

Creating Own docker images

Steps to create image: -

In Manual process first we need to take base image and base image is always any OS(operating system), so first we pull any OS image from docker hub, then we need to run this base image as container in interactive mode, now we will come inside the container, here we starts making the changes into the base image of OS as per our requirement , assume I am installing nginx server:-

apt-get update

apt-get install nginx

modify default page of nginx

make some dir or file

come out of container

save the changes and this will be saved as new image which we can use anywhere (Mandatory)

```
[root@ip-172-31-1-76 ~]# docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
[root@ip-172-31-1-76 ~]# docker ps -a
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS
[root@ip-172-31-1-76 ~]# docker pull ubuntu
Using default tag: latest
latest: Pulling from library/ubuntu
6abc03819f3e: Pull complete
05731e63f211: Pull complete
0bd67c50d6be: Pull complete
Digest: sha256:f08638ec7ddc90065187e7eabdfac3c96e5ff0f6b2f1762cf31a4f49b53000a5
Status: Downloaded newer image for ubuntu:latest
[root@ip-172-31-1-76 ~]# docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
ubuntu              latest             7698f282e524       3 weeks ago        69.9MB
[root@ip-172-31-1-76 ~]# docker run -it ubuntu bash
root@2alc1b71a416:/# hostname
2alc1b71a416
root@2alc1b71a416:/# ls
bin boot dev etc home lib lib64 media mnt opt proc root run sbin srv sys tmp usr var
root@2alc1b71a416:/#
```

In above snap first, we had pulled the ubuntu image from docker hub and then ran that image to move inside the ubuntu container, now we will make some changes in this centos container by installing nginx, modifying their default page and creating some directory

```
[root@ip-172-31-1-76 ~]# docker run -it ubuntu bash
root@2alc1b71a416:/# hostname
2alc1b71a416
root@2alc1b71a416:/# ls
bin boot dev etc home lib lib64 media mnt opt proc root run sbin srv sys tmp usr var
root@2alc1b71a416:/# apt-get install nginx
Reading package lists... Done
Building dependency tree
Reading state information... Done
E: Unable to locate package nginx
root@2alc1b71a416:/# #so always first we need to update apt-get package then install any package
root@2alc1b71a416:/#
```

So, we installed nginx after updating the ubuntu package list: -

apt-get update;

apt-get install nginx -y;

```
root@2alc1b71a416:/# # we used the command to install nginx "apt-get install nginx -y"
root@2alc1b71a416:/# #now checking the status either nginx is installed or not
root@2alc1b71a416:/# ps -ef | grep nginx
root      774      1   0  04:03 ?        00:00:00 grep --color=auto nginx
root@2alc1b71a416:/# service nginx status
* nginx is not running
root@2alc1b71a416:/# service nginx start
* Starting nginx nginx
root@2alc1b71a416:/# service nginx status
* nginx is running
root@2alc1b71a416:/# ps -ef | grep nginx
root      808      1   0  04:03 ?        00:00:00 nginx: master process /usr/sbin/nginx
www-data  810     808   0  04:03 ?        00:00:00 nginx: worker process
root      823      1   0  04:03 ?        00:00:00 grep --color=auto nginx
root@2alc1b71a416:/#
```

Now we can check that our nginx got installed inside /etc/nginx/ and the default output of nginx present in /var/www/html/index.nginx-debian.html , so we will change the output of this page to some random message, here I had created a directory named devopsg inside which I had created a text file named devops.txt , now I will come out of the container and saves the container as new image

```

root@2a1c1b71a416:/var/www/html# vi index.nginx-debian.html
root@2a1c1b71a416:/var/www/html# ls
index.nginx-debian.html
root@2a1c1b71a416:/var/www/html# cd
root@2a1c1b71a416:~# ls
root@2a1c1b71a416:~# mkdir devopsg
root@2a1c1b71a416:~# ls
devopsg
root@2a1c1b71a416:~# cd devopsg/
root@2a1c1b71a416:~/devopsg# touch devopsg.txt
root@2a1c1b71a416:~/devopsg# vim devopsg.txt
root@2a1c1b71a416:~/devopsg# cat devopsg.txt
This is docker training
root@2a1c1b71a416:~/devopsg#

```

In below image we have committed the container with name mynginx, but we can easily see when we ran the container no port is assigned to it and nginx is not in running status, because no process is running inside it and we haven't given any process to run inside the created newly image so it is taking the default process bash of OS, but to run nginx we need to run

```

[root@ip-172-31-1-76 ~]# docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS
2a1c1b71a416       ubuntu             "bash"             35 minutes ago     Up 35 minutes
[root@ip-172-31-1-76 ~]# docker commit -m "installed nginx" 2a1c1b71a416 mynginx
sha256:58a0a121f7f45a23748e45b5f5800f6b9762d0f8144fc5dddfb38c0d15f095dae
[root@ip-172-31-1-76 ~]# docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
mynginx             latest             58a0a121f7f4       5 seconds ago      210MB
ubuntu              latest             7698f282e524       3 weeks ago        69.9MB
[root@ip-172-31-1-76 ~]# docker run -itd -P mynginx
cd36c9db991f4e4902f5d8447e1be85f348ebd96137a2f7da4b470788d7e7d09
[root@ip-172-31-1-76 ~]# docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS
cd36c9db991f       mynginx            "bash"             2 seconds ago      Up 2 seconds
2a1c1b71a416       ubuntu             "bash"             38 minutes ago     Up 38 minutes

```

```

[root@ip-172-31-1-76 ~]# docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
mynginx             latest             58a0a121f7f4       2 hours ago        210MB
ubuntu              latest             7698f282e524       3 weeks ago        69.9MB
[root@ip-172-31-1-76 ~]# docker commit -m "configured nginx" -c 'CMD /usr/sbin/nginx -g "daemon off;"' -c 'EXPOSE 80' 743714a9b31f new_nginx
sha256:2e4174d6971c982f31972c917c2c82be9a665d15e1110deaf368e036024ba9c

```



```
[root@ip-172-31-1-76 ~]# docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS              NAMES
743714a9b31f        ubuntu             "/bin/bash"        7 minutes ago      Up 7 minutes       80/tcp             laughing

[root@ip-172-31-1-76 ~]# docker ps -a
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS              NAMES
743714a9b31f        ubuntu             "/bin/bash"        7 minutes ago      Up 7 minutes       80/tcp             laughing

[root@ip-172-31-1-76 ~]# docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
new_nginx            latest             2e4174d6971c       14 seconds ago     210MB
mynginx              latest             58a0a121f7f4       2 hours ago        210MB
ubuntu               latest             7698f282e524       3 weeks ago        69.9MB

[root@ip-172-31-1-76 ~]# docker run -itd new_nginx
64f71fa7ba88c83db3d2cf512e4bcc043d1e4dc6d3aa80798e91265205bd4c26

[root@ip-172-31-1-76 ~]# docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS              NAMES
64f71fa7ba88        new_nginx           "/bin/sh -c '/usr/..." 3 seconds ago      Up 2 seconds       80/tcp             j
743714a9b31f        ubuntu             "/bin/bash"        8 minutes ago      Up 7 minutes       80/tcp             la

[root@ip-172-31-1-76 ~]# docker run -itd -P new_nginx
f23d540000ad1709ee89602e71af9c3a9609e96666f76d4c5c5d8fd50333780d

[root@ip-172-31-1-76 ~]# docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS              NAMES
f23d540000ad        new_nginx           "/bin/sh -c '/usr/..." 3 seconds ago      Up 2 seconds       0.0.0.0:32779->80/tcp  j
64f71fa7ba88        new_nginx           "/bin/sh -c '/usr/..." 27 seconds ago     Up 26 seconds      80/tcp             la
743714a9b31f        ubuntu             "/bin/bash"        8 minutes ago      Up 8 minutes       80/tcp             la

[root@ip-172-31-1-76 ~]#
```

Welcome to Devops G
+

52.66.237.238:32779

Getting Started

Welcome to docker training

If you see this page, the nginx web server is successfully installed and working. Further configuration is required.

For online documentation and support please refer to nginx.org. Commercial support is available at nginx.com.

Thank you for using nginx.

See in below pic we are inside the container and when we are running `df -h`, we are getting the disk space details of host OS, which clarifies that all container automatically uses the resource of host OS

```
root@f23d540000ad:~# df -h
Filesystem      Size  Used Avail Use% Mounted on
overlay          10G   2.7G   7.4G   27% /
tmpfs            496M    0   496M    0% /dev
tmpfs            496M    0   496M    0% /sys/fs/cgroup
/dev/xvda2       10G   2.7G   7.4G   27% /etc/hosts
shm              64M    0    64M    0% /dev/shm
tmpfs            496M    0   496M    0% /sys/firmware

root@f23d540000ad:~# uname -m
x86_64
root@f23d540000ad:~# uname -r
3.10.0-862.el7.x86_64
```