



# What is Docker ?

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Docker is a virtualization software, makes developing and deploying applications much easier.

## Docker Images Vs Containers

Images are templates for containers.

### Docker Images

- Executable application artifact
- Any services (postgres, npm, node)
- Environment variables, create directories, files etc.

### Docker Containers

- A running instance of an image is a container.
- Can run multiple containers from 1 image.

## Docker Registries

- A storage and distribution system for Docker images.
  - Docker hosts one of the biggest Docker Registry, called "Docker Hub".
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# Docker Commands

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Command	Description
<code>docker images</code> or <code>docker image ls</code>	List all Docker images
<code>docker ps</code>	List running containers
<code>docker pull {imageName}:{tag}</code>	Pull an image from a registry
<code>docker run {imageName}:{tag}</code>	Run a container
<code>docker container prune</code>	Remove all stopped containers
<code>docker logs {containerId/name}</code>	View logs from container
<code>docker stop {containerId/Name}</code>	Stop running container
<code>docker exec -it {containerId/Name} /bin/bash</code>	Open inside a container to debug

# Docker Run Commands

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```
docker run -d -p {hostPort}:{containerPort} -e {key}={value} --name {containerName} --rm {imageName}:{tag}
```

- **-d** Run container in background and print container ID
  - **-p {hostPort}:{containerPort}** Publish a container's port to the host
  - **-e {key}={value}** Environment variable
  - **--name {containerName}** Assign a name to the container
  - **--rm** Delete the container once it stop
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## Slim & Alpine Images

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<b>Slim</b>	<b>Alpine</b>
Small image	Typically smaller image
Debian-based Linux	Alpine Linux

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## Docker Mounts

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- Volumes
- Bind-mounts
- Tempfs mounts

```
docker run -v {/path/in/host}:{/path/in/container} {imageName}:{tag}
```