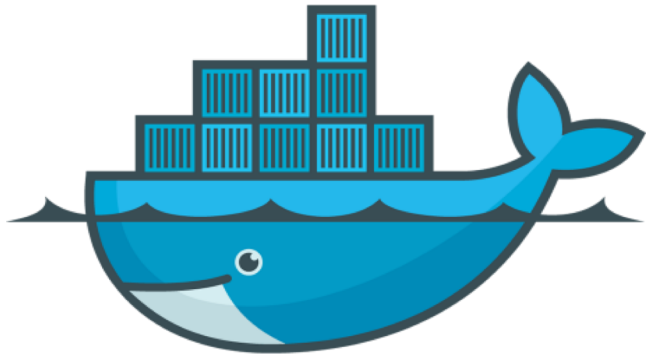


Docker JumpStart

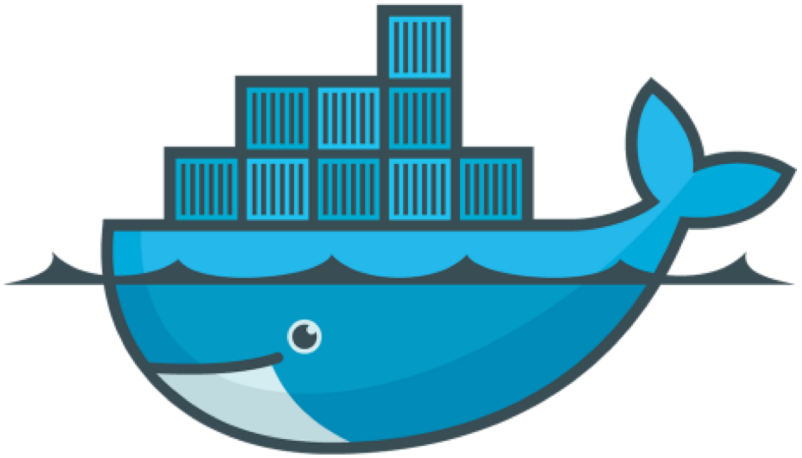
Mastering Container Volumes

Agenda

- Introduction to Volumes
- Creating a Volume
- Inspecting Volumes
- Defining a Volume in a Dockerfile
- Local Source Code and Containers

Introduction to Volumes

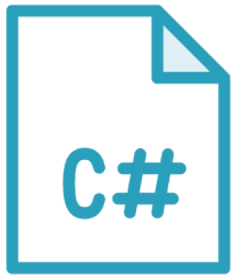
Docker Volumes



- Special type of directory in a container typically referred to as a "data volume"
- Can be shared and reused among containers
- Updates to an image won't affect a data volume
- Data volumes are persisted even after the container is deleted

Volume Usage Scenarios

Link source code
to container

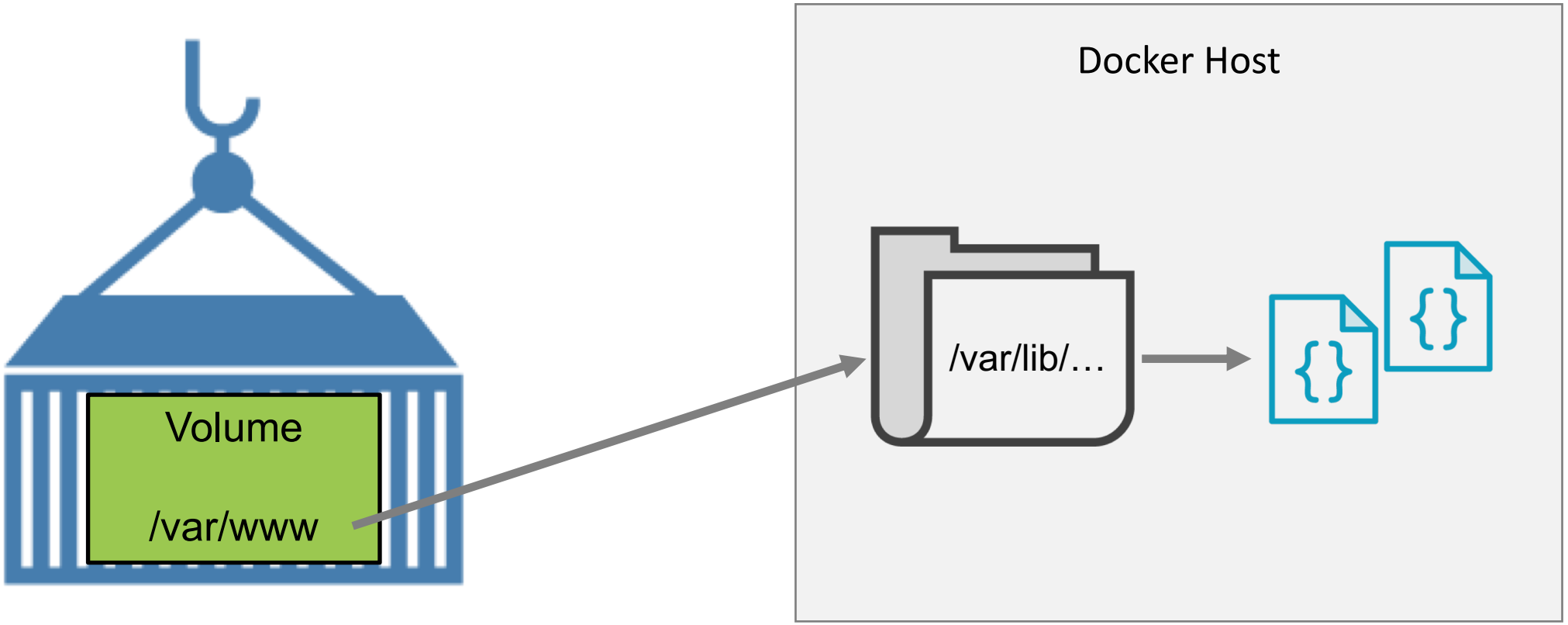


Store database files
outside of container

Store log files
Outside of container

Many more scenarios!

Volume Overview

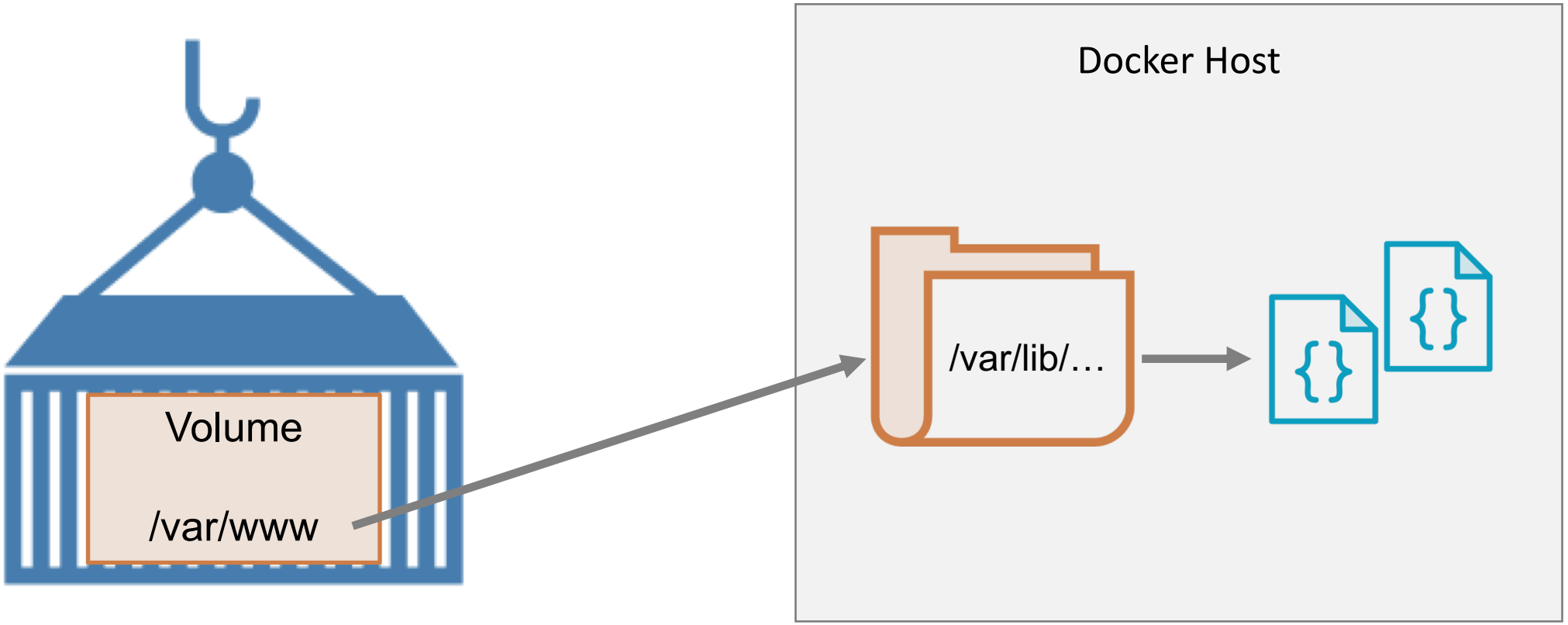


Volumes and Mount Points

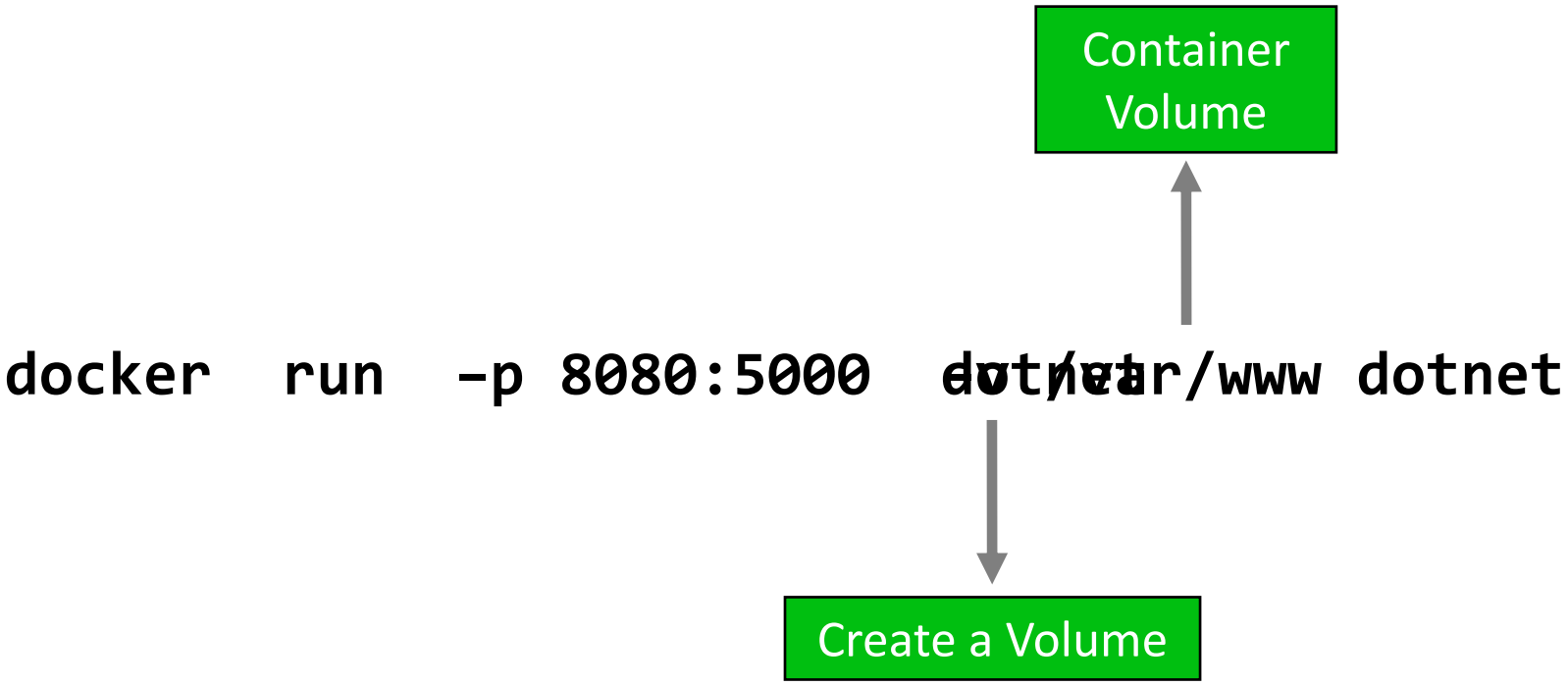
Docker volumes create a "mount point" in containers that point to externally mounted volumes on the host (or other containers)

Creating a Volume

How Do You Create a Volume?



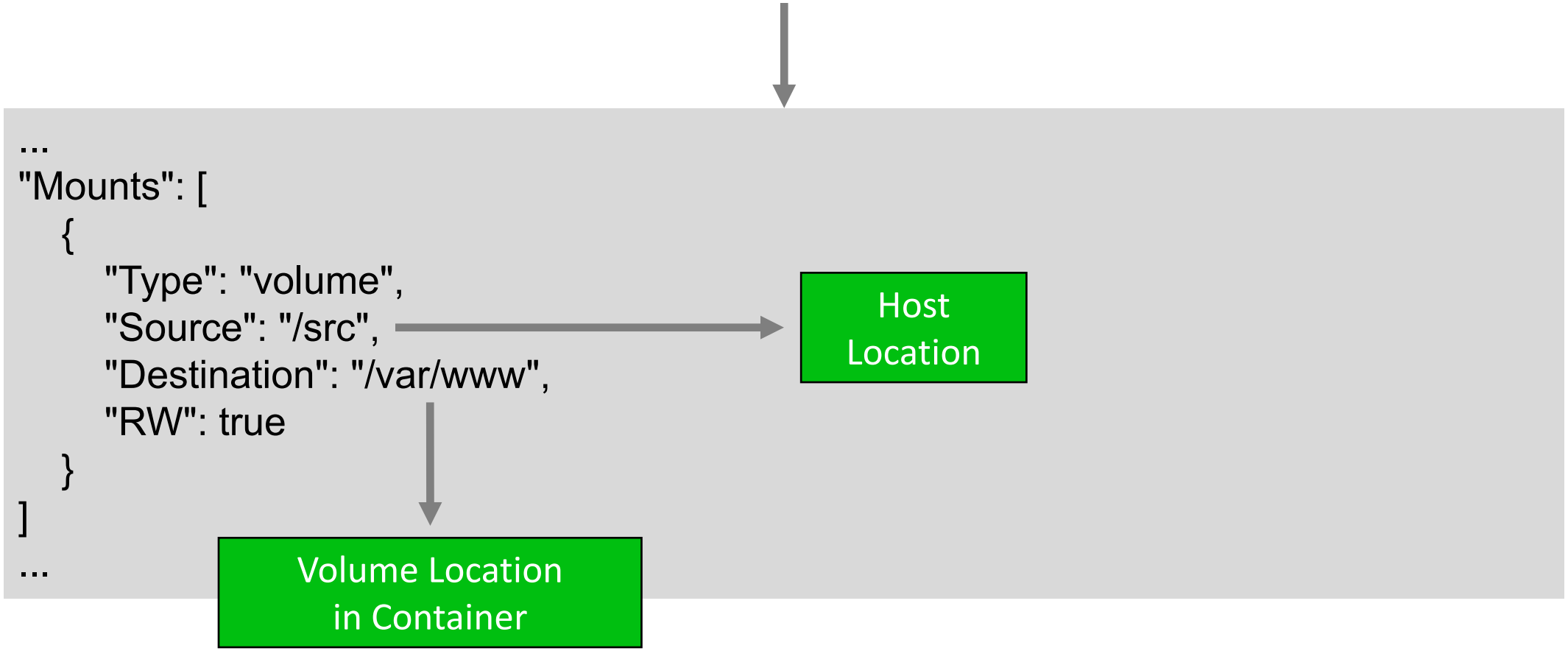
Creating a Data Volume



Inspecting Volumes

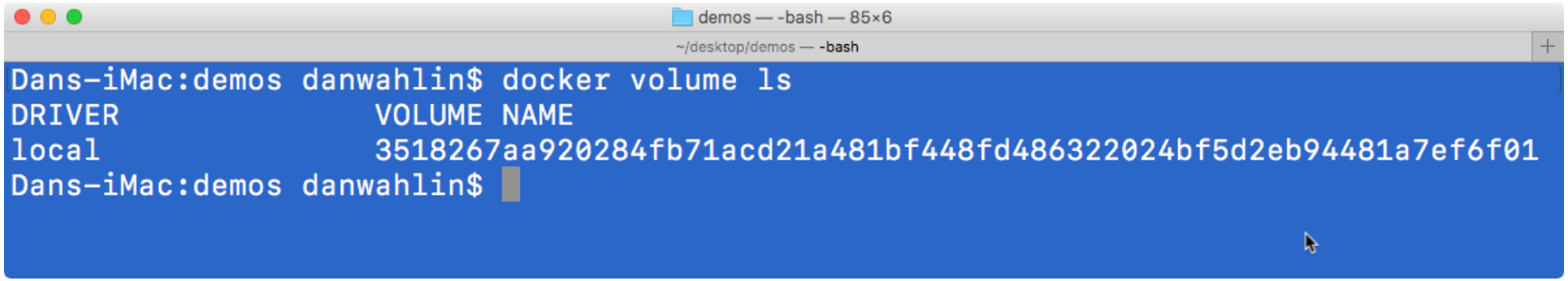
Locating a Volume

```
docker inspect mycontainer
```



Listing Volumes

`docker volume ls`

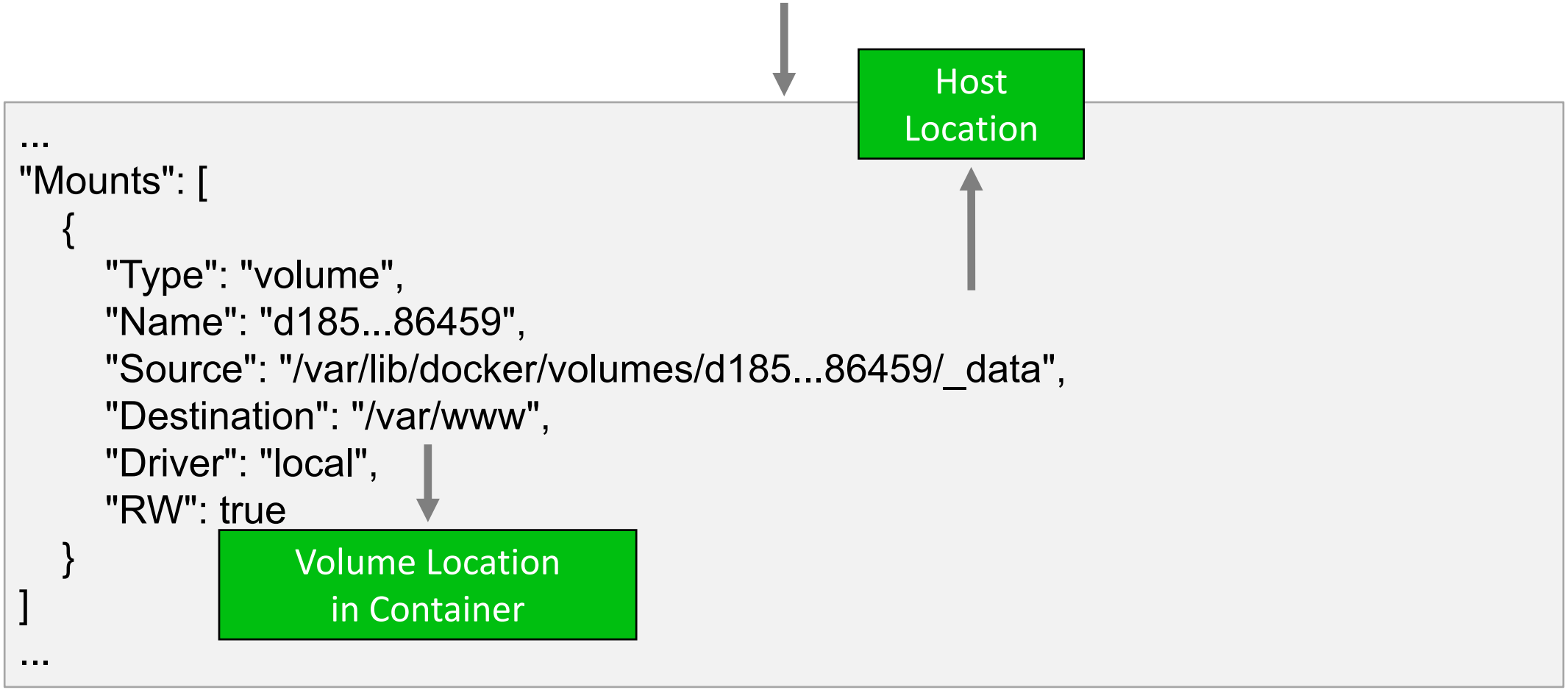


Inspecting a Volume

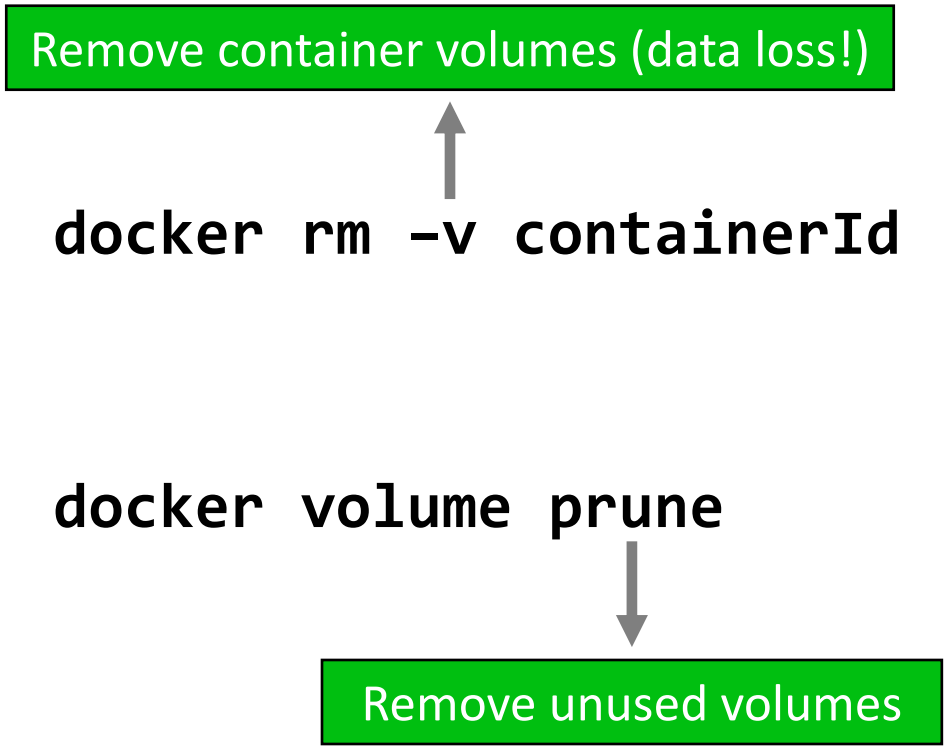
```
docker volume inspect [volumeName]
```

Inspecting a Container's Volumes

`docker inspect mycontainer`



Removing Volumes



Defining a Volume in a Dockerfile

Defining Volumes

- Volumes can be defined multiple ways:
  - Using *docker run -v* when running a container (host mount can be defined)
  - In a docker-compose-yml file (covered later – host mount can be defined)
  - In a Dockerfile (host mount cannot be defined)

- Required volumes for data files, log files, etc. can be defined in a Dockerfile

Dockerfile with a Volume

```
FROM        microsoft/dotnet:x.x.x-sdk
LABEL       author="Jimmy Docker"
ENV         ASPNETCORE_URLS=http://*:5000
VOLUME      /logs
WORKDIR     /var/www/aspnetcoreapp
CMD         ["/bin/bash", "-c","dotnet restore && dotnet run"]
```

Can a Host Mount be Defined in a Dockerfile?

```
FROM        microsoft/dotnet:x.x.x-sdk
LABEL       "Jane Docker"
ENV         ASPNETCORE_URLS=http://*:5000
VOLUME      /host-logs /container-logs
WORKDIR     /var/www/aspnetcoreapp
CMD         ["/bin/bash", "-c","dotnet restore && dotnet run"]
```

Not supported! Host is always independent from the Dockerfile

Changing the Volume Within a Dockerfile

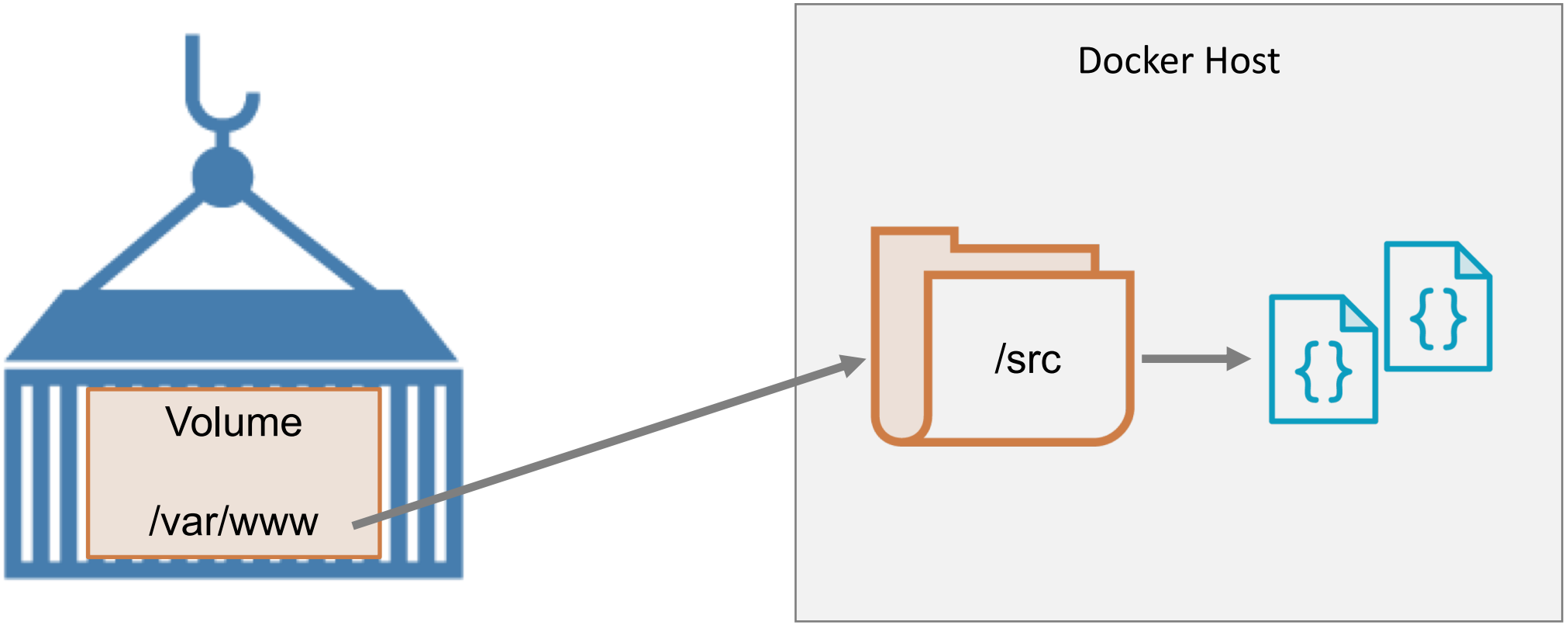
Important!

If any build steps change the data within the volume after it has been declared, those changes will be discarded.

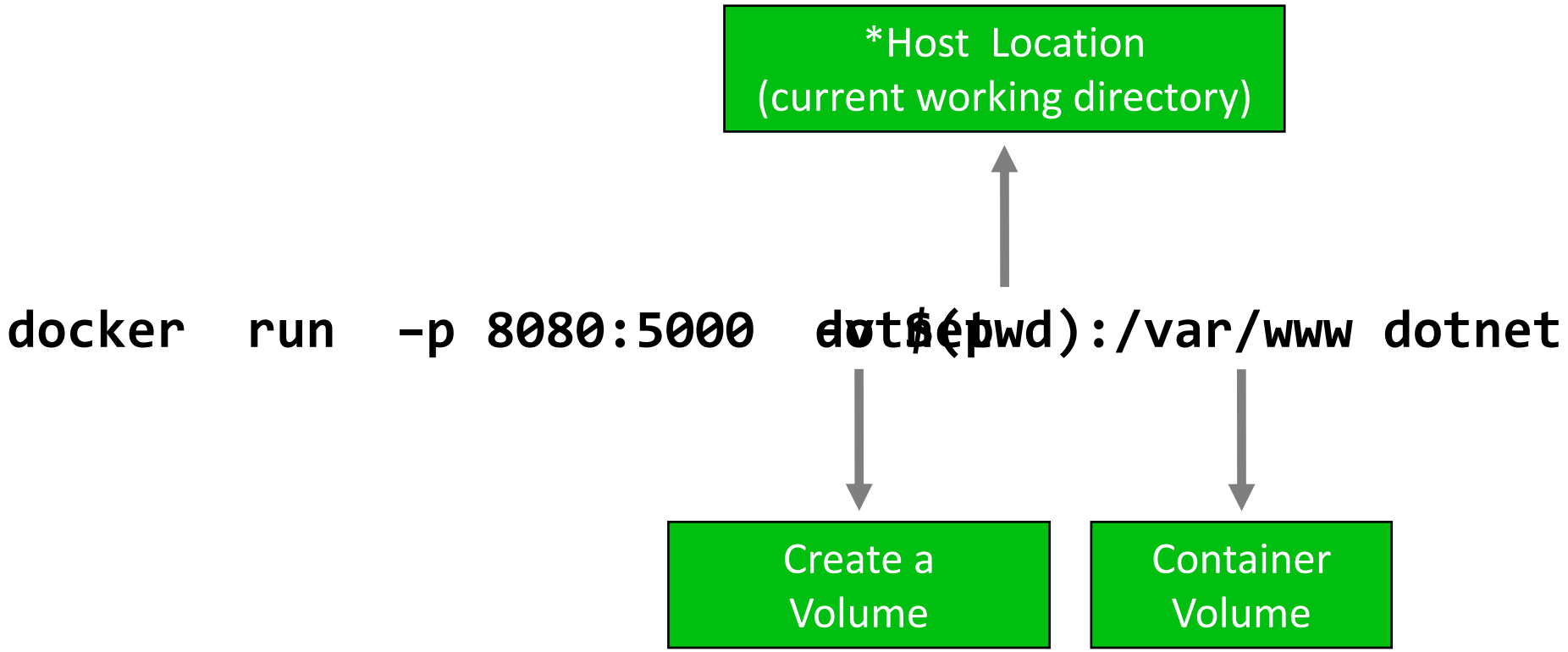
https://docs.docker.com/engine/reference/builder/#volume

Local Source Code and Containers

Binding a Volume to Your Source Code



Customizing the Host Location



* On Windows you'll need to use different syntax to reference the local folder:

https://blog.codewithdan.com/docker-volumes-and-print-working-directory-pwd

Summary

- Volumes can "hook" a container folder to a host folder
- Source code can be hooked into to a running container using the -v switch
- Volumes can be listed and inspected using *docker volume*
- Volumes are persisted on the Docker host (even after a container is removed)

Lab

Running Containers and Using Volumes

https://cloudskills.io/labs

Bonus: Windows Volume Syntax

To create a volume that points to the folder that you're currently in:

DOS (cmd): -v %cd%:/data

Powershell: -v ${PWD}:/data

Git Bash: -v /$(pwd):/data

You can use an absolute path as well:

-v /c/folder:/data