

# Docker Submission and Multi-Terminal Access

## 1. Docker Submission

### 1.1. Description

If you use the same script to launch Docker every time you boot your computer, modify the program inside Docker, and then exit Docker without submitting the changes, the next time you launch Docker using the same script, the original Docker will not be the modified version. Modified programs must be resubmitted to update Docker.

### 1.2. Committing the Docker Image

After entering a Docker image and modifying the program, enter the following command in the terminal to view the running Docker image.

```
docker ps
```

```
pi@raspberrypi:~$ docker ps
CONTAINER ID   IMAGE                                COMMAND                  CREATED        STATUS        PORTS   NAMES
f8086cb992f3   192.168.2.51:5000/ros-humble:5.1.0  "/bin/bash"            46 seconds ago Up 45 seconds          silly_yalow
pi@raspberrypi:~$
```

What we need to pay attention to here is the Docker ID, which is f8086cb992f3, and the current Docker name, 192.168.2.51:5000/ros-humble:5.1.0. Once you know the ID and name, you can commit the current Docker image.

```
docker commit f8086cb992f3 192.168.2.51:5000/ros-humble:5.1.0
```

Above, we submitted the modified Docker container with the same Docker name, overwriting the current Docker container and preserving the modified program.

If you want to rename this container to a different name, you can run the following command:

```
docker commit f8086cb992f3 192.168.2.51:5000/ros-humble:5.1.1
```

The above command is equivalent to submitting the newly modified Docker container with the name **192.168.2.51:5000/ros-humble:5.1.1**. We can verify the submission by typing `docker images`.

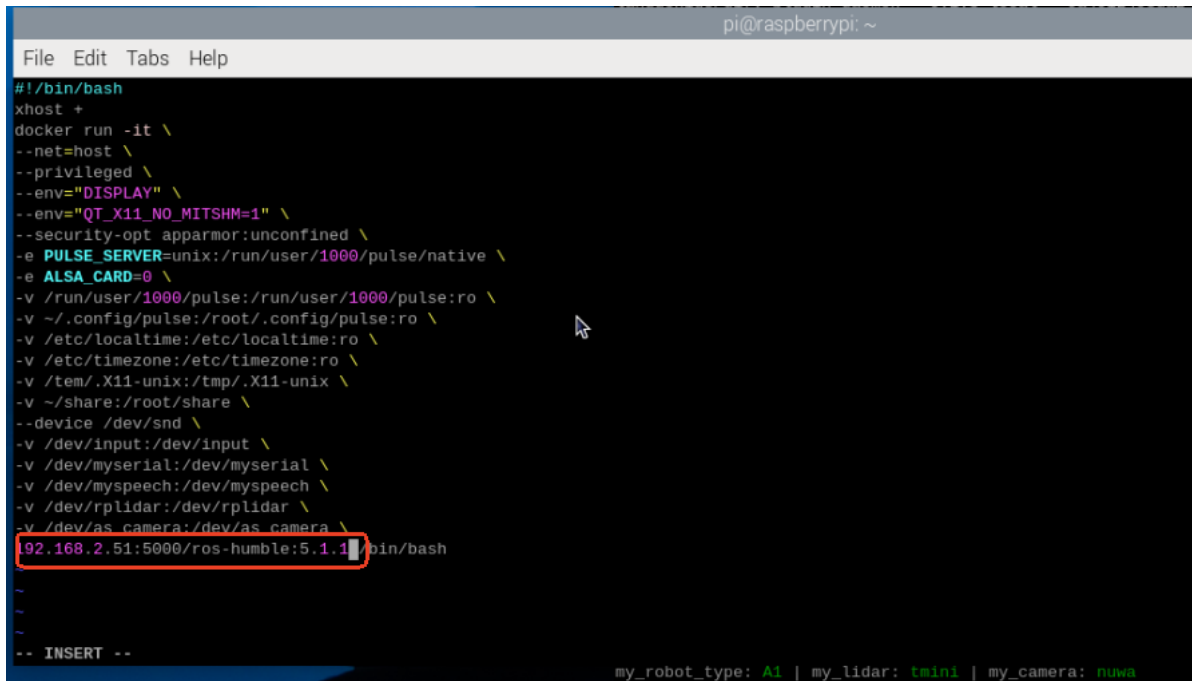
```
docker images
```

```
pi@raspberrypi:~$ docker ps
CONTAINER ID   IMAGE                                COMMAND                  CREATED        STATUS        PORTS   NAMES
f8086cb992f3   192.168.2.51:5000/ros-humble:5.1.0  "/bin/bash"            46 seconds ago Up 45 seconds          silly_yalow
pi@raspberrypi:~$ docker commit f8086cb992f3 192.168.2.51:5000/ros-humble:5.1.1
sha256:8ab975fd8c46/a7467860adf7d9e85ab5e8169c5c75a1b219281f57253e/a75d
pi@raspberrypi:~$ docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
192.168.2.51:5000/ros-humble   5.1.1     8ab975fd8c46   9 seconds ago   17GB
192.168.2.51:5000/ros-humble   5.1.0     009e239e4ec0   About an hour ago   17GB
nginx          latest    f1d0ee1e24a1   4 weeks ago     198MB
langgenius/dify-web             1.6.0     8410a8e6aa0    5 weeks ago     533MB
langgenius/dify-api             1.6.0     935c77ebab80   5 weeks ago     1.97GB
redis           6-alpine  b45d9b799914   5 weeks ago     30.4MB
langgenius/dify-plugin-daemon  0.1.3-local 9a4912493da2   6 weeks ago     1.29GB
postgres        15-alpine  f490b1e1368a   2 months ago     266MB
langgenius/dify-sandbox         0.2.12    5c2ad4db0b19   3 months ago     636MB
ubuntu/squid      latest    0164cf4b7a88   4 months ago     244MB
semitechnologies/weaviate       1.19.0     b7fde6d5a98e   2 years ago      51MB
pi@raspberrypi:~$
```

If we renamed the container to a different name, next time we want to use the same script to start the modified container, we need to enter the Docker script and modify it to the renamed Docker container. Here, we open it in the vim editor.

```
vim run_humble.sh
```

Click i to start typing your changes.



```
pi@raspberrypi: ~
File Edit Tabs Help
#!/bin/bash
xhost +
docker run -it \
--net=host \
--privileged \
--env="DISPLAY" \
--env="QT_X11_NO_MITSHM=1" \
--security-opt apparmor:unconfined \
-e PULSE_SERVER=unix:/run/user/1000/pulse/native \
-e ALSA_CARD=0 \
-v /run/user/1000/pulse:/run/user/1000/pulse:ro \
-v ~/.config/pulse:/root/.config/pulse:ro \
-v /etc/localtime:/etc/localtime:ro \
-v /etc/timezone:/etc/timezone:ro \
-v /tmp/.X11-unix:/tmp/.X11-unix \
-v ~/share:/root/share \
--device /dev/snd \
-v /dev/input:/dev/input \
-v /dev/myserial:/dev/myserial \
-v /dev/myspeech:/dev/myspeech \
-v /dev/rplidar:/dev/rplidar \
-v /dev/as_camera:/dev/as_camera \
192.168.2.51:5000/ros-humble:5.1.1 /bin/bash
-- INSERT --
my_robot_type: A1 | my_lidar: tmini | my_camera: nuwa
```

After entering your changes, save and exit. The next time you run this script to start Docker, the modified Docker container will be started.

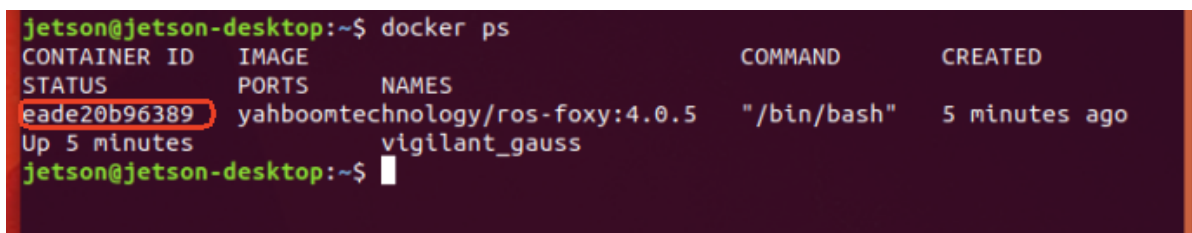
## 2. Accessing the Same Docker Container from Multiple Terminals

**Note:** The tutorials for the Raspberry Pi and Jetson Nano boards all use Docker. Most of the tutorials require entering the same container terminal to run commands.

If a Docker container is already running, you can open another terminal on the host machine (the car) to view it:

- Viewing Running Docker Containers

```
docker ps
```



```
jetson@jetson-desktop:~$ docker ps
CONTAINER ID   IMAGE                                COMMAND                  CREATED
STATUS        PORTS          NAMES
eade20b96389   yahboomtechnology/ros-foxy:4.0.5    "/bin/bash"            5 minutes ago
Up 5 minutes   vigilant_gauss
jetson@jetson-desktop:~$
```

Importantly remember the Docker ID.

- Now enter the following command to access the container terminal with the same ID.

```
docker exec -it eade20b96389 /bin/bash
```

```
root@jetson-desktop: /  
-----  
MY_IP: 192.168.11.152  
-----  
jetson@jetson-desktop:~$ docker ps  
CONTAINER ID   IMAGE                                COMMAND                  CREATED  
STATUS        PORTS          NAMES  
eade20b96389   yahboomtechnology/ros-foxy:4.0.5   "/bin/bash"            5 minutes ago  
Up 5 minutes  
vigilant_gauss  
jetson@jetson-desktop:~$ docker exec -it eade20b96389 /bin/bash  
-----  
ROS_DOMAIN_ID: 32  
my_robot_type: x3 | my_lidar: a1 | my_camera: astraplus  
-----  
root@jetson-desktop:/#
```

Once you've successfully entered the container, you can use this method to open multiple terminals and access the container.