

Docker Cheat Sheet

1. Installation & Setup

Command	Description
<code>docker --version</code>	Show Docker Engine version.
<code>docker compose version</code>	Show Docker Compose version.
<code>docker login</code>	Log in to Docker Hub (for push/pull operations).
<code>docker logout</code>	Log out from Docker Hub.

2. Core Concepts

- Image: Read-only template built from a Dockerfile.
- Container: Running instance of an image.
- Dockerfile: Text "recipe" that defines how to build an image.
- Volume: Persistent data storage shared between host & container.
- Network: Virtual LAN for container-to-container communication.
- Compose: Tool to define/run multi-container apps via a YAML file.

3.1 Image Management

Command	Description
<code>docker build -t <name>:<tag> <path></code>	Build an image from a Dockerfile.
<code>docker images</code>	List all local images.
<code>docker pull <image>:<tag></code>	Download image from Docker Hub.
<code>docker tag <src> <username>/<repo>:<tag></code>	Attach a new tag to a local image.
<code>docker push <username>/<repo>:<tag></code>	Upload image to Docker Hub.
<code>docker rmi <image_or_id></code>	Remove one or more local images.

3.2 Container Management

Command	Description
<code>docker run -d -p <host>:<container> --name <name> <image></code>	Run container in detached mode.
<code>docker ps</code>	List running containers.
<code>docker ps -a</code>	List all containers (running & stopped).
<code>docker stop <container></code>	Stop a running container.
<code>docker rm <container></code>	Remove one or more stopped containers.
<code>docker logs <container></code>	View container logs.
<code>docker exec -it <container> bash</code>	Start a shell inside a running container.

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3.3 Data & Networking

Command	Description
docker volume create <name>	Create a named volume.
docker volume ls	List all volumes.
docker run -v <host>:/<container> <image>	Mount host directory or volume into container.
docker network ls	List networks.
docker network create <name>	Create a user-defined network.
docker network connect <network> <container>	Connect container to a network.

4. Docker Compose Commands

Command	Description
docker compose up	Build, (re)create, start, and attach to containers.
docker compose up -d	Same as above, but in detached mode.
docker compose build --no-cache	Build services without cache.
docker compose ps	List containers for a Compose project.
docker compose logs	View output from services.
docker compose down	Stop and remove containers, networks, volumes.

5. Docker Hub & Image Sharing

Command	Description
docker login	Authenticate to Docker Hub.
docker pull <user>/<repo>:<tag>	Pull an image from your Docker Hub repository.
docker push <user>/<repo>:<tag>	Push a local image to your Docker Hub repository.
docker save <image> > image.tar	Export an image to a tar archive.
docker load < image.tar	Import an image from a tar archive.

6. Handy Tips

- Order Dockerfile instructions to maximize layer caching (COPY requirements.txt before COPY . .).
- Use descriptive names and tags (e.g. myapp:1.0).
- Clean up unused resources:
docker system prune -a