

KVM

Installation

Install all the required for the installation of Qemu, KVM hypervisor, and Libvirt

```
# apt install qemu-system libvirt-daemon-system qemu-utils virt-manager
```

- **qemu-system**: is an open source virtualizer that provides hardware emulation for the KVM hypervisor. It acts as a virtual machine monitor together with the KVM kernel modules, and emulates the hardware for a full system such as a PC and its associated peripherals.
- **virt-manager**: Virt-Manager is a graphical user interface (GUI) tool for managing virtual machines through libvirt-daemon.
- **libvirt-daemon-system**: provides API libraries that enables GUI apps such as virt-manager to communicate with libvirtd daemon, a system service libvirtd , and a virsh CLI tool
- **qemu-utils**: Various utilities e.g. for manipulating disk images
- **virtinst**: Allows to create Virtual Machines (VMs) from the command-line.

Verify that the virtualization daemon, libvirtd-daemon, is operating before moving on. Execute the command to achieve this.

```
# systemctl status libvirtd
```

Output:

```
● libvirtd.service - Virtualization daemon
   Loaded: loaded (/lib/systemd/system/libvirtd.service; enabled; preset:
enabled)
   Active: active (running) since Sun 2023-08-06 10:57:02 CEST; 1min 30s
ago
 TriggeredBy: ● libvirtd-ro.socket
               ● libvirtd-admin.socket
               ● libvirtd.socket
   Docs: man:libvirtd(8)
         https://libvirt.org
 Main PID: 7999 (libvirtd)
   Tasks: 19 (limit: 32768)
  Memory: 15.7M
    CPU: 188ms
   CGroup: /system.slice/libvirtd.service
           └─7999 /usr/sbin/libvirtd --timeout 120
Aug 06 10:57:02 pcwerkkamer systemd[1]: Starting libvirtd.service -
Virtualization daemon...
Aug 06 10:57:02 pcwerkkamer systemd[1]: Started libvirtd.service -
Virtualization daemon.
```

Check if libvirtd service will start automatically at boot time.

```
# systemctl is-enabled libvirt
```

Output:
enabled

`qemu-img convert -f vdi -O qcow2 ubuntu.vdi ubuntu.qcow2` If disabled run the following command to have it boot automatically:

```
# systemctl enable --now libvirt
```

Use the following command to determine whether the KVM modules are loaded:

```
$ lsmod | grep -i kvm
kvm_intel          380928  0
kvm                1142784  1 kvm_intel
irqbypass         16384   1 kvm
```

Configuration

User privileges

In order to manage virtual machines as a regular user, that user needs to be added to the libvirt group:

```
# usermod -aG libvirt,kvm USERNAME
```

User-specific and system-wide VMs

By default, if `virsh` is run as a normal user it will connect to libvirt using `qemu:/session` URI string. This URI allows `virsh` to manage only the set of VMs belonging to this particular user. To manage the system set of VMs (i.e., VMs belonging to root) `virsh` should be run as root or with `qemu:/system` URI:

```
$ virsh --connect qemu:///system list --all
```

To avoid having to use the `-connect` flag on every command, the URI string can be set in the `LIBVIRT_DEFAULT_URI` environment variable:

```
$ export LIBVIRT_DEFAULT_URI='qemu:///system'
```

Error Access ISO files, etc.

Directory, that libvirt is using for storing/reading ISO and qcow2 files needs to be readable by libvirt-qemu user. In case of an error opening an ISO or image file, the “libvirt-qemu” user does not have access to the file or the directories holding the files. The “libvirt-qemu” user needs “**r+x**” permissions

all the way up the path. You can check if unix permissions are correct by running a shell under user "libvirt-qemu" and see if you can ls along the path all the way up to the files:

```
$ sudo su -s /bin/bash libvirt-qemu
```

If you can't ls with an account that does have access yields a result with a permission line that contains a dot such as drwxrwxr-x. meaning extended ACL permissions.

Fix 1:

Put the iso or image into one of the pool directories of libvirt manager. E.g. /var/lib/libvirt/images Or any other paths that have full r others rights.

Convert VirtualBox to KVM

```
qemu-img convert -f vdi -O qcow2 virtualbox-name.vdi kvm-name.qcow2
```

Links

- <https://wiki.debian.org/KVM#Installation>

From:

<https://wiki.oscardegroot.nl/> - HomeWiki

Permanent link:

<https://wiki.oscardegroot.nl/doku.php?id=linux:apps:kvm&rev=1691344823>

Last update: **2023/08/06 18:00**

