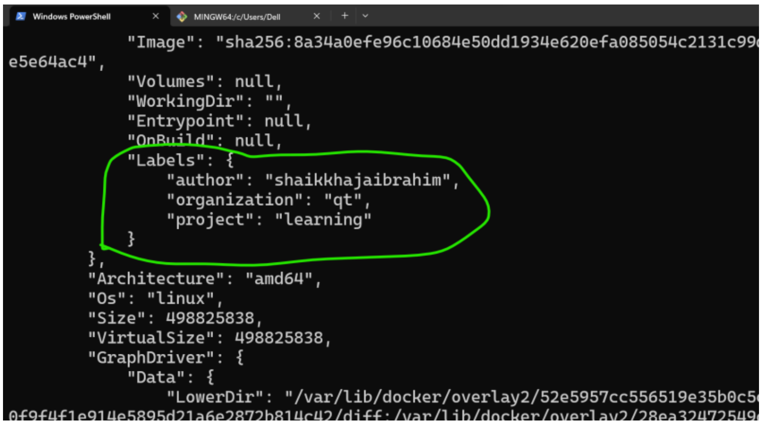
APRIL 12, 2023

DevOps Classroomnotes 12/Apr/2023

Dockerfile Instructions Contd…

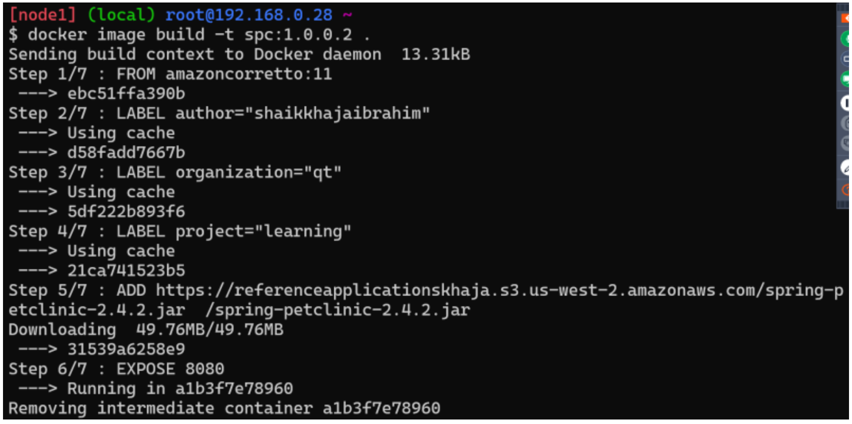
- LABEL: This instruction adds metadata Refer Here
  - Refer Here for the changes done for spc image
  - Lets inspect the image `docker image inspect spc:1.0.0.1` and observe the labels section



```
            "Image": "sha256:8a34a0efe96c10684e50dd1934e620efa085054c2131c99
e5e64ac4",
            "Volumes": null,
            "WorkingDir": "",
            "Entrypoint": null,
            "OnBuild": null,
            "Labels": {
                "author": "shaikkhajaibrahim",
                "organization": "qt",
                "project": "learning"
            }
        },
        "Architecture": "amd64",
        "Os": "linux",
        "Size": 498825838,
        "VirtualSize": 498825838,
        "GraphDriver": {
            "Data": {
                "LowerDir": "/var/lib/docker/overlay2/52e5957cc556519e35b0c5
0f9f4f1e914e5895d21a6e2872b814c42/diff:/var/lib/docker/overlay2/28ea32472549
```

ADD, COPY instructions

- ADD instruction can add the files into docker image from local file system as well as from http(s)
- ADD instruction can have sources
  - local file system
  - git repo
  - url
- COPY supports only local file system
- Lets use ADD to download springpetclinic into docker image from url `ADD https://referenceapplicationskhaja.s3.us-west-2.amazonaws.com/spring-petclinic-2.4. /spring-petclinic-2.4.2.jar`

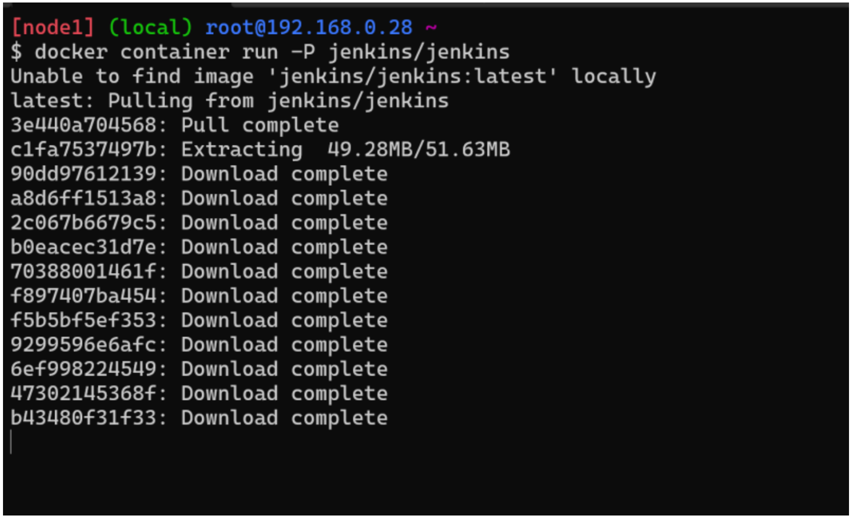


```
[node1] (local) root@192.168.0.28 ~
$ docker image build -t spc:1.0.0.2 .
Sending build context to Docker daemon  13.31kB
Step 1/7 : FROM amazoncorretto:11
 ---> ebc51ffa390b
Step 2/7 : LABEL author="shaikkhajaibrahim"
 ---> Using cache
 ---> d58fadd7667b
Step 3/7 : LABEL organization="qt"
 ---> Using cache
 ---> 5df222b893f6
Step 4/7 : LABEL project="learning"
 ---> Using cache
 ---> 21ca741523b5
Step 5/7 : ADD https://referenceapplicationskhaja.s3.us-west-2.amazonaws.com/spring-p
etclinic-2.4.2.jar  /spring-petclinic-2.4.2.jar
Downloading  49.76MB/49.76MB
 ---> 31539a6258e9
Step 6/7 : EXPOSE 8080
 ---> Running in a1b3f7e78960
Removing intermediate container a1b3f7e78960
```

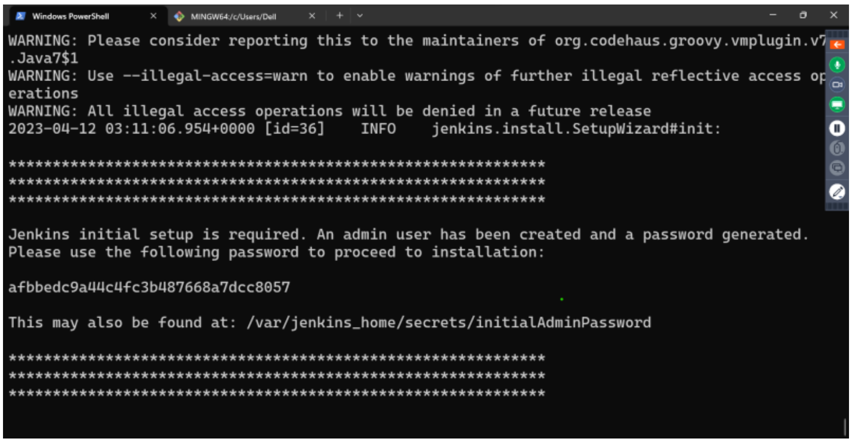
- Refer Here for the changes
- copy the springpetclinic jar file into some local path on docker host. Refer Here for the changes done

What do we mean by running container in detached mode?

- Lets try to start the docker container jenkins `jenkins/jenkins`

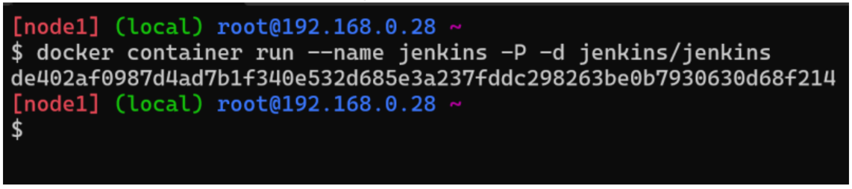


```
[node1] (local) root@192.168.0.28 ~
$ docker container run -P jenkins/jenkins
Unable to find image 'jenkins/jenkins:latest' locally
latest: Pulling from jenkins/jenkins
3e440a704568: Pull complete
c1fa7537497b: Extracting  49.28MB/51.63MB
90dd97612139: Download complete
a8d6ff1513a8: Download complete
2c067b6679c5: Download complete
b0eacec31d7e: Download complete
70388001461f: Download complete
f897407ba454: Download complete
f5b5bf5ef353: Download complete
9299596e6afc: Download complete
6ef998224549: Download complete
473021453 68f: Download complete
b43480f31f33: Download complete
```



```
WARNING: Please consider reporting this to the maintainers of org.codehaus.groovy.vmplugin.v7
.Java7$1
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access op
erations
WARNING: All illegal access operations will be denied in a future release
2023-04-12 03:11:06.954+0000 [id=36]    INFO    jenkins.install.SetupWizard#init:

*************************************************************
*************************************************************
*************************************************************

Jenkins initial setup is required. An admin user has been created and a password generated.
Please use the following password to proceed to installation:

afbbedc9a44c4fc3b487668a7dcc8057

This may also be found at: /var/jenkins_home/secrets/initialAdminPassword

*************************************************************
*************************************************************
*************************************************************
```

- docker container's STDOUT and STDERR will be attached to your terminal and if we execute ctrl+c the container exits.
- Running container normally will take us to attached mode.
- In detached mode container executes and gives us back the access to terminal



```
[node1] (local) root@192.168.0.28 ~
$ docker container run --name jenkins -P -d jenkins/jenkins
de402af0987d4ad7b1f340e532d685e3a237fddc298263be0b7930630d68f214
[node1] (local) root@192.168.0.28 ~
$
```

- Once we start the container in detached mode we can still view the STDOUT and STDERR by executing `docker container attach <container-name-or-id>`
- To exit from attach mode `Ctrl+PQ`

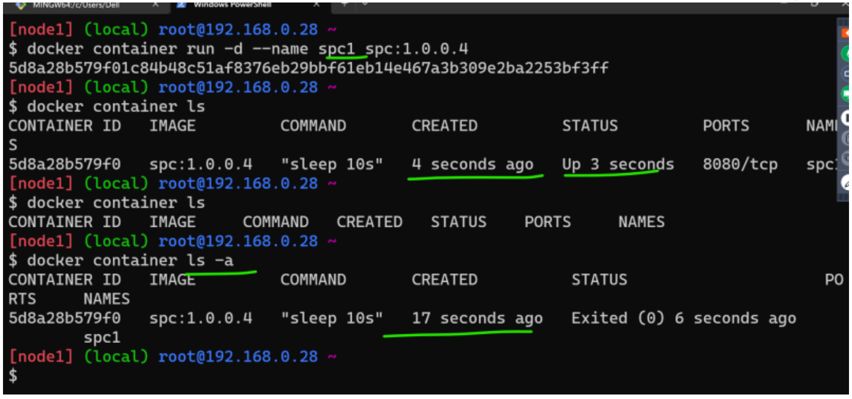
Docker container will be in running state as long as command in cmd is running

- Consider the following Dockerfile

```
FROM amazoncorretto:11
LABEL author="shaikkhajaibrahim"
LABEL organization="qt"
LABEL project="learning"
# Copy from local file on Docker host into docker image
COPY spring-petclinic-2.4.2.jar  /spring-petclinic-2.4.2.jar
EXPOSE 8080
CMD ["sleep", "10s"]
```

- We have sleep 10s i.e. this will run for 10s and finish.

- Docker container will move to exited stated once the command in CMD has finished executing



```
[node1] (local) root@192.168.0.28 ~
$ docker container run -d --name spc1 spc:1.0.0.4
5d8a28b579f01c84b48c51af8376eb29bbf61eb14e467a3b309e2ba2253bf3ff
[node1] (local) root@192.168.0.28 ~
$ docker container ls
CONTAINER ID   IMAGE          COMMAND        CREATED         STATUS         PORTS      NAMI
S
5d8a28b579f0   spc:1.0.0.4    "sleep 10s"    4 seconds ago   Up 3 seconds   8080/tcp   spc
[node1] (local) root@192.168.0.28 ~
$ docker container ls
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS     NAMES
[node1] (local) root@192.168.0.28 ~
$ docker container ls -a
CONTAINER ID   IMAGE          COMMAND        CREATED          STATUS                     PO
RTS     NAMES
5d8a28b579f0   spc:1.0.0.4    "sleep 10s"    17 seconds ago   Exited (0) 6 seconds ago
        spc1
[node1] (local) root@192.168.0.28 ~
$
```

Exercise:

- Create a ubuntu vm
- install apache2 and note the ExecStart command for apache2
- install tomcat9 and note the ExecStart command for tomcat9
- stop the services (systemcl stop servicename)
- become a root user (sudo -i)
- try executing the ExecStart command directly and see if the application is running

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