Exercise 4. Docker: Images

Docker: Images

Estimated time

00:45

What this exercise is about

In Docker, everything is based on Images. An image is a combination of a file system and parameters.

What you should be able to do

At the end of the exercise, you should be able to:

- Download, Configure and Query Docker Images
- In Docker, everything is based on Images. An image is a combination of a file system and parameters. Let's take an example of the following command in Docker.
- docker run hello-world
- The Docker command is specific and tells the Docker program on the Operating System that something needs to be done.
- The run command is used to mention that we want to create an instance of an image, which is then called a container.
- Finally, "hello-world" represents the image from which the container is made.

Now let's look at how we can use the CentOS image available in Docker Hub to run CentOS on our Ubuntu machine. We can do this by executing the following command on our Ubuntu machine:

sudo docker run -it centos /bin/bash

Note the following points about the above sudo command:

- We are using the sudo command to ensure that it runs with root access.
- Here, centos is the name of the image we want to download from Docker Hub and install on our Ubuntu machine.
- –it is used to mention that we want to run in interactive mode.
- /bin/bash is used to run the bash shell once CentOS is up and running.

Displaying Docker Images

To see the list of Docker images on the system, you can issue the following command.

docker images

This command is used to display all the images currently installed on the system.

Syntax

docker images

Options

None

Return Value

The output will provide the list of images on the system.

Example

sudo docker images

Output

When we run the above command, it will produce the following result:

```
demo@ubuntuserver:~$ sudo docker images
[sudo] password for demo:
REPOSITORY          TAG                 IMAGE ID            CREATED
VIRTUAL SIZE
newcentos           latest              7a86f8ffcb25        9 days ago
196.5 MB
jenkins             latest              998d1854867e        2 weeks ago
714.1 MB
centos              latest              97cad5e16cb6        4 weeks ago
196.5 MB
demo@ubuntuserver:~$ _
```

From the above output, you can see that the server has three images: centos, newcentos, and jenkins. Each image has the following attributes:

- TAG: This is used to logically tag images.
- Image ID: This is used to uniquely identify the image.
- Create: The number of days since the image was created.
- Virtual size: The size of the image.

Downloading Docker Images

Images can be downloaded from Docker Hub using the Docker run command. Let's see in detail how we can do this.

Syntax

The following syntax is used to run a command in a Docker container.

docker run image

Options

Image: This is the name of the image which is used to run the container.

Return value

The output will run the command in the desired container.

Example

sudo docker run centos

This command will download the centos image, if it is not already present, and run the OS as a container.

Output

When we run the above command, we will get the following result:

```
demo@ubuntuserver:~$ sudo docker run centos
Unable to find image 'centos:latest' locally
latest: Pulling from centos

3690474eb5b4: Pull complete
af0819ed1fac: Pull complete
05fe84bf6d3f: Pull complete
97cad5e16cb6: Pull complete
Digest: sha256:934ff980b04db1b7484595bac0c8e6f838e1917ad3a38f904ece64f70bbc
Status: Downloaded newer image for centos:latest
demo@ubuntuserver:~$ _
```

You will now see the CentOS Docker image downloaded. Now, if we run the Docker images command to see the list of images on the system, we should be able to see the centos image as well.

```
demo@ubuntuserver:~$ sudo docker run centos
Unable to find image 'centos:latest' locally
latest: Pulling from centos

3690474eb5b4: Pull complete
af0819ed1fac: Pull complete
05fe84bf6d3f: Pull complete
97cad5e16cb6: Pull complete
Digest: sha256:934ff980b04db1b7484595bac0c8e6f838e1917ad3a38f904ece64f70bbc
Status: Downloaded newer image for centos:latest
demo@ubuntuserver:~$ sudo docker images
REPOSITORY          TAG                 IMAGE ID            CREATED
VIRTUAL SIZE
jenkins             latest              998d1854867e        2 weeks ago
714.1 MB
centos              latest              97cad5e16cb6        4 weeks ago
196.5 MB
demo@ubuntuserver:~$
```

Removing Docker Images

The Docker images on the system can be removed via the docker rmi command. Let's look at this command in more detail.

docker rmi

This command is used to remove Docker images.

Syntax

docker rmiImageID

Options

ImageID: This is the ID of the image which needs to be removed.

Return Value

The output will provide the Image ID of the deleted Image.

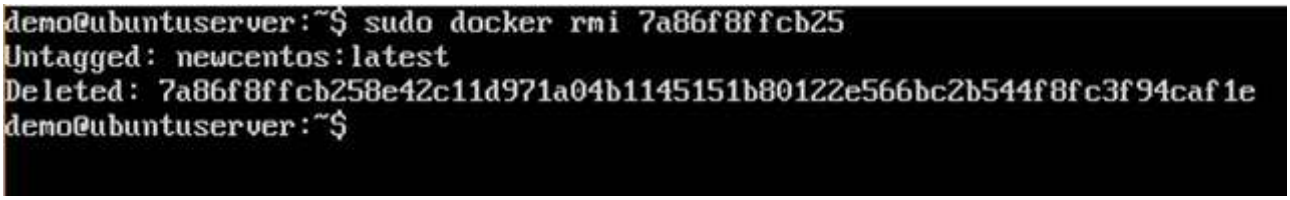
Example

sudo docker rmi 7a86f8ffcb25

Here, 7a86f8ffcb25 is the Image ID of the newcentos image.

Output

When we run the above command, it will produce the following result:



Let's see some more Docker commands on images.

docker images -q

This command is used to return only the Image ID's of the images.

Syntax

docker images

Options

Q: It tells the Docker command to return the Image ID's only.

Return value

The output will show only the Image ID's of the images on the Docker host.

Example

sudo docker images -q

Output

When we run the above command, it will produce the following result:

docker inspect

This command is used see the details of an image or container.

Syntax

docker inspect Repository

Options

Repository: This is the name of the image.

Return value

The output will show detailed information on the image.

Example

sudo docker inspect jenkins

Output

When we run the above command, it will produce the following result:

End of exercise.