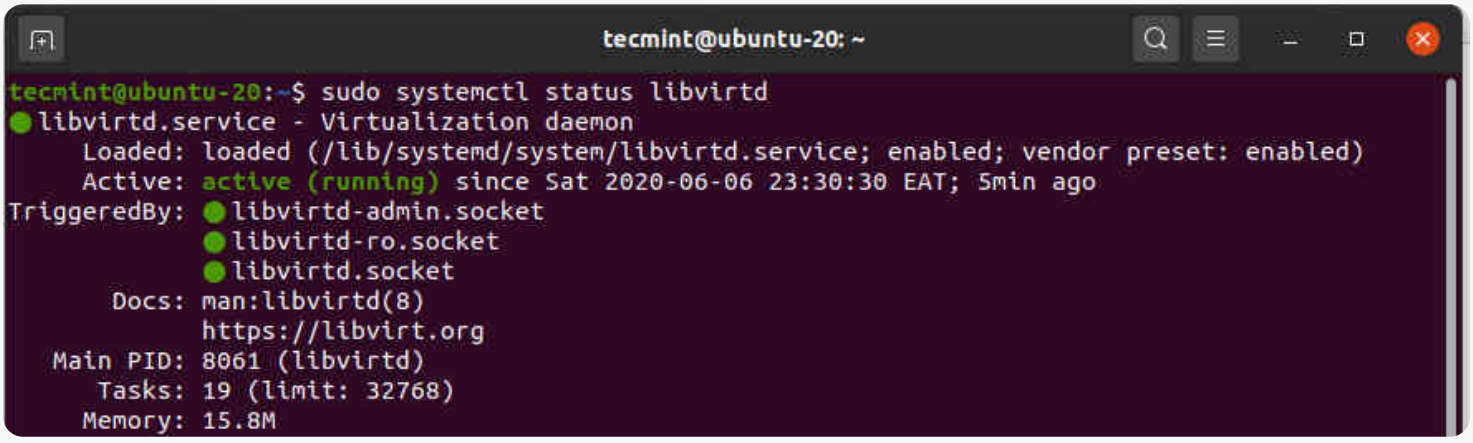
```
$ sudo apt install -y qemu qemu-kvm libvirt-daemon libvirt-clients b
```

A little explanation of the above packages.

- The **qemu** package (quick emulator) is an application that allows you to perform hardware virtualization.
- The **qemu-kvm** package is the main KVM package.
- The **libvritd-daemon** is the virtualization daemon.
- The **bridge-utils** package helps you create a bridge connection to allow other users to access a virtual machine other than the host system.
- The **virt-manager** is an application for managing virtual machines through a graphical user interface.

Before proceeding further, we need to confirm that the virtualization daemon – **libvritd-daemon** – is running. To do so, execute the command.

```
$ sudo systemctl status libvirtd
```



Check libvritd Status

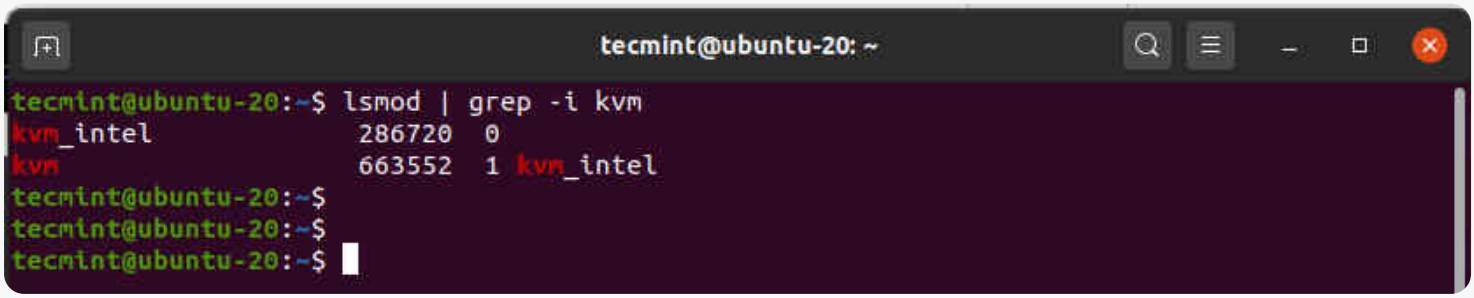
You can enable it to start on boot by running:

```
$ sudo systemctl enable --now libvirtd
```

To check if the KVM modules are loaded, run the command:

```
$ lsmod | grep -i kvm
```

From the output, you can observe the presence of the **kvm_intel** module. This is the case for Intel processors. For AMD CPUs, you will get the **kvm_intel** module instead.



Check KVM Modules in Ubuntu

Step 3: Creating a Virtual Machine in Ubuntu

With **KVM** successfully installed, We are now going to create a virtual machine. There are 2 ways to go about this: You can create a virtual machine on the command-line or using the KVM **virt-manager** graphical interface.

Create a Virtual Machine via Command Line

The **virt-install** command-line tool is used for creating virtual machines on the terminal. A number of parameters are required when creating a virtual machine.

Here's the full command I used when creating a virtual machine using a **Deepin ISO** image:

```
$ sudo virt-install --name=deepin-vm --os-variant=Debian10 --vcpu=2
```

The `--name` option specifies the name of the virtual machine – **deepin-vm** The `--os-variant` flag indicates the OS family or derivate of the VM. Since **Deepin20** is a derivative of Debian, I have specified **Debian 10** as the variant.

To get additional information about OS variants, run the command

```
$ osinfo-query os
```

The `--vcpu` option indicates the CPU cores in this case 2 cores, the `--ram` indicates the RAM capacity which is **2048MB**. The `--location` flag point to the absolute path of the ISO image and the `--network` bridge specifies the adapter to be used by the virtual machine. Immediately after executing the command, the virtual machine will boot up and the installer will be launched ready for the installation of the virtual machine.

Create a Virtual Machine via virt-manager

The **virt-manager** utility allows users to create virtual machines using a GUI. To start off, head out to the terminal and run the command.

```
$ virt-manager
```

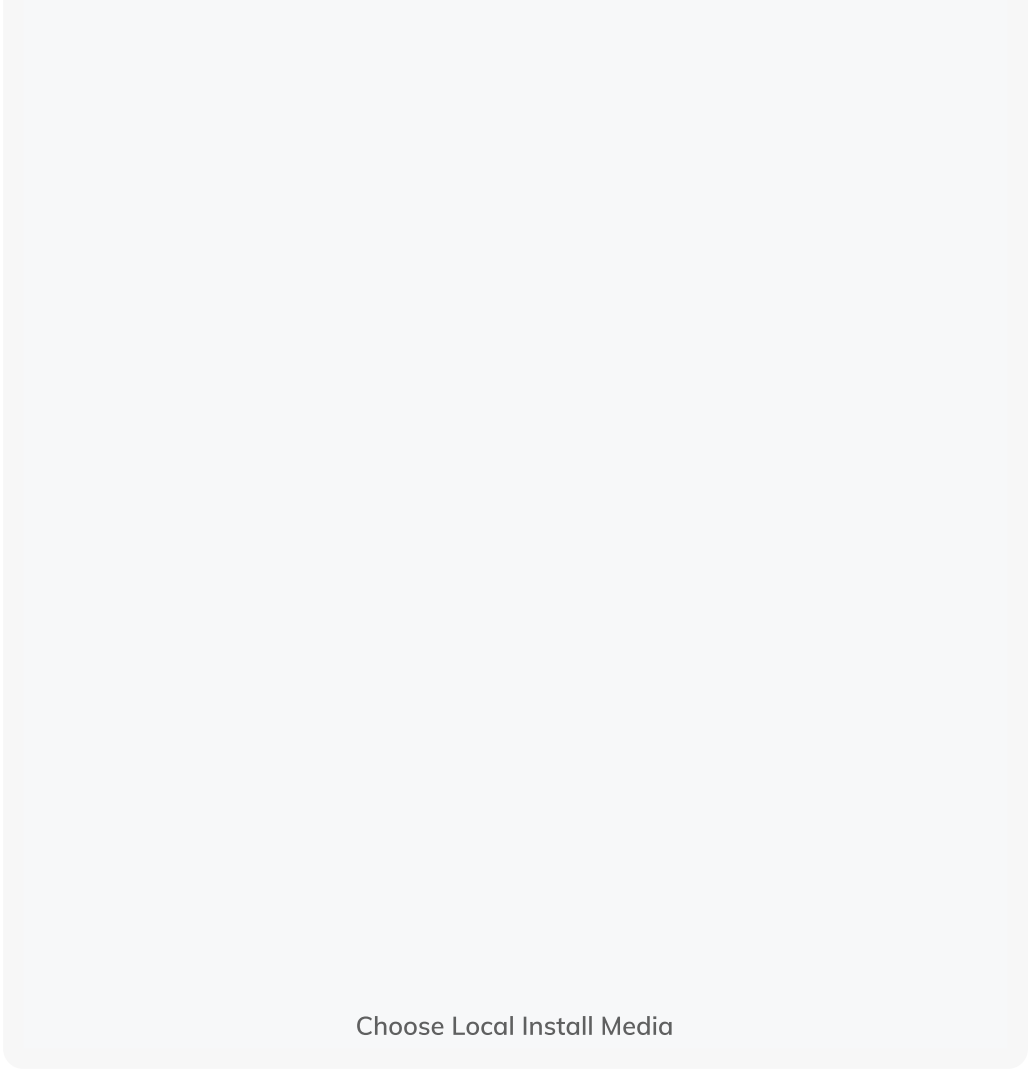
The virtual machine manager window will pop open as shown.

KVM Virtual Machine Manager

Now click the monitor icon to start creating a virtual machine.

Create a Virtual Machine in KVM

On the pop-up window, specify the location of your ISO image. In our case, the ISO image is located in the '**Downloads**' folder in the home directory, so we'll select the first option – **Local Install Media** (ISO image or CDROM). Next, click the '**Forward**' button to continue.



In the next step, browse to the ISO image on your system and directly below, specify the OS family that your image is based on.

Next, select the memory capacity and the number of CPUs that your virtual machine will be allocated, and click '**Forward**'.

Choose Memory and CPU for VM

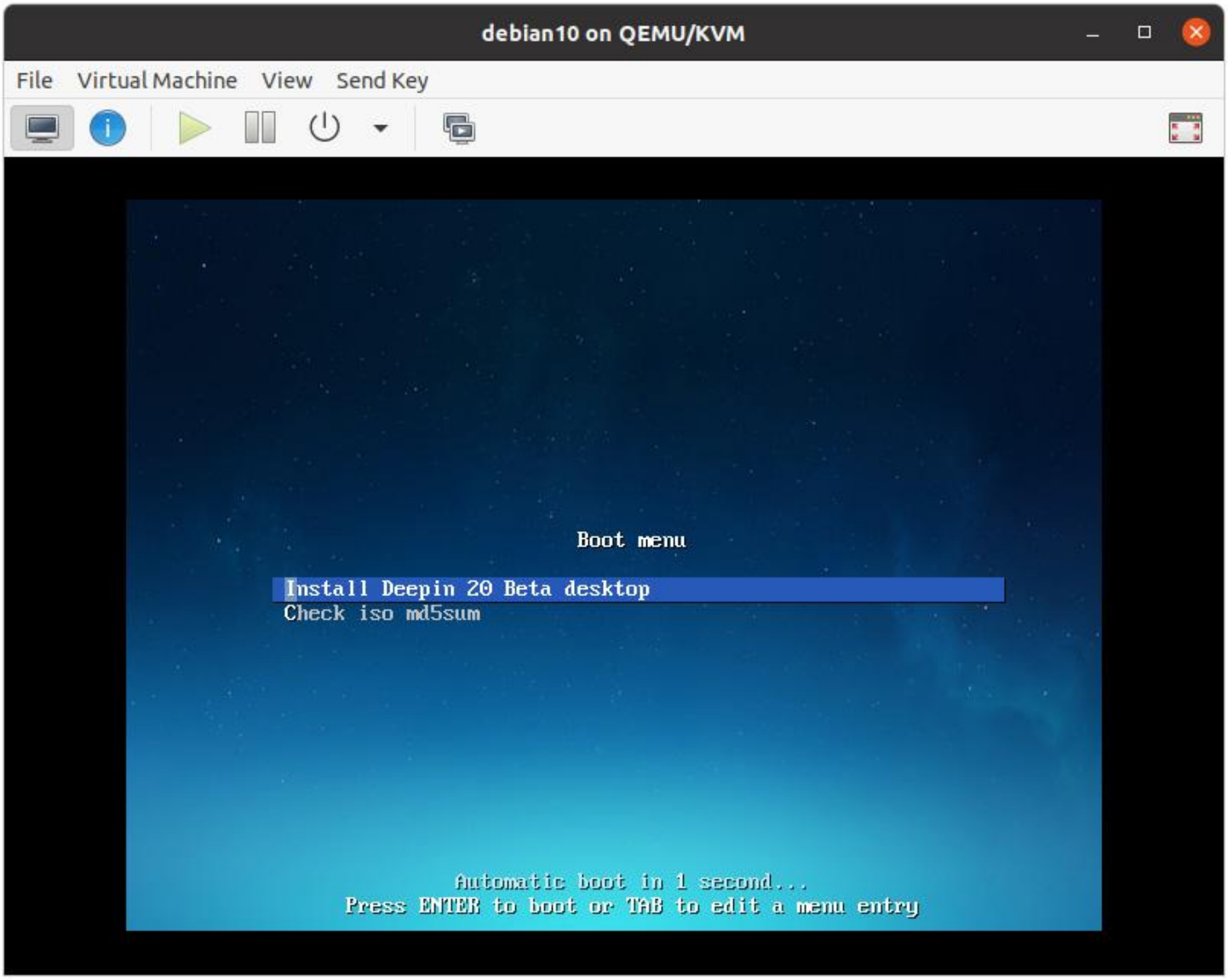
And finally, in the last step, specify a name for your virtual machine and click on the '**Finish**' button.

Set Virtual Machine Name

The creation of the virtual machine will take a few minutes upon which the installer of the OS you are installing will pop open.

Creating Virtual Machine

At this point, you can proceed with the installation of the virtual machine.



Virtual Machine Installation

And that's how you go about installing **KVM** hypervisor on **Ubuntu 20.04** LTS.

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19 thoughts on “How to Install KVM on Ubuntu 20.04”

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Rob Day

November 9, 2021 at 4:44 am

“**libvritd**“.

Reply

Jeff

October 25, 2021 at 5:13 pm

Network Boot (PXE) missing, from my new installation, Ubuntu 20.04, 20.10. Did I miss anything? Thanks and very much appreciate it.

Reply

Jayme Davis

September 30, 2021 at 7:28 am

From the output, you can observe the presence of the **kvm_intel** module. This is the case for Intel processors. For AMD CPUs, you will get the kvm_intel module instead.

simple feedback – you meant the latter "**kvm_intel**" to say "**kvm_amd**".

Reply

ubuntun00b

July 9, 2021 at 3:03 am

I got this error while trying to follow this guide so I had to stop until I resolve this issue and move on to following the rest of the guide. this is for Ubuntu 20.10.

jd@jd-MacBookPro:~$ sudo apt install -y qemu qemu-kvm libvert-daemon libvirt-clients bridge-utils
Reading package lists... Done

Building dependency tree
Reading state information... Done
E: Unable to locate package libvert-daemon

jd@jd-MacBookPro:~$ sudo systemctl status libvirtd
Unit libvirtd.service could not be found.

jd@jd-MacBookPro:~$ sudo systemctl enable –now libvirtd
Failed to enable unit: Unit file libvirtd.service does not exist.

any suggestions to get through this ?

Reply

Tomas Krcka
July 23, 2021 at 6:00 pm

Try to install there this package:

```
$ apt install libvirt-daemon-system
```

Reply

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