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# Docker

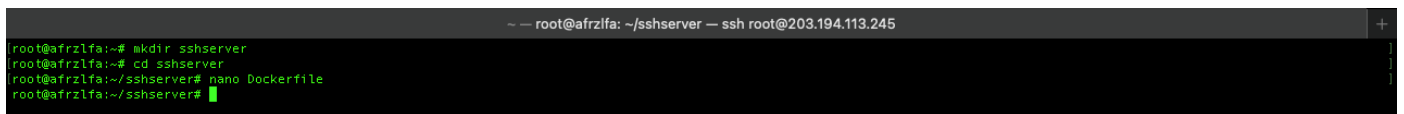
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Written By Afrizal F.A

## Create Dockerfile Basic

---

```
mkdir sshserver
cd sshserver
nano Dockerfile
```

A terminal window screenshot showing the following commands and their output: root@afrzlf: ~/sshserver — ssh root@203.194.113.245, root@afrzlf:~# mkdir sshserver, root@afrzlf:~# cd sshserver, root@afrzlf:~/sshserver# nano Dockerfile, and root@afrzlf:~/sshserver#.

### Dockerfile

```
FROM ubuntu:latest

# Instalasi OpenSSH server
RUN apt-get update && apt-get install -y openssh-server

RUN mkdir /var/run/sshd

# Change 'password' for your password
RUN echo 'root:password' | chpasswd

RUN sed -i 's/#PermitRootLogin prohibit-password/PermitRootLogin yes/'
/etc/ssh/sshd_config

RUN sed -i 's/#GatewayPorts no/GatewayPorts yes/' /etc/ssh/sshd_config

EXPOSE 22

CMD ["/usr/sbin/sshd", "-D"]
```

```
-- root@afzrlfa: ~/sshserver -- ssh root@203.194.113.245
GNU nano 6.2 Dockerfile
FROM ubuntu:latest

# Instalasi OpenSSH server
RUN apt-get update && apt-get install -y openssh-server

RUN mkdir /var/run/ssh

# Change 'password' for your password
RUN echo 'root:password' | chpasswd

RUN sed -i 's/#PermitRootLogin prohibit-password/PermitRootLogin yes/' /etc/ssh/sshd_config

RUN sed -i 's/#GatewayPorts no/GatewayPorts yes/' /etc/ssh/sshd_config

EXPOSE 22

CMD ["/usr/sbin/sshd", "-D"]
```

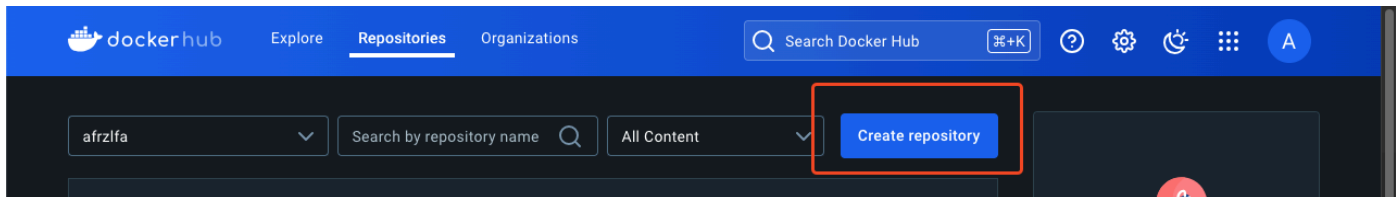
Build, Enter directory docker

```
# docker build -t <image_name> .
docker build -t sshserver .
```

```
-- root@afzrlfa: ~/sshserver -- ssh root@203.194.113.245
root@afzrlfa:~/sshserver# docker build -t sshserver .
[*] Building 3.5s (10/10) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 448B
=> [internal] load metadata for docker.io/library/ubuntu:latest
=> [internal] load .dockerignore
=> => transferring context: 28B
=> [1/6] FROM docker.io/library/ubuntu:latest@sha256:2e863c44b718727c860746568e1d54afd13b2fa71b160f5cd9058fc436217b30
=> CACHED [2/6] RUN apt-get update && apt-get install -y openssh-server
=> CACHED [3/6] RUN mkdir /var/run/ssh
=> CACHED [4/6] RUN echo 'root:password' | chpasswd
=> CACHED [5/6] RUN sed -i 's/#PermitRootLogin prohibit-password/PermitRootLogin yes/' /etc/ssh/sshd_config
=> CACHED [6/6] RUN sed -i 's/#GatewayPorts no/GatewayPorts yes/' /etc/ssh/sshd_config
=> exporting to image
=> => exporting layers
=> => writing image sha256:4d234aa302ad5a877d8567b58e248303052cea597c83f22bb7908325be9979fd
=> => naming to docker.io/library/sshserver
root@afzrlfa:~/sshserver#
```

Change image\_name you will

# Create Docker Repository



Next

**Create repository**

Namespace: afrzlfa

Repository Name \*: sshserver

Short description: SSH Server

A short description to identify your repository. If the repository is public, this description is used to index your content on Docker Hub and in search engines, and is visible to users in search results.

**Visibility**

Using 0 of 1 private repositories. [Get more](#)

☒ Public Appears in Docker Hub search results

☐ Private Only visible to you

[Cancel](#) [Create](#)

**Pushing images**

You can push a new image to this repository using the CLI:

```
docker tag local-image:tagname new-repo:tagname
docker push new-repo:tagname
```

Make sure to replace `tagname` with your desired image repository tag.

## Push Docker

```
docker login
```

```
# docker tag <your_image>:<your_tag> <your_username>/<your_repository>:<your_tag>
```

```
docker tag sshserver:latest afrzlfa/sshserver:latest
```

```
# docker push <your_username>/<your_repository>:<your_tag>
```

```
docker push afrzlfa/sshserver:latest
```

```
root@afrzlfa: ~/sshserver — ssh root@203.194.113.245
root@afrzlfa:~/sshserver# docker login
Authenticating with existing credentials...
WARNING! Your password will be stored unencrypted in /root/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credential-stores

Login Succeeded
root@afrzlfa:~/sshserver# docker tag sshserver:latest afrzlfa/sshserver:latest
root@afrzlfa:~/sshserver# docker push afrzlfa/sshserver:latest
The push refers to repository [docker.io/afrzlfa/sshserver]
581d8d5b0c29: Pushed
107ce1174e57: Pushed
8f0ccacd39b: Pushed
31eff382d33d: Pushed
758e5912c3ca: Pushed
a38a5965a4f7: Mounted from library/ubuntu
latest: digest: sha256:aba5de44778e79cca63e23897400c802f08379f6147e622a33a4ab26541f30c4 size: 1571
root@afrzlfa:~/sshserver#
```

## Pull Docker

```
# If already exist
```

```
# docker rmi afrzlfa/sshserver:latest
```

```
docker login
```

```
# docker pull <your_username>/<your_repository>:<your_tag>
```

```
docker pull afrzlfa/sshserver:latest
```

```
~ -- root@afzrlfa: ~/sshserver — ssh root@203.194.113.245
root@afzrlfa:~/sshserver# docker rmi afzrlfa/sshserver:latest
Untagged: afzrlfa/sshserver:latest
Untagged: afzrlfa/sshserver@sha256:aba5de44778e79cca63e23897400c802f08379f6147e622a33a4ab26541f30c4
root@afzrlfa:~/sshserver# docker login
Authenticating with existing credentials...
WARNING! Your password will be stored unencrypted in /root/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credential-stores

Login Succeeded
root@afzrlfa:~/sshserver# docker pull afzrlfa/sshserver:latest
latest: Pulling from afzrlfa/sshserver
Digest: sha256:aba5de44778e79cca63e23897400c802f08379f6147e622a33a4ab26541f30c4
Status: Downloaded newer image for afzrlfa/sshserver:latest
docker.io/afzrlfa/sshserver:latest
root@afzrlfa:~/sshserver#
```

## Docker Run

```
# docker run -d -p <docker_host>:<docker_port> --name <container_name> -v
<volume_host>:<directory_docker> --memory="<RAM, Example 512m>" --cpus="<CPU
Core, Example: 1.0>" <image_name>
```

```
docker run -d -p 222:22 -p 8080:80 --name sshcontainer -v /tmp:/mnt/ --
memory="512m" --cpus="1.0" sshserver
# If already in use
# docker remove sshcontainer
```

```
~ -- root@afzrlfa: ~/sshserver — ssh root@203.194.113.245
root@afzrlfa:~/sshserver# docker run -d -p 222:22 -p 8080:80 --name sshcontainer -v /tmp:/mnt/ --memory="512m" --cpus="1.0" sshserver
9086b67af61f034883d87009fc799ec6273f8d03ebc9c9cc8ca60f4faa54c536
root@afzrlfa:~/sshserver#
```

## Check Docker

```
docker ps
```

```
~ -- root@afzrlfa: ~/sshserver — ssh root@203.194.113.245
root@afzrlfa:~/sshserver# docker run -d -p 222:22 -p 8080:80 --name sshcontainer -v /tmp:/mnt/ --memory="512m" --cpus="1.0" sshserver
9086b67af61f034883d87009fc799ec6273f8d03ebc9c9cc8ca60f4faa54c536
root@afzrlfa:~/sshserver# docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                               NAMES
9086b67af61f   sshserver "/usr/sbin/sshd -D"      34 seconds ago Up 33 seconds  0.0.0.0:222->22/tcp, :::222->22/tcp, 0.0.0.0:8080->80/tcp, :::8080->80/tcp  sshcontainer
root@afzrlfa:~/sshserver#
```

## Login to container ssh

```
ssh root@<ip> -p 222
```

## Running Python Server

```
python3 -m http.server 80
```

```
~ -- root@afzrlfa: ~/sshserver -- ssh root@203.194.113.245
afzrlfa@192 ~ % ssh root@203.194.113.245 -p 222
root@203.194.113.245's password:
Welcome to Ubuntu 24.04 LTS (GNU/Linux 5.15.0-46-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:        https://ubuntu.com/pro

This system has been minimized by removing packages and content that are
not required on a system that users do not log into.

To restore this content, you can run the 'unminimize' command.
Last login: Sun Aug  4 09:16:18 2024 from 103.184.19.94
root@9006b67af61f:~# python3 -m http.server 80
Serving HTTP on 0.0.0.0 port 80 (http://0.0.0.0:80/) ...
```

Open Browser <http://203.194.113.245:8080>



# Create Docker DCT

```
mkdir ssh-dct
cd ssh-dct
nano Dockerfile
```

Dockerfile

```
FROM ubuntu:latest

# Instalasi OpenSSH server
RUN apt-get update && apt-get install -y openssh-server

RUN mkdir /var/run/ssh

# Change 'password' for your password
RUN echo 'root:password' | chpasswd

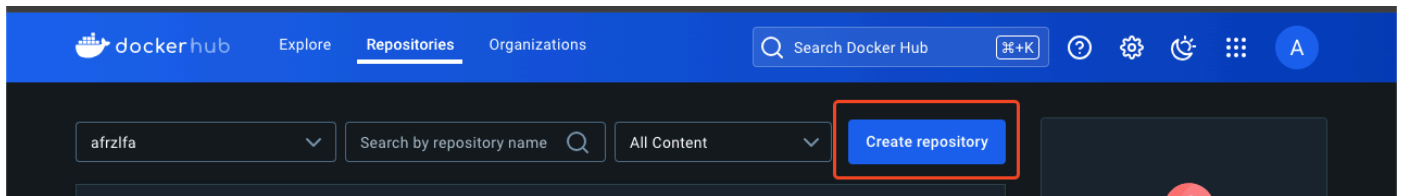
RUN sed -i 's/#PermitRootLogin prohibit-password/PermitRootLogin yes/'
/etc/ssh/sshd_config

RUN sed -i 's/#GatewayPorts no/GatewayPorts yes/' /etc/ssh/sshd_config

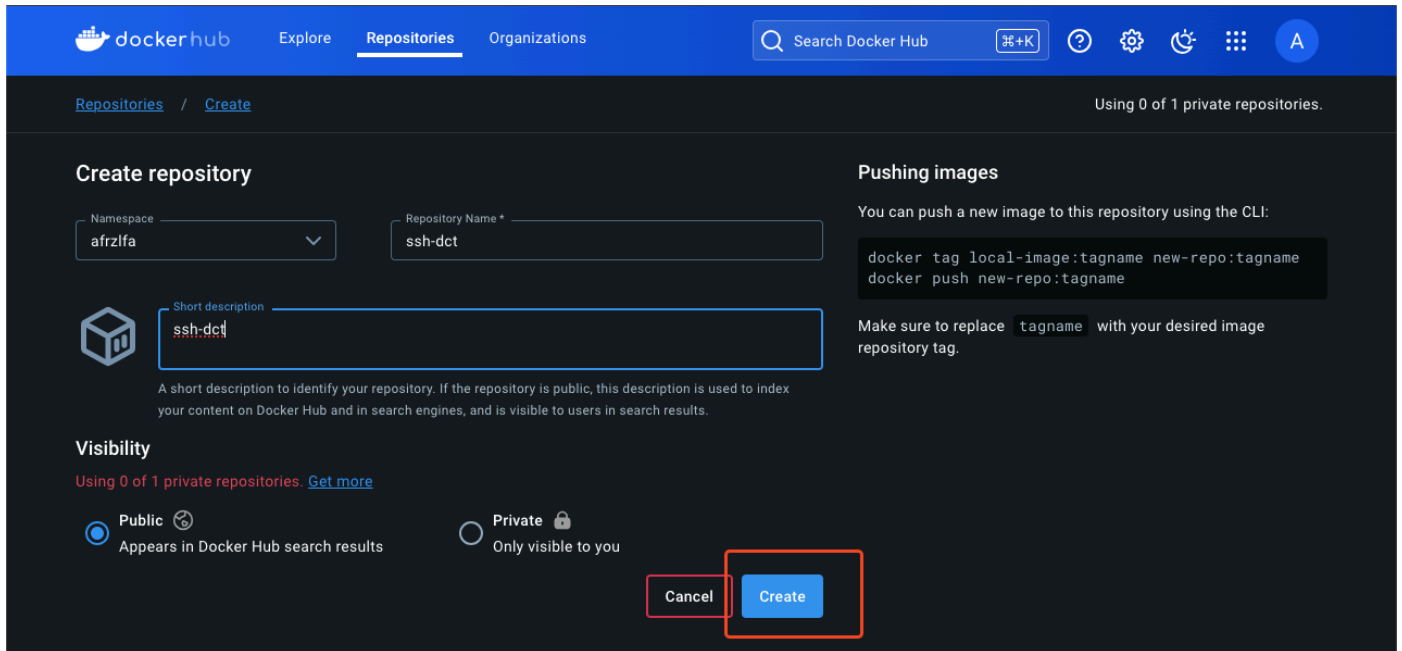
EXPOSE 22

CMD ["/usr/sbin/sshd", "-D"]
```

Create Docker Repository

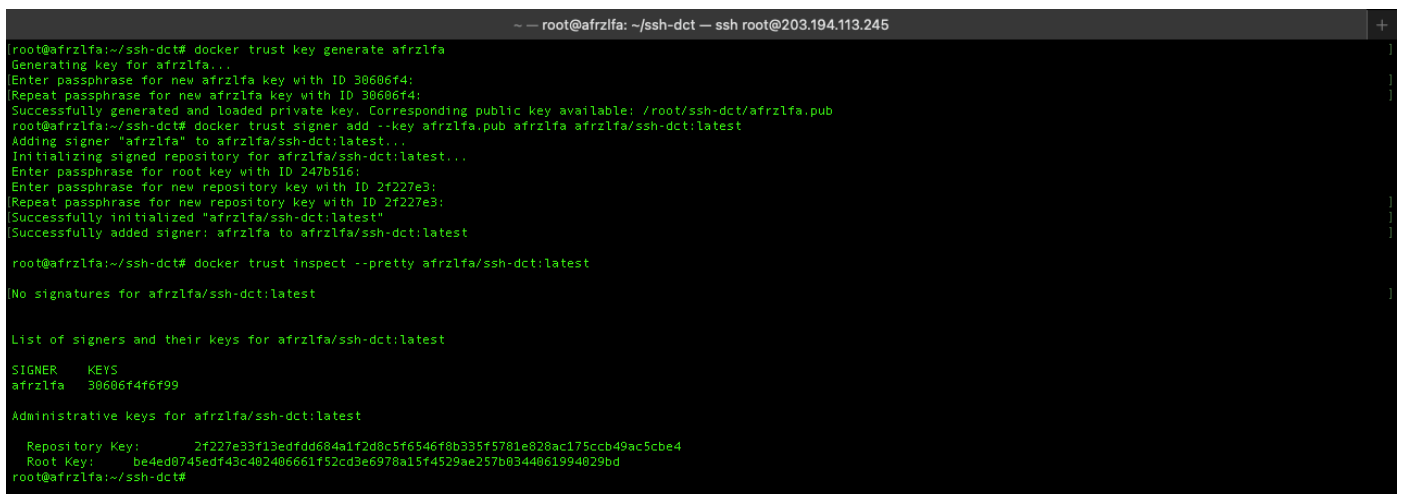


Next



Docker Command

```
# docker trust key generate <your_username>
docker trust key generate afrzlfa
# docker trust signer add --key <your_username>.pub <your_username>
<your_username>:<your_repository>:<your_tag>
docker trust signer add --key afrzlfa.pub afrzlfa afrzlfa/ssh-dct:latest
# docker trust key load <your_username>.pub --name <your_username>
# docker trust signer remove <your_username> <your_repository>
# docker trust inspect --pretty <your_repository>
docker trust inspect --pretty afrzlfa/ssh-dct:latest
```



## Setting Environment Build

```
export DOCKER_CONTENT_TRUST=1
```

## Build

```
# docker build -t <your_username>/<your_repository>:<your_tag> .  
docker build -t afrzlfafa/ssh-dct:latest .
```

```
root@afrzlfafa:~/ssh-dct# export DOCKER_CONTENT_TRUST=1  
root@afrzlfafa:~/ssh-dct# docker build -t afrzlfafa/ssh-dct:latest .  
[+] Building 2.2s (11/11) FINISHED  
=> [internal] load build definition from Dockerfile  
=> => transferring dockerfile: 449B  
=> [internal] load metadata for docker.io/library/ubuntu:latest  
=> [auth] library/ubuntu:pull token for registry-1.docker.io  
=> [internal] load .dockerignore  
=> => transferring context: 2B  
=> [1/6] FROM docker.io/library/ubuntu:latest@sha256:2e863c44b718727c860746568e1d54afd13b2fa71b160f5cd9058fc436217b30  
=> CACHED [2/6] RUN apt-get update && apt-get install -y openssh-server  
=> CACHED [3/6] RUN mkdir /var/run/ssh  
=> CACHED [4/6] RUN echo 'root:password' | chpasswd  
=> CACHED [5/6] RUN sed -i 's/#PermitRootLogin prohibit-password/PermitRootLogin yes/' /etc/ssh/sshd_config  
=> CACHED [6/6] RUN sed -i 's/#GatewayPorts no/GatewayPorts yes/' /etc/ssh/sshd_config  
=> exporting to image  
=> => exporting layers  
=> writing image sha256:e1af7d6e770d748a39b4783548fa241c541790160d4d9879d8b7d68fbad47a2e  
=> naming to docker.io/afrzlfafa/ssh-dct:latest  
root@afrzlfafa:~/ssh-dct#
```

## Push docker

```
docker login
```

```
# docker tag <your_image>:<your_tag> <your_username>/<your_repository>:  
<your_tag>
```

```
docker tag afrzlfafa/ssh-dct:latest afrzlfafa/ssh-dct:latest
```

```
# docker push <your_username>/<your_repository>:<your_tag>
```

```
docker push afrzlfafa/ssh-dct:latest
```

```
~ -- root@afrzlfafa: ~/ssh-dct -- ssh root@203.194.113.245  
root@afrzlfafa:~/ssh-dct# docker login  
Authenticating with existing credentials...  
WARNING! Your password will be stored unencrypted in /root/.docker/config.json.  
Configure a credential helper to remove this warning. See  
https://docs.docker.com/engine/reference/commandline/login/#credential-stores  
Login Succeeded  
root@afrzlfafa:~/ssh-dct# docker tag afrzlfafa/ssh-dct:latest afrzlfafa/ssh-dct:latest  
root@afrzlfafa:~/ssh-dct# docker push afrzlfafa/ssh-dct:latest  
The push refers to repository [docker.io/afrzlfafa/ssh-dct]  
6b0b59256d4d: Pushed  
91d0e189ba39: Pushed  
2703ab97f320: Pushed  
cbeca29e87e0: Pushed  
b94d389663d0: Pushed  
a30a5965a4f7: Mounted from afrzlfafa/sshserver  
latest: digest: sha256:2c17610740801ecbea7b48401b502e7ef2cc6136c00560bd9be109fce74ff91a size: 1571  
Signing and pushing trust metadata  
Enter passphrase for afrzlfafa key with ID 30606f4:  
Successfully signed docker.io/afrzlfafa/ssh-dct:latest  
root@afrzlfafa:~/ssh-dct#
```

## Pull Docker


```
# If images already exist
# docker images
# docker rmi <image_id_or_name>
# docker prune

docker login

# docker pull <your_username>/<your_repository>:<your_tag>
docker pull afrzlfa/ssh-dct:latest
```

## Environment

```
# For Check Repository Key
# docker images
# docker trust inspect --pretty <your_repository>
export ENCODED_PASSPHRASE=$(cat
~/.docker/trust/private/<your_repository_key>.key | base64)
export DOCKER_CONTENT_TRUST_REPOSITORY_PASSPHRASE=$ENCODED_PASSPHRASE
```



```
~ -- root@afrzlfa: ~/ssh-dct -- ssh root@203.194.113.245
root@afrzlfa:~/ssh-dct# docker trust inspect --pretty afrzlfa/ssh-dct:latest
Signatures for afrzlfa/ssh-dct:latest
SIGNED TAG    DIGEST                                SIGNERS
latest       2c17618740881ecbea7b48401b502e7ef2cc6136c08568bd9be189fce74ff91a  afrzlfa
List of signers and their keys for afrzlfa/ssh-dct:latest
SIGNER      KEYS
afrzlfa     30606f4f6f99
Administrative keys for afrzlfa/ssh-dct:latest
Repository Key: 2f227e33f13edfdd684a1f2d8c5f6546f8b335f5781e828ac175ccb49ac5cbe4
Root Key:      be4ed0745edf43c402406661f52cd3e6978a15f4529ae257b0344061994029bd
root@afrzlfa:~/ssh-dct# export ENCODED_PASSPHRASE=$(cat ~/.docker/trust/private/2f227e33f13edfdd684a1f2d8c5f6546f8b335f5781e828ac175ccb49ac5cbe4.key | base64)
root@afrzlfa:~/ssh-dct# export DOCKER_CONTENT_TRUST_REPOSITORY_PASSPHRASE=$ENCODED_PASSPHRASE
```

## Docker Push

```
docker login

# docker tag <your_image>:<your_tag> <your_username>/<your_repository>:<your_tag>
docker tag afrzlfa/ssh-dct:latest afrzlfa/ssh-dct:latest

# docker push <your_username>/<your_repository>:<your_tag>
docker push afrzlfa/ssh-dct:latest
```



```
~ -- root@afzrlfa: ~/ssh-dct -- ssh root@203.194.113.245 +
root@afzrlfa:~/ssh-dct# docker login
Authenticating with existing credentials...
WARNING! Your password will be stored unencrypted in /root/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credential-stores

Login Succeeded
root@afzrlfa:~/ssh-dct# docker tag afzrlfa/ssh-dct:latest afzrlfa/ssh-dct:latest
root@afzrlfa:~/ssh-dct# docker push afzrlfa/ssh-dct:latest
The push refers to repository [docker.io/afzrlfa/ssh-dct]
8b8b59256d4d: Layer already exists
91d0e109ba39: Layer already exists
2783ab97f320: Layer already exists
cbaca29e87e0: Layer already exists
b94d389663d0: Layer already exists
a30a5965a4f7: Layer already exists
latest: digest: sha256:2c17618740881ecbea7b48401b582e7ef2cc6136c08568bd9be189fce74ff91a size: 1571
Signing and pushing trust metadata
Successfully signed docker.io/afzrlfa/ssh-dct:latest
root@afzrlfa:~/ssh-dct#
```

## Docker Pull

```
docker login
# docker pull <your_username>/<your_repository>:<your_tag>
docker pull afzrlfa/ssh-dct:latest
```

```
~ -- root@afzrlfa: ~/ssh-dct -- ssh root@203.194.113.245 +
root@afzrlfa:~/ssh-dct# docker login
Authenticating with existing credentials...
WARNING! Your password will be stored unencrypted in /root/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credential-stores

Login Succeeded
root@afzrlfa:~/ssh-dct# docker pull afzrlfa/ssh-dct:latest
Pull (1 of 1): afzrlfa/ssh-dct:latest@sha256:2c17618740881ecbea7b48401b582e7ef2cc6136c08568bd9be189fce74ff91a
docker.io/afzrlfa/ssh-dct@sha256:2c17618740881ecbea7b48401b582e7ef2cc6136c08568bd9be189fce74ff91a: Pulling from afzrlfa/ssh-dct
Digest: sha256:2c17618740881ecbea7b48401b582e7ef2cc6136c08568bd9be189fce74ff91a
Status: Image is up to date for afzrlfa/ssh-dct@sha256:2c17618740881ecbea7b48401b582e7ef2cc6136c08568bd9be189fce74ff91a
Tagging afzrlfa/ssh-dct@sha256:2c17618740881ecbea7b48401b582e7ef2cc6136c08568bd9be189fce74ff91a as afzrlfa/ssh-dct:latest
docker.io/afzrlfa/ssh-dct:latest
root@afzrlfa:~/ssh-dct#
```

## Docker Run

```
# docker run -d -p <docker_host>:<docker_port> --name <container_name> -v
<volume_host>:<directory_docker> --memory="<RAM, Example 512m>" --cpus="<CPU
Core, Example: 1.0>" <image_name>

docker run -d -p 222:22 -p 8080:80 --name sshdct -v /tmp:/mnt/ --
memory="512m" --cpus="1.0" afzrlfa/ssh-dct:latest
# If already in use
# docker remove sshdct
```

```
~ -- root@afzrlfa: ~/ssh-dct -- ssh root@203.194.113.245 +
root@afzrlfa:~/ssh-dct# docker run -d -p 222:22 -p 8080:80 --name sshdct -v /tmp:/mnt/ --memory="512m" --cpus="1.0" afzrlfa/ssh-dct:latest
f083dba705704d814c413fce5733c11da56a0ef67b7a00ddc617fc9ald21a11e
root@afzrlfa:~/ssh-dct#
```

# Access Docker Shell

```
docker ps
# docker exec -it <container_id_or_name> /bin/bash
```

```
docker exec -it afrzlfadct-ssh:latest /bin/bash
# If success, enter to shell docker container
```

```
-- root@f003dba70570: / -- ssh root@203.194.113.245
root@afrzlfadct-ssh:~# docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS                               NAMES
f003dba70570   afrzlfadct-ssh "/usr/sbin/sshd -D"     2 minutes ago Up 2 minutes   0.0.0.0:222->22/tcp, :::222->22/tcp, 0.0.0.0:8080->80/tcp, :::8080->80/tcp   sshdct
root@afrzlfadct-ssh:~# docker exec -it f003dba70570 /bin/bash
root@f003dba70570:/#
```