

SLUUG August 2024

KVM for Beginners



What is KVM?

For the purpose of this presentation, KVM is:

The hypervisor support built into the Linux Kernel, and...

The userspace components that enable KVM to be a useful tool.

About Me

I work as an independent consultant performing system and small network administration, and writing specialized technical documentation.

Non-Goals

No demonstrations, but I will show some screenshots.

Answering advanced questions about KVM or Virtual Machines (Vms) in general.

Specifics for non-Debian systems.

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Why KVM?

I need to practice an upgrade.

Hyper-V great when it works; works 1/2 the time.

Licensing for VirtualBox is more complex in commercial applications.

Rough Outline

Prepare and Install

Creating a virtual machine

Start / Stop / Status

Networking

Hardware Recommendations

Intel i-series or Xenon CPU; or,
AMD CPU with VM support.

16 GB of memory.

Enough disk storage.

Software Needed

aptitude update

```
aptitude -y install qemu-system \  
libvirt-daemon-system bridge-utils \  
cpu-checker aqemu virt-manager \  
virtinst virt-viewer
```

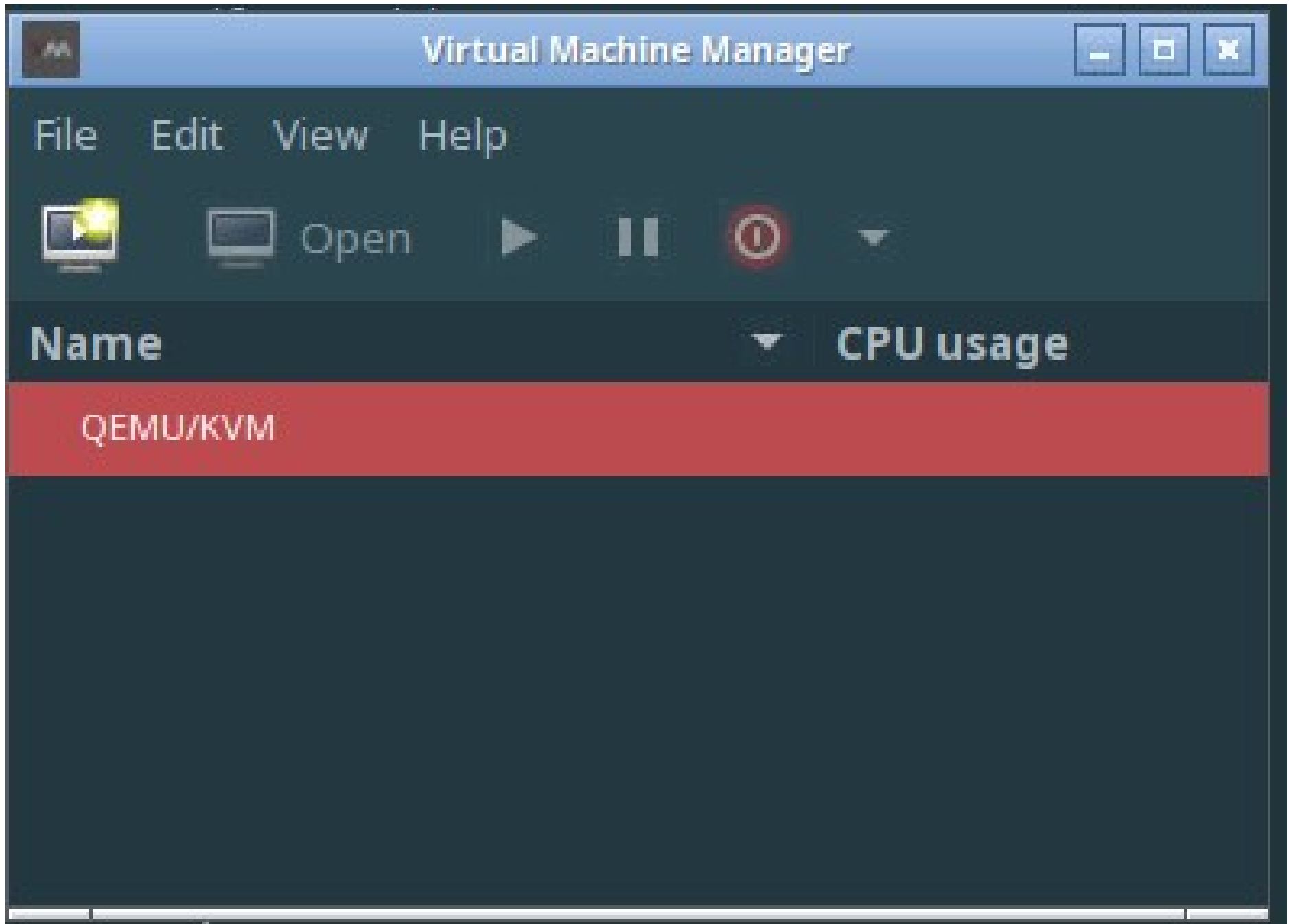
User Setup

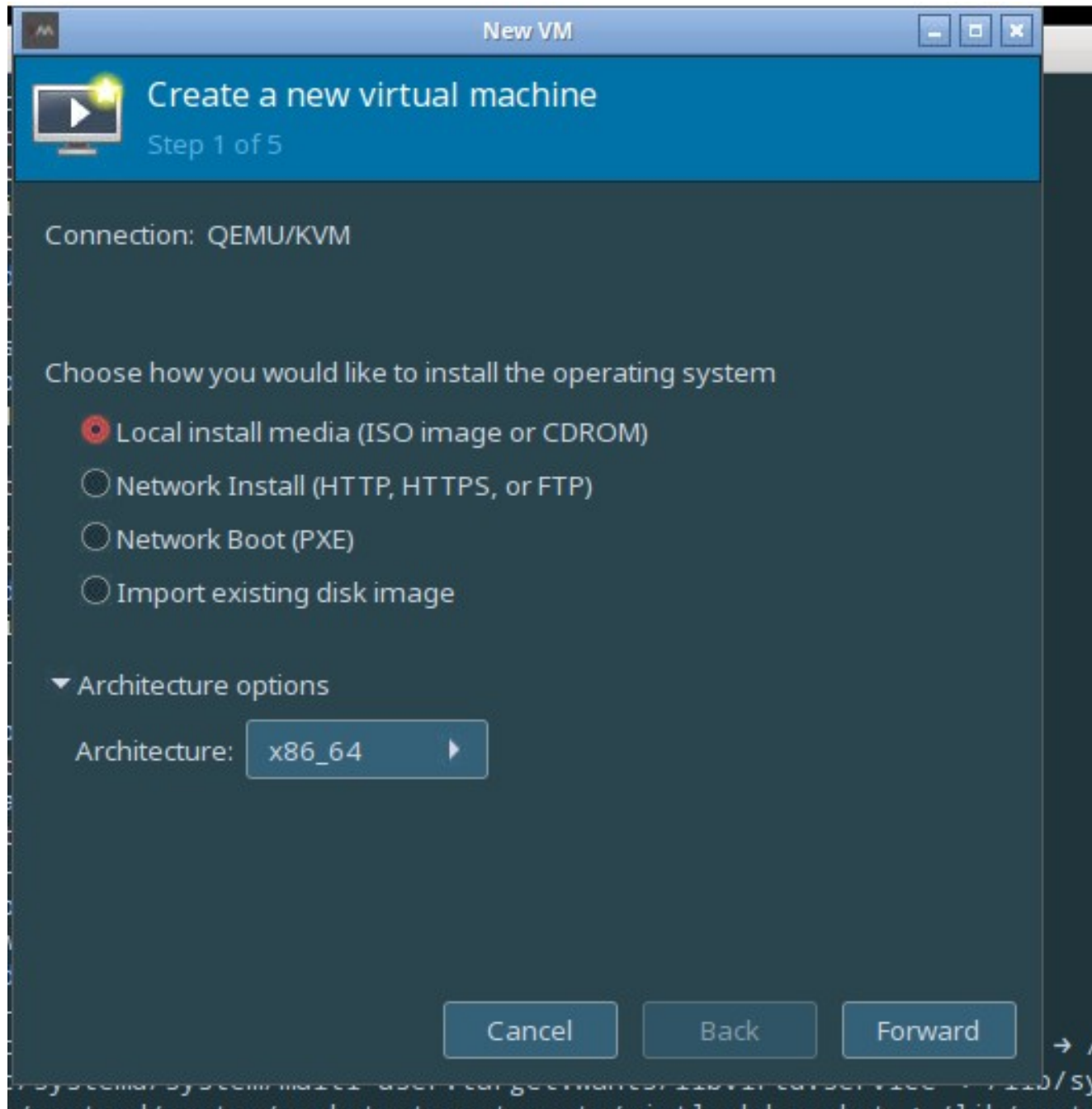
```
usermod -aG libvirt <your-ordinary-user>
```

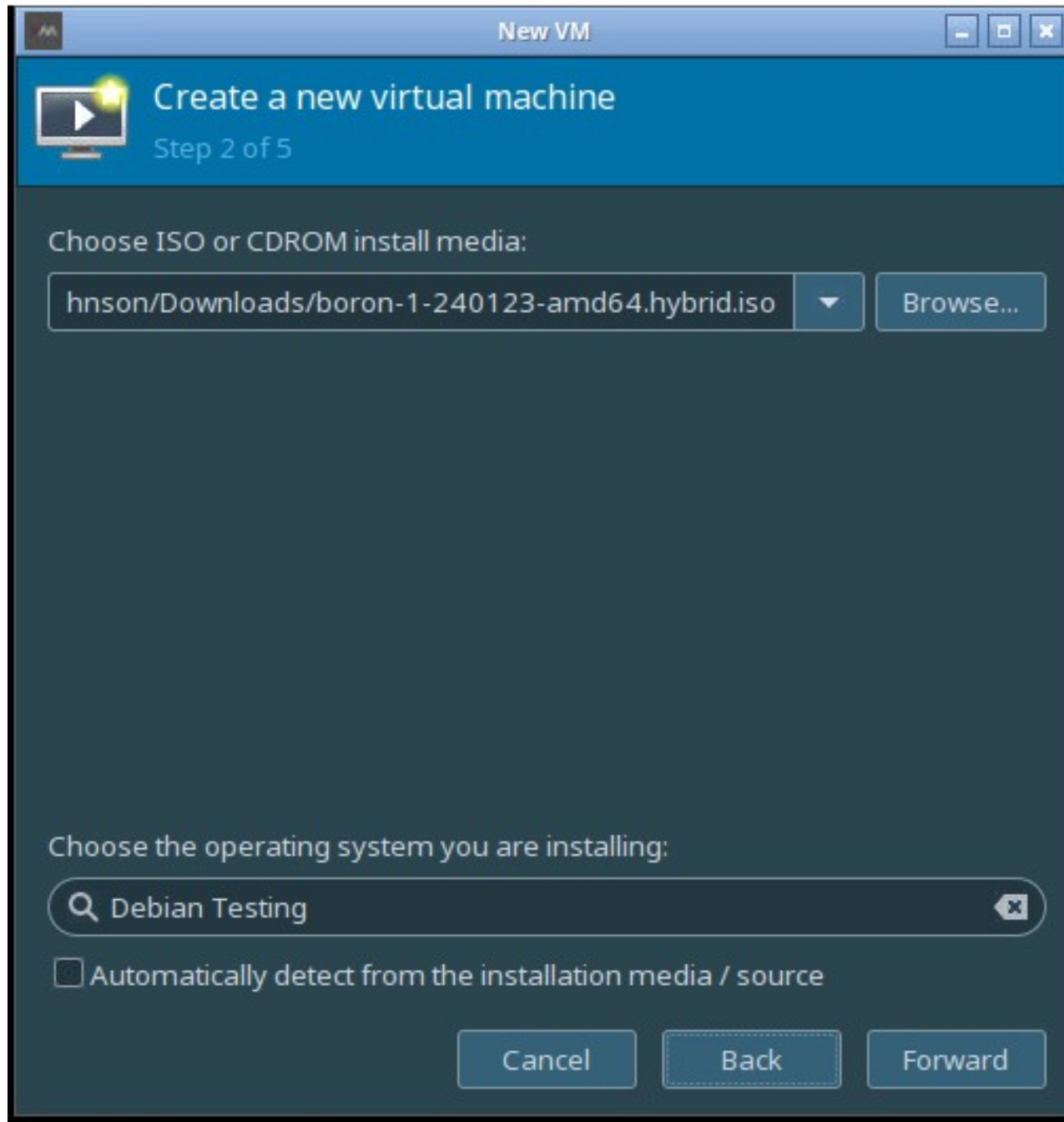
Creating a VM

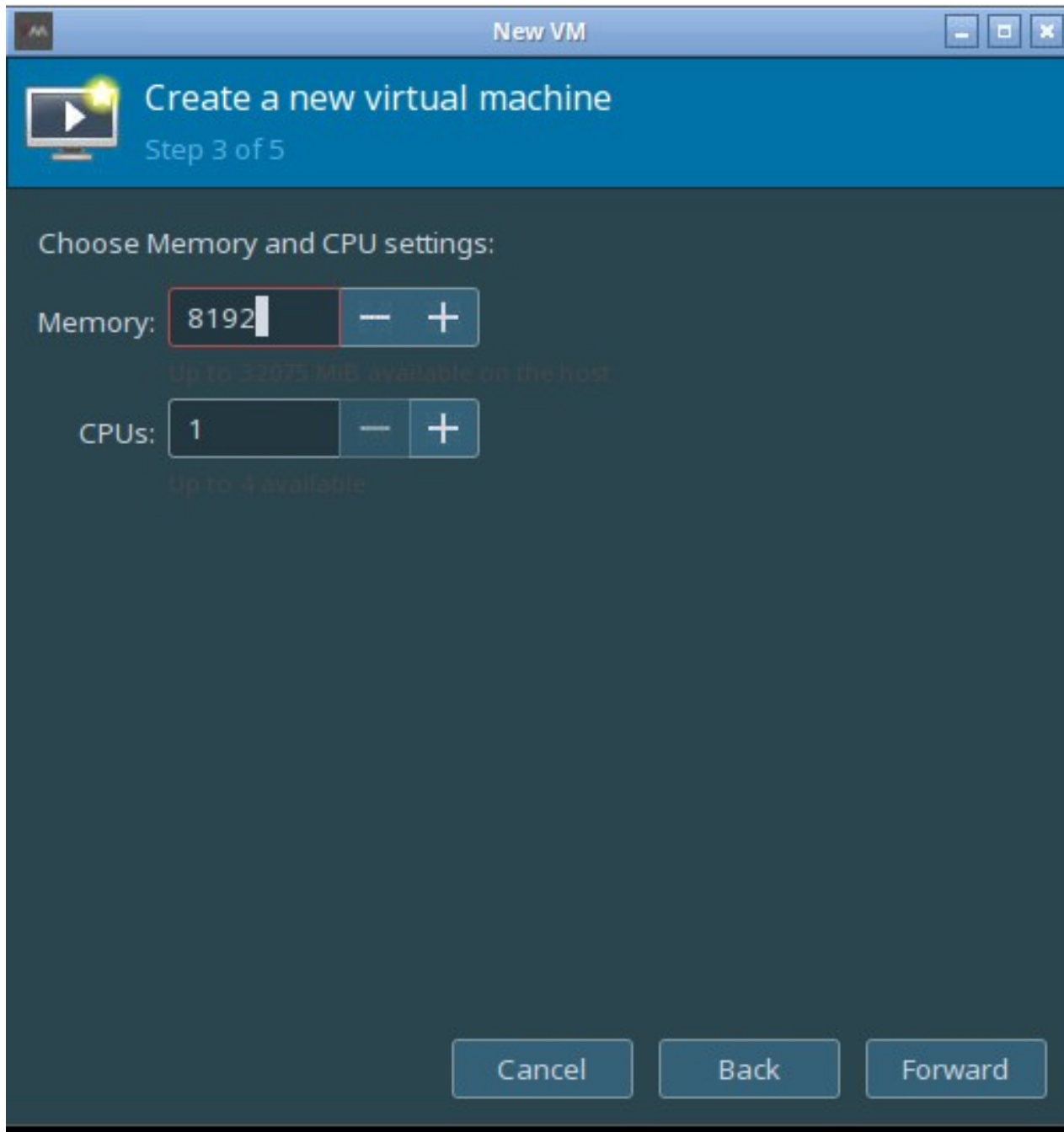
Use Virtual Machine Manager (GUI application) to create Vms.

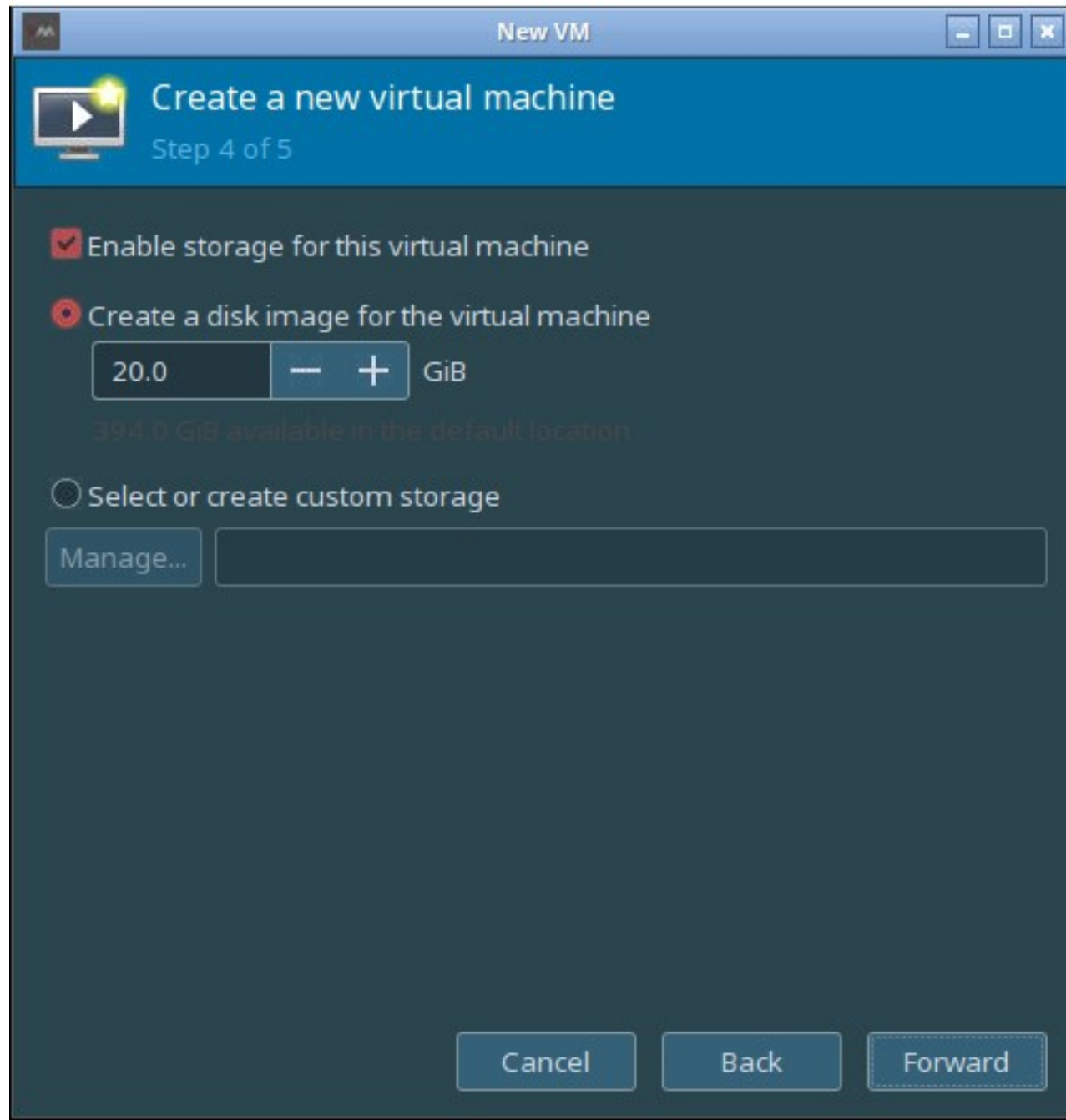
It was automatically added to menus in XFCE and Bunsenlabs OpenBox.

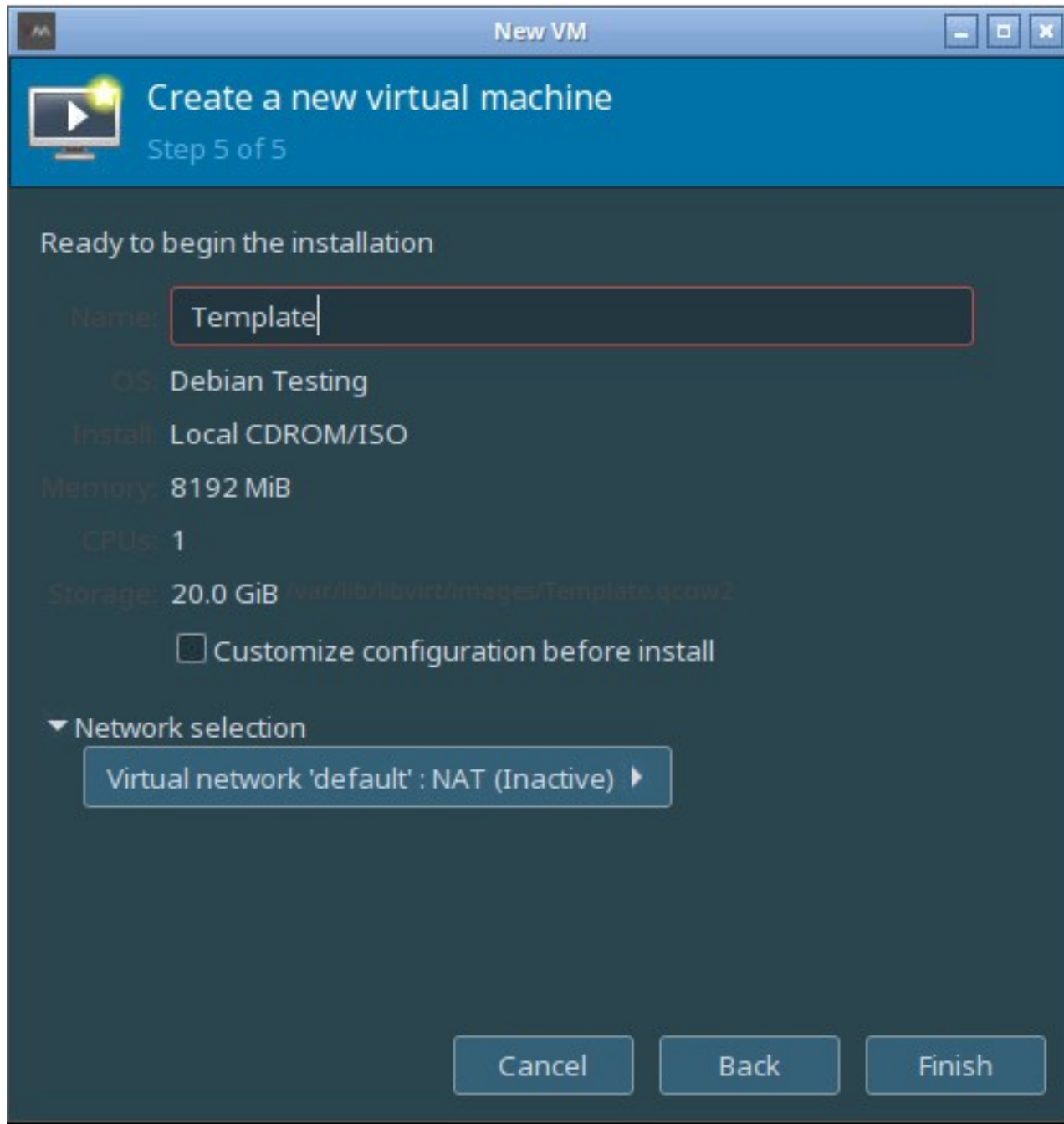


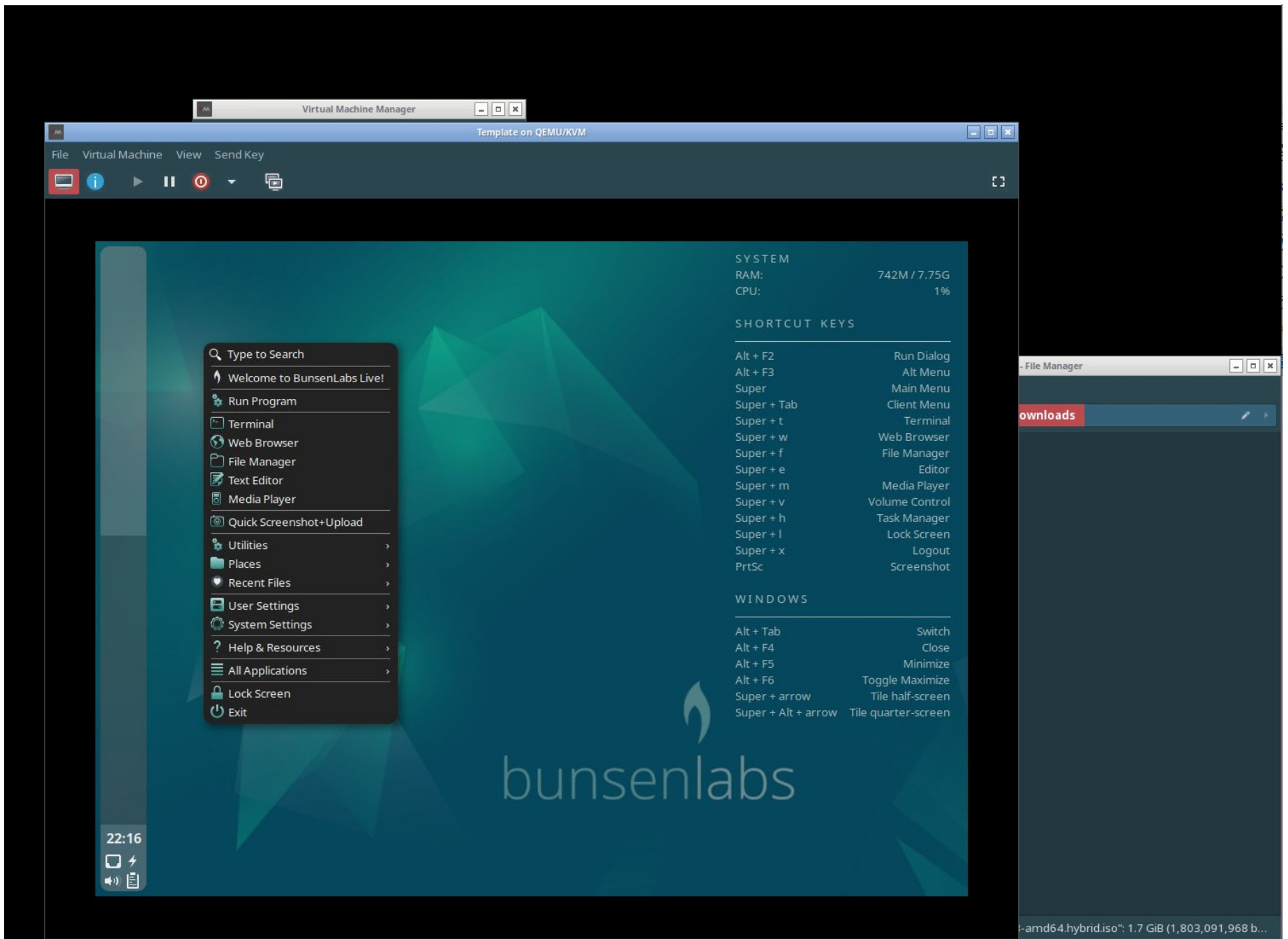












Start / Stop / Status

Use virsh

```
# virsh start Template
```

```
Domain Template started
```

Start / Stop / Status

Shutdown -h now inside VM,
then use virsh

```
# virsh shutdown Template
```

```
Domain Template is being shutdown
```

Start / Stop / Status

Use virsh

```
# virsh list --all
```

Id	Name	State
----	------	-------

1	Template	running
---	----------	---------

Networking

```
#virsh net-list --all
```

Name	State	Autostart	Persist
-----	-----	-----	-----
default	active	yes	yes

```
#virsh net-autostart default
```

```
#virsh net-dhcp-leases default
```

... MAC address	IP address	Hostname
-----	-----	-----
52:54:00:d5:c2:d1	192.168.122.87/24	debian12kvm

References

<https://wiki.debian.org/KVM>

PDF of these slides should be up soon on SLUUG website.

Questions?

Preparation

Creating a virtual machine

Start / Stop / Status

Networking

SLUUG August 2024

KVM for Beginners



SLUUG August 2024 KVM for Beginners



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SLUUG August 2024; Ken Johnson (contact-point@pobox.com)

Thank you for coming to the November Linux meeting on the third Thursday.

What is KVM?

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Other Virtual Machine software includes VirtualBox and Hyper-V

About Me

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This is when I would usually talk about the experience that qualifies me for giving this presentation.

I am a recent beginner with KVM. I will discuss why I got started with KVM recently. I will also discuss, in general terms, a practical use case that does not involve running hosting services.

Non-Goals

No demonstrations, but I will show some screenshots.

Answering advanced questions about KVM or Virtual Machines (Vms) in general.

Specifics for non-Debian systems.

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I am not opposed to Linux distributions that are not Debian-based, but all of the Linux systems I support are Debian or Debian-based, directly or indirectly.

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Other Virtual Machine software includes VirtualBox and Hyper-V

Why KVM?

I need to practice an upgrade.

Hyper-V great when it works; works ½ the time.

Licensing for VirtualBox is more complex in commercial applications.

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These reasons fall in different categories.

A customer has a Debian server that requires a complex upgrade procedure. I need to practice.

No, won't discuss why complex.

Assigned desktop system is Windows 10, but...

On systems that are domain members, with somewhat restrictive group policies, Hyper-V is difficult to use. Being Local Admin is not sufficient.

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▪

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16 GB of memory.

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Under some circumstances, you can probably get by with less than this, but it probably won't be much fun.

Software Needed

```
aptitude update
```

```
aptitude -y install qemu-system \  
libvirt-daemon-system bridge-utils \  
cpu-checker aqemu virt-manager \  
virtinst virt-viewer
```

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On Debian, these commands pulled in the packages I needed to set up and run a VM under KVM.

User Setup

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```

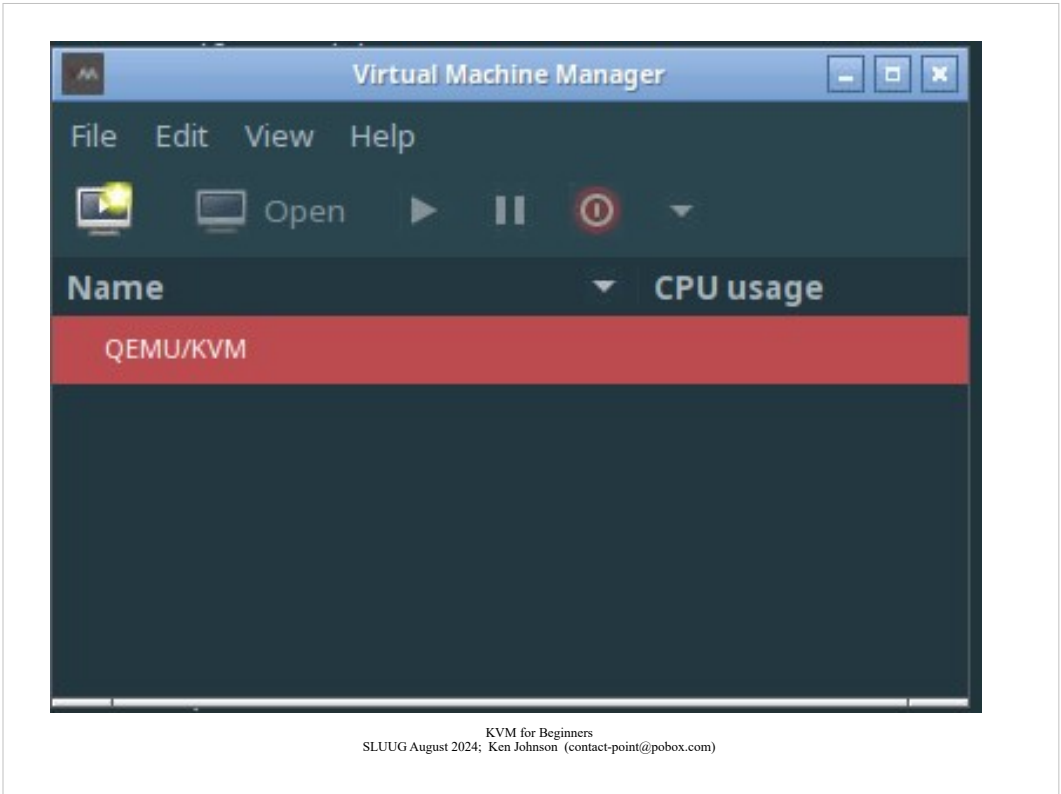
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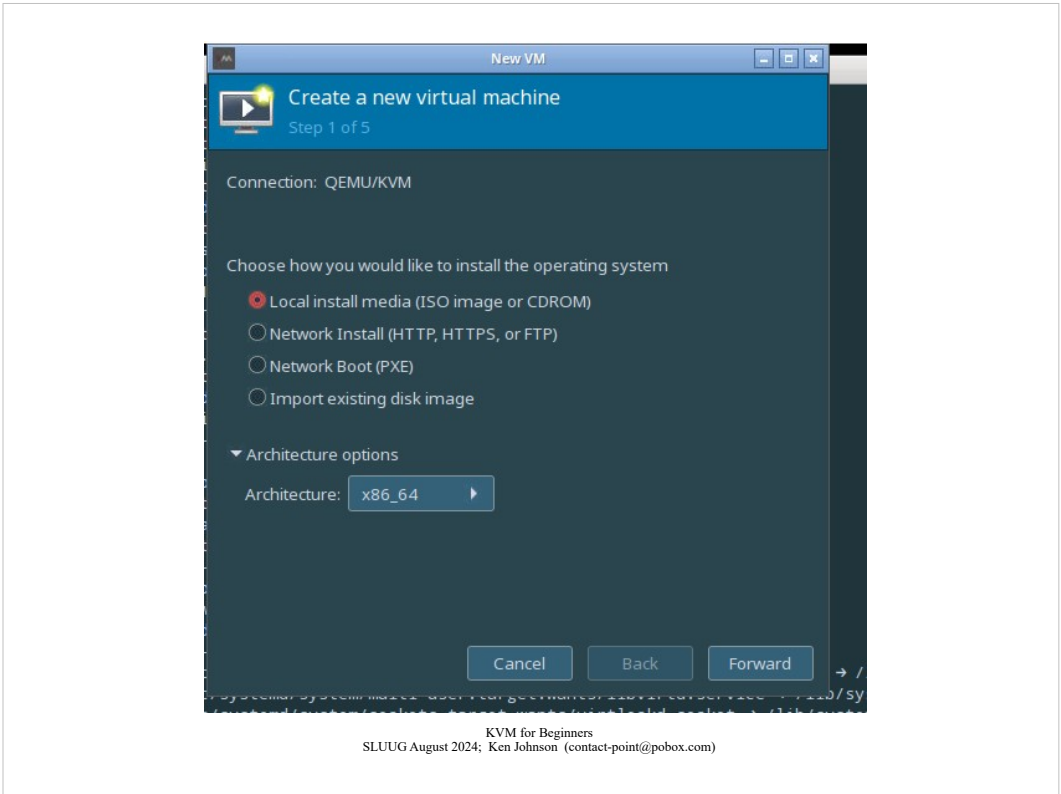
Creating a VM

Use Virtual Machine Manager (GUI application) to create Vms.

It was automatically added to menus in XFCE and Bunsenlabs OpenBox.

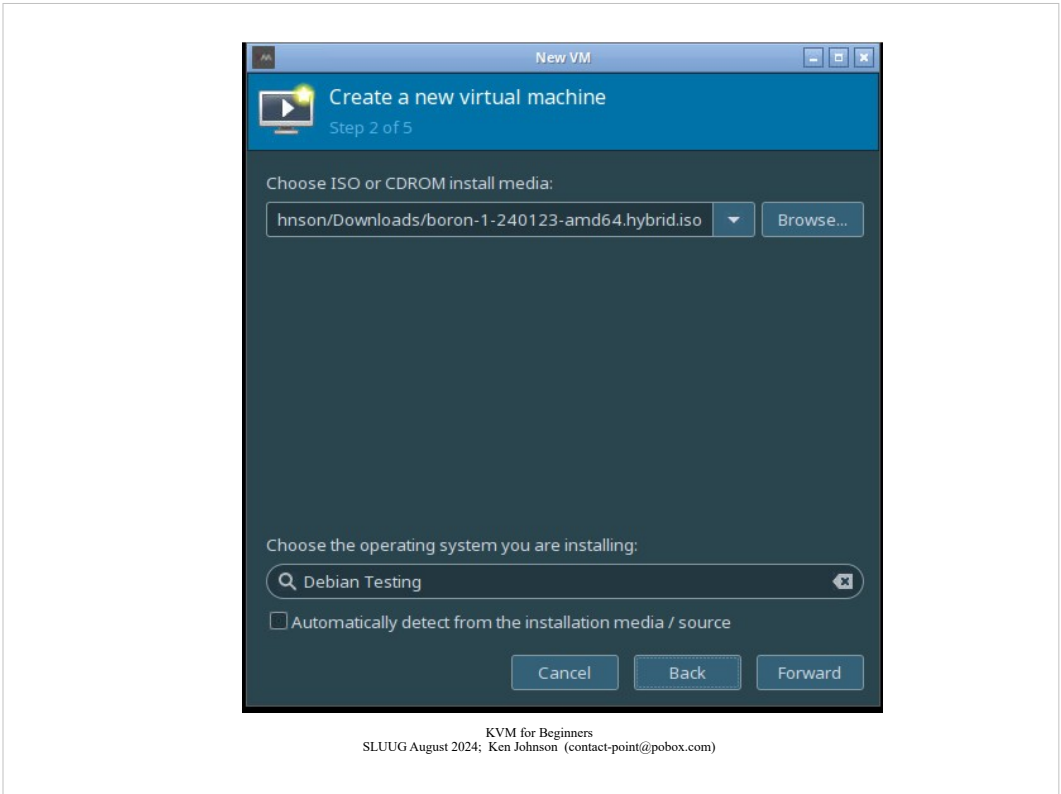


VMM base window



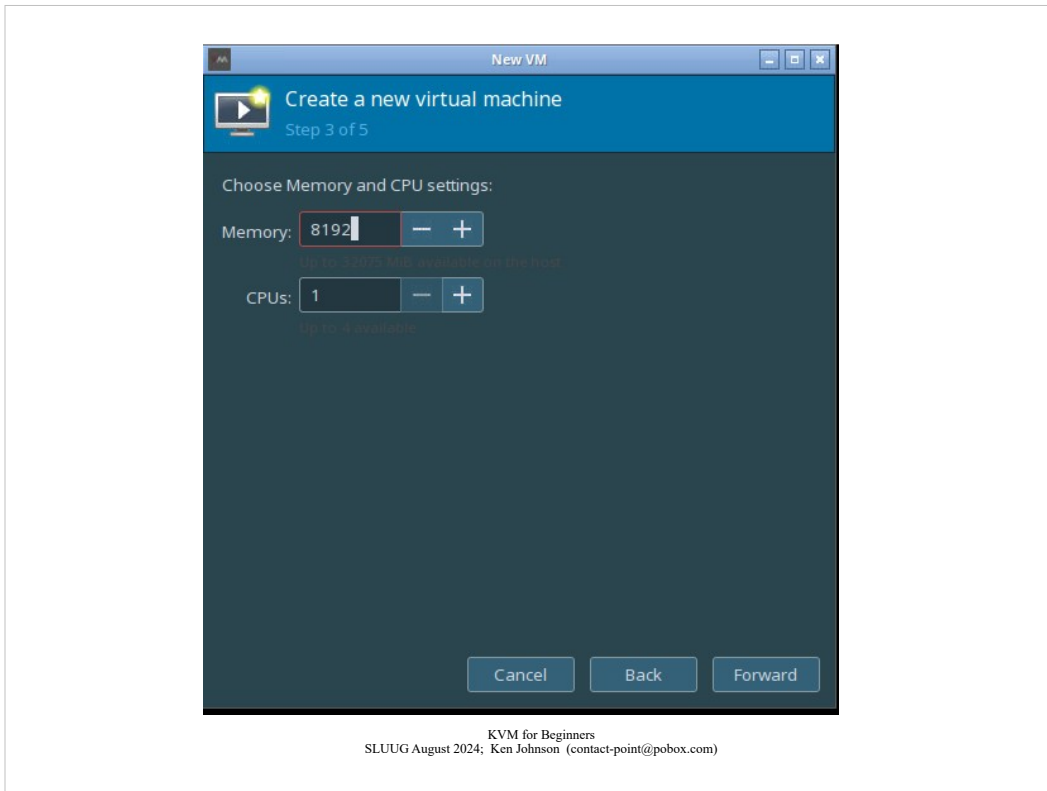
Step 1 of 5

Architecture and install media



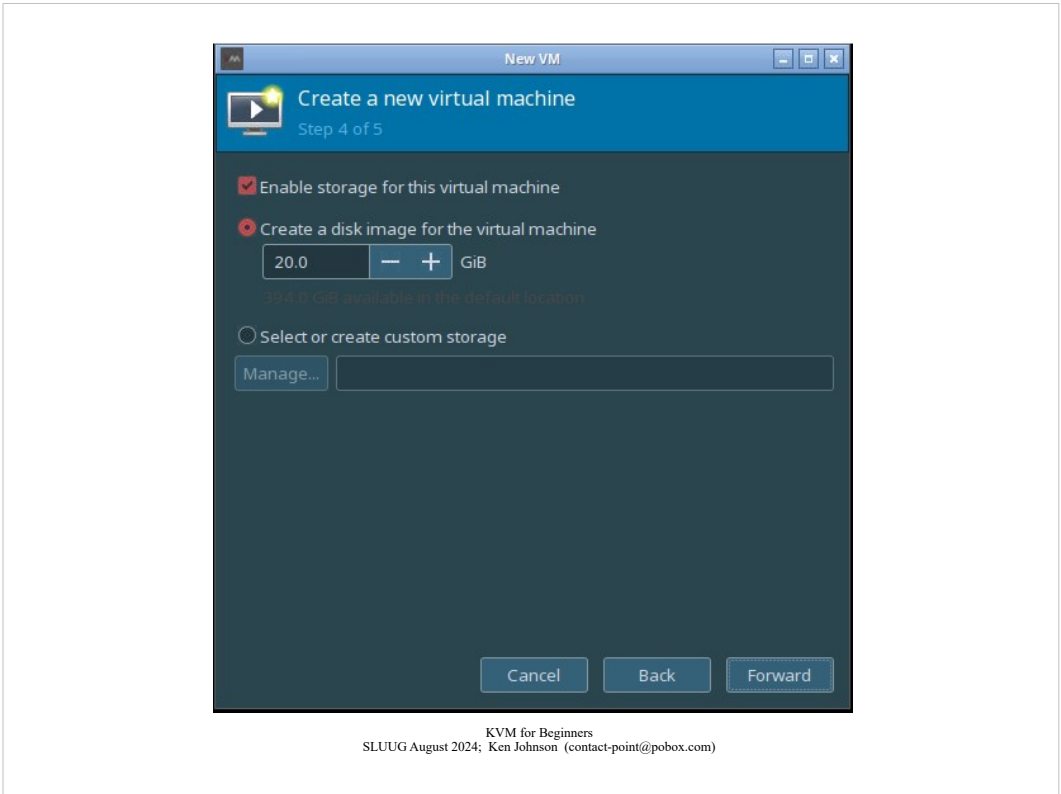
Step 2 of 5

Install media and type



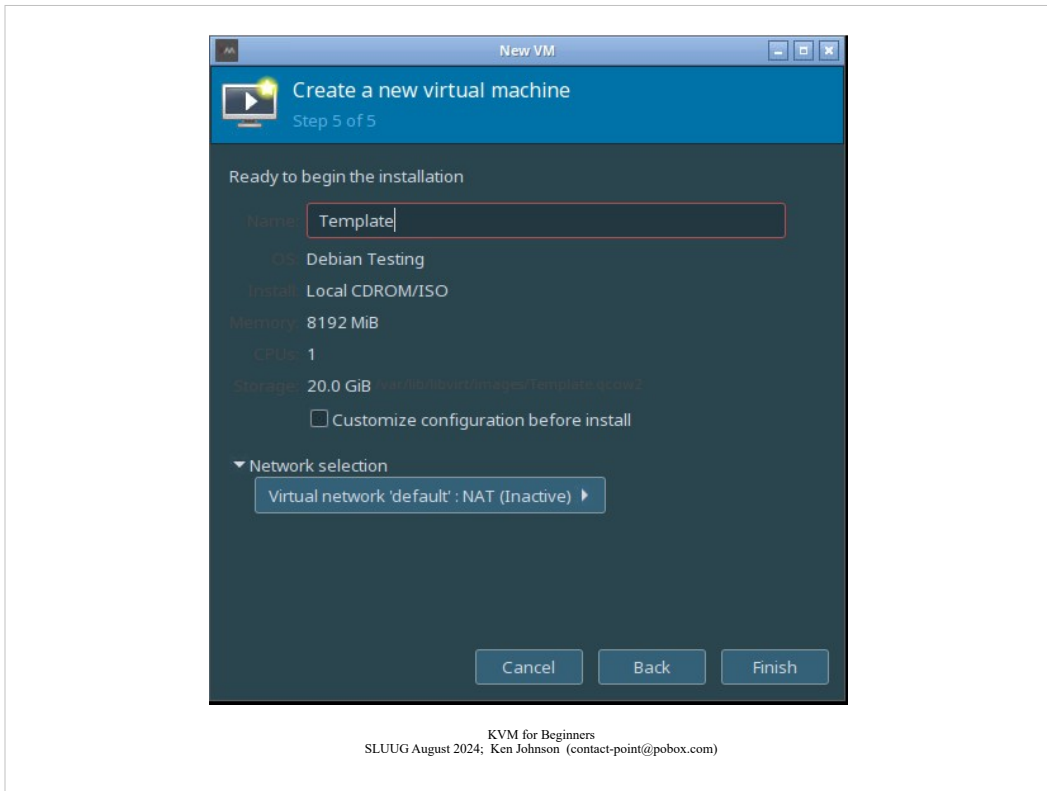
Step 3 of 5

CPU and memory



Step 4 of 5

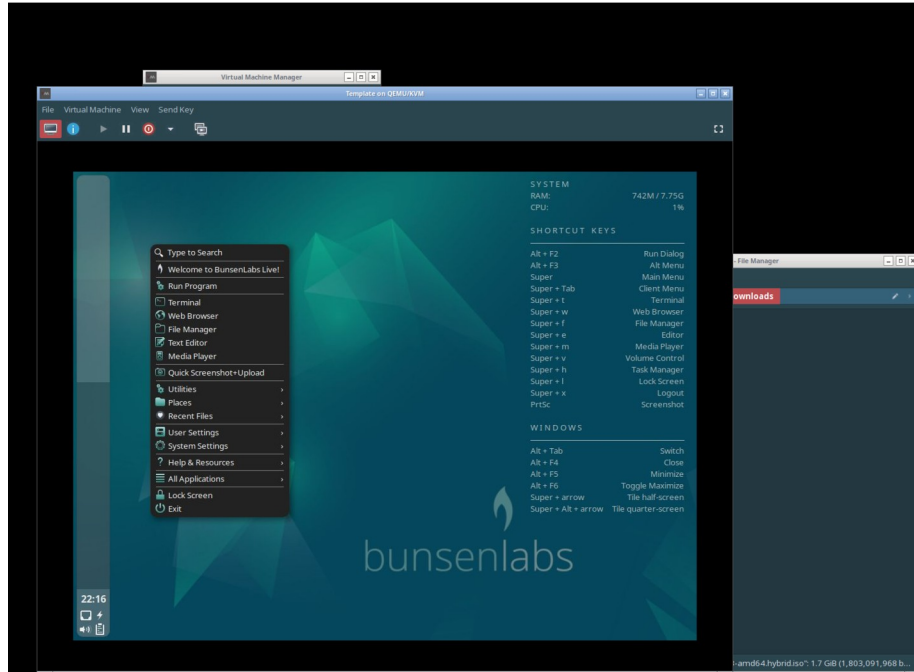
Storage



Step 5 of 5

Name

Network Selection



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This defaulted to live CD.

Start / Stop / Status

Use virsh

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Domain Template started
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Start / Stop / Status

Shutdown -h now inside VM,
then use virsh

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Domain Template is being shutdown
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```
# virsh list --all
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Id      Name          State
```

```
-----
```

```
1      Template     running
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Networking

```
#virsh net-list --all
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Name	State	Autostart	Persist
default	active	yes	yes

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#virsh net-autostart default
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... MAC address	IP address	Hostname
52:54:00:d5:c2:d1	192.168.122.87/24	debian12kvm

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#virsh commands to view or modify networking.

Default is NAT.

Autostart saves a step

.1 seems to be default for host

References

<https://wiki.debian.org/KVM>

PDF of these slides should be up soon on
SLUUG website.

Questions?

Preparation

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Start / Stop / Status

Networking

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Another chance to ask questions, with the rough outline of the presentation as a reminder.

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Thank you for coming to the August meeting on the second Wednesday. Check the SLUUG calendar for other meetings.