

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 <image></code> | Create and run a new container |
| <code>docker run -p 8080:80 <image></code> | Publish container port 80 to host port 8080 |
| <code>docker run -d <image></code> | Run a container in the background |
| <code>docker run -v <host>:<container> <image></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 <container_name></code> | Fetch the logs of a container |
| <code>docker logs -f <container_name></code> | Fetch and follow the logs of a container |
| <code>docker stop <container_name></code> | Stop a running container |
| <code>docker start <container_name></code> | Start a stopped container |
| <code>docker rm <container_name></code> | Remove a container |

Executing commands in a container

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

Image commands

| Command | Description |
|--|---|
| <code>docker build -t <image> .</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 <image></code> | Remove an image |

Container registry commands

| Command | Description |
|---|--------------------------------------|
| <code>docker login</code> | Login to Docker Hub |
| <code>docker login <server></code> | Login to another container registry |
| <code>docker logout</code> | Logout of Docker Hub |
| <code>docker logout <server></code> | Logout of another container registry |
| <code>docker push <image></code> | Upload an image to a registry |
| <code>docker pull <image></code> | Download an image from a registry |
| <code>docker search <image></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 <service></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 |
| <code>docker compose build --pull</code> | 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.