Cloud Security & Management Lab

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Submitted

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LAB 3: Installation and Configuration of virtualization using KVM

Step 1: Install the packages

```
shiva@shiva-VirtualBox:~$  sudo apt update
Hit:1 https://download.docker.com/linux/ubuntu jammy InRelease
Hit:2 http://security.ubuntu.com/ubuntu jammy-security InRelease
Hit:3 http://in.archive.ubuntu.com/ubuntu jammy InRelease
Hit:4 http://in.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:5 http://in.archive.ubuntu.com/ubuntu jammy-backports InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
275 packages can be upgraded. Run 'apt list --upgradable' to see them.
shiva@shiva-VirtualBox:~$  sudo apt install qemu-kvm libvirt-daemon-system libvirt-clients bridge-utils
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 (1:6.2+dfsg-2ubuntu6.6).
qemu-system-x86 set to manually installed.
The following packages were automatically installed and are no longer required:
  chromium-codecs-ffmpeg-extra gstreamer1.0-vaapi i965-va-driver intel-media-va-driver libaacs0 libaom3 libass9 libavcodec58 libavformat58 libavutil56 libbdplus0 libblas3 libbluray2 libbs2b0
  libchromaprint1 libcodec2-1.0 libdav1d5 libflite1 libgme0 libgsm1 libgstreamer-plugins-bad1.0-0 libigdgmm12 liblilv-0-0 libllvm15 libmfx1 libmysofa1 libnorm1 libopenmpt0 libpgm-5.3-0 libpostproc
  librabbitmq4 librubberband2 libserd-0-0 libshine3 libsnappy1v5 libsord-0-0 libsratom-0-0 libsrt1.4-gnutls libssh-gcrypt-4 libswresample3 libswscale5 libudfread0 libva-drm2 libva-wayland2 libva-x
  libva2 libvdpau1 libvidstab1.1 libx265-199 libxvidcore4 libzimg2 libzmq5 libzvbi-common libzvbi0 mesa-va-drivers mesa-vdpau-drivers pocketsphinx-en-us systemd-hwe-hwdb va-driver-all vdpau-driver
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  dmeventd jq libdevmapper-event1.02.1 libjq1 liblvm2cmd2.03 libnss-mymachines libnss-systemd libonig5 libpam-systemd libsystemd0 libtpms0 libvirt-daemon libvirt-daemon-config-network
  libvirt-daemon-config-nwfilter libvirt-daemon-driver-qemu libvirt-daemon-system-systemd libvirt0 libxml2-utils lvm2 mdevctl swtpm swtpm-tools systemd systemd-container systemd-oomd systemd-sysv
  systemd-timesyncd thin-provisioning-tools
Suggested packages:
  ifupdown libvirt-login-shell libvirt-daemon-driver-storage-gluster libvirt-daemon-driver-storage-iscsi-direct libvirt-daemon-driver-storage-rbd libvirt-daemon-driver-storage-zfs
  libvirt-daemon-driver-lxc libvirt-daemon-driver-vbox libvirt-daemon-driver-xen numad auditd nfs-common open-iscsi pm-utils systemtap zfsutils trousers libtss2-rc0
The following NEW packages will be installed:
  bridge-utils dmeventd jq libdevmapper-event1.02.1 libjq1 liblvm2cmd2.03 libnss-mymachines libonig5 libtpms0 libvirt-clients libvirt-daemon libvirt-daemon-config-network libvirt-daemon-config-nwf
  libvirt-daemon-driver-qemu libvirt-daemon-system libvirt-daemon-system-systemd libvirt0 libxml2-utils lvm2 mdevctl swtpm swtpm-tools systemd-container thin-provisioning-tools
The following packages will be upgraded:
  libnss-systemd libpam-systemd libsystemd0 systemd systemd-oomd systemd-sysv systemd-timesyncd
7 upgraded, 24 newly installed, 0 to remove and 268 not upgraded.
Need to get 7,369 kB/12.7 MB of archives.
After this operation, 26.6 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 libdevmapper-event1.02.1 amd64 2:1.02.175-2.1ubuntu4 [12.6 kB]
Get:2 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 liblvm2cmd2.03 amd64 2.03.11-2.1ubuntu4 [756 kB]
40% [2 liblvm2cmd2.03 127 kB/756 kB 17%]                                                                                                                                                  843 k
```

Step 2: Add user to the group

```
shiva@shiva-VirtualBox:~$  sudo adduser sameer kvm
Adding user `sameer' to group `kvm' ...
Adding user sameer to group kvm
Done.
```

Step 3: Enable the libvirtd

```
shiva@shiva-VirtualBox:~$  systemctl enable libvirtd
```

Step 4: Check the status of the libvirtd

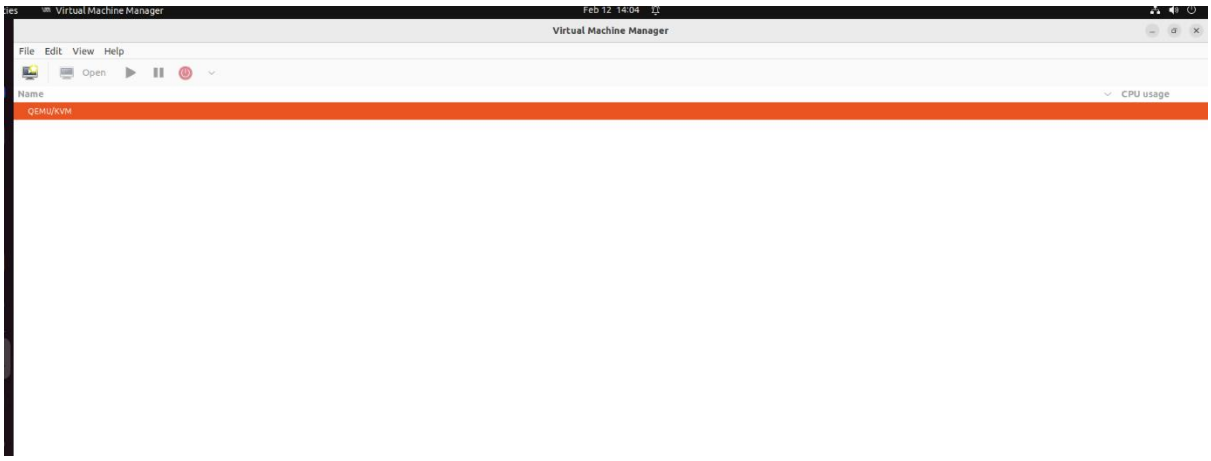
```
shiva@shiva-VirtualBox:~$  do systemctl status libvirtd
● libvirtd.service - Virtualization daemon
     Loaded: loaded (/lib/systemd/system/libvirtd.service; enabled; vendor preset: enabled)
     Active: active (running) since Mon 2023-02-06 13:33:21 IST; 10min ago
TriggeredBy: ● libvirtd-admin.socket
             ● libvirtd.socket
             ● libvirtd-ro.socket
       Docs: man:libvirtd(8)
             https://libvirt.org
   Main PID: 7287 (libvirtd)
      Tasks: 21 (limit: 32768)
     Memory: 10.3M
        CPU: 999ms
     CGroup: /system.slice/libvirtd.service
             ├─7287 /usr/sbin/libvirtd
             ├─7414 /usr/sbin/dnsmasq --conf-file=/var/lib/libvirt/dnsmasq/default.conf --leasefile-ro --dhcp-script=/usr/lib/libvirt/libvirt_leaseshelper
             └─7415 /usr/sbin/dnsmasq --conf-file=/var/lib/libvirt/dnsmasq/default.conf --leasefile-ro --dhcp-script=/usr/lib/libvirt/libvirt_leaseshelper

Feb 06 13:33:21 sameer-virtual-machine dnsmasq-dhcp[7414]: DHCP, IP range 192.168.122.2 -- 192.168.122.254, lease time 1h
Feb 06 13:33:21 sameer-virtual-machine dnsmasq-dhcp[7414]: DHCP, sockets bound exclusively to interface virbr0
Feb 06 13:33:21 sameer-virtual-machine dnsmasq[7414]: reading /etc/resolv.conf
Feb 06 13:33:21 sameer-virtual-machine dnsmasq[7414]: using nameserver 127.0.0.53#53
Feb 06 13:33:21 sameer-virtual-machine dnsmasq[7414]: read /etc/hosts - 8 addresses
Feb 06 13:33:21 sameer-virtual-machine dnsmasq[7414]: read /var/lib/libvirt/dnsmasq/default.addnhosts - 0 addresses
Feb 06 13:33:21 sameer-virtual-machine dnsmasq-dhcp[7414]: read /var/lib/libvirt/dnsmasq/default.hostsfile
Feb 06 13:33:21 sameer-virtual-machine libvirtd[7287]: libvirt version: 8.0.0, package: 1ubuntu7.4 (Christian Ehrhardt <christian.ehrhardt@canonical.com> Tue, 22 Nov 2022 15:59:28 +0100)
Feb 06 13:33:21 sameer-virtual-machine libvirtd[7287]: hostname: sameer-virtual-machine
```

Step 5: Install the virt-manager

```
shiva@shiva-VirtualBox:~$   sudo apt install virt-manager -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
  chromium-codecs-ffmpeg-extra gstreamer1.0-vaapi libaacs0 libaom3 libass9 libavcodec58 libavformat58 libavutil56 libbdplus0 libblas3 libbluray2 libbs2b0 libchromaprint1 libcodec2-1.0 libdav1d5
  libflite1 libgme0 libgsm1 libgstreamer-plugins-bad1.0-0 liblilv-0-0 libmfx1 libmysofa1 libnorm1 libopenmpt0 libpgm-5.3-0 libpostproc55 librabbitmq4 librubberband2 libserd-0-0 libshine3 libsnappy1v5
  libsord-0-0 libsratom-0-0 libsrt1.4-gnutls libssh-gcrypt-4 libswresample3 libswscale5 libudfread0 libva-drm2 libva-wayland2 libvdpau1 libvidstab1.1 libx265-199 libxvidcore4 libzimg2 libzmq5
  libzvbi-common libzvbi0 mesa-vdpau-drivers pocketsphinx-en-us systemd-hwe-hwdb vdpau-driver-all
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  gir1.2-ayatanaappindicator3-0.1 gir1.2-gtk-vnc-2.0 gir1.2-libosinfo-1.0 gir1.2-libvirt-glib-1.0 gir1.2-spiceclientglib-2.0 gir1.2-spiceclientgtk-3.0 libburn4 libgovirt-common libgovirt2
  libgtk-vnc-2.0-0 libgvnc-1.0-0 libisoburn1 libisofs6 libjte2 libosinfo-1.0-0 libphodav-2.0-0 libphodav-2.0-common libspice-client-glib-2.0-8 libspice-client-gtk-3.0-5 libusbredirhost1
  libvirt-glib-1.0-0 libvirt-glib-1.0-data osinfo-db python3-libvirt python3-libxml2 spice-client-glib-usb-acl-helper virt-viewer virtinst xorriso
Suggested packages:
  libosinfo-l10n gstreamer1.0-libav gstreamer1.0-plugins-bad python3-guestfs ssh-askpass python3-argcomplete xorriso-tcltk jigit cdck
The following NEW packages will be installed:
  gir1.2-ayatanaappindicator3-0.1 gir1.2-gtk-vnc-2.0 gir1.2-libosinfo-1.0 gir1.2-libvirt-glib-1.0 gir1.2-spiceclientglib-2.0 gir1.2-spiceclientgtk-3.0 libburn4 libgovirt-common libgovirt2
  libgtk-vnc-2.0-0 libgvnc-1.0-0 libisoburn1 libisofs6 libjte2 libosinfo-1.0-0 libphodav-2.0-0 libphodav-2.0-common libspice-client-glib-2.0-8 libspice-client-gtk-3.0-5 libusbredirhost1
  libvirt-glib-1.0-0 libvirt-glib-1.0-data osinfo-db python3-libvirt python3-libxml2 spice-client-glib-usb-acl-helper virt-manager virt-viewer virtinst xorriso
0 upgraded, 30 newly installed, 0 to remove and 268 not upgraded.
Need to get 3,928 kB of archives.
After this operation, 20.3 MB of additional disk space will be used.
Get:1 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 gir1.2-ayatanaappindicator3-0.1 amd64 0.5.90-7ubuntu2 [5,822 B]
Get:2 http://in.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 libgvnc-1.0-0 amd64 1.3.0-1ubuntu1 [67.7 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 libgtk-vnc-2.0-0 amd64 1.3.0-1ubuntu1 [30.8 kB]
Get:4 http://in.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 gir1.2-gtk-vnc-2.0 amd64 1.3.0-1ubuntu1 [12.2 kB]
Get:5 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 spice-client-glib-usb-acl-helper amd64 0.39-3ubuntu1 [11.8 kB]
Get:6 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 libphodav-2.0-common all 2.5-1 [12.5 kB]
Get:7 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 libphodav-2.0-0 amd64 2.5-1 [28.7 kB]
Get:8 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 libusbredirhost1 amd64 0.11.0-2build1 [19.7 kB]
Get:9 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 libspice-client-glib-2.0-8 amd64 0.39-3ubuntu1 [326 kB]
Get:10 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 gir1.2-spiceclientglib-2.0 amd64 0.39-3ubuntu1 [14.3 kB]
Get:11 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 libspice-client-gtk-3.0-5 amd64 0.39-3ubuntu1 [62.0 kB]
Get:12 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 gir1.2-spiceclientgtk-3.0 amd64 0.39-3ubuntu1 [5,610 B]
Get:13 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 libburn4 amd64 1.5.4-1 [162 kB]
Get:14 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 libgovirt-common all 0.3.8-1 [19.7 kB]
Get:15 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 libgovirt2 amd64 0.3.8-1 [46.0 kB]
Get:16 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 libjte2 amd64 1.22-3build1 [27.0 kB]
Get:17 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 libisofs6 amd64 1.5.4-1 [210 kB]
Get:18 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 libisoburn1 amd64 1.5.4-2 [402 kB]
Get:19 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 libvirt-glib-1.0-data all 4.0.0-2 [13.6 kB]
Get:20 http://in.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 osinfo-db all 0.20220214-1ubuntu2.1 [140 kB]
Get:21 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 python3-libvirt amd64 8.0.0-1build1 [148 kB]
```

Step 6: Start the virt-manger

```
shiva@shiva-VirtualBox:~$    virt-manager
```



Step 7: Create a new virtual machine