Build, Publish and Run a Docker Image on Digital Ocean from Docker-Hub

Dockerfile Backend api

A two Stage Dockerfile with a build stage and a run -stage! FROM maven:3.5-jdk-8 as backend-build # set the workdir in the container WORKDIR / COPY pom.xml. ### Step 2 Copy the source and build the .jar COPY src src

Stage 1

we run first a build

RUN mvn install -DskipTests

```
### Stage 2 - Let's build a minimal image with the "deployable package"
FROM openidk:8-jdk-alpine
## output an echo
RUN echo alpine->jdk11
# add a bash shell to the image
RUN apk add --no-cache bash
# we add the jar to the working dir and execute it!
COPY --from=backend-build /app/target/*.jar app.jar
# Define an Entry-startpoint of the image
#ENTRYPOINT ["sh", "-c", "java -jar app.jar"]
ENTRYPOINT java -jar app.jar
```

Stage 2 Stage 1 will be deletet!

- 1. build an image from Dockerfile:
 - list images:

list images

docker build -t tag: lcavuoti (Docker-Hub name) cart -> name of the app tag: latest | 1 | etc. . take Dockerfile from actual dir

build an docker-image and tagged it
docker build -t lcavuoti/cart:latest .

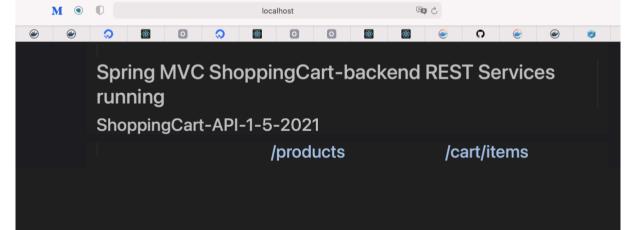
REPOSITORY TAG IMAGE ID CREATED SIZE lcavuoti/cart latest b91d278cd05a 53 seconds ago 148MB

instanciate a container and let the container run
\$ docker run -d -p 8080:8080 lcavuoti/cart:latest
aa0869f116b3ed075b018f49ab75ce5c4d8be92c11d291f00f62c3bb89ac1734

stop the container
docker stop aa

\$ docker run -d -p 8080:8080 lcavuoti/cart:latest
c9b432b838fec7971ce31efabd6171c47f7d9cfcb9701c66b10bb02ade05277a

check the browser on 8080



docker run
-d detached
-p publish port host:docker
image name and tag
we get an container instance know
with an id

docker run new instance c9....

List Docker Container

\$ docker image ls

lcavuoti/cart latest

TAG

IMAGE ID

b91d278cd05a

CREATED

31 minutes ago

REPOSITORY

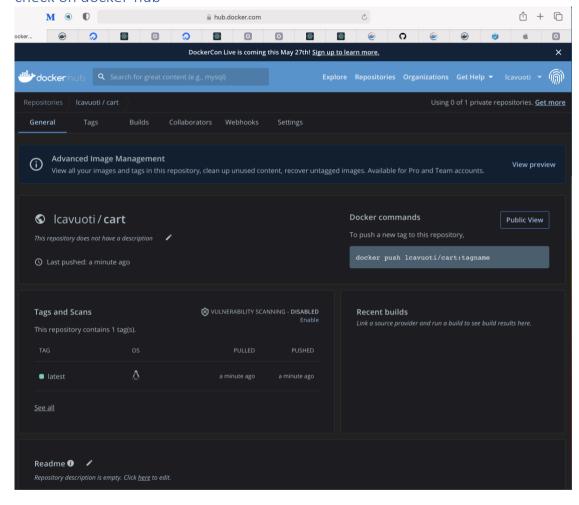
```
# list all docker container with: docker container ls -a or
$ docker ps -a
CONTAINER ID IMAGE
                                    COMMAND
                                                            CREATED
                                                                                STATUS
                                                                                                            PORTS
                                                                                                                                    NAMES
             lcavuoti/cart:latest
                                    "/bin/sh -c 'java -j..."
                                                            About a minute ago
                                                                                Up About a minute
                                                                                                                                    quizzical faraday
c9b432b838fe
                                                                                                            0.0.0.0:8080->8080/tcp
                                    "/bin/sh -c 'java -j..."
                                                                                Exited (143) 2 minutes ago
             lcavuoti/cart:latest
                                                            16 minutes ago
                                                                                                                                    unruffled haslett
aa0869f116b3
                                    "/bin/sh -c 'java -j..."
                                                                                                                                    tender payne
6ae31ba6907c lcavuoti/cart:latest
                                                            18 minutes ago
                                                                                Exited (130) 17 minutes ago
# list only runnig containers
$ docker ps
CONTAINER ID
               IMAGE
                                        COMMAND
                                                                                    STATUS
                                                                                                                              NAMES
                                                                  CREATED
                                                                                                   PORTS
                                        "/bin/sh -c 'java -j..."
c9b432b838fe
               lcavuoti/cart:latest
                                                                  4 minutes ago
                                                                                   Up 4 minutes
                                                                                                   0.0.0.0:8080->8080/tcp
                                                                                                                              quizzical faraday
# list images with: docker images 'or'
```

SIZE

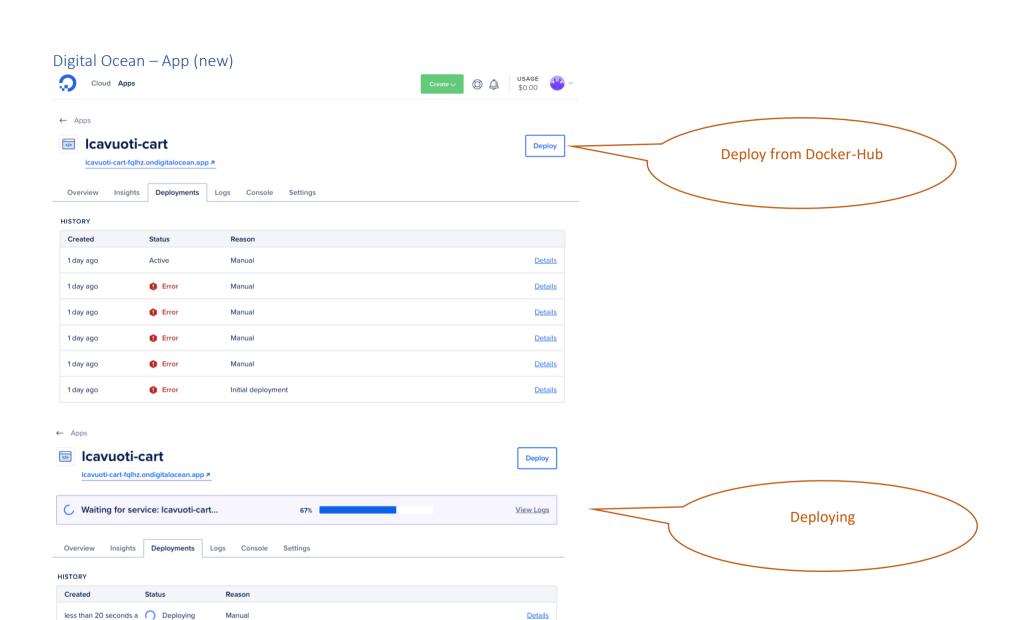
148MB

```
Commit container or repo locally
# commit image locally: docker commit --help
                                                                                                 docker commit --help
$ docker commit --help
Usage: docker commit [OPTIONS] CONTAINER [REPOSITORY[:TAG]]
Create a new image from a container's changes
Options:
                        Author (e.g., "John Hannibal Smith <hannibal@a-team.com>")
  -a, --author string
                        Apply Dockerfile instruction to the created image
  -c, --change list
                        Commit message
  -m, --message string
                        Pause container during commit (default true)
  -p, --pause
$ docker commit --author lcavuoti --message "cart api initial commit" c9
sha256:81f584e5b1e9c955342b978e775992eda3cc6702dd30c999d464082b0155213a
                                                                                                  docker commit
# push the image or repository to the docker hub
$ docker push --help
Usage: docker push [OPTIONS] NAME[:TAG]
Push an image or a repository to a registry
                                                                                                          docker push to
Options:
  -a, --all-tags
                               Push all tagged images in the repository
                                                                                                            docker-hub
      --disable-content-trust Skip image signing (default true)
                               Suppress verbose output
  -a. --auiet
$ docker push lcavuoti/cart:latest
The push refers to repository [docker.io/lcavuoti/cart]
8860d5593df0: Pushing [=======>
                                                                          1 9.831MB/39.17MB
cafa6459ff00: Pushed
cf06d9a46b87: Pushed
ceaf9e1ebef5: Layer already exists
9b9b7f3d56a0: Layer already exists
f1b5933fe4b5: Layer already exists
latest: digest: sha256:6eff800724b0a60e208db832bcc6efef15a365c3dded89f67b0994fb756b3715 size: 1577
```

check on docker-hub



check on docker-hub

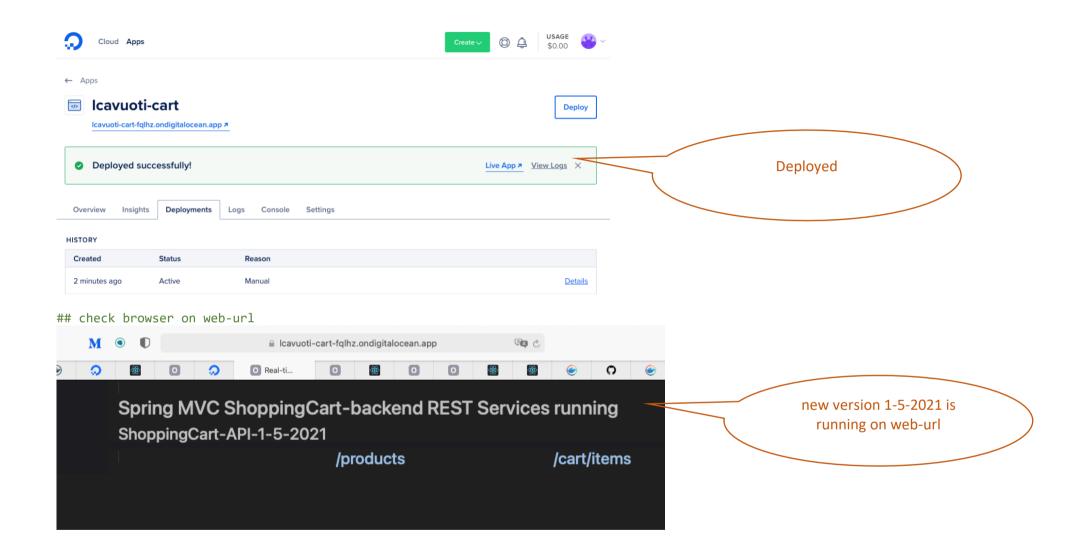


<u>Details</u>

1 day ago

Superseded

Manual



Dockerfile Frontend

```
# pull official base image
FROM node: 13.12.0-alpine as frontend-build
# add a bash shell to the image
RUN apk add --no-cache bash
# set working directory
WORKDIR /app
# add `/app/node modules/.bin` to $PATH
ENV PATH /app/node modules/.bin:$PATH
# install app dependencies
COPY package.json ./
COPY package-lock.json ./
RUN npm install --silent
RUN npm install react-scripts@3.4.1 -g --silent
#RUN yarn
# add All to app
COPY . ./
# ----- make a BUILD -- to copy in the nginx html
RUN npm run build
# start app
#----CMD ["npm", "start"]
# Best-Practice with ENTRYPOINT!
ENTRYPOINT ["npm", "start"]
#ENTRYPOINT npm start
```

```
# Stage - Production
# -----
FROM nginx:1.17-alpine
COPY --from=frontend-build /app/build /usr/share/nginx/html
EXPOSE 80
CMD ["nginx", "-g", "daemon off;"]
```

Stage 1 build

Stage 2 run on production

build an image from Dockerfile:

- list images:

lcavuoti/cart-front

lcavuoti/cart

<none>

latest

<none>

latest

20554c9cf797

81f584e5b1e9

b91d278cd05a

```
# list images
docker image ls or docker images
REPOSITORY TAG
                             IMAGE ID
                                           CREATED
                                                        SIZE
# build an docker-image and tagged it
docker build -t lcavuoti/cart-front:latest .
                                                                                                                build a docker-image
                                                                                                              Icavuoti/cart-front:latest
[+] Building 22.4s (11/18)
 => [auth] library/nginx:pull token for registry-1.docker.io
                                                                                                                                                                 0.0s
 => [auth] library/node:pull token for registry-1.docker.io
                                                                                                                                                                 0.05
 => [internal] load build context
                                                                                                                                                                19.0s
 => => transferring context: 305.71MB
                                                                                                                                                                18.5s
 => [stage-1 1/2] FROM docker.io/library/nginx:1.17-alpine@sha256:763e7f0188e378fef0c761854552c70bbd817555dc4de029681a2e972e25e30e
                                                                                                                                                                 4.9s
 => resolve docker.io/library/nginx:1.17-alpine@sha256:763e7f0188e378fef0c761854552c70bbd817555dc4de029681a2e972e25e30e
                                                                                                                                                                 0.0s
 => => sha256:630d39f3970740583f96ec6b26cc7b0f531c35a5c2068c551f02f5236b1e373f 739B / 739B
                                                                                                                                                                 0.05
    => sha256:89ec9da682137d6b18ab8244ca263b6771067f251562f884c7510c8f1e5ac910 7.01kB / 7.01kB
                                                                                                                                                                 0.0s
 => => sha256:763e7f0188e378fef0c761854552c70bbd817555dc4de029681a2e972e25e30e 1.41kB / 1.41kB
                                                                                                                                                                 0.0s
 => => sha256:cbdbe7a5bc2a134ca8ec91be58565ec07d037386d1f1d8385412d224deafca08 2.81MB / 2.81MB
                                                                                                                                                                 1.8s
 => => sha256:c554c602ff329d94bcb532a7f3c97c27af3abcbb678bdd809e4e894135bb88c9 5.77MB / 5.77MB
                                                                                                                                                                 2.75
 => extracting sha256:cbdbe7a5bc2a134ca8ec91be58565ec07d037386d1f1d8385412d224deafca08
                                                                                                                                                                 0.7s
 => extracting sha256:c554c602ff329d94bcb532a7f3c97c27af3abcbb678bdd809e4e894135bb88c9
                                                                                                                                                                 1.1s
 => [frontend-build 1/9] FROM docker.io/library/node:13.12.0-alpine@sha256:cc8
=> [frontend-build 7/9] RUN npm install react-scripts@3.4.1 -g --silent
                                                                                                                                                               28.4s
=> [stage-1 2/2] COPY --from=frontend-build /app/build /usr/share/nginx/html
                                                                                                                                                                0.1s
 => exporting to image
                                                                                                                                                                 0.0s
 => => exporting lavers
                                                                                                                                                                 0.0s
 \Rightarrow > writing image sha256:20554c9cf797bb989fcfda82640d22772e04abb8f64405742e9e3b40749870bf
                                                                                                                                                                 0.0s
 => => naming to docker.io/lcavuoti/cart-front:latest
List docker images
# docker images or docker image ls
                                                                                                                      list docker-images
$ docker image ls
REPOSITORY
                            TAG
                                         IMAGE ID
                                                            CREATED
                                                                                      SIZE
```

25MB

148MB

148MB

About a minute ago

About an hour ago

2 hours ago

Intanciate a container and Run the container

\$ docker run -d -p 80:80 lcavuoti/cart-front:latest
2d8f54e678823eedd8695a78e3b891f40bc6100f7f7c34fbde0f2c21744c56c2

docker run image lcavuoti/cart-front:latest

List docker container with: docker ps or docker container ls (-a == all, running)

\$ docker ps

CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES

2d8f54e67882 lcavuoti/cart-front:latest "nginx -g 'daemon of..." 3 minutes ago Up 3 minutes 0.0.0.0:80->80/tcp xenodochial_meitner 1327ffba90a5 lcavuoti/cart:latest "/bin/sh -c 'java -j..." 42 minutes ago Up 42 minutes 0.0.0.0:8081->8080/tcp tender agnesi

docker container all!

\$ docker container ls --all CONTAINER ID IMAGE COMMAND CREATED STATUS **PORTS** NAMES xenodochial meitner 2d8f54e67882 lcavuoti/cart-front:latest "nginx -g 'daemon of..." 4 minutes ago Up 4 minutes 0.0.0.0:8080->80/tcp 1327ffba90a5 lcavuoti/cart:latest "/bin/sh -c 'java -j..." Up 43 minutes tender agnesi 43 minutes ago 0.0.0.0:8081->8080/tcp Exited (143) 44 minutes ago c9b432b838fe lcavuoti/cart:latest "/bin/sh -c 'java -j..." About an hour ago quizzical faraday "/bin/sh -c 'java -j..." 2 hours ago unruffled haslett aa0869f116b3 lcavuoti/cart:latest Exited (143) About an hour ago "/bin/sh -c 'java -j..." 2 hours ago Exited (130) 2 hours ago 6ae31ba6907c lcavuoti/cart:latest tender payne

commit docker – container locally

\$ docker commit --help

Usage: docker commit [OPTIONS] CONTAINER [REPOSITORY[:TAG]]

Create a new image from a container's changes

Options:

-a, --author string Author (e.g., "John Hannibal Smith <hannibal@a-team.com>")

-c, --change list Apply Dockerfile instruction to the created image

-m, --message string Commit message

-p, --pause Pause container during commit (default true)

\$ docker commit --author lcavuoti --message "cart-front initial commit" 2d
sha256:33692b071eef9f6e0c6f4875689e0fd787c7e792715250047b05ece0ac196659

push docker – container to Docker-Hub

\$ docker push lcavuoti/cart-front:latest

The push refers to repository [docker.io/lcavuoti/cart-front]

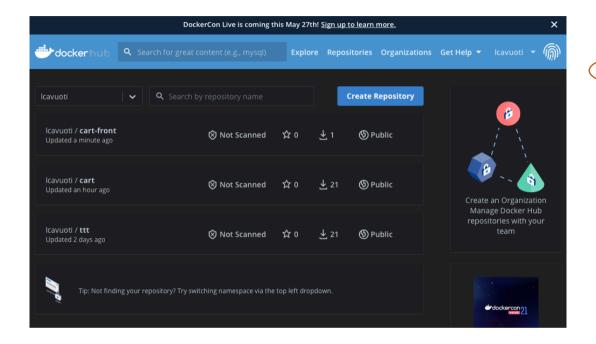
3810cc0c140f: Mounted from library/nginx 3e207b409db3: Mounted from library/nginx

latest: digest: sha256:5fd0f77c37766cfefd89943ad3bb7ca18ef407e0a161de52ab875e9ad231574e size: 950

docker commit

docker push

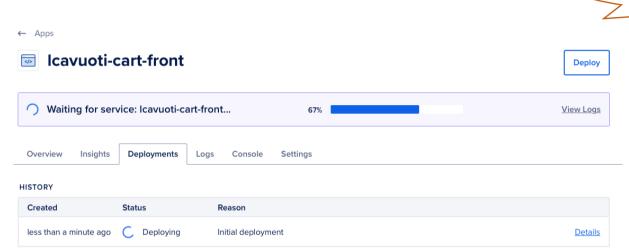
check on Docker-Hub



cart-front on docker-hub

Deploy on Digital Ocean

create App listen to api on port 8080



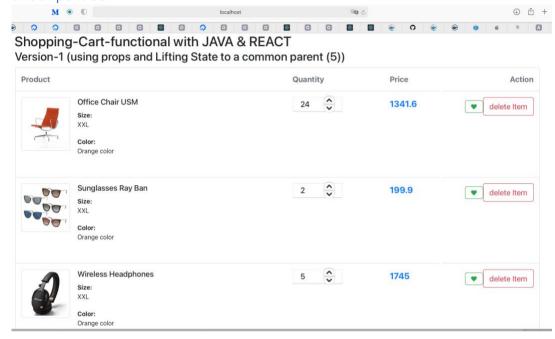
Docker stop container locally

\$ docker ps CONTAINER ID IMAGE COMMAND CREATED STATUS **PORTS** NAMES 8712a456f92b a2b5abe36da4 "npm start" 22 minutes ago Up 22 minutes 0.0.0.0:3001->3000/tcp jolly_snyder "/bin/sh -c 'java -j..." 2 hours ago Up 2 hours 0.0.0.0:8081->8080/tcp tender agnesi 1327ffba90a5 lcavuoti/cart:latest MacBook-Pro-von-Luigi-Cavuoti:shopping-cart-client-func-v1-props-Lift-State luigicavuoti\$ docker stop 87 87

cart-front on Digital Ocean

```
$ docker container ps
CONTAINER ID
              IMAGE
                                      COMMAND
                                                                                                                   NAMES
                                                               CREATED
                                                                             STATUS
                                                                                          PORTS
                                     "/bin/sh -c 'java -j..." 2 hours ago
                                                                                                                   tender agnesi
1327ffba90a5
              lcavuoti/cart:latest
                                                                            Up 2 hours
                                                                                          0.0.0.0:8081->8080/tcp
docker build -t lcavuoti/cart-front:latest .
[+] Building 53.9s (19/19) FINISHED
=> [internal] load build definition from Dockerfile
0.0s
=> => transferring dockerfile: 1.11kB
0.05
=> [internal] load .dockerignore
0.05
=> => transferring context: 2B
$ docker run -d -p 80:80 lcavuoti/cart-front:latest
8b74ecaaad2f0f0a465c08a10e3e87a48eaaab5a6cb62773d795d7486026cd36
$ docker ps
CONTAINER ID
                                            COMMAND
                                                                                      STATUS
                                                                                                                               NAMES
              IMAGE
                                                                     CREATED
                                                                                                      PORTS
              lcavuoti/cart-front:latest
                                            "nginx -g 'daemon of..."
8b74ecaaad2f
                                                                     21 seconds ago
                                                                                      Up 21 seconds
                                                                                                      0.0.0.0:80->80/tcp
gifted margulis
                                            "/bin/sh -c 'java -j..."
                                                                    2 hours ago
1327ffba90a5
              lcavuoti/cart:latest
                                                                                      Up 2 hours
                                                                                                      0.0.0.0:8081->8080/tcp
tender agnesi
```

check port 80





Apps

Apps

create App



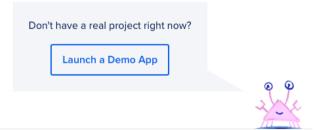
Name	Plan	Last Deployed	Live App URL
	Basic	1 day ago	lcavuoti-ttt-3xcd4.ondigitalocean.app ォ
lcavuoti-cart	Basic	about 2 hours ago	lcavuoti-cart-fqlhz.ondigitalocean.app 2

Step 1 of 4

Choose Source



Create a Registry on DigitalOcean Container Registry



Step 1 of 4

Choose Source



Docker Hub Switch

Repository

hub-name/repo-name

Tag (optional)

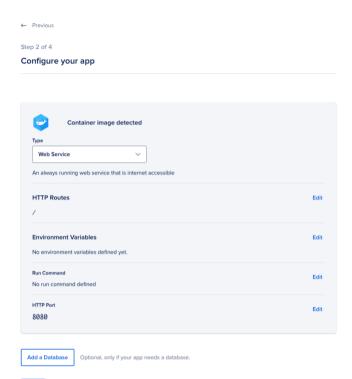
latest

If no tag is entered, we will try to use a latest tag.

1) Note: We recommend using a unique tag to avoid overwriting content to the same tag for updates.

Next

Repository:Tag lcavuoti/cart-front:latest



Set the Service url to Digital Ocean cart api!!

fix im code , better with an environment variable $\mathord!\mathord!$

```
export async function getProducts() {
   // const response = await fetch("http://localhost:8081/products");
   const response = await fetch ("https://lcavuoti-cart-fqlhz.ondigitalocean.app/products")
   if (response.ok) return response.json();
   throw response;
}
```



Step 3 of 4

Name your web service

Name*

Can only contain lowercase alphanumeric characters and dashes.

Icavuoti-cart-front

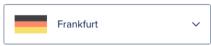
Starter Domain

We provide a domain, based on the app's name, where your app will always be accessible

Example

https://app-name.ondigitalocean.app

Region



We've selected the region nearest you

Any static components are served on our global CDN >



● Basic Prototype your apps Starts at \$5/mo				
~	Starter Plan			
~	Build and deploy dynamic apps (e.g. Node.js, Python, Go, Ruby, PHP, Docker)			
~	Per-hour application metrics			
~	Shared CPU			
~	Vertical Scaling ?			
~	40 GB outbound transfer			
~	400 build minutes ?			



CONTAINERS

^{*}You can build and deploy 3 Starter apps for free. Each additional Starter app will be charged \$3/mo.

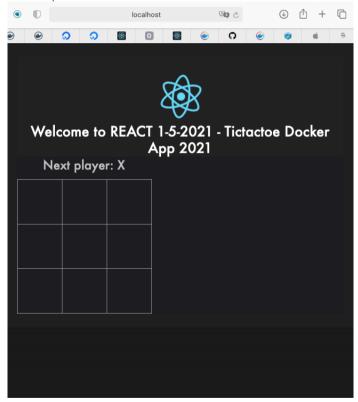
Tic Tac Toe update!

```
$ docker build -t lcavuoti/ttt:latest .
[+] Building 32.2s (11/14)
=> [internal] load build definition from Dockerfile
0.05
=> => transferring dockerfile: 707B
0.05
=> [internal] load .dockerignore
0.0s
=> => transferring context: 191B
0.0s
 => [internal] load metadata for docker.io/library/node:13.12.0-alpine
2.25
=> [auth] library/node:pull token for registry-1.docker.io
0.0s
=> [1/9] FROM docker.io/library/node:13.12.0-alpine@sha256:cc85e728fab3827ada20a181ba280cae1f8b625f256e2c86b9094d9bfe834766
0.0s
=> [internal] load build context
1.7s
=> => transferring context: 979.33kB
1.6s
=> CACHED [2/9] RUN apk add --no-cache bash
0.0s
=> CACHED [3/9] WORKDIR /app
0.0s
=> [4/9] RUN echo "Path: /app/node modules/.bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin"
0.5s
=> [5/9] COPY package.json ./
0.4s
=> [6/9] COPY package-lock.json ./
0.0s
=> [7/9] RUN npm install --silent
```

run

\$ docker run -d -p 3001:3000 lcavuoti/ttt:latest
e346440aef214d03dfce35476ca00acbad8bf9c8698bcf5d7ce310163cf1d82a

check port localhost:3001



new one 1-5-2021

commit

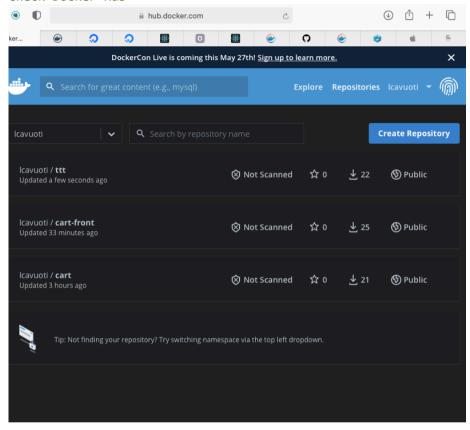
\$ docker commit e3

sha256:7ea9b5292342bcc9a1093c579df918c89f12caa89dcc8e4e385dd64c36249645

push

```
$ docker push lcavuoti/ttt:latest
The push refers to repository [docker.io/lcavuoti/ttt]
d10a1f521d6b: Pushed
3f999bf65a7a: Pushing [=>
                                                                         ] 5.854MB/203.1MB
0d21bbfe0c7a: Pushing [=====>
                                                                               23MB/171.1MB
048d2c8b303e: Pushed
7fe25951549f: Pushed
9ece88e5cffa: Pushing 1.536kB
f4edb23d9878: Waiting
9112df52512e: Waiting
65d358b7de11: Waiting
f97384e8ccbc: Waiting
d56e5e720148: Waiting
beee9f30bc1f: Waiting
65d358b7de11: Layer already exists
f97384e8ccbc: Layer already exists
d56e5e720148: Layer already exists
beee9f30bc1f: Layer already exists
latest: digest: sha256:271f3896af71a1ed695db48c0889f5edb8782ea3e401e433397920965a7cf61c size: 2831
```

check Docker-Hub

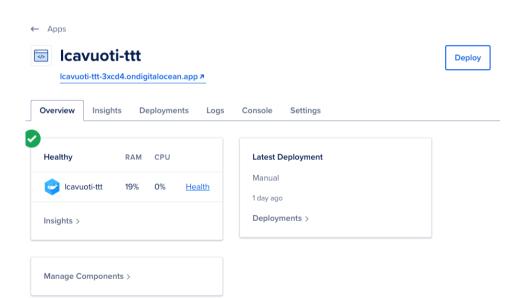


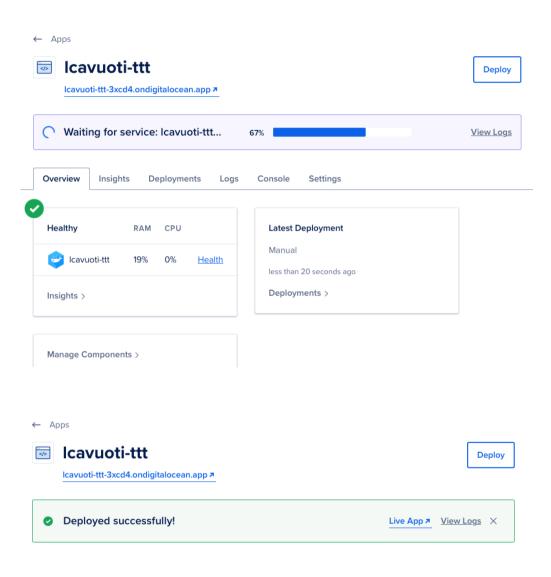
update on DO

Apps

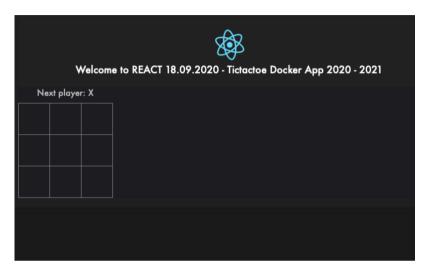
Create App

Name	Plan	Last Deployed	Live App URL
lcavuoti-cart-front	Basic	34 minutes ago	Icavuoti-cart-front-784nn.ondigitaloc
	Basic	1 day ago	Icavuoti-ttt-3xcd4.ondigitalocean.app 🗷
lcavuoti-cart	Basic	about 3 hours ago	lcavuoti-cart-fqlhz.ondigitalocean.app 2





no update ⊗ why?



deleted on DO and recreated $\ensuremath{\mathfrak{G}}$

