

# Homework #3

Screenshot of the size of the **nmetens/hw3large** container:

The screenshot shows the Docker Hub page for the **nmetens/hw3large:latest** image. At the top, there's a navigation bar with links for Explore, Repositories, Organizations, and Usage, along with a search bar. Below the navigation is a breadcrumb trail: nmetens / Repositories / hw3large / latest. The main content area features a large image icon, the repository name, and its digest. Below this, a table provides details like OS/ARCH (linux/amd64), compressed size (163.49 MB), last pushed time (an hour ago), type (Image), and manifest digest. A tab labeled "Image Layers" is selected, showing a list of layers with their corresponding command and size. The first layer is "ARG RELEASE" with 0 B. The second layer is "ARG LAUNCHPAD\_BUILD\_ARCH" with 0 B. The third layer is "LABEL org.opencontainers.image.ref.name=ubuntu" with 0 B. The fourth layer is "LABEL org.opencontainers.image.version=20.04" with 0 B. The fifth layer is "ADD file ... in /" with 26.24 MB. The sixth layer is "CMD ["/bin/bash"]" with 0 B.

Image Layers	Command	Size
1 ARG RELEASE	ARG RELEASE	0 B
2 ARG LAUNCHPAD_BUILD_ARCH		0 B
3 LABEL org.opencontainers.image.ref.name=ubuntu		0 B
4 LABEL org.opencontainers.image.version=20.04		0 B
5 ADD file ... in /		26.24 MB
6 CMD ["/bin/bash"]		0 B

The large container is 163.49 MB in size.

Screenshot of the size of the **nmetens/hw3small** container:

The screenshot shows the Docker Hub page for the **nmetens/hw3small:latest** image. The layout is similar to the previous screenshot, with a navigation bar, breadcrumb trail, and detailed image information. The table at the top shows OS/ARCH (linux/amd64), compressed size (23.81 MB), last pushed time (a few seconds ago), type (Image), and manifest digest. The "Image Layers" tab is selected, showing a list of layers with their corresponding command and size. The first layer is "ADD file ... in /" with 3.46 MB. The second layer is "CMD ["/bin/sh"]" with 0 B. The third layer is "ENV PATH=/usr/local/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin..." with 0 B. The fourth layer is "ENV LANG=C.UTF-8" with 0 B. The fifth layer is "RUN /bin/sh -c set -eux;" with 444.45 KB. The sixth layer is "ENV GPG\_KEY=E3FF2839C048B25C084DEBE9B26995E310250568" with 0 B. The seventh layer is "ENV PYTHON\_VERSION=3.9.20" with 0 B. The eighth layer is "ENV PYTHON\_SHA256=6b281279efd85294d2d6993e173983a57464c0133956fb... with 0 B.

Image Layers	Command	Size
1 ADD file ... in /	ADD file:5758b97d8301	3.46 MB
2 CMD ["/bin/sh"]		0 B
3 ENV PATH=/usr/local/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin...		0 B
4 ENV LANG=C.UTF-8		0 B
5 RUN /bin/sh -c set -eux;		444.45 KB
6 ENV GPG_KEY=E3FF2839C048B25C084DEBE9B26995E310250568		0 B
7 ENV PYTHON_VERSION=3.9.20		0 B
8 ENV PYTHON_SHA256=6b281279efd85294d2d6993e173983a57464c0133956fb...		0 B

The small container is 23.81 MB, about 7 times smaller than the larger container.

On the course-vm, here is the console showing the container image being pulled for the **hw3larger** container:

```
metens@course-vm:~/hw3$ docker login
Authenticating with existing credentials...
WARNING! Your password will be stored unencrypted in /home/metens/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store

Login Succeeded
metens@course-vm:~/hw3$ docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
metens@course-vm:~/hw3$ docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
nmetens/hw3small latest 47d2dd4bb071 3 hours ago 64.3MB
python 3.9-alpine 564015dfd5c3 11 days ago 48.9MB
metens@course-vm:~/hw3$ docker run -p 8000:5001 nmetens/hw3large
Unable to find image 'nmetens/hw3large:latest' locally
latest: Pulling from nmetens/hw3large
d9802f032d67: Pull complete
ae2884491459: Pull complete
4a91f9e7fb48: Pull complete
d326daa54c72: Pull complete
61bbd600c8bd: Pull complete
b0e66388ed: Pull complete
Digest: sha256:c8fe8e4fffa6f1b2e93f8250e9a33bae2e9c8ab307b0ec70b0ad5686abe102b
Status: Downloaded newer image for nmetens/hw3large:latest
 * Serving Flask app 'app'
 * Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
 * Running on all addresses (0.0.0.0)
 * Running on http://127.0.0.1:5001
 * Running on http://172.17.0.2:5001
Press CTRL+C to quit
 * Restarting with stat
 * Debugger is active!
 * Debugger PIN: 121-677-089
172.17.0.1 - [30/Oct/2024 00:02:59] "GET / HTTP/1.1" 200 -
172.17.0.1 - [30/Oct/2024 00:03:21] "GET / HTTP/1.1" 200 -
[ ]
```

Here is the landing page when using the `wget http://localhost:8000` in another window:

```
metens@course-vm:~/hw3$ docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
c74c571b2b40 nmetens/hw3large "python3 app.py" 8 minutes ago Up 8 minutes 0.0.0.0:8000->5001/tcp, :::8000->5001/tcp dazzling_chatterjee
metens@course-vm:~/hw3$ wget http://localhost:8000
--2024-10-30 00:09:34-- http://localhost:8000/
Resolving localhost (localhost) ... 127.0.0.1
Connecting to localhost (localhost) 127.0.0.1:8000... connected.
HTTP request sent, awaiting response... 200 OK
Length: 659 [text/html]
Saving to: 'index.html'

index.html          100%[=====]   659  --.-KB/s    in 0s

2024-10-30 00:09:34 (41.2 MB/s) - 'index.html' saved [659/659]
```

Here is the container image being pulled for the **hw3smaller** container:

```
metens@course-vm:~$ docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
metens@course-vm:~$ docker run -p 8000:5000 nmetens/hw3small
Unable to find image 'nmetens/hw3small:latest' locally
latest: Pulling from nmetens/hw3small
43c4264eed91: Pull complete
bfd90d6bdb4a: Pull complete
7742e8b512b0: Pull complete
3bc14f086441: Pull complete
a565114772e4: Pull complete
50771f705a7e: Pull complete
933016e57146: Pull complete
46b8934a4bdf: Pull complete
Digest: sha256:a469c16b56c73865947526528d8d2142591b3acf03da2567ba8d7f877a16a213
Status: Downloaded newer image for nmetens/hw3small:latest
 * Serving Flask app 'app'
 * Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
 * Running on all addresses (0.0.0.0)
 * Running on http://127.0.0.1:5001
 * Running on http://172.17.0.2:5001
Press CTRL+C to quit
 * Restarting with stat
 * Debugger is active!
 * Debugger PIN: 438-695-347
[ ]
```

Using wget http://localhost:8000 on the hw3smaller container:

```
metens@course-vm:~$ ls
hw2  hw3  snap
metens@course-vm:~$ cd hw3/
metens@course-vm:~/hw3$ ls
Dockerfile  Dockerfile.small  hw2  screenshots.pdf
metens@course-vm:~/hw3$ docker ps -a
CONTAINER ID        IMAGE               COMMAND             CREATED            STATUS              PORTS               NAMES
9134311f2f8b        metens/hw3small   "python3 app.py"   55 seconds ago    Up 54 seconds      0.0.0.0:8000->5001/tcp, :::8000->5001/tcp   stoic_cray
metens@course-vm:~/hw3$ wget http://localhost:8000
--2024-10-30 00:37:15--  http://localhost:8000/
Resolving localhost (localhost) ... 127.0.0.1
Connecting to localhost (localhost) 127.0.0.1:8000... connected.
HTTP request sent, awaiting response... 200 OK
Length: 659 [text/html]
Saving to: 'index.html'

index.html          100%[=====] 659  --.-KB/s   in 0s

2024-10-30 00:37:16 (1.94 MB/s) - 'index.html' saved [659/659]
metens@course-vm:~/hw3$
```