

Container Training

TIL Christmas Special 2024

Christoph Lipautz

December 20, 2024

1. A Container is a Process in a Sandbox

Think of a container as a process (one software program) with a different filesystem.

—

Everything in Linux is a file, that makes things easy.

1.1 Change Root Directory

```
$ man chroot # run [...] with special root directory
```

1.2 Container aka Process

```
$ man ps # report snapshot of current processes  
$ docker ps # list containers  
$ podman ps # list containers
```

2. One Container, One Process

Run **one** process only.

—

Storage is cheap, there is no reason to run webserver, application and database in the same container.

3. podman for User Level Containers

Use podman instead of docker.

```
$ podman help # same interface than docker, wow o.O  
$ alias docker=podman  
$ docker ps -a
```

4. Organize Your Containers

Have your container recipes as a **git repository** (local only or with remote).

4.1 Create Example

```
$ cat create-mysql.sh
```

```
#!/usr/bin/env bash
```

```
podman run -d --name mysql-local \  
    --port 3306:3306 docker.io/library/mysql:latest
```


4.2 Start Example

```
$ cat start-mysql.sh  
#!/usr/bin/env bash  
  
podman start mysql-local
```


4.3 Reset Example

```
# remove and recreate, note that containers need  
# maintenance too  
$ cat reset-mysql.sh  
#!/usr/bin/env bash  
  
podman rmi -f mysql  
./create-mysql.sh
```

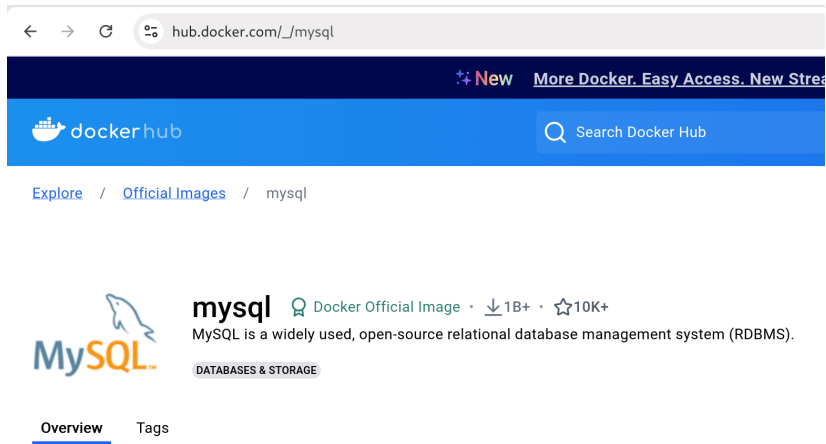
5. Stick to Official Images

Don't run just any process (or container!) on your computer.

—

Official images on docker hub have a special product badge, e.g. mysql, often an underscore  as author name.

5.1 MySQL at Dockerhub




The screenshot shows the MySQL Docker Hub page. At the top, the browser address bar displays 'hub.docker.com/_/mysql'. Below this is a dark blue navigation bar with a 'New' button and a link 'More Docker. Easy Access. New Street'. The main header is blue, featuring the Docker Hub logo and a search bar labeled 'Search Docker Hub'. The breadcrumb trail reads 'Explore / Official Images / mysql'. The main content area displays the MySQL logo, the text 'mysql Docker Official Image', download statistics '1B+', star counts '10K+', and a description: 'MySQL is a widely used, open-source relational database management system (RDBMS)'. A category tag 'DATABASES & STORAGE' is present. At the bottom, there are tabs for 'Overview' (which is selected) and 'Tags'.

hub.docker.com/_/mysql

New More Docker. Easy Access. New Street

dockerhub Search Docker Hub

Explore / Official Images / mysql

 **mysql** Docker Official Image · 1B+ · 10K+

MySQL is a widely used, open-source relational database management system (RDBMS).

DATABASES & STORAGE

Overview Tags

5.2 Container Image Sources

Companies like RedHat or Bitname provide well maintained and trusted images.

—

Reach out to devops or security if you want to ensure a container source is safe.