

Duckbot Setup

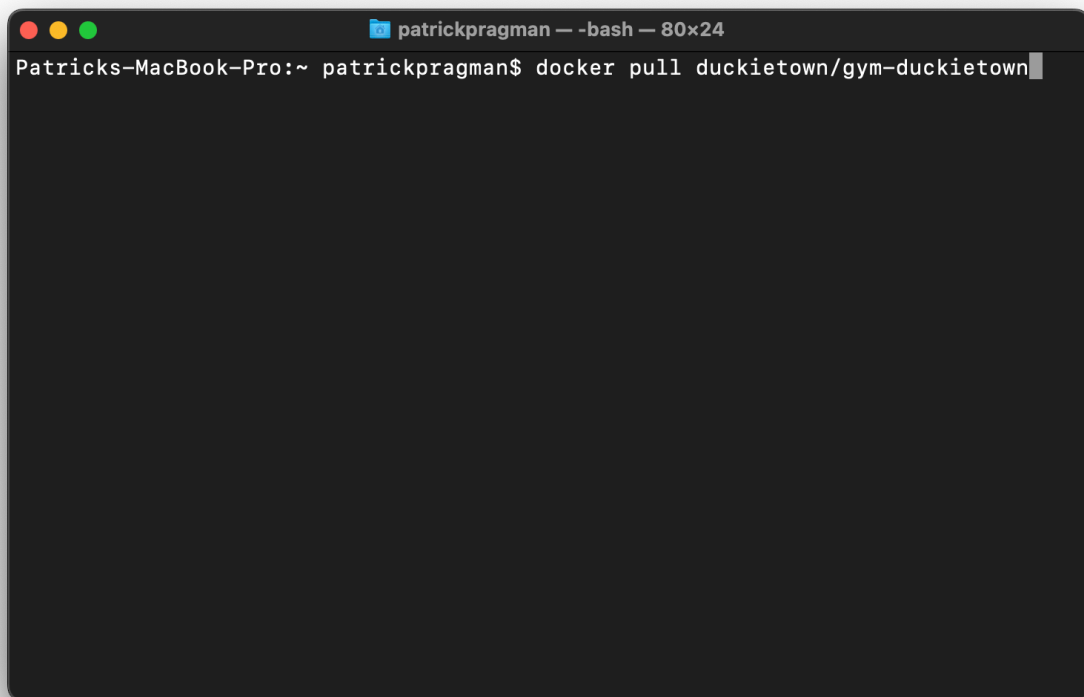
Mac instructions

first install docker on your local machine

Install docker - this is straight forward on macOS and windows apparently, not super straight-forward on popOs!

pull down the duckietown gym from dh

docker pull duckietown/gym-duckietown

A screenshot of a macOS terminal window. The title bar at the top shows three colored window control buttons (red, yellow, green) on the left, followed by a folder icon and the text "patrickpragman — -bash — 80x24". The terminal content shows the prompt "Patricks-MacBook-Pro:~ patrickpragman\$" followed by the command "docker pull duckietown/gym-duckietown" which has been executed, as indicated by a cursor at the end of the line.

```
Patricks-MacBook-Pro:~ patrickpragman$ docker pull duckietown/gym-duckietown
```

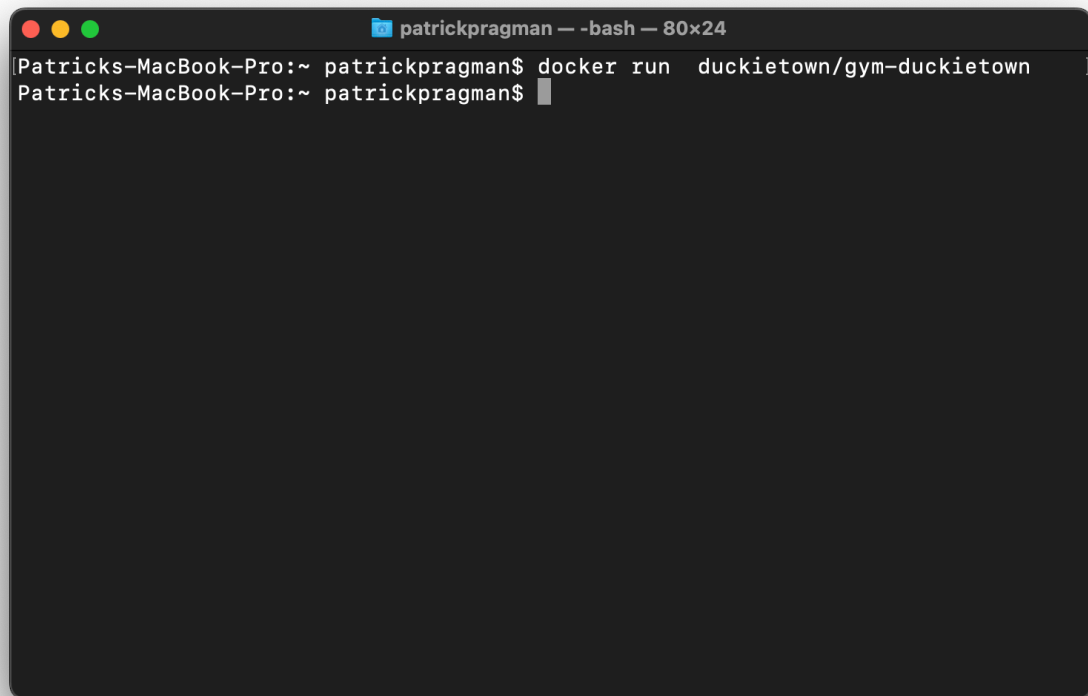
It's big so don't panic if it takes a while

```
patrickpragman — com.docker.cli • docker pull duckietown/gym-duckietown — 80x24
Patricks-MacBook-Pro:~ patrickpragman$ docker pull duckietown/gym-duckietown
Using default tag: latest
latest: Pulling from duckietown/gym-duckietown
23884877105a: Downloading 23.35MB/26.69MB
bc38caa0f5b9: Download complete
2910811b6c42: Download complete
36505266dcc6: Download complete
3472d01858ba: Downloading 799.2kB/15.25MB
4a98b57681ff: Waiting
f3b419d1e6d5: Waiting
7f70ab879651: Waiting
4241c2e51b08: Waiting
fd9079390368: Waiting
014a36b57276: Waiting
0b3642265631: Waiting
```

The easiest way to get into the container is to go to docker desktop now - it should have installed as part of installing docker.

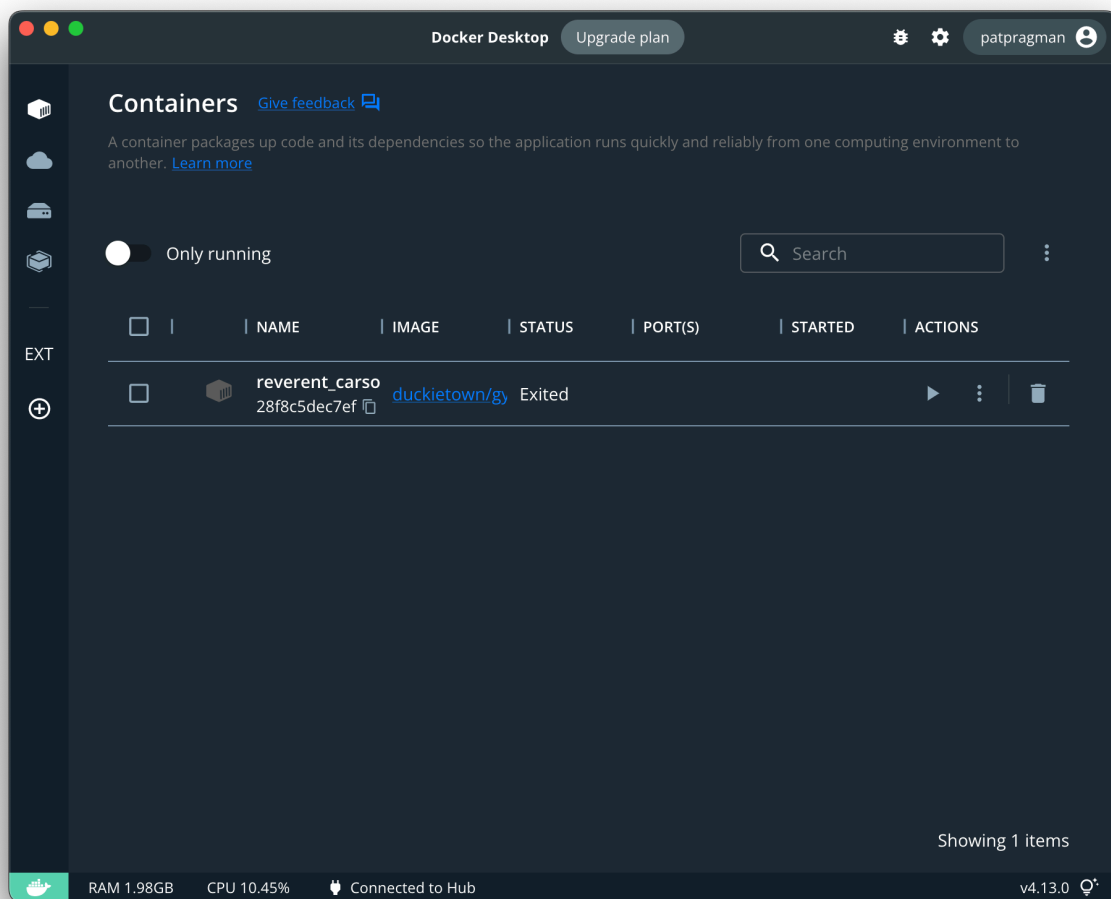
On linux it's a little different, let me know if you have any trouble, but I did get running on popOs.

First run the container:

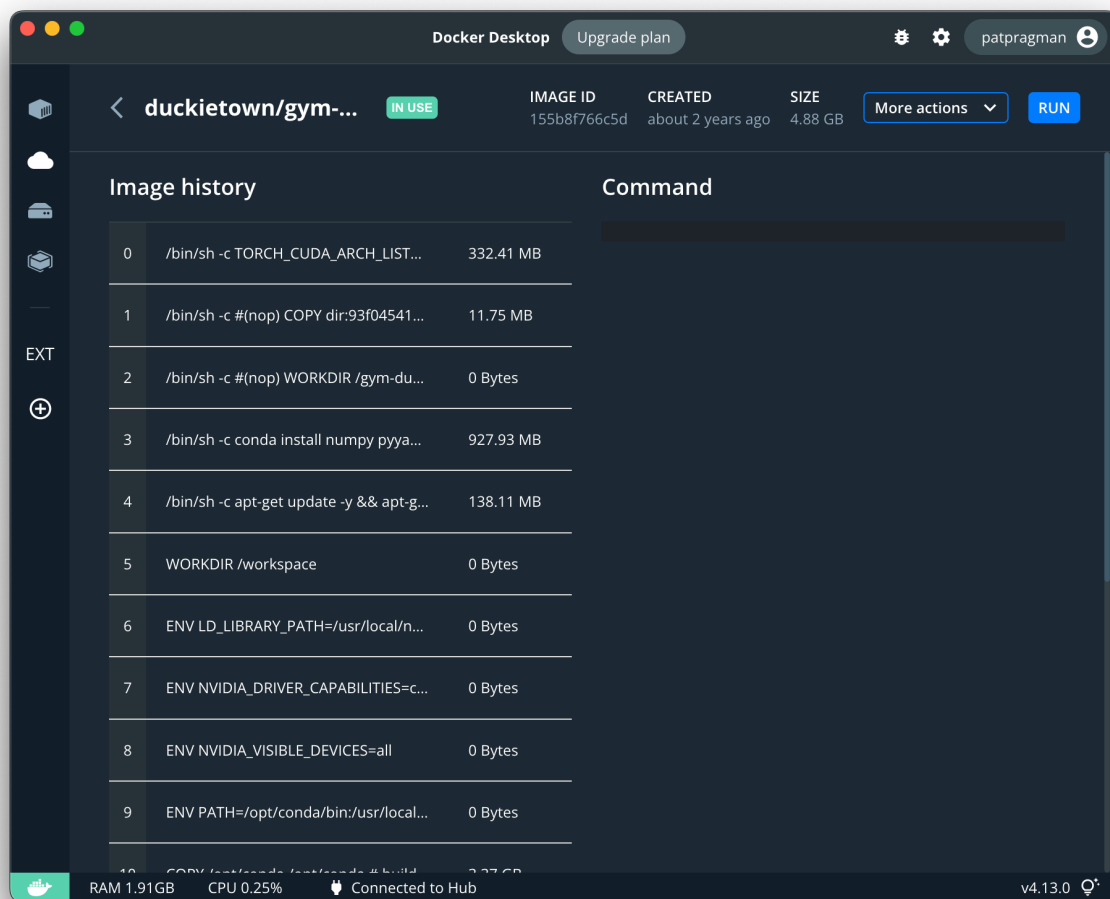
A terminal window with a dark background and light gray text. The window title bar at the top shows three colored window control buttons (red, yellow, green) on the left, followed by a folder icon and the text "patrickpragman — -bash — 80x24". The terminal content shows two lines of text: the first line is "Patricks-MacBook-Pro:~ patrickpragman\$ docker run duckietown/gym-duckietown" and the second line is "Patricks-MacBook-Pro:~ patrickpragman\$ " followed by a cursor. The text is left-aligned.

```
Patricks-MacBook-Pro:~ patrickpragman$ docker run duckietown/gym-duckietown
Patricks-MacBook-Pro:~ patrickpragman$
```

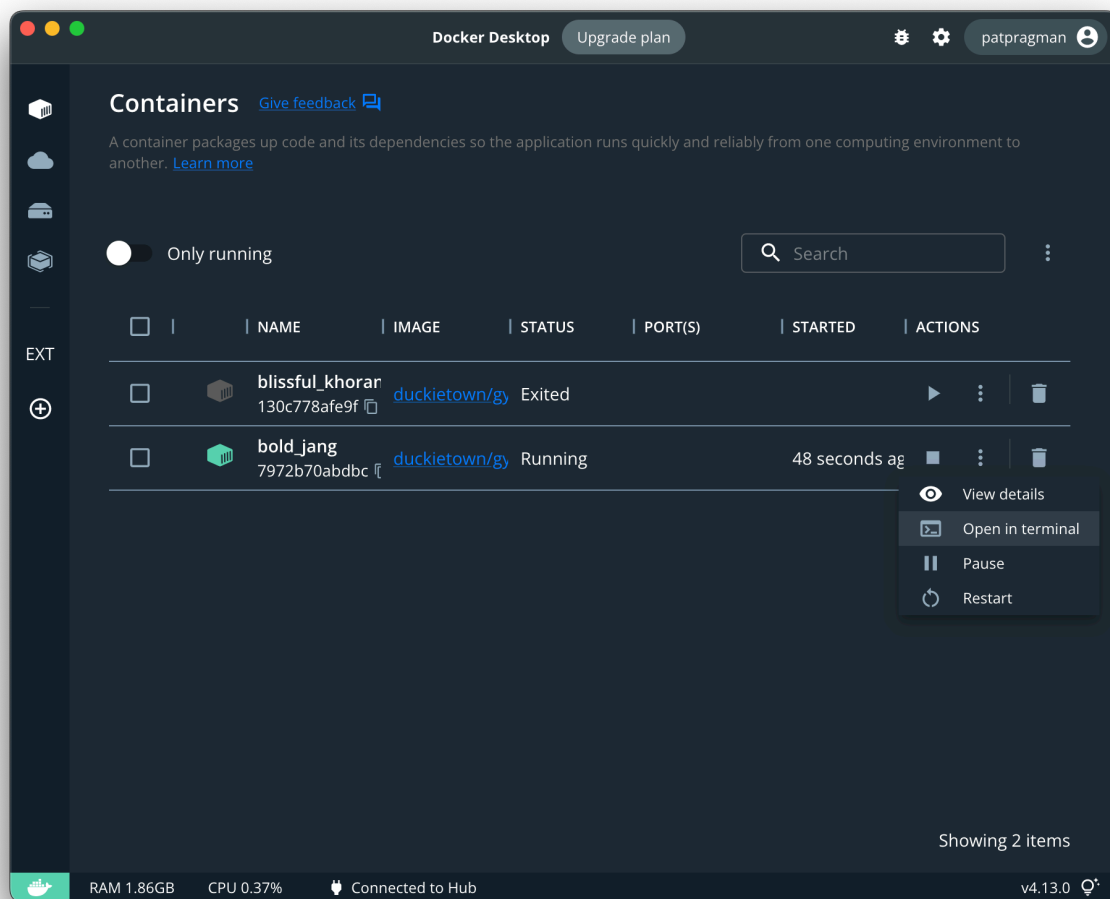
Go to docker desktop. You should see something like this.



Click on the name



Then “run” in the upper right corner, it’ll spawn another container then bring you back to the container menu - this is a little weird and buggy (also probably operator error on my part), but once you’ve got one that runs and stays running:



Enter it in the terminal, cool a terminal pops up!

```
patrickpragman — com.docker.cli • docker exec -it 7972b70abdbc56dd7fda66cf5135bb170b8215...
Last login: Fri Oct 28 12:27:44 on ttys000

The default interactive shell is now zsh.
To update your account to use zsh, please run `chsh -s /bin/zsh`.
For more details, please visit https://support.apple.com/kb/HT208050.
Patricks-MacBook-Pro:~ patrickpragman$ docker exec -it 7972b70abdbc56dd7fda66cf5
135bb170b8215277ec50b97d25e5964b3a8aca2 /bin/sh
# █
```

We need to update the container

Run the following commands:

apt-get update

A terminal window with a dark background. The title bar at the top shows three colored window control buttons (red, yellow, green) followed by the text "patrickpragman — com.docker.cli". The main content area of the terminal shows a shell prompt "# " followed by the command "apt-get update" and a cursor. The command is partially obscured by a dark grey rectangular block.

```
patrickpragman — com.docker.cli • docker exec -it 7972b70abdbc56dd7fda66cf5135bb170b8215...  
# apt-get update
```

After a bunch of stuff loads, run it again, you should see this:


```
patrickpragman — com.docker.cli • docker exec -it 7972b70abdbc56dd7fda66cf5135bb170b8215...
# apt-get update
Hit:1 http://security.ubuntu.com/ubuntu bionic-security InRelease
Hit:2 http://archive.ubuntu.com/ubuntu bionic InRelease
Hit:3 http://archive.ubuntu.com/ubuntu bionic-updates InRelease
Hit:4 http://archive.ubuntu.com/ubuntu bionic-backports InRelease
Reading package lists... Done
# █
```

Install fontconfig by running the following command:
apt-get install fontconfig

```
patrickpragman — com.docker.cli • docker exec -it 7972b70abdbc56dd7fda66cf5135bb170b8215...
# apt-get update
Hit:1 http://security.ubuntu.com/ubuntu bionic-security InRelease
Hit:2 http://archive.ubuntu.com/ubuntu bionic InRelease
Hit:3 http://archive.ubuntu.com/ubuntu bionic-updates InRelease
Hit:4 http://archive.ubuntu.com/ubuntu bionic-backports InRelease
Reading package lists... Done
# apt-get install fontconfig
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  fontconfig-config fonts-dejavu-core libfontconfig1 ucf
The following NEW packages will be installed:
  fontconfig fontconfig-config fonts-dejavu-core libfontconfig1 ucf
0 upgraded, 5 newly installed, 0 to remove and 70 not upgraded.
Need to get 1452 kB of archives.
After this operation, 4779 kB of additional disk space will be used.
Do you want to continue? [Y/n]
```

apt-get install xvfb mesa-utils

```
patrickpragman — com.docker.cli • docker exec -it 7972b70abdbc56dd7fda66cf5135bb170b8215...
# apt-get install xvfb mesa-utils
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  xserver-common
Recommended packages:
  xfonts-base
The following NEW packages will be installed:
  mesa-utils
The following packages will be upgraded:
  xserver-common xvfb
2 upgraded, 1 newly installed, 0 to remove and 68 not upgraded.
Need to get 846 kB of archives.
After this operation, 143 kB of additional disk space will be used.
Do you want to continue? [Y/n]
```

```
Xvfb :0 -screen 0 1024x768x24 -ac +extension GLX +render -noreset &>
xvfb.log &
export DISPLAY=:0
```

```
patrickpragman — com.docker.cli • docker exec -it 7972b70abdbc56dd7fda66cf5135bb170b8215...
Get:1 http://archive.ubuntu.com/ubuntu bionic-updates/main amd64 xserver-common
all 2:1.19.6-1ubuntu4.11 [26.9 kB]
Get:2 http://archive.ubuntu.com/ubuntu bionic-updates/universe amd64 xvfb amd64
2:1.19.6-1ubuntu4.11 [785 kB]
Get:3 http://archive.ubuntu.com/ubuntu bionic/universe amd64 mesa-utils amd64 8.
4.0-1 [34.3 kB]
Fetched 846 kB in 2s (522 kB/s)
debconf: delaying package configuration, since apt-utils is not installed
(Reading database ... 8465 files and directories currently installed.)
Preparing to unpack .../xserver-common_2%3a1.19.6-1ubuntu4.11_all.deb ...
Unpacking xserver-common (2:1.19.6-1ubuntu4.11) over (2:1.19.6-1ubuntu4.4) ...
Preparing to unpack .../xvfb_2%3a1.19.6-1ubuntu4.11_amd64.deb ...
Unpacking xvfb (2:1.19.6-1ubuntu4.11) over (2:1.19.6-1ubuntu4.4) ...
Selecting previously unselected package mesa-utils.
Preparing to unpack .../mesa-utils_8.4.0-1_amd64.deb ...
Unpacking mesa-utils (8.4.0-1) ...
Setting up xserver-common (2:1.19.6-1ubuntu4.11) ...
Setting up xvfb (2:1.19.6-1ubuntu4.11) ...
Setting up mesa-utils (8.4.0-1) ...
# Xvfb :0 -screen 0 1024x768x24 -ac +extension GLX +render -noreset &> xvfb.log
&
export DISPLAY=:0#
[2] + Done                                1>xvfb.log
#
```

Now you're ready to run stuff!

Run the tests first,

`python run_tests.py`

```
patrickpragman — com.docker.cli • docker exec -it 7972b70abdbc56dd7fda66cf5135bb170b8215...
# ls
LICENSE.pdf    environment.yaml    joystick_control.py  xvfb.log
Makefile       free_camera.py     manual_control.py
benchmark.py   gym_duckietown     run_tests.py
docker         gym_duckietown.egg-info  setup.py
# python run_tests.py
/opt/conda/lib/python3.7/site-packages/gym/logger.py:30: UserWarning: WARN: Box
bound precision lowered by casting to float32
  warnings.warn(colorize('%s: %s'%( 'WARN', msg % args), 'yellow'))
#
```