

## 5.06: Exploring Docker Essentials and Container Lifecycle

LAB \*Obligatorio

### Task 1: Verify Docker Installation

#### 1. Check Docker Version

- Confirm Docker is recognized in your terminal (PowerShell, Command Prompt, or macOS Terminal).
- You should see a short version output.

```
Go Run ... < -> TutorialClase_Modulo-3
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

claudiaMpah@DESKTOP-L5EIQV MINGW64 ~/Documents/IRONHACK/WebbDev_Modulo3/TutorialClase_Modulo-3 (main)
$ docker --version
Docker version 28.5.2, build ecc6942
```

#### 2. Run a Quick Container

- Pull and run a minimal “hello-world” style image.
- Observe the output to ensure Docker can pull and run images successfully.

I decided to pull **mysql** image

```
claudiaMpah@DESKTOP-L5EIQV MINGW64 ~/Documents/IRONHACK/WebbDev_Modulo3/TutorialClase_Modulo-3 (main)
$ docker pull mysql
Using default tag: latest
latest: Pulling from library/mysql
21aa606d8d58: Pull complete
494c372d15c3: Pull complete
5a3f7744d0e7: Pull complete
023a182c62a0: Pull complete
f5f78fcd9ccb: Pull complete
834e15e3ed24: Pull complete
0cd145fbb449: Pull complete
c276de9b5571: Pull complete
dcee80f7340c: Pull complete
480d01bd7a6a: Pull complete
Digest: sha256:569c4128dfa625ac2ac62cdd8af588a3a6a60a049d1a8d8f0fac95880ecdbbe5
Status: Downloaded newer image for mysql:latest
docker.io/library/mysql:latest

claudiaMpah@DESKTOP-L5EIQV MINGW64 ~/Documents/IRONHACK/WebbDev_Modulo3/TutorialClase_Modulo-3 (main)
$ docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
mysql latest 569c4128dfa6 4 weeks ago 1.27GB
```

## Docker mysql image created:

Images [Give feedback](#)

Local My Hub

996.67 MB / 1.27 GB in use 1 images Last refresh: 33 minutes ago

	Name	Tag	Image ID	Created	Size	Actions
<input type="checkbox"/>	mysql	latest	569c4128dfa6	1 month ago	1.27 GB	

### 3. Discuss

- In your notes, briefly record how you confirmed Docker was installed (e.g., version check, output screenshot).

I confirmed Docker was installed by version check:

```
Go Run ... ← → TutorialClase_Modulo-3
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
claudiaMpah@DESKTOP-L5EIQVV MINGW64 ~/Documents/IRONHACK/WebbDev_Modulo3/TutorialClase_Modulo-3 (main)
$ docker --version
Docker version 28.5.2, build ecc6942
```

## Task 2: Pull and Run Multiple Containers

### 1. Select Two Images

- Choose any two official images from [Docker Hub](#) (e.g., one web server, one database, or any combination that interests you).
- Recall how to fetch them.

### 2. Run Them

- Launch both containers in a way that they stay up in the background (detached).
- Ensure you map ports correctly if your containers need external access (for instance, 8080 for a web container).

### 3. Check

- Confirm both containers are running simultaneously without port conflicts or errors.

**Hint:** If you pick a web server container, try accessing its default page via `localhost:<mapped_port>` in your browser.

We will follow the teacher's instructions received during the class and only launch one container, in this case the mysql one with the instruction: `docker run --name my-mysql -e MYSQL_ROOT_PASSWORD=secret123 -e MYSQL_DATABASE=appdb -p 3308:3306 mysql`

```

c:\Users\claudia\Documents\IRONHACK\WebbDev Modulo3\TutorialClase Modulo-3 (main)
$ docker run --name my-mysql -e MYSQL_ROOT_PASSWORD=secret123 -e MYSQL_DATABASE=appdb -p 3308:3306 mysql
2025-11-23 01:35:00:00 [Note] [Entrypoint]: Entrypoint script for MySQL Server 9.5.0-1.el9 started.
2025-11-23 01:35:00:00 [Note] [Entrypoint]: Switching to dedicated user 'mysql'
2025-11-23 01:35:00:00 [Note] [Entrypoint]: Entrypoint script for MySQL Server 9.5.0-1.el9 started.
2025-11-23 01:35:00:00 [Note] [Entrypoint]: Initializing database files
2025-11-23T01:35:00.877358Z 0 [System] [MY-015017] [Server] MySQL Server Initialization - start.
2025-11-23T01:35:00.879981Z 0 [System] [MY-013169] [Server] /usr/sbin/mysqld (mysqld 9.5.0) initializing of server in progress as pro
cess 80
2025-11-23T01:35:00.900317Z 1 [System] [MY-013576] [InnoDB] InnoDB initialization has started.
2025-11-23T01:35:03.879831Z 1 [System] [MY-013577] [InnoDB] InnoDB initialization has ended.
2025-11-23T01:35:09.458213Z 6 [Warning] [MY-010453] [Server] root@localhost is created with an empty password ! Please consider switc
hing off the --initialize-insecure option.
2025-11-23T01:35:26.527933Z 0 [System] [MY-015018] [Server] MySQL Server Initialization - end.
2025-11-23 01:35:26:00:00 [Note] [Entrypoint]: Database files initialized
2025-11-23 01:35:26:00:00 [Note] [Entrypoint]: Starting temporary server
2025-11-23T01:35:26.595605Z 0 [System] [MY-015015] [Server] MySQL Server - start.
2025-11-23T01:35:26.844079Z 0 [System] [MY-010116] [Server] /usr/sbin/mysqld (mysqld 9.5.0) starting as process 117
2025-11-23T01:35:26.844114Z 0 [System] [MY-015590] [Server] MySQL Server has access to 8 logical CPUs.
2025-11-23T01:35:26.844134Z 0 [System] [MY-015590] [Server] MySQL Server has access to 8225255424 bytes of physical memory.
2025-11-23T01:35:26.868355Z 1 [System] [MY-013576] [InnoDB] InnoDB initialization has started.
2025-11-23T01:35:29.539106Z 1 [System] [MY-013577] [InnoDB] InnoDB initialization has ended.
2025-11-23T01:35:30.591787Z 0 [Warning] [MY-010068] [Server] CA certificate ca.pem is self signed.
2025-11-23T01:35:30.591875Z 0 [System] [MY-013602] [Server] Channel mysql_main configured to support TLS. Encrypted connections are n
ow supported for this channel.

```

## Container my-mysql created:

**Containers** [Give feedback](#)

Container CPU usage 1.21% / 800% (8 CPUs available) Container memory usage 481.3MB / 7.48GB [Show charts](#)

☐ Only show running containers

<input type="checkbox"/>	Name	Container ID	Image	Port(s)	CPU (%)	Actions
<input type="checkbox"/>	my-mysql	72198a5c5b79	<a href="#">mysql</a>	<a href="#">3308:3306</a>	1.35%	

## Checking the connection to the MySQL database:

**Conectar a base de datos**

**Connection Settings**  
MySQL ajustes de conexión

General Advanced Driver properties + SSH, SSL, ... No profile

Server

Connect by: ☒ Host ☐ URL

URL: jdbc:mysql://localhost:3308/

Server Host: localhost Port: 3308

Database:  ☒ Show all databases

Authentication (Database Native)

Nombre de usuario: root

Contraseña:  ☒ Save password

[Connection variables information](#) [MySQL](#) Connection details (name, type, ...)

Driver name: MySQL Driver Settings Licencia del driver

**Connection test**

Conectado (52 ms)

Server: MySQL 9.5.0

Driver: MySQL Connector/J mysql-connector-j-8.2.0 (Revision: 06a1f724497fd81c6a659131fda822c9e5085b6c)

## Task 3: Investigate Containers

### 1. Inspect

- View container details (e.g., environment variables, IP addresses, volumes).
- Notice how Docker sets up networking, assigns container IDs, etc.

### 2. View Logs

- Check each container's logs.
- If your containers produce minimal logs, consider adding flags or environment variables that generate extra output to see something meaningful in the logs.

### 3. Optional: Explore Inside a Container

- If one container has a shell (e.g., `bash`), attach to it.
- Observe differences between the container environment and your host system.

Containers [Give feedback](#)

Container CPU usage ⓘ  
1.21% / 800% (8 CPUs available)

Container memory usage ⓘ  
481.3MB / 7.48GB

Show charts

☐ Only show running containers

<input type="checkbox"/>	Name	Container ID	Image	Port(s)	CPU (%)	Actions
<input type="checkbox"/>	<div><div></div>my-mysql</div>	72198a5c5b79	<a href="#">mysql</a>	<a href="#">3308:3306</a>	1.35%	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>

## Containers inspect:

Containers / my-mysql

my-mysql

735cd42616d1 [mysql:latest](#)

3308:3306

STATUS

Running (15 minutes ago)

Logs

Inspect

Bind mounts

Exec

Files

Stats

Platform

Cmd

State

Image

PortBindings

Runtime

Mounts

Volumes

Env

Labels

Networks

```
1 {
2   "Id": "735cd42616d1a9940e8bbfde9a18944ffb98c3285a4a60a952c14336278902e1",
3   "Created": "2025-11-24T15:04:23.257Z",
4   "Path": "docker-entrypoint.sh",
5   "Args": [
6     "mysql"
7   ],
8   "State": {
9     "Status": "running",
10    "Running": true,
11    "Paused": false,
12    "Restarting": false,
13    "OOMKilled": false,
14    "Dead": false,
15    "Pid": 1070,
16    "ExitCode": 0,
17    "Error": "",
18    "StartedAt": "2025-11-24T15:04:26.648Z",
19    "FinishedAt": "0001-01-01T00:00:00Z"
20  },
21  "Image": "sha256:509c4128dfa625ac2ac62cd8af588a3a6a0a049d1a8d8f0fac95880ecd8bbe5",
22  "ResolveConfPath": "/var/lib/docker/containers/735cd42616d1a9940e8bbfde9a18944ffb98c3285a4a60a952c14336278902e1/resolve.conf",
23  "HostnamePath": "/var/lib/docker/containers/735cd42616d1a9940e8bbfde9a18944ffb98c3285a4a60a952c14336278902e1/hostname",
24  "HostsPath": "/var/lib/docker/containers/735cd42616d1a9940e8bbfde9a18944ffb98c3285a4a60a952c14336278902e1/hosts",
25  "LogPath": "/var/lib/docker/containers/735cd42616d1a9940e8bbfde9a18944ffb98c3285a4a60a952c14336278902e1-json.log",
26  "Name": "/my-mysql",
27  "RestartCount": 0,
28  "Driver": "overlayfs",
29  "Platform": "linux",
30  "MountLabel": "",
31  "ProcessLabel": "",
32  "AppArmorProfile": "",
33  "ExecIDs": [
34    "e1f5d707c351b165ee371493341d7e6b707e116ba2ca2dda2fb4cbb75c926e8"
```

Containers Logs:

:

my-mysql

735cd42616d1mysql:latest3308:3306

STATUSRunning (16 minutes ago)

Logs

2025-11-24T15:04:34.856171Z 0 [System] [MY-815598] [Server] MySQL Server has access to 822525424 bytes of physical memory.

2025-11-24T15:04:34.863954Z 1 [System] [MY-813761] [InnoDB] InnoDB initialization has started.

2025-11-24T15:04:34.688688Z 1 [System] [MY-813777] [InnoDB] InnoDB initialization has ended.

2025-11-24T15:04:35.283361Z 0 [Warning] [MY-810868] [Server] CA certificate ca.pem is self signed.

2025-11-24T15:04:35.283437Z 0 [System] [MY-813602] [Server] Channel mysql\_main configured to support TLS. Encrypted connections are now supported for this channel.

2025-11-24T15:04:35.269782Z 0 [Warning] [MY-811818] [Server] Insecure configuration for --pid-file: Location '/var/run/mysqld' in the path is accessible to all OS users. Consider choosing a different directory.

2025-11-24T15:04:35.298307Z 0 [System] [MY-811323] [Server] X Plugin ready for connections. Socket: /var/run/mysqld/mysql.sock

2025-11-24T15:04:35.296668Z 0 [System] [MY-810931] [Server] /usr/sbin/mysqld: ready for connections. Version: '9.5.0' socket: '/var/run/mysqld/mysql.sock' port: 0 MySQL Community Server - GPL.

2025-11-24 15:04:39+00:00 [Note] [Entrypoint]: Temporary server started.

'/var/lib/mysql/mysql.sock' -> '/var/run/mysqld/mysql.sock'

Warning: Unable to load '/usr/share/zoneinfo/iso3166.tab' as time zone. Skipping it.

Warning: Unable to load '/usr/share/zoneinfo/leap-seconds.list' as time zone. Skipping it.

Warning: Unable to load '/usr/share/zoneinfo/leapseconds' as time zone. Skipping it.

Warning: Unable to load '/usr/share/zoneinfo/tzdata.zi' as time zone. Skipping it.

Warning: Unable to load '/usr/share/zoneinfo/zone.tab' as time zone. Skipping it.

Warning: Unable to load '/usr/share/zoneinfo/zone1979.tab' as time zone. Skipping it.

2025-11-24 15:04:39+00:00 [Note] [Entrypoint]: Creating database appdb

2025-11-24 15:04:39+00:00 [Note] [Entrypoint]: Stopping temporary server

2025-11-24T15:04:39.634821Z 12 [System] [MY-813172] [Server] Received SHUTDOWN from user root. Shutting down mysqld (Version: 9.5.0).

2025-11-24 15:04:40+00:00 [Note] [Entrypoint]: Temporary server stopped

2025-11-24T15:04:40.643986Z 0 [System] [MY-810910] [Server] /usr/sbin/mysqld: Shutdown complete (mysqld 9.5.0) MySQL Community Server - GPL.

2025-11-24T15:04:40.643986Z 0 [System] [MY-815916] [Server] MySQL Server - end.

2025-11-24 15:04:40+00:00 [Note] [Entrypoint]: MySQL Init process done. Ready for start up.

Containers Stats:



Containers Exec:

Containers / my-mysql

my-mysql

735cd42616d1mysql:latest3308:3306

STATUSRunning (

Exec

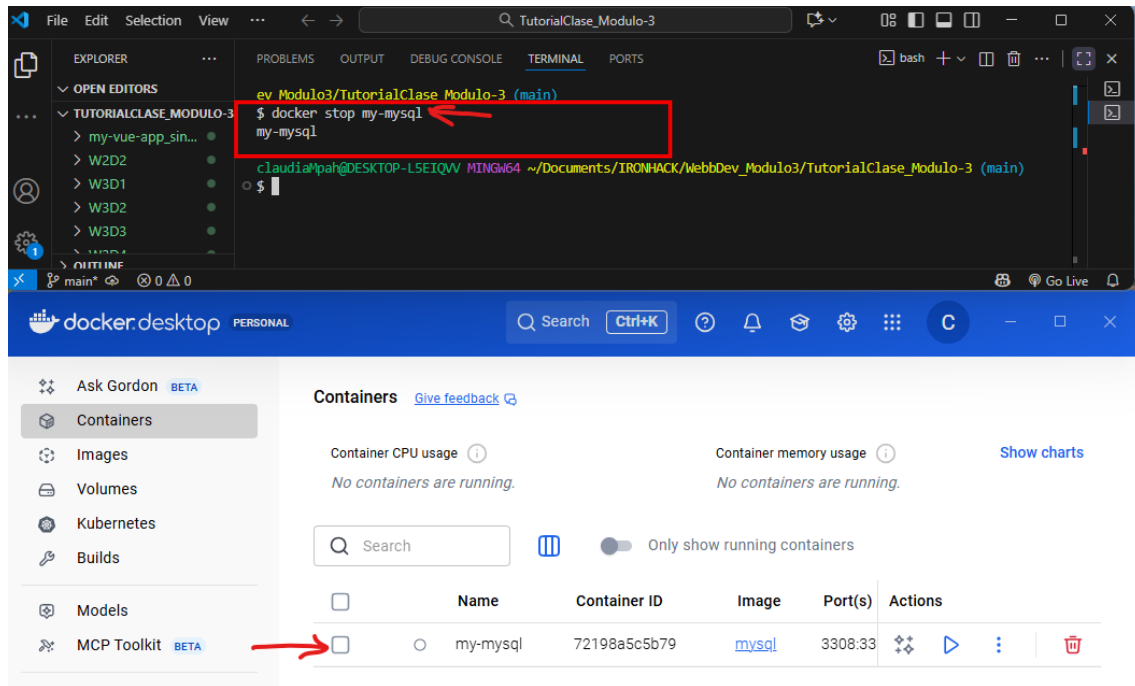
```
sh-5.1# ls
adm  cache  db  empty  ftp  games  kerberos  lib  local  lock  log  mail  nis  opt  preserve  run  spool  tmp  yp
sh-5.1# cd lib/mysql
sh-5.1# ls
'ib_16384_0.dbiwr'  'innodb_temp'  binlog.000001  ca-key.pem  client-key.pem  ibtmp1  mysql.sock  private_key.pem  server-key.pem  undo_002
'ib_16384_1.dbiwr'  appdb          binlog.000002  ca.pem      ib_buffer_pool  mysql     mysql_upgrade_history  public_key.pem  sys
'innodb_redo'       auto.cnf       binlog.index   client-cert.pem  ibdata1        mysql.ibd  performance_schema    server-cert.pem  undo_001
sh-5.1#
```

## Task 4: Container Lifecycle Management

### 1. Stop

- Gracefully stop both containers.
- Observe how Docker waits for the container's main process to end (or kills it if it's unresponsive).

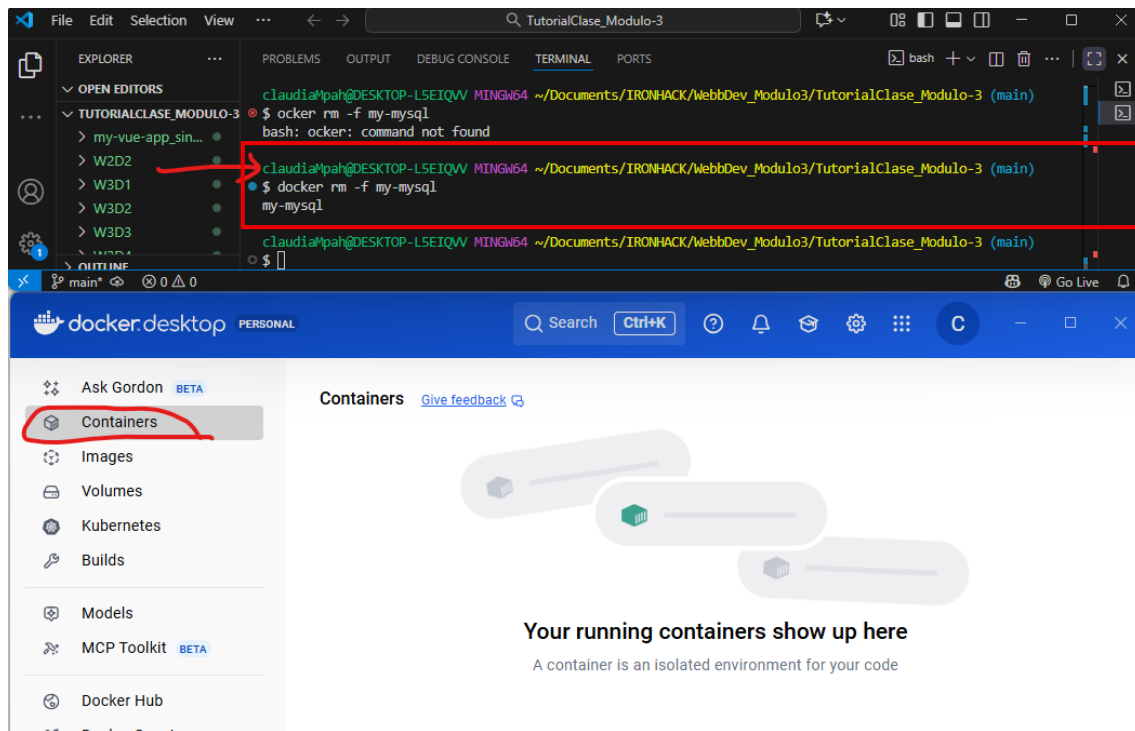
When we stop the container from the console, we see that it also stops from the Docker application.



### 2. Remove

- Remove both containers now that they're stopped.
- Verify they no longer appear in your container list.

When we delete the container from the console, we see how it is deleted from the Docker application.



### 3. Clean Up Images

- If you won't reuse the images, remove them to free disk space.
- Confirm your local image list is updated accordingly.

We've noticed that removing the container doesn't remove the image. Using the command "**docker rmi mysql**" from the console successfully removed the image from Docker.

File Edit Selection View ...

TutorialClase\_Modulo-3

0% 100% 200%

...

EXPLORER

OPEN EDITORS

TUTORIALCLASE\_MODULO-3

my-vue-app-3...

W2D2

W3D1

W3D2

W3D3

W3D4

OUTLINE

main\*

PROBLEMS

OUTPUT

DEBUG CONSOLE

TERMINAL

PORTS

bash

+

-

...

...

claudiaMpah@DESKTOP-L5EIQVW MINGW64 ~/Documents/IRONHACK/WebbDev\_Modulo3/TutorialClase\_Modulo-3 (main)

\$ docker images

\$ docker rmi mysql

Untagged: mysql:latest

Deleted: sha256:569c4128dfa625ac2ac62cdd8af588a3a6a60a049d1a8d8f0fac95880ecdbbe5

claudiaMpah@DESKTOP-L5EIQVW MINGW64 ~/Documents/IRONHACK/WebbDev\_Modulo3/TutorialClase\_Modulo-3 (main)

\$

docker.desktop PERSONAL

Search Ctrl+K

?

🔔

📦

⚙️

...

🏠

Go Live

🔊

🔧 Ask Gordon BETA

📦 Containers

📦 Images

📦 Volumes

📦 Kubernetes

🔧 Builds

📦 Models

🔧 MCP Toolkit BETA

📦 Docker Hub

📦 Docker Scout

📦 Images Give feedback

Local My Hub

Images are used to run containers

You can either build an image from a Dockerfile, or download an existing image to run

Search images to run