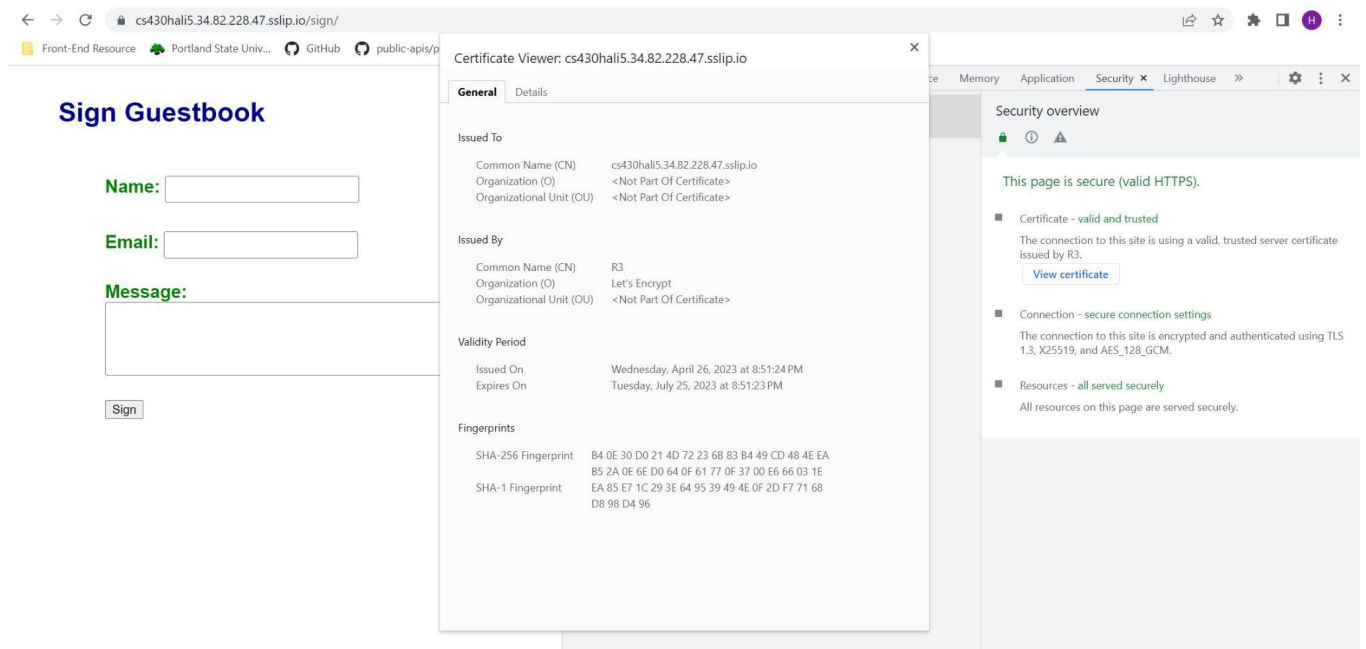


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## 04.1g: nginx Compute Engine Guestbook

### Install the application

**Take a screenshot of the site along with its Let's Encrypt certificate and include it in your lab notebook.**



## 04.2g. Docker Guestbook

### Build and run the Ubuntu-based container

Take a screenshot of the results for your lab notebook

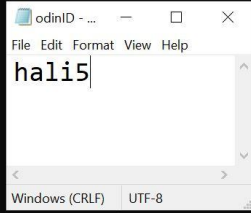
```
Successfully built 92e24ac85020
Successfully tagged helloubuntu:latest
htran@DESKTOP-01BI236:~/cs430-src/04_container_dockerhub$ docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
helloubuntu         latest             92e24ac85020       2 minutes ago      441MB
ubuntu              20.04             88bd68917189       2 weeks ago        72.8MB
htran@DESKTOP-01BI236:~/cs430-src/04_container_dockerhub$ |
```



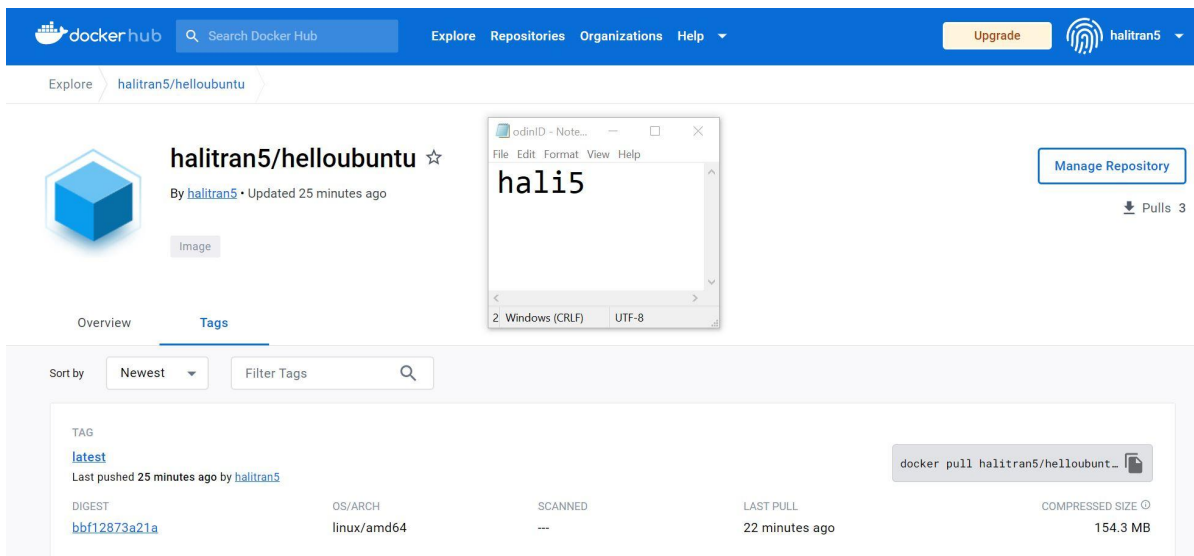
### Running from Docker Hub

Run the image directly from Docker Hub and show a screenshot of the output of the command in your lab notebook

```
htran@DESKTOP-01BI236:~/cs430-src/04_container_dockerhub$ docker run -di -p 8000:5000 --name hellou halitran5/helloubuntu
Unable to find image 'halitran5/helloubuntu:latest' locally
latest: Pulling from halitran5/helloubuntu
ca1778b69356: Already exists
a01c32151f7b: Pull complete
51787bfd9bcc: Pull complete
f7414d5887fe: Pull complete
73db6228d1c3: Pull complete
Digest: sha256:bbf12873a21ab716a9e60cb27a05c9bca2c8191d20c5fb8416a6aef2857f53dd
Status: Downloaded newer image for halitran5/helloubuntu:latest
77c72e7a35a83410b847dd90e4f2cd1010756e9ce052d5a93d755bd9747b962f
htran@DESKTOP-01BI236:~/cs430-src/04_container_dockerhub$
```



Take a screenshot of the container image and its size for your lab notebook.



TAG	DIGEST	OS/ARCH	SCANNED	LAST PULL	COMPRESSED SIZE
<a href="#">latest</a>	<a href="#">bbf12873a21a</a>	linux/amd64	---	22 minutes ago	154.3 MB

docker pull halitran5/helloubuntu

### Build and run the Alpine-based container

Take a screenshot of the image generated and its size for your lab notebook. How much smaller is the image than the Ubuntu one?

The alpine image was much smaller than the Ubuntu image with a size difference of 374MB.

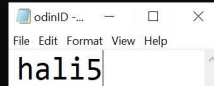
```
htran@DESKTOP-01BI236:~/cs430-src/04_container_dockerhub$ docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
helloalpine   latest    9c7abfc6a47c   6 minutes ago  67.3MB
ubuntu        20.04    88bd68917189   2 weeks ago    72.8MB
python        alpine    8a7f410141c5   3 weeks ago    51.8MB
htran@DESKTOP-01BI236:~/cs430-src/04_container_dockerhub$
```



Show the output of this command in a screenshot for your lab notebook. What might have happened?

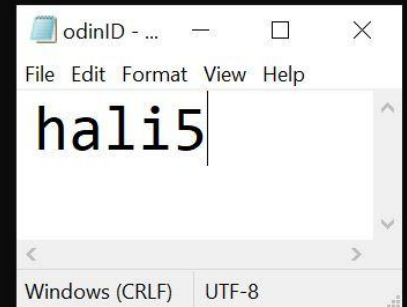
The base image is Alpine, which is much smaller in size than Ubuntu since it removes many non-essential components, one of those being the bash shell since it is a much more advanced shell program as compared to sh. Therefore, the command to get an interactive shell failed because the bash binary is not present in an Alpine distribution.

```
htran@DESKTOP-01BI236:~/cs430-src/04_container_dockerhub$ docker exec -it hello /bin/bash
OCI runtime exec failed: exec failed: unable to start container process: exec: "/bin/bash": stat /bin/bash: no such file or directory: unknown
htran@DESKTOP-01BI236:~/cs430-src/04_container_dockerhub$
```



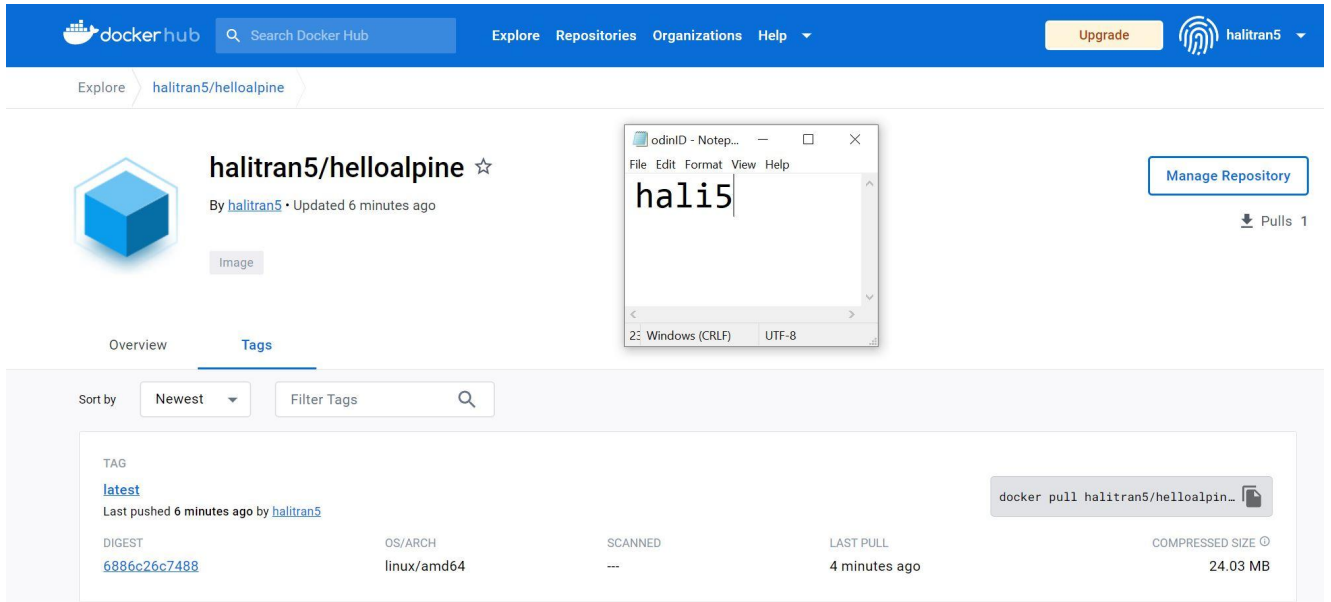
Take a screenshot of the output of each

```
/app # cat /etc/alpine-release
3.17.3
/app # ps -ef
PID   USER     TIME   COMMAND
   1   root      0:00   python3 app.py
   7   root      0:02   /usr/local/bin/python3 app.py
  23   root      0:00   /bin/sh
  43   root      0:00   ps -ef
/app #
```



## Docker Hub Alpine

Take a screenshot of the container image and its size.

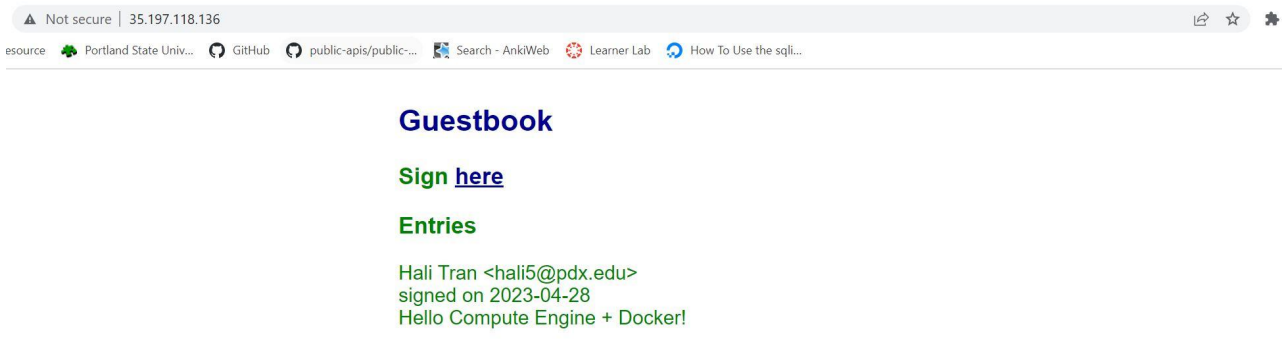


The screenshot shows the Docker Hub repository page for `halitrans5/helloalpine`. The page header includes the Docker Hub logo, a search bar, and navigation links for Explore, Repositories, Organizations, and Help. The repository name `halitrans5/helloalpine` is displayed with a star icon and the text "By halitrans5 • Updated 6 minutes ago". A blue cube icon represents the image. A "Manage Repository" button is visible. A terminal window titled "odinID - Notep..." shows the command `hali5` being entered. Below the repository name, the "Tags" tab is selected, showing a list of tags. The "latest" tag is highlighted, with the text "Last pushed 6 minutes ago by halitrans5". A table of tags is displayed with columns for TAG, DIGEST, OS/ARCH, SCANNED, LAST PULL, and COMPRESSED SIZE. The "latest" tag has a digest of `6886c26c7488`, OS/ARCH of `linux/amd64`, and a compressed size of `24.03 MB`. A "docker pull halitrans5/helloalpine" command is shown in a terminal window.

TAG	DIGEST	OS/ARCH	SCANNED	LAST PULL	COMPRESSED SIZE
<a href="#">latest</a>	<a href="#">6886c26c7488</a>	linux/amd64	---	4 minutes ago	24.03 MB

## Compute Engine Ubuntu VM deployment

Take a screenshot of the entry that includes the VM's external IP address for your lab notebook.



The screenshot shows a web browser window with the address bar displaying "Not secure | 35.197.118.136". The browser tabs include "esource", "Portland State Univ...", "GitHub", "public-apis/public...", "Search - AnkiWeb", "Learner Lab", and "How To Use the sqli...". The main content area displays a "Guestbook" section with a "Sign [here](#)" link and a heading "Entries". Below the heading, a green text entry reads: "Hali Tran <hali5@pdx.edu> signed on 2023-04-28 Hello Compute Engine + Docker!".

## Compute Engine ContainerOS VM deployment

Take a screenshot of the entry that includes the VM's external IP address for your lab notebook.

