

# Docker Cheat Sheet



## Installation

Install Docker Engine (<https://docs.docker.com/engine/install/>, Linux only) or Docker Desktop (<https://docs.docker.com/desktop/>, Linux, macOS and Windows).

## Container commands

Command	Description
<code>docker run &lt;image&gt;</code>	Create and run a new container
<code>docker run -p 8080:80 &lt;image&gt;</code>	Publish container port 80 to host port 8080
<code>docker run -d &lt;image&gt;</code>	Run a container in the background
<code>docker run -v &lt;host&gt;:&lt;container&gt; &lt;image&gt;</code>	Mount a host directory to a container
<code>docker ps</code>	List currently running containers
<code>docker ps --all</code>	List all containers (running or stopped)
<code>docker logs &lt;container_name&gt;</code>	Fetch the logs of a container
<code>docker logs -f &lt;container_name&gt;</code>	Fetch and follow the logs of a container
<code>docker stop &lt;container_name&gt;</code>	Stop a running container
<code>docker start &lt;container_name&gt;</code>	Start a stopped container
<code>docker rm &lt;container_name&gt;</code>	Remove a container

## Executing commands in a container

Command	Description
<code>docker exec &lt;container_name&gt; &lt;command&gt;</code>	Execute a command in a running container
<code>docker exec -it &lt;container_name&gt; bash</code>	Open a shell in a running container

## Image commands

Command	Description
<code>docker build -t &lt;image&gt; .</code>	Build a new image from the Dockerfile in the current directory and tag it
<code>docker images</code>	List local images
<code>docker rmi &lt;image&gt;</code>	Remove an image

## Container registry commands

Command	Description
<code>docker login</code>	Login to Docker Hub
<code>docker login &lt;server&gt;</code>	Login to another container registry
<code>docker logout</code>	Logout of Docker Hub
<code>docker logout &lt;server&gt;</code>	Logout of another container registry
<code>docker push &lt;image&gt;</code>	Upload an image to a registry
<code>docker pull &lt;image&gt;</code>	Download an image from a registry
<code>docker search &lt;image&gt;</code>	Search Docker Hub for images

## System commands

Command	Description
<code>docker system df</code>	Show Docker disk usage
<code>docker system prune</code>	Remove unused data
<code>docker system prune -a</code>	Remove all unused data

## Docker Compose

Command	Description
<code>docker compose up</code>	Create and start containers
<code>docker compose up -d</code>	Create and start containers in background
<code>docker compose up --build</code>	Rebuild images before starting containers
<code>docker compose stop</code>	Stop services
<code>docker compose down</code>	Stop and remove containers and networks
<code>docker compose ps</code>	List running containers
<code>docker compose logs</code>	View the logs of all containers
<code>docker compose logs &lt;service&gt;</code>	View the logs of a specific service
<code>docker compose logs -f</code>	View and follow the logs
<code>docker compose pull</code>	Pull the latest images
<code>docker compose build</code>	Build or rebuild services

## Dockerfile instructions

Instruction	Description
FROM <image>	Set the base image
FROM <image> AS <name>	Set the base image and name the build stage
RUN <command>	Execute a command
RUN ["exec", "param1", "param2"]	Execute a command
CMD ["exec", "param1", "param2"]	Execute a command when the container starts
ENTRYPOINT ["exec", "param1"]	Configure the container to run as an executable
ENV <key>=<value>	Set an environment variable
EXPOSE <port>	Expose a port
COPY <src> <dest>	Copy files from source to destination
COPY --from=<name> <src> <dest>	Copy files from a build stage to destination
WORKDIR <path>	Set the working directory
VOLUME <path>	Create a mount point
USER <user>	Set the user
ARG <name>	Define a build argument
ARG <name>=<default>	Define a build argument with a default value
LABEL <key>=<value>	Set a metadata label
HEALTHCHECK <command>	Set a healthcheck command

See <https://docs.docker.com/engine/reference/builder/> for the full Dockerfile reference.

## Dockerfile best practices

- Use the official base images from <https://hub.docker.com/>
- Use the COPY instruction instead of ADD unless you need to extract a tar file
- Use the COPY --chown instruction to set the owner of copied files