



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

## Executing commands in a container

Command	Description
docker exec <container_name> <command>	Execute a command in a running container
docker exec -it <container_name> bash	Open a shell in a running container

## Image commands

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

## Container registry commands

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

## System commands

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

## Docker Compose

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

## 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 as part of the build process
RUN ["exec", "param1", "param2"]	Execute a command as part of the build process
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.

## Example compose.yaml

Note: this file used to be called docker-compose.yaml, but now compose.yaml is preferred.

```
services:
  service1:
    image: <image>
    build: .
    volumes:
      - ./code:ro
    ports:
      - "8000:80"
    environment:
      KEY: value
```

## Docker Compose file reference

Key	Description
name	Set the name of the project
services	A list of services defined in the file
services.<name>.image	Set the image to use or build
services.<name>.build	Build context and options
services.<name>.build.context	Build context (default is the current directory)
services.<name>.build.dockerfile	Dockerfile to use (default is Dockerfile)
services.<name>.build.target	Build stage to use
services.<name>.build.args	Build arguments
services.<name>.command	Override the default command for the container
services.<name>.entrypoint	Override the default entrypoint for the container
services.<name>.volumes	Mount volumes in the container
services.<name>.ports	Publish container ports to the host
services.<name>.environment	Set environment variables in the container
services.<name>.restart	Restart policy (no/always/on-failure/unless-stopped)
services.<name>.scale	Set the number of containers to run
services.<name>.networks	List of networks to connect the container to
services.<name>.depends_on	List of services to start before this service
services.<name>.labels	Set metadata labels for the container
networks	A list of networks defined in the file
networks.<name>.driver	Set the network driver
networks.<name>.external	Don't create the network, use an existing one
volumes	A list of volumes defined in the file
volumes.<name>.name	Set the name of the volume
volumes.<name>.driver	Set the volume driver
configs	A list of configs defined in the file
secrets	A list of secrets defined in the file

See <https://docs.docker.com/compose/compose-file/> for the full Docker Compose file reference.