

Docker Lab: Installations and Configurations

In this lab we will install docker on top of ubuntu machine and perform different container operations on that.

Task Breakdown

- Install docker on ubuntu
- Create account on docker hub
- Create account on github
- Running docker containers
- Performing containers operations
- Explore other container commands

Task 1: Install docker on ubuntu

Open Ubuntu terminal and run below commands to install docker

sudo su - (Provide sudo password)

Comment: This command gets you the root(admin) access to install docker packages.

apt-get update

Comment: This command will update/connect the satellite repository with the latest package details.

apt-get remove docker docker-engine docker.io

Comment: This command will remove any residues of the old docker package if present. This is not a mandatory command to run.

apt install docker.io

Comment: This command will download the latest package from docker's website and install docker on the machine.

systemctl start docker && systemctl enable docker

Comment: This command will start and enable the docker service which automatically starts docker engine if the OS restarts.

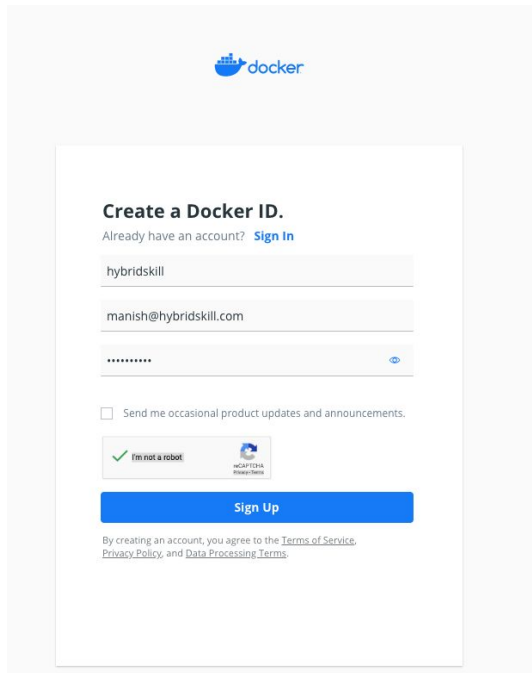
docker --version

Comment: To check the docker version installed currently in the machine

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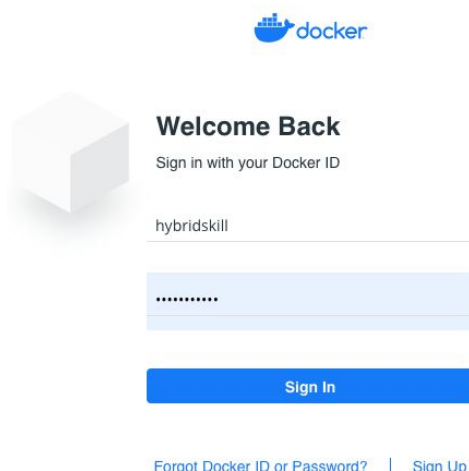
Task 2: Create account in docker hub

1. Go to <https://hub.docker.com/>
2. Click on the Sign up button.
3. Provide the account information and click on sign up



The screenshot shows the Docker Hub sign-up page. At the top is the Docker logo. Below it, the heading 'Create a Docker ID.' is followed by a link 'Already have an account? Sign In'. The form contains three input fields: a username field with 'hybridskill', an email field with 'manish@hybridskill.com', and a password field with masked characters. Below the password field is a checkbox for 'Send me occasional product updates and announcements.' and a CAPTCHA challenge with the text 'I'm not a robot'. A blue 'Sign Up' button is at the bottom of the form. Below the button, there is a line of text: 'By creating an account, you agree to the Terms of Service, Privacy Policy, and Data Processing Terms.'

4. Confirm your email by logging to your email account.
5. Once confirmed, go to <https://hub.docker.com/> and click on sign in.
6. Provide your credentials and click on sign in.

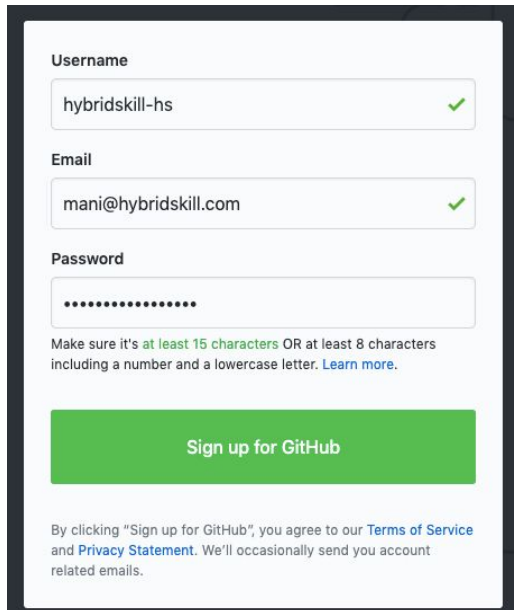


The screenshot shows the Docker Hub sign-in page. At the top is the Docker logo. Below it, the heading 'Welcome Back' is followed by the text 'Sign in with your Docker ID'. The form contains two input fields: a username field with 'hybridskill' and a password field with masked characters. A blue 'Sign In' button is at the bottom of the form. Below the button, there are two links: 'Forgot Docker ID or Password?' and 'Sign Up'.

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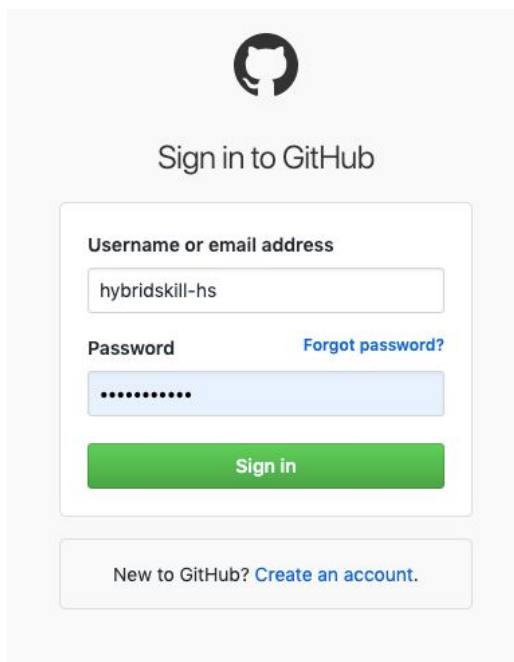
Task 3: Create account on Github

1. Go to <https://github.com/>
2. Click on the Sign up button.
3. Provide the account information and click on sign up



A screenshot of the GitHub sign-up form. It features three input fields: 'Username' with the value 'hybridskill-hs' and a green checkmark, 'Email' with the value 'mani@hybridskill.com' and a green checkmark, and 'Password' which is masked with dots. Below the password field is a note: 'Make sure it's at least 15 characters OR at least 8 characters including a number and a lowercase letter. [Learn more.](#)'. A large green button labeled 'Sign up for GitHub' is positioned below the fields. At the bottom, there is a disclaimer: 'By clicking "Sign up for GitHub", you agree to our [Terms of Service](#) and [Privacy Statement](#). We'll occasionally send you account related emails.'

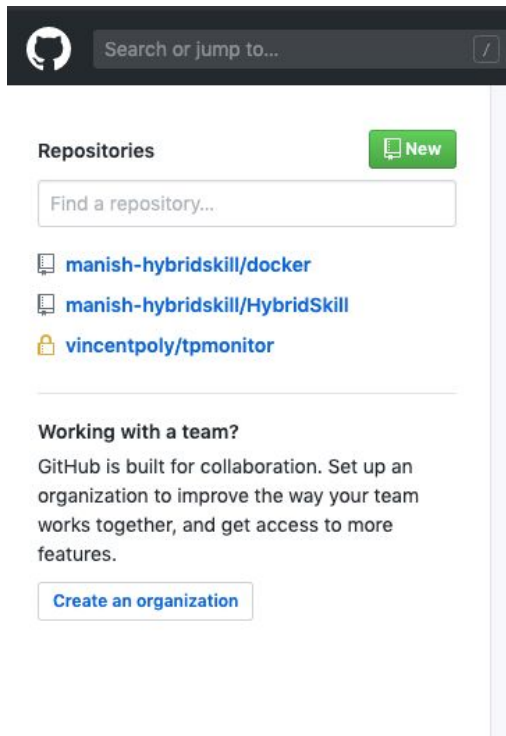
4. Confirm your email by logging to your email account.
5. Once confirmed, go to <https://github.com/> and click on sign in.
6. Provide your credentials and click on sign in.



A screenshot of the GitHub sign-in form. It features the GitHub logo at the top, followed by the text 'Sign in to GitHub'. Below this are two input fields: 'Username or email address' with the value 'hybridskill-hs' and 'Password' which is masked with dots. A link for 'Forgot password?' is located to the right of the password field. A large green button labeled 'Sign in' is positioned below the fields. At the bottom, there is a link: 'New to GitHub? [Create an account.](#)'

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- Click on create new and give a name to your repository.




- Click on create. Your repository will be created.

Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere? [Import a repository](#).

Owner **Repository name ***

 manish-hybridskill / docker-repo ✓

Great repository names are short and memorable. Need inspiration? How about [verbose-doodle?](#)

Description (optional)

☒ **Public**
Anyone can see this repository. You choose who can commit.

☐ **Private**
You choose who can see and commit to this repository.

Skip this step if you're importing an existing repository.

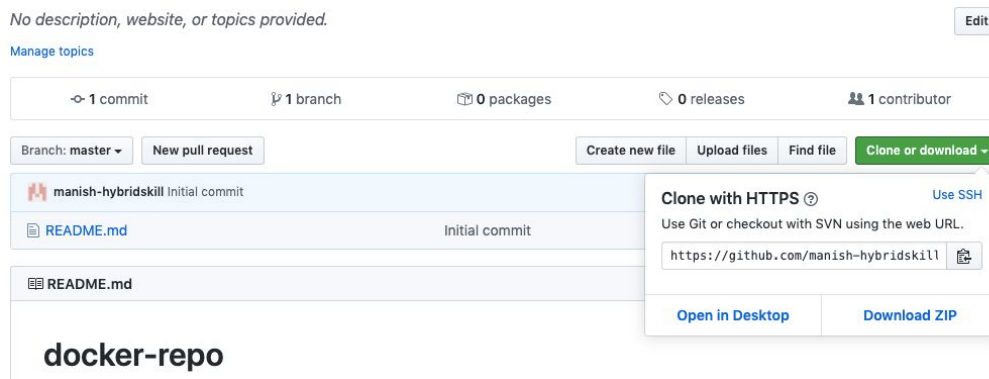
☒ **Initialize this repository with a README**
This will let you immediately clone the repository to your computer.

Add .gitignore: **None** ▼ Add a license: **None** ▼ ⓘ

Create repository

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9. Click on clone and copy the URL



10. Open the terminal of your virtual machine and run the below commands to install and configure github.

apt-get update

apt-get install git

git --version

git clone <https://github.com/manish-hybridskill/docker-repo.git> (Provide your repo URL here)

git config --global user.name "Manish Sharma" (Provide your username)

git config --global user.email "manish@hybridskill.com" (Provide your email id)

Task 4: Running docker containers

docker login

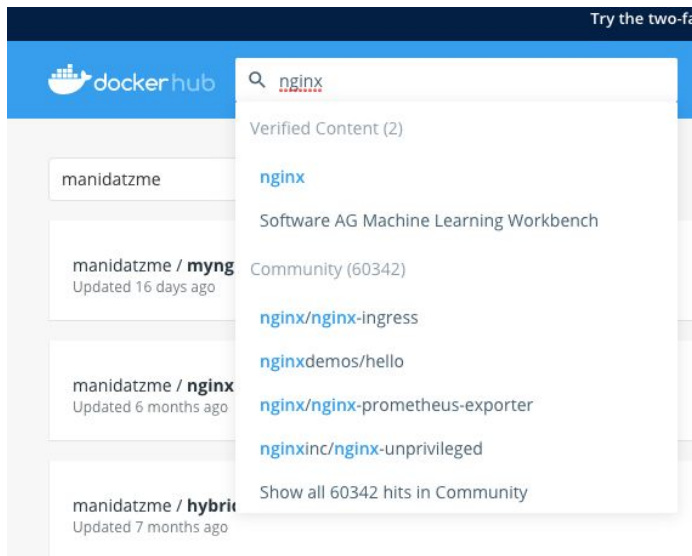
Id: Same id of docker hub as created in task 2

Password: Password of docker hub as created in task 2

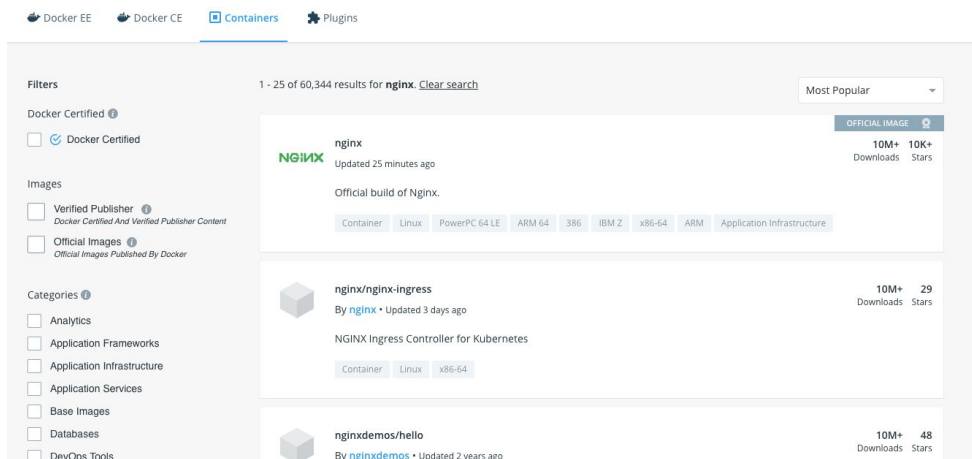
Comment: This command will enable the access from your local machine to push/pull/manage your images on your private docker hub registry.

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1. Navigate to <https://hub.docker.com/> and search for the nginx image in the search bar.

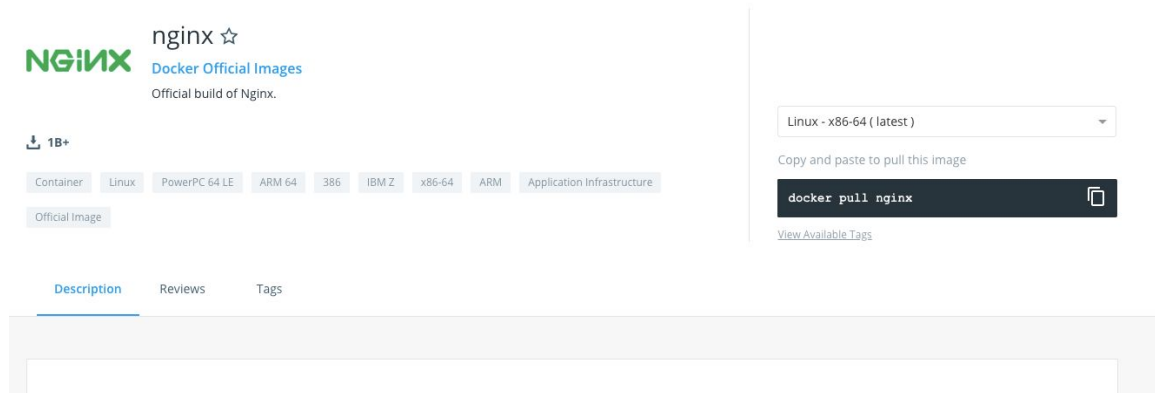


2. It will list out all the images which have nginx as a package in it.



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- Click on the official image of Nginx



- Pull the image to the virtual machine.

docker pull nginx

Comment: This command will pull the nginx image down to your virtual machine.

docker images

Comment: This command will list out all the images present in the virtual machine.

- Run a nginx container and access out of the nginx image

docker container run -dt --name mywebcontainer -p 8080:80 nginx

Comment: This command will launch one container from nginx image

- Verify that the container is running.

docker ps

Comment: This command shows the running instances of the container

- Visit the Web page of the container to verify the process/port mapping by browsing the localhost ip with the port in your local browser **127.0.0.1:8080**
- You should see web page in the browser "Welcome to Nginx"

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Task 5: Performing containers operations

1. Login to the container to change the index file

docker container exec -it mywebcontainer bash

Comment: This command will allow you login to the container instance

2. Go to the nginx doc directory.

cd /usr/share/nginx/html/

3. Change the index.html file to display your name

```
cat > index.html  
"Welcome to Nginx, This is Manish Sharma"  
ctl + d
```

Comment: If you are good at VIM or any other editor, use the same to make the changes.

To Install vim editor, run the below commands, as vim is not included in the base package of nginx

apt-get update && apt-get install vim -y

4. Exit the container and visit the browser again.
5. You will see the web page shows "Welcome to Nginx, This is Manish Sharma"

Task 6: Explore other container commands

docker container stop mycontainer

Comment: To stop the running container

docker container start mycontainer

Comment: To start the stopped container

docker container rm mycontainer

Comment: To remove the container completely

docker container kill mycontainer

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Comment: To kill the unresponsive container

docker container stop \$(docker ps -qa)

Comment: To stop all the containers

docker container run -dt --name mycontainer busybox ping -c10 google.com

Comment: To change the default process of the container

docker container logs mycontainer

Comment: To check the logs of the container

docker system df -v

Comment: To check the space/disk usage of the docker objects

docker container inspect mycontainer

Comment: To get the details of the container like network, volume, Ip address etc.

Note: There are more than 20 commands/options are available to run/manage docker containers , please visit <https://docs.docker.com/> to explore more commands.