Install Docker on Termux

`<>` answerfile

```
1   KEYMAPOPTS="us us"
2   HOSTNAMEOPTS="-n alpine"
3   INTERFACESOPTS="auto lo
4   iface lo inet loopback
5
6   auto eth0
7   iface eth0 inet dhcp
8       hostname alpine
9   "
10  TIMEZONEOPTS="-z UTC"
11  PROXYOPTS="none"
12  APKREPOSOPTS="http://dl-cdn.alpinelinux.org/alpine/v3.12/main http://dl-cdn.alpinelinux.org/alpine/v3.12/communi
13  SSHDOPTS="-c openssh"
14  NTPOPTS="-c busybox"
15  DISKOPTS="-v -m sys -s 0 /dev/sda"
```

`<>` docker-termux.md

🔗 Docker on Termux [in a VM]

Create a Linux VM and install Docker in it so you can (slowly) run x86 Docker containers on your Android device.

Recommended to use SSH or external keyboard to execute the following commands unless you want sore thumbs. See https://wiki.termux.com/wiki/Remote_Access#SSH

- Install QEMU

  ```
  pkg install qemu-utils qemu-common qemu-system-x86_64-headless
  ```

- Download Alpine Linux 3.12 (virt optimized) ISO

  ```
  mkdir alpine && cd $_
  wget http://dl-cdn.alpinelinux.org/alpine/v3.12/releases/x86_64/alpine-virt-3.12.3-
  x86_64.iso
  ```

- Create disk (note it won't actually take 4GB of space, more like 500MB)

  ```
  qemu-img create -f qcow2 alpine.img 4G
  ```

- Boot it up

  ```
  qemu-system-x86_64 -machine q35 -m 1024 -smp cpus=2 -cpu qemu64 \
    -drive if=pflash,format=raw,read-only,file=$PREFIX/share/qemu/edk2-x86_64-code.fd \
    -netdev user,id=n1,hostfwd=tcp::2222-:22 -device virtio-net,netdev=n1 \
  ```

```
    -cdrom alpine-virt-3.12.3-x86_64.iso \
    -nographic alpine.img
```

- Login with user `root` (no password)

- Setup network (press Enter to use defaults):

```
localhost:~# setup-interfaces
Available interfaces are: eth0.
Enter '?' for help on bridges, bonding and vlans.
Which one do you want to initialize? (or '?' or 'done') [eth0]
Ip address for eth0? (or 'dhcp', 'none', '?') [dhcp]
Do you want to do any manual network configuration? [no]
localhost:~# ifup eth0
```

- Create an answerfile to speed up installation:

```
localhost:~# wget
https://gist.githubusercontent.com/oofnikj/e79aef095cd08756f7f26ed244355d62/raw/answerfile
```

- Patch `setup-disk` to enable serial console output on boot

```
localhost:~# sed -i -E 's/(local kernel_opts)=.*/\1="console=ttyS0"/' /sbin/setup-disk
```

- Run setup to install to disk

```
localhost:~# setup-alpine -f answerfile
```

- Once installation is complete, power off the VM (command `poweroff`) and boot again without cdrom:

```
qemu-system-x86_64 -machine q35 -m 1024 -smp cpus=2 -cpu qemu64 \
  -drive if=pflash,format=raw,read-only,file=$PREFIX/share/qemu/edk2-x86_64-code.fd \
  -netdev user,id=n1,hostfwd=tcp::2222-:22 -device virtio-net,netdev=n1 \
  -nographic alpine.img
```

- Install docker and enable on boot:

```
alpine:~# apk update && apk add docker
alpine:~# service docker start
alpine:~# rc-update add docker
```

- Useful keys:

  - Ctrl+a x: quit emulation
  - Ctrl+a h: toggle QEMU console

Load earlier comments...

ElaXan commented on Oct 16, 2022

Awesome buddy 😋

egandro commented on Oct 24, 2022

> How to access storage?

You need to read the documentation of qemu (Really - this is just non working sample code and I won't read the documentation for you...)

```
qemu-system-x86_64 \
    -net user,smb=/absolute/path/to/folder \
  ...
```

Inside of qemu, mount via samba. Good luck.

---

subhashisbhowmik commented on Oct 29, 2022

> when i try to boot it up i get a `Illegal instruction` error.
>
> Any idea on this?

Facing the same issue here. Can someone help?

---

subhashisbhowmik commented on Oct 30, 2022

I'm getting an illegal instruction error when booting up. I tried **@bdwandry**'s img file as well (removed the cdrom option/tried his .sh script), both result in the same (weirdly, if my qemu command is from a script, the shell doesn't echo back the stdin anymore after the error, I have to reset the shell to fix it, doesn't happen if I type out the qemu command). I am suspecting that this has something to do with the pflash file. Tried installing ovmf, tried upgrading packages, reinstalling qemu. Nothing worked so far. Any help would be appreciated.

Device: S22 Ultra Snapdragon
Android 13 (5.10.81-android12-9-25281987-abS908EXXU2BVJA)
Termux v0.118.0 Github
Supported ABIs: arm64-v8a, armeabi-v7a, armeabi

---

vjburic1 commented on Nov 7, 2022 • edited ▾

I followed instructions but I had no internet. The command for creating network interfaces would give me errors.

Then I tried ifup eth0 and got the following message: ifup: can't open '/etc/network/interfaces': No such file or directory

That meant the file didn't exits! Simple fix: just enter touch /etc/network/interfaces

This creates the neccessary file and the command to create interfaces works and ifup eth0 now initializes it!

Saikatsaha1996 commented on Nov 7, 2022

> I followed instructions but I had no internet. The command for creating network interfaces would give me errors.
>
> Then I tried ifup eth0 and got the following message: ifup: can't open '/etc/network/interfaces': No such file or directory
>
> That meant the file didn't exits! Simple fix: just enter touch /etc/network/interfaces
>
> This creates the neccessary file and the command to create interfaces works and ifup eth0 now initializes it!

Everyone use this one

https://github.com/sylirre/vmConsole

Very lite and virtual machine

YashIndane commented on Nov 11, 2022

```
# service start docker
```

Above command works fine and docker daemon also runs, but if I run any docker commands I get **Cannot connect to the Docker daemon at unix:///var/run/docker.sock. Is the docker daemon running?**

Also did this -

```
# /usr/bin/dockerd
```

It throws error -

WARN[2022-11-11T18:53:34.552116680Z] grpc: addrConn.createTransport failed to connect to {unix:///var/run/docker/containerd/containerd.sock 0 }. Err :connection error: desc = "transport: error while dialing: dial unix:///var/run/docker/containerd/containerd.sock: timeout". Reconnecting... module=grpc

ANY HELP WOULD BE APPRECIATED!

Saikatsaha1996 commented on Nov 11, 2022

> ```
> # service start docker
> ```
>
> Above command works fine and docker daemon also runs, but if I run any docker commands I get **Cannot connect to the Docker daemon at unix:///var/run/docker.sock. Is the docker daemon running?**
>
> Also did this -
>
> ```
> # /usr/bin/dockerd
> ```
>
> It throws error -
>
> **WARN[2022-11-11T18:53:34.552116680Z] grpc: addrConn.createTransport failed to connect to {unix:///var/run/docker/containerd/containerd.sock 0 }. Err :connection error: desc = "transport: error while dialing: dial unix:///var/run/docker/containerd/containerd.sock: timeout". Reconnecting... module=grpc**
>
> ANY HELP WOULD BE APPRECIATED!

Use this one
https://github.com/sylirre/vmConsole

YashIndane commented on Nov 12, 2022 • edited ▾

Use this one https://github.com/sylirre/vmConsole

@Saikatsaha1996 Thanks, this works, but In this the VM is not getting ip address like **192.168.x.x** so that I can ssh. How to do that?

Saikatsaha1996 commented on Nov 12, 2022

> Use this one https://github.com/sylirre/vmConsole
>
> **@Saikatsaha1996** Thanks, this works, but In this the VM is not getting ip address like **192.168.x.x** so that I can ssh. How to do that?

Please ask here `https://github.com/sylirre/vmConsole/issues`

---

fran6120 commented on Nov 17, 2022 • edited ▾

It works fine on a OnePlus 5 with Termux 0.118.0 (118) F-Droid, but it takes a long time to start and the containers feel very slow.

```
Welcome to Termux!

Community forum: https://termux.com/community
Gitter chat:    https://gitter.im/termux/termux
IRC channel:    #termux on libera.chat

Working with packages:

 * Search packages:   pkg search <query>
 * Install a package: pkg install <package>
 * Upgrade packages:  pkg upgrade

Subscribing to additional repositories:

 * Root:     pkg install root-repo
 * X11:      pkg install x11-repo

Report issues at https://termux.com/issues

~ $ cd alpine
qemu-system-x86_64 -machine q35 -m 2048 -smp cpus=4 -cpu qemu64 \
  -drive if=pflash,format=raw,read-only=on,file=$PREFIX/share/qemu/edk2-x86_64-code.fd \
  -netdev
user,id=n1,hostfwd=tcp::8123-:8123,hostfwd=tcp::9000-:9000,hostfwd=tcp::6052-:6052,hostfwd=tcp::49154-:491!
\
  -device virtio-net,netdev=n1 \
  -nographic alpine_2.qcow2
BdsDxe: failed to load Boot0001 "UEFI QEMU DVD-ROM QM00005 " from
PciRoot(0x0)/Pci(0x1F,0x2)/Sata(0x2,0xFFFF,0x0): Not Found
BdsDxe: loading Boot0002 "UEFI QEMU HARDDISK QM00001 " from
PciRoot(0x0)/Pci(0x1F,0x2)/Sata(0x0,0xFFFF,0x0)
BdsDxe: starting Boot0002 "UEFI QEMU HARDDISK QM00001 " from
PciRoot(0x0)/Pci(0x1F,0x2)/Sata(0x0,0xFFFF,0x0)
Welcome to GRUB!


Welcome to Alpine Linux 3.16
Kernel 5.15.78-0-virt on an x86_64 (/dev/ttyS0)

alpineop5 login: root
Password:
Welcome to Alpine!

The Alpine Wiki contains a large amount of how-to guides and general
information about administrating Alpine systems.
See <http://wiki.alpinelinux.org/>.

You can setup the system with the command: setup-alpine

You may change this message by editing /etc/motd.

alpineop5:~# docker ps
CONTAINER ID   IMAGE                                        COMMAND              CREATED
STATUS                     PORTS                                               NAMES
b302dadea6a2   ghcr.io/home-assistant/home-assistant:latest   "/init"           44 minutes ago
Up 2 minutes
homeassistant
e59c38ef7d00   causticlab/hass-configurator-docker:latest   "/app/run.sh"         51 minutes ago
Up 13 seconds                  0.0.0.0:3218->3218/tcp, :::3218->3218/tcp
configurador-hass-configurator-1
a37544f8da52   esphome/esphome                              "/entrypoint.sh dash…"  5 hours ago
Up 2 minutes
esphome
b7ea2ae49547   filebrowser/filebrowser:latest               "/filebrowser --noau…"  5 hours ago
Up 13 seconds (health: starting)   0.0.0.0:49154->80/tcp, :::49154->80/tcp
archivos-filebrowser-1
645d8e7d288e   portainer/portainer-ce:latest                "/portainer"          5 hours ago
Up 58 seconds                  8000/tcp, 9443/tcp, 0.0.0.0:9000->9000/tcp, :::9000->9000/tcp
portainer
alpineop5:~#
```

Itsfadixx commented on Nov 19, 2022

same

szcharlesji commented on Nov 19, 2022

It works for me on OnePlus 5. Is there a way to log into the alpine vm without restarting it each time? Thanks!

fran6120 commented on Nov 19, 2022

> It works for me on OnePlus 5. Is there a way to log into the alpine vm without restarting it each time? Thanks!

If you only want to run docker and not use android apps the best solution is move from android to postmarketos (Alpine Linux distro) and run docker natively.

DeicPro commented on Mar 3

I tried default commands and modified with updated Alpine and don't get internet :(

```
localhost:~# ifup eth0
udhcpc: started, v1.31.1
udhcpc: sending discover
udhcpc: sending select for 10.0.2.15
udhcpc: lease of 10.0.2.15 obtained, lease time 86400
localhost:~# wget https://gist.githubusercontent.com/oofnikj/e79aef095cd08756f7f
26ed244355d62/raw/answerfile
wget: bad address 'gist.githubusercontent.com'
```

DeicPro commented on Mar 4 • edited ▾

> I tried default commands and modified with updated Alpine and don't get internet :(
>
> ```
> localhost:~# ifup eth0
> udhcpc: started, v1.31.1
> udhcpc: sending discover
> udhcpc: sending select for 10.0.2.15
> udhcpc: lease of 10.0.2.15 obtained, lease time 86400
> localhost:~# wget https://gist.githubusercontent.com/oofnikj/e79aef095cd08756f7f
> 26ed244355d62/raw/answerfile
> wget: bad address 'gist.githubusercontent.com'
> ```

Well the issue was the DNS settings, because doing ping to IPs instead domains is a check of that internet works. For some reason, eth0 router IP doesn't link correctly the real router IP, and then can't get the DNS of it... So the fix is as easy as set manually the IP of your router and/or optionally a DNS IP of your choice (for example Cloudflare DNS):

```
echo "nameserver 192.168.1.1
nameserver 1.1.1.1" > /etc/resolv.conf
```

It's important to configure eth0 as manual instead dhcp, because this file will be overwrote with default values everytime the network is restarted. More info here

Nothig00 commented on Mar 14 • edited ▾

```
alpine:~# apk update
fetch http://dl-cdn.alpinelinux.org/alpine/v3.12/main/x86_64/APKINDEX.tar.gz
ERROR: http://dl-cdn.alpinelinux.org/alpine/v3.12/main: temporary error (try again later)
fetch http://dl-cdn.alpinelinux.org/alpine/v3.12/community/x86_64/APKINDEX.tar.gz
ERROR: http://dl-cdn.alpinelinux.org/alpine/v3.12/community: temporary error (try again later)
v3.12.12-45-g8116a127ec [http://dl-cdn.alpinelinux.org/alpine/v3.12/main]
v3.12.12-46-g1df69604c4 [http://dl-cdn.alpinelinux.org/alpine/v3.12/community]
2 errors; 12763 distinct packages available
alpine:~# curl -v -s http://dl-cdn.alpinelinux.org/alpine/edge/main/x86_64/APKIN
DEX.tar.gz > /dev/null
-ash: curl: not found
alpine:~# apk add curl
(1/16) Installing ca-certificates (20220614-r0)
ERROR: ca-certificates-20220614-r0: temporary error (try again later)
(2/16) Installing nghttp2-libs (1.41.0-r0)
ERROR: nghttp2-libs-1.41.0-r0: temporary error (try again later)
(3/16) Installing libcurl (7.79.1-r1)
ERROR: libcurl-7.79.1-r1: temporary error (try again later)
(4/16) Installing curl (7.79.1-r1)
ERROR: curl-7.79.1-r1: temporary error (try again later)
(5/16) Installing libseccomp (2.4.4-r0)
ERROR: libseccomp-2.4.4-r0: temporary error (try again later)
(6/16) Installing runc (1.0.0_rc95-r0)
ERROR: runc-1.0.0_rc95-r0: temporary error (try again later)
(7/16) Installing containerd (1.4.4-r0)
```

Error which all ready have solved gliderlabs/docker-alpine#334 (comment) but I'm confused about command.

And one more littel help how can i setup this for selenium python.

DeicPro commented on Mar 19 · edited ▾

```
alpine:~# apk update
fetch http://dl-cdn.alpinelinux.org/alpine/v3.12/main/x86_64/APKINDEX.tar.gz
ERROR: http://dl-cdn.alpinelinux.org/alpine/v3.12/main: temporary error (try again later)
fetch http://dl-cdn.alpinelinux.org/alpine/v3.12/community/x86_64/APKINDEX.tar.gz
ERROR: http://dl-cdn.alpinelinux.org/alpine/v3.12/community: temporary error (try again later)
v3.12.12-45-g8116a127ec [http://dl-cdn.alpinelinux.org/alpine/v3.12/main]
v3.12.12-46-g1df69604c4 [http://dl-cdn.alpinelinux.org/alpine/v3.12/community]
2 errors; 12763 distinct packages available
alpine:~# curl -v -s http://dl-cdn.alpinelinux.org/alpine/edge/main/x86_64/APKIN
DEX.tar.gz > /dev/null
-ash: curl: not found
alpine:~# apk add curl
(1/16) Installing ca-certificates (20220614-r0)
ERROR: ca-certificates-20220614-r0: temporary error (try again later)
(2/16) Installing nghttp2-libs (1.41.0-r0)
ERROR: nghttp2-libs-1.41.0-r0: temporary error (try again later)
(3/16) Installing libcurl (7.79.1-r1)
ERROR: libcurl-7.79.1-r1: temporary error (try again later)
(4/16) Installing curl (7.79.1-r1)
ERROR: curl-7.79.1-r1: temporary error (try again later)
(5/16) Installing libseccomp (2.4.4-r0)
ERROR: libseccomp-2.4.4-r0: temporary error (try again later)
(6/16) Installing runc (1.0.0_rc95-r0)
ERROR: runc-1.0.0_rc95-r0: temporary error (try again later)
(7/16) Installing containerd (1.4.4-r0)
```

Error which all ready have solved gliderlabs/docker-alpine#334 (comment) but I'm confused about command.

And one more littel help how can i setup this for selenium python.

```
setup-interfaces
ifup -a
setup-interfaces
echo 1.1.1.1 > /etc/resolv.conf
```

Only press enter in all setup-interfaces questions.

DeicPro commented on Mar 19 • edited ▾

@oofnikj add `DNSOPTS="1.1.1.1"` to the answer file to fix DNS issue and change `APKREPOSOPTS` to:

```
APKREPOSOPTS="http://dl-cdn.alpinelinux.org/alpine/latest-stable/main http://dl-
cdn.alpinelinux.org/alpine/latest-stable/community"
```

alick97 commented on Mar 25 • edited ▾

when setup-disk error and not installed to alpine.img, you can run qemu with -hda alpine.img and export
ERASE_DISKS=/dev/sda before setup-alpine

directentis1 commented on Mar 31 • edited ▾

Is it works on proot (fake root) on some interactive shells?

Everything is okay until the boot qemu step, i got this error: `qemu-system-x86_64: -drive if=pflash,format=raw,read-only,file=/usr/share/qemu/edk2-x86_64-code.fd: Could not open '/usr/share/qemu/edk2-x86_64-code.fd': No such file or directory`

btw, I can't install `qemu-common qemu-system-x86_64-headless` with proot on my debian machine.

sdshan8 commented on Apr 1 • edited ▾

> Is it works on proot (fake root) on some interactive shells?
>
> Everything is okay until the boot qemu step, i got this error: `qemu-system-x86_64: -drive if=pflash,format=raw,read-only,file=/usr/share/qemu/edk2-x86_64-code.fd: Could not open '/usr/share/qemu/edk2-x86_64-code.fd': No such file or directory`
>
> btw, I can't install `qemu-common qemu-system-x86_64-headless` with proot on my debian machine.

Try Installing qemu-system-x86_64-headless in termux then using `/data/data/com.termux/files/usr/share/qemu/edk2-x86_64-code.fd` instead of `/usr/share/qemu/edk2-x86_64-code.fd`

directentis1 commented on Apr 2

> Is it works on proot (fake root) on some interactive shells?
> Everything is okay until the boot qemu step, i got this error: `qemu-system-x86_64: -drive if=pflash,format=raw,read-only,file=/usr/share/qemu/edk2-x86_64-code.fd: Could not open '/usr/share/qemu/edk2-x86_64-code.fd': No such file or directory`
> btw, I can't install `qemu-common qemu-system-x86_64-headless` with proot on my debian machine.
>
> Try Installing qemu-system-x86_64-headless in termux then using
> `/data/data/com.termux/files/usr/share/qemu/edk2-x86_64-code.fd` instead of `/usr/share/qemu/edk2-x86_64-code.fd`

Umm, but I mean I'm using Interactive Shells from Amazon Cloud9, I don't have root privileges on it so wondering is it possible to install Docker via proot?

Joanvoo commented on Apr 4 • edited ▾

i have no internet why?

localhost:~# ~~ifup eth0~~
~~udhcpc: started, v1.31.1~~
~~udhcpc: sending discover~~
~~udhcpc: sending select for 10.0.2.15~~
~~udhcpc: lease of 10.0.2.15 obtained, lease time 86400~~
~~localhost:~#~~ wget https://gist.githubusercontent.com/oofnikj/e79aef095cd08756f7f
26ed244355d62/raw/answerfile
wget: bad address 'gist.githubusercontent.com'
edit:
This network setting work for me:
localhost: # echo -e "auto lo\niface lo inet loopback\nauto eth0\niface eth0 inet dhcp" > /etc/network/interfaces
localhost: # /etc/init.d/networking restart
localhost:~# echo nameserver 1.1.1.1 > /etc/resolv.conf
nameserver 8.8.8.8 does not work for me

---

sdshan8 commented on Apr 5

> Is it works on proot (fake root) on some interactive shells?
> Everything is okay until the boot qemu step, i got this error: `qemu-system-x86_64: -drive`
> `if=pflash,format=raw,read-only,file=/usr/share/qemu/edk2-x86_64-code.fd: Could not open`
> `'/usr/share/qemu/edk2-x86_64-code.fd': No such file or directory`
> btw, I can't install `qemu-common qemu-system-x86_64-headless` with proot on my debian machine.
>
> Try Installing qemu-system-x86_64-headless in termux then using
> ` /data/data/com.termux/files/usr/share/qemu/edk2-x86_64-code.fd` instead of `/usr/share/qemu/edk2-x86_64-code.fd`

> Umm, but I mean I'm using Interactive Shells from Amazon Cloud9, I don't have root privileges on it so wondering is it possible to install Docker via proot?

i cant help with that, try copying the edk2 file to the interactive shell somehow

---

RedstoneWizard08 commented on Apr 5

> i have no internet why?
>
> localhost:~# ~~ifup eth0 udhcpc: started, v1.31.1 udhcpc: sending discover udhcpc: sending select for 10.0.2.15 udhcpc: lease of 10.0.2.15 obtained, lease time 86400 localhost:~#~~ wget https://gist.githubusercontent.com/oofnikj/e79aef095cd08756f7f 26ed244355d62/raw/answerfile wget: bad address 'gist.githubusercontent.com'

Yea same here

```
localhost:~# ifup -a
udhcpc: started, v1.35.0
udhcpc: broadcasting discover
udhcpc: broadcasting select for 10.0.2.15, server 10.0.2.2
udhcpc: lease of 10.0.2.15 obtained from 10.0.2.2, lease time 86400
localhost:~# wget google.com
wget: bad address 'google.com'
```

---

reski-rukmantiyo commented on May 12

> i have no internet why?
> localhost:~# ~~ifup eth0 udhcpc: started, v1.31.1 udhcpc: sending discover udhcpc: sending select for 10.0.2.15 udhcpc: lease of 10.0.2.15 obtained, lease time 86400 localhost:~#~~ wget https://gist.githubusercontent.com/oofnikj/e79aef095cd08756f7f 26ed244355d62/raw/answerfile wget: bad address 'gist.githubusercontent.com'

Yea same here

```
localhost:~# ifup -a
udhcpc: started, v1.35.0
udhcpc: broadcasting discover
udhcpc: broadcasting select for 10.0.2.15, server 10.0.2.2
udhcpc: lease of 10.0.2.15 obtained from 10.0.2.2, lease time 86400
localhost:~# wget google.com
wget: bad address 'google.com'
```

change your dns into your own. scroll up

---

rahuls360 commented on May 13

To debug/resolve the DNS issues follow the below steps. Hope it saves someone else few hours

`ping 8.8.8.8` -> Worked for me
`ping google.com` -> Failed for me
Edit DNS file -> `vm etc/resolv.conf` -> Add google's DNS on 2nd line `nameserver 8.8.8.8` (it doesn't work, try other DNS)
`ping google.com` will work now
`ping gist.githubusercontent.com` will also work
Continue with next steps

---

chenoi commented on May 15

Hi...after reboot all the setup answerfile, interface eth0 setup ....everything gone and I have to gone thru the whole process and once again after 'Once installation is complete, power off the VM (command poweroff) and boot again without cdrom:' everything gone....need some advise here to make it persistent. Thanks

---

bassem-saeed commented on May 16

After following these instructions I will be able to use docker and access device folder at the same time?
(device folders like `/storage/emulated/0/`