Chapter 7

Lab 7.1

Build a Docker Container that Runs a Java Application

1. Follow the instructions at https://docs.docker.com/engine/installation/linux/ubuntulinux/ to install Docker.

   Add your user to the Docker group, then log out and log in to be able to run Docker commands.

   ```
   $ sudo usermod -aG docker ubuntu
   ```

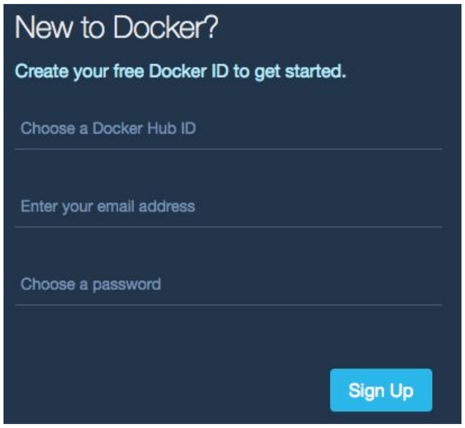
   Verify that Jenkins can run Docker commands:

   ```
   $ sudo usermod -aG docker jenkins
   $ sudo su jenkins
   $ docker run hello-world
   ```

   Exit out of Jenkins and restart the services:

   ```
   $ sudo service docker restart
   $ sudo service jenkins restart
   ```

2. Sign up for a Docker Hub at http://hub.docker.com/. Fill out the fields for “Create your free Docker ID to get started” and click on “Sign Up”.



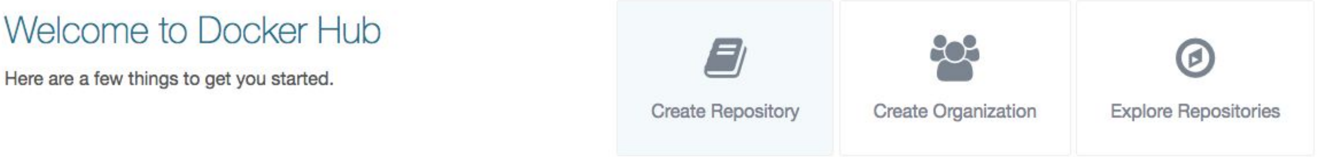
New to Docker?

Create your free Docker ID to get started.

3. Verify your profile by accepting a confirmation email. Then, log into your Docker Hub account.

   Note: Disable ad blocker software running in your browser; otherwise, Docker Hub may not function properly.

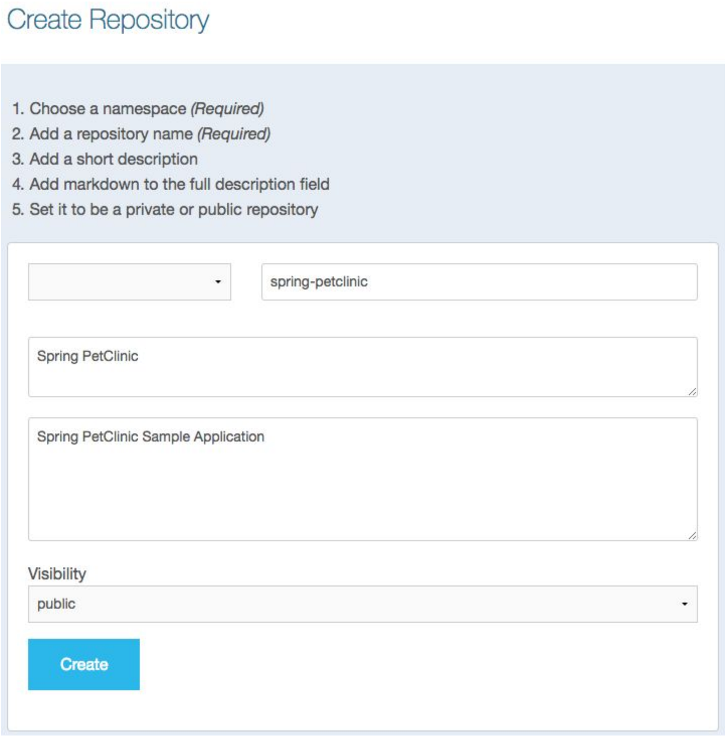
4. Click on ”Create Repository”.



Welcome to Docker Hub

Here are a few things to get you started.

5. Name the repository “**`spring-petclinic`**”, and fill out the descriptions. Keep it public for now. Click on the “Create” button.



Create Repository

1. Choose a namespace *(Required)*
2. Add a repository name *(Required)*
3. Add a short description
4. Add markdown to the full description field
5. Set it to be a private or public repository

spring-petclinic

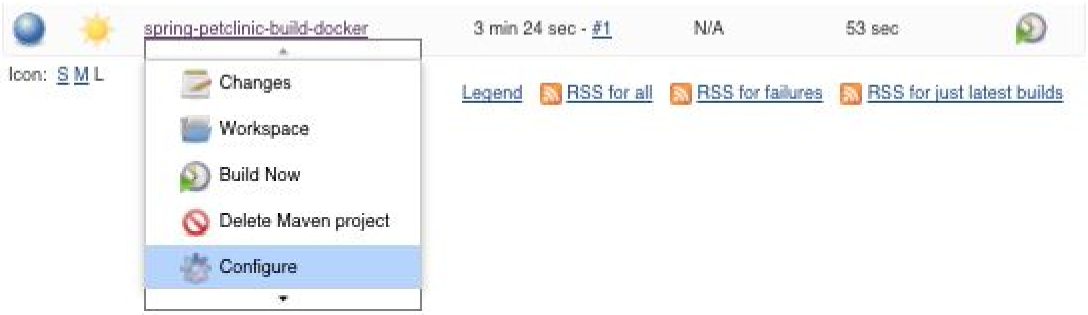
Spring PetClinic

Spring PetClinic Sample Application

Visibility

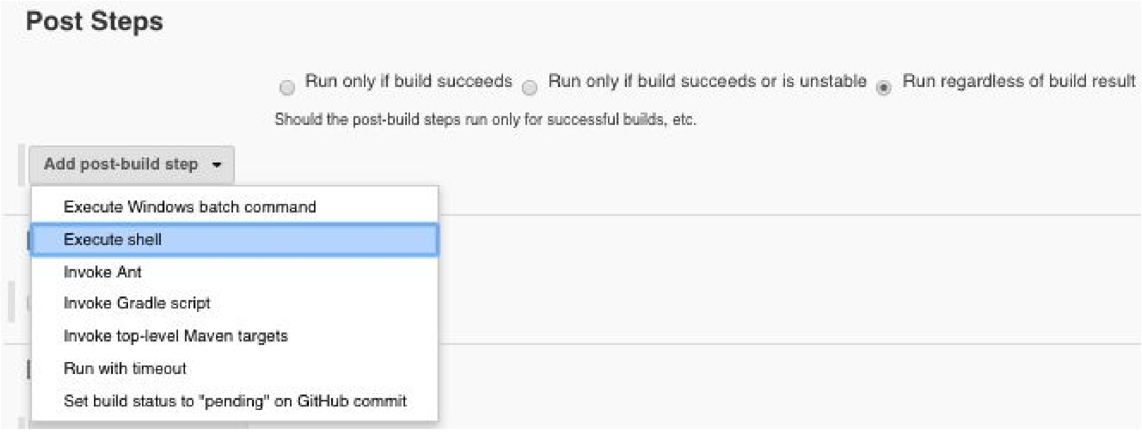
public

6. Navigate to the Jenkins instance and open the configuration for the cloned job “**`spring-petclinic-build-docker`**”, created in Chapter 3, Lab 3.3. If necessary, refer to this chapter for details.


spring-petclinic-build-docker | 3 min 24 sec - #1 | N/A | 53 sec

Icon: S M L

7. Under “Post Steps”, add a post-build step called “Execute shell”.


Post Steps

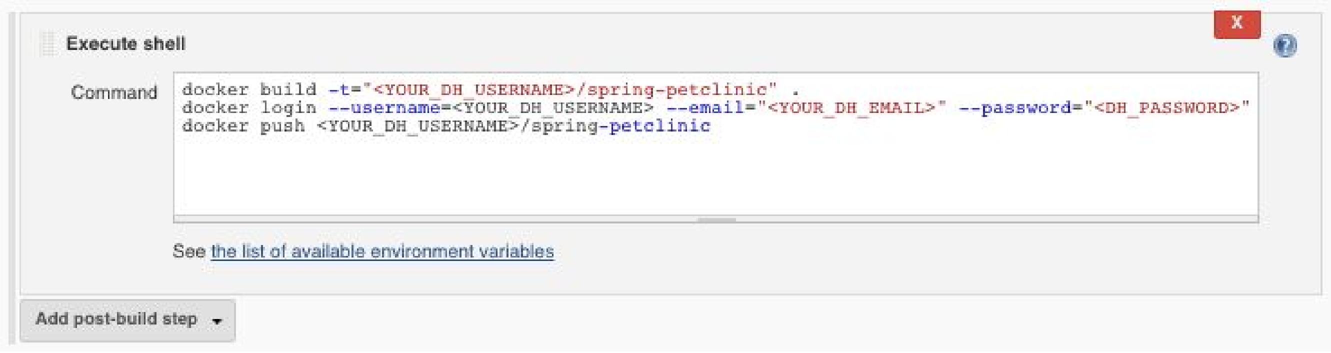
○ Run only if build succeeds ○ Run only if build succeeds or is unstable ● Run regardless of build result

Should the post-build steps run only for successful builds, etc.

Add post-build step
Execute Windows batch command
Execute shell
Invoke Ant
Invoke Gradle script
Invoke top-level Maven targets
Run with timeout
Set build status to "pending" on GitHub commit

8. Modify the shell execution step to match your Docker Hub credentials:

```
$ docker build -t="<YOUR_DH_USERNAME>/spring-petclinic" .
$ docker login --username=<YOUR_DH_USERNAME> --email="<YOUR_DH_EMAIL>"
--password="<DH_PASSWORD>"
$ docker push <YOUR_DH_USERNAME>/spring-petclinic
```


Execute shell

Command

```
docker build -t="<YOUR_DH_USERNAME>/spring-petclinic" .
docker login --username=<YOUR_DH_USERNAME> --email="<YOUR_DH_EMAIL>" --password="<DH_PASSWORD>"
docker push <YOUR_DH_USERNAME>/spring-petclinic
```

See the list of available environment variables

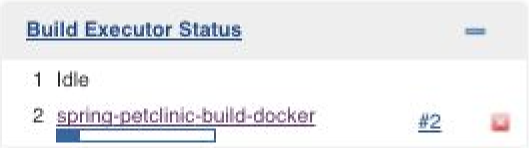
9. A **Dockerfile** needs to be created for the **spring-petclinic**. Create a file in the root of the **spring-petclinic** Git repository named “**Dockerfile**”:

```
cd ~/spring-petclinic/
touch Dockerfile
```

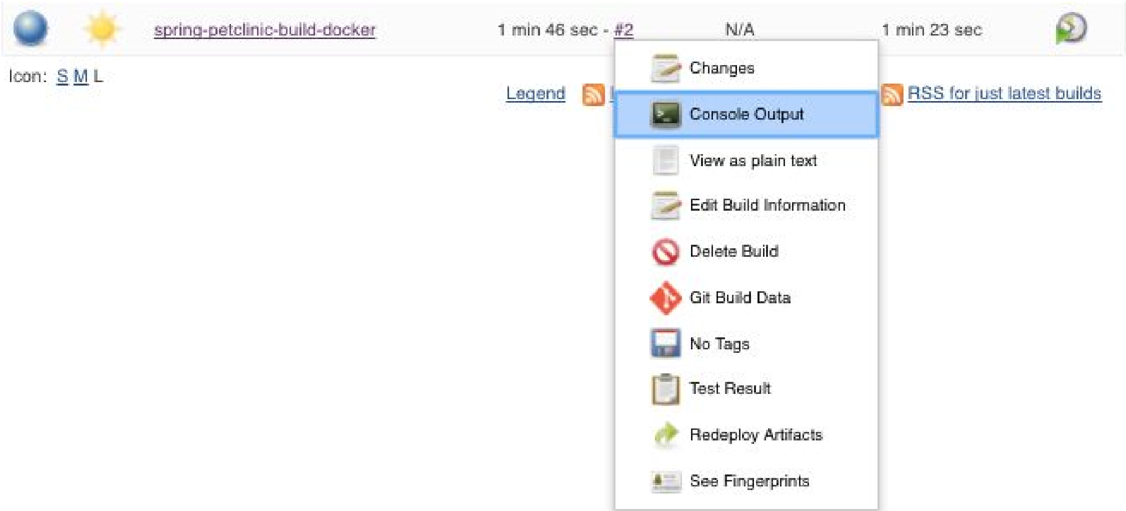
10. Edit the **Dockerfile** and insert the following text:

```
FROM tomcat:alpine

ADD target/petclinic.war /usr/local/tomcat/webapps/petclinic.war

CMD ["catalina.sh", "run"]
```

11. Push the changes up to GitHub. This should trigger the **spring-petclinic-build-docker** job to run.



12. There are two ways to confirm that the job is successful. First, navigate to the job’s “Console Output”.

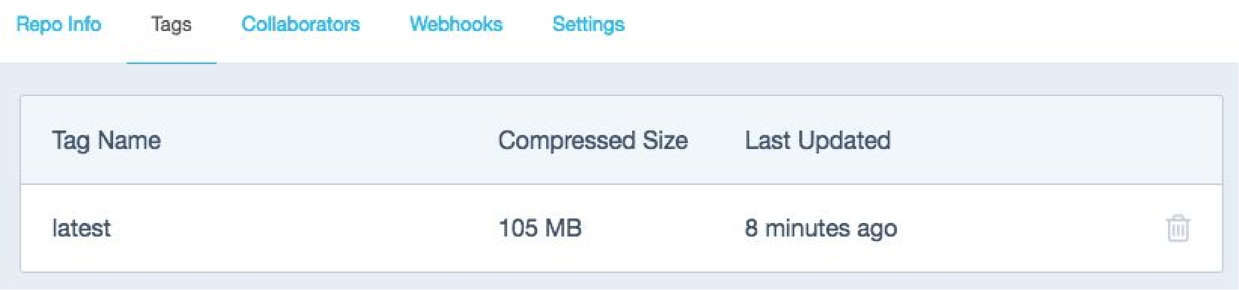


13. The end of the console log should have an output similar to the following:

```
+ docker push <YOUR_DH_USER>/spring-petclinic
The push refers to a repository [docker.io/<YOUR_DH_USER>/spring-petclinic]
```

```
c600baed4111: Preparing
...
6e1337fa108d: Pushed
latest: digest:
sha256:88dff2d5f3d011303cb54b2703401380aa0055678b2cc5323cbc14721af77d6e size:
2414
Finished: SUCCESS
```

14. Next, log into your Docker Hub account, and select the **`spring-petclinic`** repository. Click on the "Tags" tab to confirm that there is a **`latest`** tag showing.



Tag Name	Compressed Size	Last Updated
latest	105 MB	8 minutes ago

15. Test the new container by running the following command on the Ubuntu system:

```
$ sudo docker run -it --rm -p 8085:8080 <YOUR_DH_USER>/spring-petclinic
```