Docker Containers and images

CONCEPTS

An image is a read-only template; a container is a running instance of it. Removing a container does not remove its image.

Dockerfile recipe
↓ `docker build`
Image template
↓ `docker run`
Container running instance
↓ `docker push`
Registry Docker Hub

Data written inside a container is lost when it is removed. Keep data in a volume or bind mount.

RUN

`docker run` *`<image>`*
Create and start a container

`docker run -d` *`<image>`*
Run in the background

`docker run -it` *`<image>`* **`sh`**
Interactive shell

`docker run --rm` *`<image>`*
Delete the container on exit

`docker run --name` *`<name>`* *`<image>`*
Give the container a name

`docker run -p` *`<host>:<ctr>`* *`<image>`*
Publish a port

`docker run -v` *`<name>:<path>`* *`<image>`*
Mount a named volume

`docker run -v` *`<dir>:<path>`* *`<image>`*
Bind-mount a host folder

`docker run -e KEY=VALUE` *`<image>`*
Set an environment variable

CONTAINERS

`docker ps`
List running containers

`docker ps -a`
List all, including stopped

`docker stop` *`<container>`*
Stop gracefully

CONTAINERS (cont.)

`docker start` *`<container>`*
Start a stopped container

`docker rm` *`<container>`*
Remove a stopped container

INSIDE A CONTAINER

`docker exec -it` *`<container>`* **`sh`**
Open a shell in a running container

`docker exec` *`<container>`* *`<cmd>`*
Run one command

`docker logs` *`<container>`*
Show output

`docker logs -f` *`<container>`*
Follow output live

IMAGES

`docker pull` *`<image>`*
Download an image

`docker images`
List local images

`docker build -t` *`<name>`* **`.`**
Build from a Dockerfile here

VOLUMES AND NETWORKS

`docker volume create` *`<name>`*
Create a named volume

`docker network create` *`<name>`*
Create a bridge network

COMPOSE

`docker compose up -d`
Create and start the stack

`docker compose down`
Stop and remove containers and networks

`docker compose logs -f` *`<service>`*
Follow service logs

`docker compose exec` *`<service>`* **`sh`**
Shell in a service

CLEANUP AND INFO

`docker system prune`
Remove stopped containers and dangling data