Section 9 - Persistent Data and Volumes

3 Persistent Data: Bind Mounting



Bind Mounting - Overview

- When we use a bind mount, a file or directory on the host machine is mounted into a container.
- It maps an existing file or directory on the host to a container file or directory.
- The file or directory is referenced by the absolute or relative path on the host machine.
- Basically just two locations pointing to the same file(s).
- If you are bind mounting a file that already exist on both the host and the container file system, then the host file "wins".

Notes

- Are not managed from Docker as they are the data volumes
- A Bind mount cannot be used in a Dockerfile.

Bind Mounting - volume command

• Bind Mounting are defined with the **--volume** or **-v** options as follow:

- On the left side of the colon there is the path defined on the docker host.
- On the right side of the colon there is the path defined on the container.

The difference between a named volume and a bind mount is:

- Named volume => On the left side of the colon a "simple" name is defined.
- Bind mount => On the left side of the colon a host path is defined.



Bind Mounting - example (0)

Example (Docker on linux)

```
docker container run -v /opt/mnt-dir:/path/container ...
```

- /opt/mnt-dir => is on the Docker host side
- /path/container => inside the container
- Example (Docker toolbox on windows)

```
docker container run -v /c/Users/gerassimos/stuff:/path/container ...
```

This is a special case because a windows path is accessible from the Docker linux VM in a special **Virtual Box way**.

Bind mount - nginx example (1)

• In the following example we are going to use the files that are available under the **resources/bind-mount-sample-1** directory to build a custom Docker image.

Note:

We use the **\$(pwd)/html** instead of the host path => the **pwd** linux command will print the current working directory.



Bind mount - nginx example (2)

Access to custom index.html page from your docker host



Bind mount - nginx example (3)

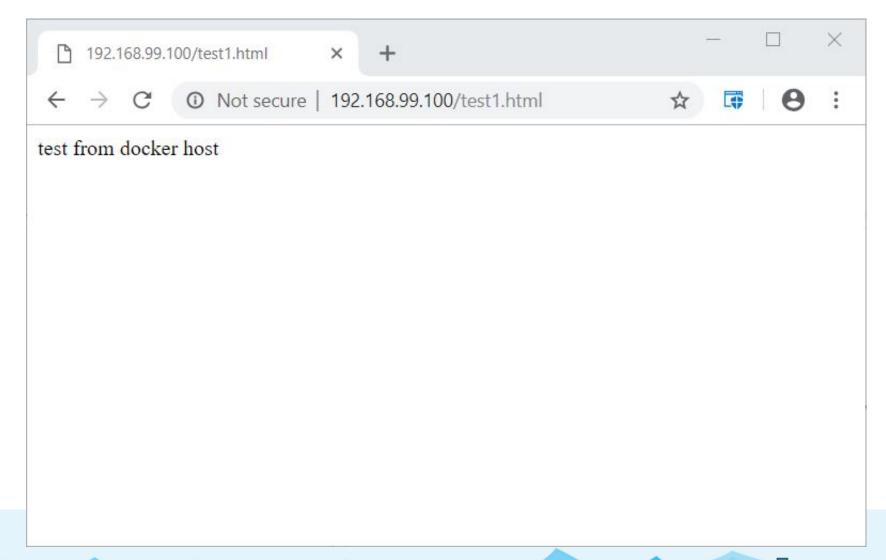
- While the nginx container is running we can:
 - 1. create a new file in the bind mount from the docker host
 - 2. create a new file in the bind mount from within the running container
- Verify that nginx can access all the files in the above step.

```
# cd resources/bind-mount-sample-1
# echo "test from docker host" > html/test1.html
# ls html/
50x.html index.html index.html.bck.original test1.html

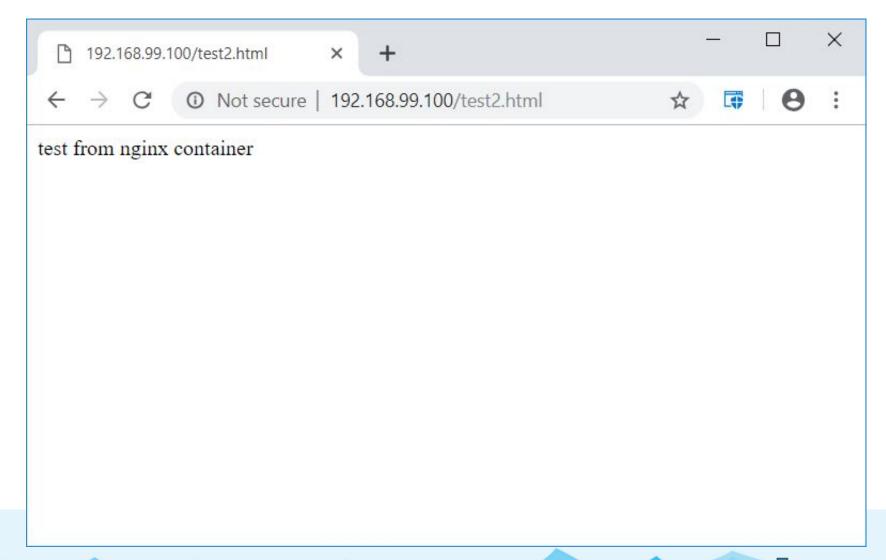
# docker exec -it nginx bash
root@b9e701f0484f:/# echo "test from nginx container" > /usr/share/nginx/hroot@b9e701f0484f:/# ls /usr/share/nginx/html/
50x.html index.html index.html.bck.original test1.html test2.html
```



Bind mount - nginx example (4a)



Bind mount - nginx example (4b)



LAB

- Ref:
- D_S9_L3_Persistent_Data_LAB.md