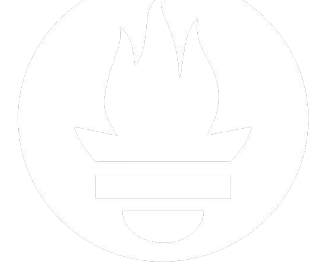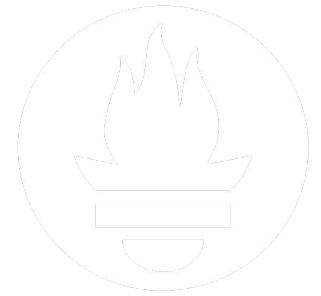# Lima

Now v1.0

PromCon
North America 2021

Linux virtual machines for running containers (typically on macOS)

- Automatic host filesystem sharing

- Automatic port forwarding

- Built-in integration for containerd

(and Docker, Podman, Kubernetes, Apptainer, ...)

```
$ brew install lima
$ limactl start
$ lima nerdctl run -p 80:80 nginx
```

How it works

- **Hypervisor**
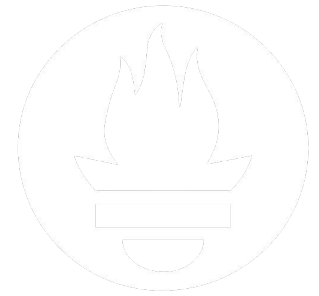 Virtualization.framework (default) or QEMU

- **Intel-on-ARM binary executor**
  Rosetta 2 (Virtualization.framework) or QEMU-user

- **Filesystem sharing**
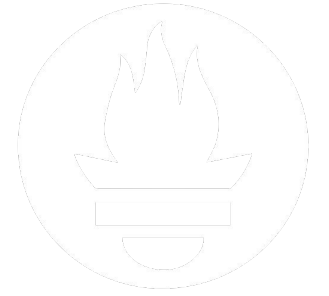 virtiofs (Virtualization.framework), virtio-9p (QEMU), or reverse-sshfs

How it works

- **Network**
  - user mode networking (default)
  - socket_vmnet (for direct access to the IP, etc. with sudo)

- **Port forwarding**
  Implemented by watching /proc/net/tcp, iptables, and Kubernetes services

Built-in templates

- **Distros**

  almalinux, alpine, archlinux, centos-stream, debian,
  opensuse, oraclelinux, rocky, ubuntu, ...

- **Container engines**

  apptainer, docker, docker-rootful, podman, podman-rootful,
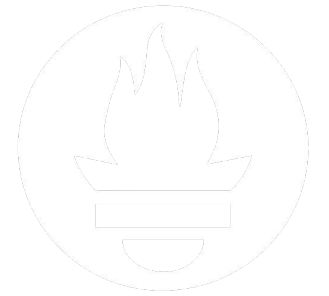 ...

- **Container orchestration**

  faasd, k3s, k8s, nomad

```
$ limactl start --name=default template://docker
```
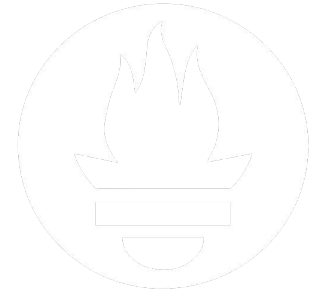
v1.0 (November 2024)

- Changed the default VM driver on macOS:
  QEMU → Virtualization.framework

- Support nested virtualization on Apple M3

- Support UDP port forwarding

- Added `limactl tunnel`: let the host join the guest network (via SOCKS)

- Bumped up containerd and nerdctl to v2

Future ideas

- Virtio-GPU Venus

- Menu-based text user interface

- UX improvement for composing multiple VMs
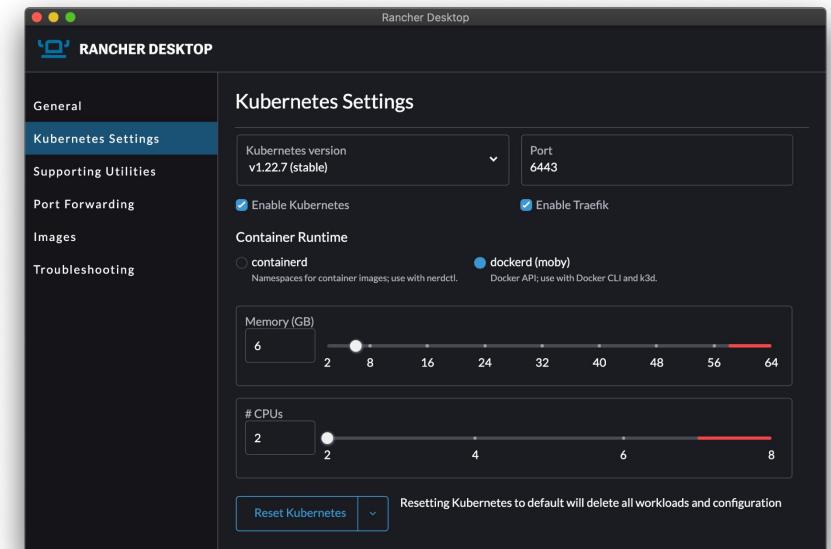
- Plugin system for supporting other VM drivers

Third party FLOSS projects based on Lima
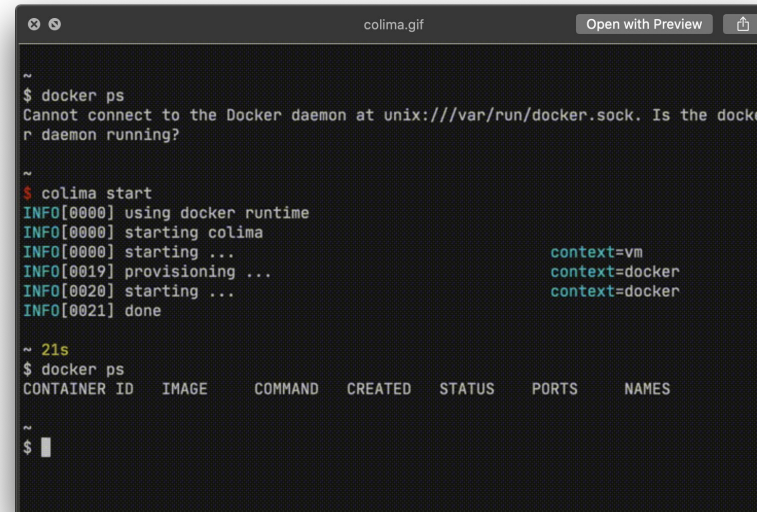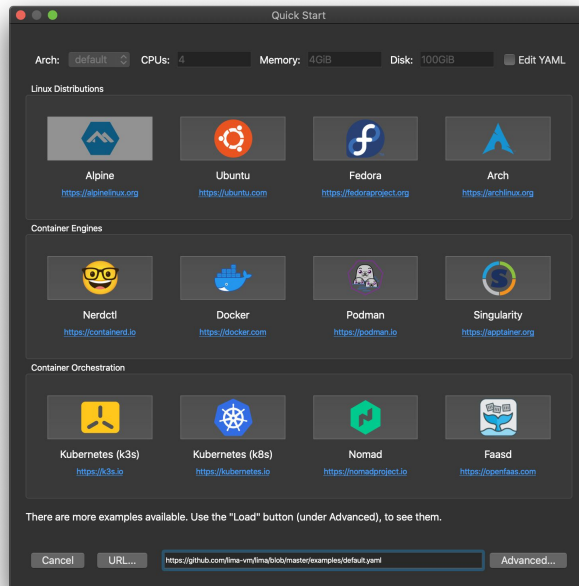
Lima-GUI	https://github.com/afbjorklund/lima-gui
Colima	https://github.com/abiosoft/colima
Rancher Desktop	https://rancherdesktop.io/
Finch	https://github.com/runfinch/finch

Join the community!

- **GitHub:** https://github.com/lima-vm/lima/

lima-vm / lima (Public)		Notifications	Fork 601	Star 15.3k
<> **Code**	⊙ Issues 276	⌥ Pull requests 28	💬 Discussions	▶ Actions

- **Slack**: https://slack.cncf.io/ (Channel: #lima)