



Docker Cheatsheet



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Docker Setup on CentOS

Install dependent packages and Configure Stable Docker Repo on Supported Centos OS Version

```
$ sudo yum install -y yum-utils  
$ sudo yum-config-manager --add-repo https://download.docker.com/linux/centos/docker-ce.repo
```

Reference: <https://docs.docker.com/>

Install Latest Docker Engine, Docker CLI and containerd

```
$ sudo yum install -y docker-ce docker-ce-cli containerd.io
```

Start & Enable Docker Service

```
$ sudo systemctl start docker  
$ sudo systemctl enable docker
```

Docker Host Related Commands

Docker CLI and Docker Daemon version details

```
$ sudo docker --version # To check Docker Command Line Version  
$ sudo docker version # To check Docker CLI version and Docker Daemon version (Docker Engine Details)
```

Docker Host Commands

```
$ sudo docker system info # To display System Wide Info like, Memory, CPU, Kernel and Docker Version, Number of Containers and Images, Storage Driver etc.  
$ sudo docker system df # To check storage/disk details used by Docker objects like Containers, Images, Volumes and Build Cache  
$ sudo docker system prune # Release all unused objects like Stopped Containers, Dangling Images, unused Networks etc.
```



Docker - Containers



Start a container in Detached Mode

```
$ sudo docker container run -d httpd:latest # To Start a Container in detached mode
```

Start a container in Attached Mode

```
$ sudo docker container run -i -t centos:8 # To Start & get inside a container using "-t" flag to attach pseudo terminal with it for interaction (i.e -t is for Terminal and -i is for Interactive)
```

List Containers

```
$ sudo docker container ps # List high level details for all running container  
$ sudo docker container ps -a # List high level details for all (Stopped and running) containers irrespective of their states  
$ sudo docker container ps -l # List high level details for last created container  
$ sudo docker container ps -q # List "short container ID's" for running containers only  
$ sudo docker container ps -aq # List "short container ID's for all stopped and running containers
```

OR

List Containers

```
$ sudo docker container ls # List high level details for all running container  
$ sudo docker container ls -a # List high level details for all (Stopped and running) containers irrespective of their states  
$ sudo docker container ls -l # List high level details for last created container  
$ sudo docker container ls -q # List "short container ID's" for running containers only  
$ sudo docker container ls -aq # List "short container ID's for all stopped and running containers
```



Docker - Containers



Stop a Containers

\$ sudo docker container stop <container-id> or <container-name> # Stop a container using SIGTERM

\$ sudo docker container kill <container-id> or <container-name> # Stop a container using SIGKILL

Start a Containers

\$ sudo docker container start <container-id> or <container-name> # Start a container

Delete Containers

\$ sudo docker container rm <container-id> # Delete a container (Make sure to stop a container before you remove a container)

\$ sudo docker container prune # Delete all stopped containers

\$ sudo docker container rm \$(docker container ps -aq) # Delete all containers

OR

\$ sudo docker container rm \$(docker container ps -aq) # Delete all containers

Running a new process inside a Container

\$ sudo docker container exec -it <container-id> /bin/bash # To Enter inside in the running container with a new "/bin/bash" process

\$ sudo docker container exec -it <container-id> uname # To run a command like "uname" inside a container and display the output on the terminal

Container Troubleshooting Tips

\$ sudo docker container logs <container-id> # To Check application logs

\$ sudo docker container stats # To display Memory, CPU, Network I/O and Disk I/O details for containers

\$ sudo docker container top <container-id> # To check the real process ID's running inside a particular container



Docker - Images



List Local Images inside Docker Host

```
$ sudo docker image ls # To List Images
```

To create a new image

```
$ sudo docker image build -t <image-repo-name>:<image-tag> -f <Dockerfile-name> <context-path-location> # To create an Image from Dockerfile Method
```

Example: docker image build -t thinknyximage:v1 -f <directory path where docker file is present>

```
$ sudo docker container commit -a "Kulbhushan Mayer <kulbhushan.mayer@thinknyx.com>" -m "added App Dependencies" <container-ID> <image-repo-name>:<image-tag>
```

Create an image by commit the changes done in a container # This is known as Docker Commit Method

```
$ sudo docker image tag <image-repo-name>:<image-tag> <new-image-repo-name>:<new-image-tag> # Tag an existing image with new repo name and tag name
```

Ship an Image without a Registry

```
$ sudo docker image save <image-repo-name>:<image-tag> -o demo.tar # To save image as a tar ball with the name demo.tar on Docker Host to share with others
```

```
$ sudo docker image load -i demo.tar # To Load an image from the given tar ball on any Docker Host
```

Managing an Image with Docker Registry

```
$ sudo docker login --u <username> --p <password> # Login to Default Global Public Registry https://hub.docker.com
```

```
$ sudo docker login registry.thinknyx.com:5000 -u thinknyx -p ***** # Login to Private Docker Registry registry.thinknyx.com:5000
```

```
$ sudo docker pull <image-repo-name>:<image-tag> # Pull an image from global Registry
```

```
$ sudo docker push <image-repo-name>:<image-tag> # Push an image to a global Registry (Naming convention of the Image should be <REGISTRYNAME/REPOSITORYNAME/IMAGENAME:TAGNAME>)
```

```
$ sudo docker pull registry.thinknyx.com:5000/<image-repo-name>:<image-tag> # Pull an image from private Registry
```

```
$ sudo docker push registry.thinknyx.com:5000/<image-repo-name>:<image-tag> # Push and image from private Registry
```

Delete Images

```
$ sudo docker image prune # Delete all unused & Dangling Images
```

```
$ sudo docker image rm <image-repo-name>:<image-tag> # Delete specific image or images (Make sure the image is not in use by the containers before removal)
```

List Docker Networks

\$ sudo docker network ls # To List local Docker networks

Create User Defined Docker Network

\$ sudo docker network create <network-name> --driver <driver-name> --subnet 192.168.0.0/16 --gateway 192.168.0.1 # To create a new network with defined Subnet and Gateway

Add or Remove Network to containers

\$ sudo docker network connect <network-name> <container-id> # To Connect a particular container to a new network
\$ sudo docker network disconnect <network-name> <container-id> # To disconnect a particular container to a new network

Delete a Network

\$ sudo docker network prune # Delete All unused docker networks
\$ sudo docker network rm <network-id> # Delete specific network or networks

List Docker Volumes

\$ sudo docker volume ls # To List Volumes

Create User Defined Volume

\$ sudo docker volume create <volume-name> # To create a new volume, default volume location is “/var/lib/docker/volumes/”

Delete a Volume

\$ sudo docker volume prune # Delete All unused volumes
\$ sudo docker volume rm <volume-id> # Delete specific volume or volumes

Sample Dockerfile to Create a HTTPD Server Image based centos:7

```
FROM centos:7
RUN yum install -y httpd
WORKDIR /var/www/html
COPY ./index.html .
EXPOSE 80/tcp
CMD ["httpd","-D","FOREGROUND"]
```

Docker command to Build an Image using above Dockerfile

```
$ sudo docker image build -t thinknyx/httpd:v1 .
```

Here . (dot) stands for current working directory where Dockerfile is present

Docker command to create and start a container using newly created image

```
$ sudo docker container run -itd -p 80:80 --name=webcontainer thinknyx/httpd:v1
```

```
[thinknyx@devops-in-action docker]# sudo docker ls
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
7984adb04634	thinknyx/httpd:v1	"httpd -D FOREGROUND"	6 seconds ago	Up 5 seconds	0.0.0.0:80->80/tcp	webcontainer



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