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Running Containers and Troubleshooting

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Instructions to run the Docker containers.

Warning

The following content has been deprecated and is maintained for reference only.

Running Containers

Note: At the end of this topic, you will be provided with a terminal to an environment that has all the prerequisites (such as Docker and Kubernetes) up and running. You can practice your commands in this tutorial without any need to setup your own environment.

Containers are running instances of an Image. To run containers, follow these steps:

1. Create a container from the base image for the latest version of the Ubuntu that is available.

Important

- If you do not have an Ubuntu base image installed locally, extract the latest one for your local repository.
- You must start the container in interactive mode attached to the current terminal and running the bash shell.
- After running, make sure you shut down the container by running 'exit'.

```
[user@tcox1 ~]$ sudo docker pull ubuntu:latest
Trying to pull repository docker.io/library/ubuntu ...
latest: Pulling from docker.io/library/ubuntu
ae79f2514705: Pull complete
5ad56d5fc149: Pull complete
170e558760e8: Pull complete
395460e233f5: Pull complete
6f01dc62e444: Pull complete
Digest: sha256:506e2d5852de1d7c90d538c5332bd3cc33b9cbd26f6ca653875899c505c82687
[user@tcox1 ~]$ sudo docker images
REPOSITORY      TAG          IMAGE ID      CREATED
docker.io/httpd  latest        c24f66af34b4  5 days ago
docker.io/ubuntu  latest        747cb2d60bbe  7 days ago
[user@tcox1 ~]$ sudo docker run -it ubuntu:latest /bin/bash
root@f1d4d12c2c70:/# exit
exit
```

- Run the appropriate Docker command to obtain the name of the previously run container. Issue the appropriate command to restart the container for which you obtained the name. Do NOT create a new container. Restart the container that was just used.

```
[user@tcox1 ~]$ sudo docker ps - a
CONTAINER ID        IMAGE               COMMAND                  CREATED             STATUS              PORTS               NAMES
f1d4d12c2c70        ubuntu: latest     "/bin/bash"            About a minute ago   Exited(0)          About a minute ago   jovial_kilby
[jovial_kilby]
[user@tcox1 ~]$ sudo docker restart jovial_kilby
[jovial_kilby]
[user@tcox1 ~]$ sudo docker ps
CONTAINER ID        IMAGE               COMMAND                  CREATED             STATUS              PORTS               NAMES
f1d4d12c2c70        ubuntu: latest     "/bin/bash"            2 minutes ago      Upt 7 seconds      jovial_kilby
```

3. Stop the container, and then remove the container from the system by using the following command.

```
[user@tcoxl ~]$ sudo docker stop jovial_kilby
jovial_kilby
[user@tcoxl ~]$ sudo docker ps
CONTAINER ID        IMAGE               COMMAND
[user@tcoxl ~]$ sudo docker ps -a
CONTAINER ID        IMAGE               COMMAND
CONTAINER ID        IMAGE               COMMAND
f1d4d12c2c70        ubuntu:latest      "/bin/bash"
3 minutes ago       Exited (0) 10 seconds ago
[user@tcoxl ~]$ sudo docker rm jovial_kilby
jovial_kilby
[user@tcoxl ~]$ sudo docker ps -a
CONTAINER ID        IMAGE               COMMAND
CONTAINER ID        IMAGE               COMMAND

```

4. Create (not run) a container called "my_container" by using the parameters that will allow the container to run interactively, and get the terminal attached to the local console running the bash shell. Ensure the container is not running.

```
[user@tcox1 ~]$ sudo docker create -it --name="my-container" ubuntu:latest /bin/bash
c90b35870c09fe63d1bac782342dd734b2edf4ac6abb282690d1585aa259841e
[user@tcox1 ~]$ sudo docker ps -a
CONTAINER ID        IMAGE               COMMAND             CREATED            STATUS              PORTS               NAMES
c90b35870c09        ubuntu:latest      "/bin/bash"        4 seconds ago     Created
[user@tcox1 ~]$
```

5. Start the container, and ensure the container is running. Run the following command to attach your session to the running container to ensure you are logged on to the shell.

```
[user@tcox1 ~]$ sudo docker start my-container
my-container
[user@tcox1 ~]$ sudo docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED            STATUS              PORTS               NAMES
c90b35870c09        ubuntu:latest      "/bin/bash"        4 minutes ago     Up 2 minutes
[user@tcox1 ~]$ sudo docker attach my-container
root@c90b35870c09:#
root@c90b35870c09:# exit
exit
```

Lifecycle

The following commands illustrate the Docker Lifecycle:

- `docker create` creates a container but does not start the container.
- `docker rename` allows the container to be renamed.
- `docker run` creates and starts a container in a single operation.
- `docker rm` deletes a container.
- `docker update` updates a container's resource limits.

Usually, when you run a container without options, it will start and stop immediately. If you want the container to keep running, you can use the command, `docker run -td container_ID`. This command uses the option `-t` to allocate a pseudo-TTY session and option `-d` to detach the container automatically (you can run container in background and print the container ID).

To have a transient container, use the command `docker run -rm`. This command will remove the container after it stops.

To map a directory on the host to a docker container, use the command `docker run -v $HOSTDIR:$DOCKERDIR`.

To remove the volumes associated with the container, the deletion of the container must include the option `-vswitch` like in `docker rm -v`.

There is also a logging driver available for individual containers in docker 1.10. To run docker with a custom log driver (that is `syslog`), use the command `docker run --log-driver=syslog`.

`docker run --name yourname docker_image` is a useful command because when you specify `--name` inside the `run` command, you can start and stop a container by calling it with the name that you specified when you created it.

Starting and Stopping a Container

Commands to start and stop a container:

- `docker start` starts a container so it is running.
- `docker stop` stops a running container.
- `docker restart` stops and starts a container.
- `docker pause` pauses a running container, "freezing" it in place.
- `docker unpause` unpauses a running container.
- `docker wait` blocks until running container stops.
- `docker kill` sends a SIGKILL signal to a running container.
- `docker attach` connects to a running container.

To integrate a container with a host process manager, start the daemon with the commands `-r=false` and then use `docker start -a`.

You can practice the above-mentioned commands using the following widget:

