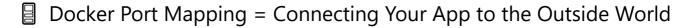
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Port Mapping



& Syntax

docker run -p <hostPort>:<containerPort> <image>

Element	Description	Emoji Analogy
hostPort	Port on your local machine (PC)	Door outside the house
containerPort	Port inside the Docker container	🟠 Door inside the house

✓ Common Examples

1. Same port inside & outside

docker run -p 3000:3000 my-app

- App runs on port **3000** in container.
- Accessible at http://localhost:3000 on host.
- You "opened the same door" on both sides.
- 2. Z Different ports (host vs container)

docker run -p 8080:3000 my-app

- App runs on port 3000 inside.
- Accessible at http://localhost:8080 outside.
- You redirected visitors from door 8080 to 3000 inside.
- 3. H Multiple ports

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docker run -p 8000:8000 -p 5000:5000 my-app

Multiple doors open for frontend/backend or API/UI separation.

4. Binding to specific IP (advanced)

docker run -p 127.0.0.1:8080:80 nginx

• Only accessible from localhost, not from other devices.

Testing Port Mappings

Test Method	Example Command	Purpose
₩eb Browser	http://localhost:8080	Access frontend/backend
curl CLI Tool	curl localhost:8080	API/health check
Q Docker Inspect	docker container inspect <id></id>	See exposed ports inside
🕅 Docker PS	docker ps	Shows active port mappings

! Common Pitfalls & Fixes

Problem	Cause	Fix
X Cannot access app on browser	You forgot -p	Always map with -p!
firewall blocking access	System-level rules	Allow port in your firewall
♦ Conflicting ports	Same host port already in use	Change host port (e.g., -p 8081:3000)

Bonus Tip: EXPOSE in Dockerfile

EXPOSE 3000

☆ This is for documentation only! It does not publish the port — you still need -p during docker run.

Quick Reference Table

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CLI Option	Meaning	Example
-p 8080:80	Host port 8080 → Container port 80	localhost:8080 opens NGINX
-p 127.0.0.1:8000:8000	Bind to specific host IP	Secure dev testing
EXPOSE in Dockerfile	Internal doc (not binding)	Use for image readability

🕏 Final Analogy: Port Mapping = Mail Forwarding 🗗

Imagine:

- Public address = Host port (e.g. 8080)
- Port mapping forwards public requests to the container, like mail forwarding!

☑ Summary

Step	What to Do
1	Decide which port your app runs on inside the container
2	Map it using -p hostPort:containerPort
3	Access it via localhost:hostPort
4	Check with docker ps to confirm mapping