

Setting up MongoDB with Docker

CMPSC 305 – Database Systems



ALLEGHENY COLLEGE

Setup Docker

Read the Docker Install Docs

Docker Desktop works with your choice of development tools and languages and gives you access to a vast library of certified images and templates in [Docker Hub](#). This allows development teams to extend their environment to rapidly auto-build, continuously integrate, and collaborate using a secure repository.



Install Docker Desktop

Install Docker Desktop on [Mac](#), [Windows](#), or [Linux](#).



Explore Docker Desktop

Navigate Docker Desktop and learn about its key features.



View the release notes

Find out about new features, improvements, and bug fixes.



Browse common FAQs

Explore general FAQs or FAQs for specific platforms.



Find additional resources

Find information on networking features, deploying on Kubernetes, and more.



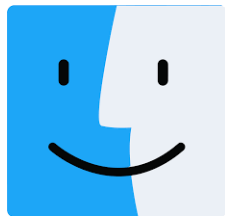
Give feedback

Provide feedback on Docker Desktop or Docker Desktop features.

- <https://docs.docker.com/desktop/>

Setup Docker

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MacOS and Linux: Create a directory for data to persist.

```
mkdir -p ~/mongodata
```

Setup Mongo in Docker Container

Construct the container

MacOS and Linux: Start a Docker container by downloading from DockerHub

```
sudo docker run -it -v ~/mongodata:/data/db --name mongodb -d mongo
```

Windows: Start a Docker container by downloading from DockerHub

```
docker run -it -v C:\Users\hangzhao\mongodata:/data/db  
--name mongodb -d mongo
```

For Windows commands (below), remove the term:
sudo

Setup Mongo in Docker Container

Maintenance commands

Check log to see that the server is operational

```
sudo docker logs mongodb
```

Check status: Is the mongodb running?

```
sudo docker ps
```

If mongodb container is not running, then start it up

```
sudo docker start mongodb
```

To stop the mongodb container at the end of your work

```
sudo docker stop mongodb
```

Run instance of MongoDB, goes into root of container.

```
sudo docker exec -it mongodb bash
```

Setup Mongo in Docker Container

From inside the container

You are now able to run MongoDB commands here.

Start the MongoDB client

```
mongosh
```

Leave the container

```
exit
```

Setup Mongo in Docker Container

Leaving/removing the container

Stop MongoDB container

```
sudo docker stop mongodb
```

Removing all stopped containers, if necessary due to errors in launching container

```
sudo docker rm $(docker ps -a -q)
```

Let's code

Schools Data

Populate the MongoDB database

```
db.schools.insertMany([
    { 'school': "Washington", name: 'Ryan', gender: 'M', 'Job':'Teacher' },
    { 'school': "Edison", name: 'Joanna', gender: 'F', 'Job':'Professor'},
    { 'school': "Eaton", name: 'Roger', gender: 'M', 'Job':'Instructor'},
    { 'school': "Lewis", name: 'Presilla', gender: 'F', 'Job':'Instructor'}
]);
```

General Syntax

```
db.schools.find({ SEARCH-SPACE }, {CONSTRAINTS} )
```

- SEARCH-SPACE → Scan this search space
- CONSTRAINTS → Find constraint(s) within the search space

Querying “Jobs” == “Instructor”, show name, gender and school

```
db.schools.find(['Job':'Instructor'], {'name': 1, 'gender': 1, 'school':1}).pretty()
```