

To-Do Date: Sep 13 at 11:59pm

Module 2: Docker

Topic Preparation

Docker: Install, set up and run a container


Docker Tutorial for Beginners

Watch the first 30 minutes of Docker Tutorial for Beginners. Learn about what Docker is, what an image is, and what a container is.

Note: This video is a 2-hour long video. All of it contains very useful information. However, the first 30 minutes are all you are required to watch.

Docker Tutorial for Beginners - A Full DevOps Course on How to Run Applicatio...



[Docker Tutorial for Beginners Transcript \(https://byu.instructure.com/courses/25698/files/8946851?wrap=1\)](https://byu.instructure.com/courses/25698/files/8946851?wrap=1) 
(https://byu.instructure.com/courses/25698/files/8946851/download?download_frd=1)

Set Up Docker

For the docker tutorial, you will need to **have Docker Desktop installed** on your laptop

- [Docker: Desktop](https://docs.docker.com/docker-for-windows/install/) ➞ [\(https://docs.docker.com/docker-for-windows/install/\)](https://docs.docker.com/docker-for-windows/install/)

If you are running into WSL 2 errors when trying to start docker, use this tutorial to update your Windows wsl 2 software

- [Wsl 2 Software](https://docs.microsoft.com/en-us/windows/wsl/install-win10#step-4---download-the-linux-kernel-update-package) ➞ [\(https://docs.microsoft.com/en-us/windows/wsl/install-win10#step-4---download-the-linux-kernel-update-package\)](https://docs.microsoft.com/en-us/windows/wsl/install-win10#step-4---download-the-linux-kernel-update-package)

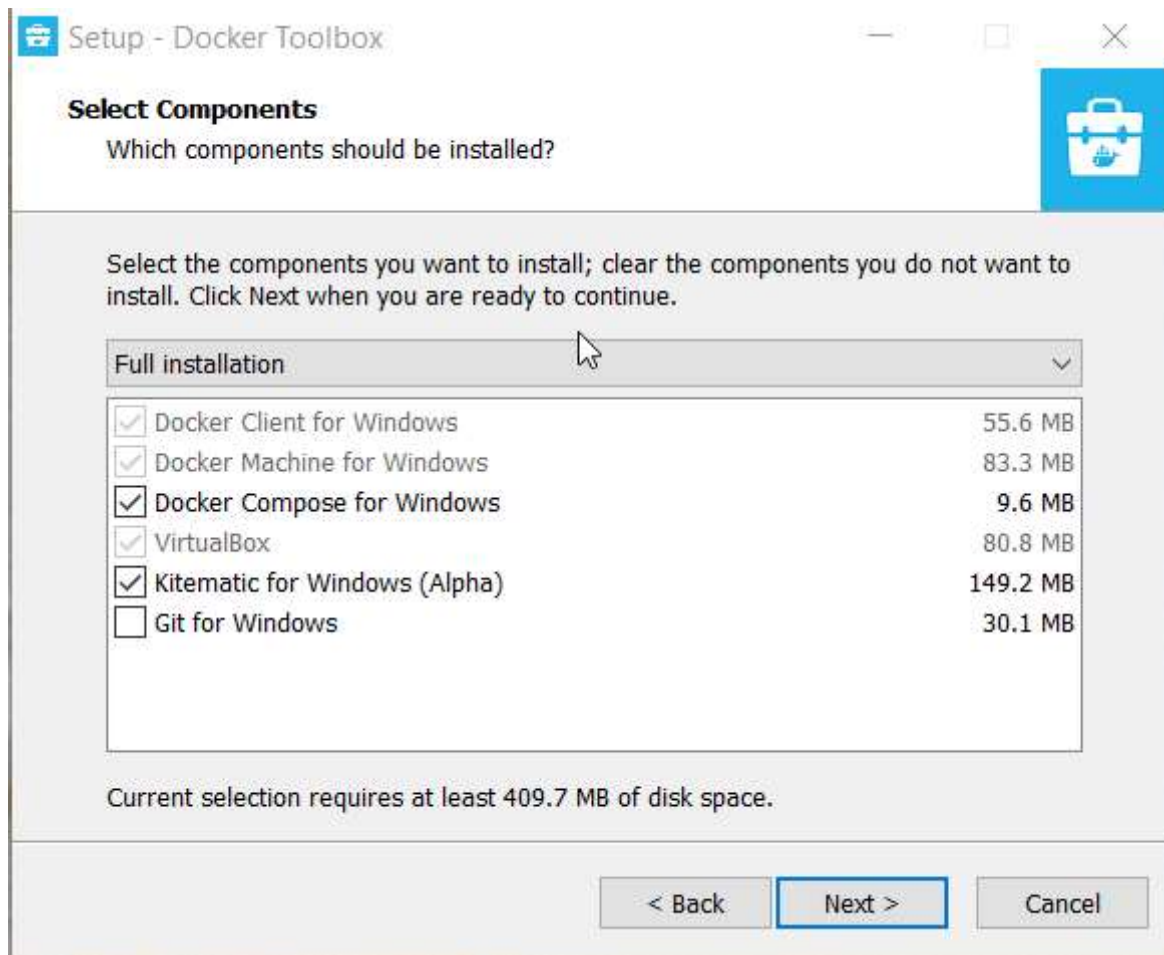
If you open Docker Desktop and it is stuck on "Docker Desktop Starting" for more than 5 minutes, then you may need to install an earlier version of Docker

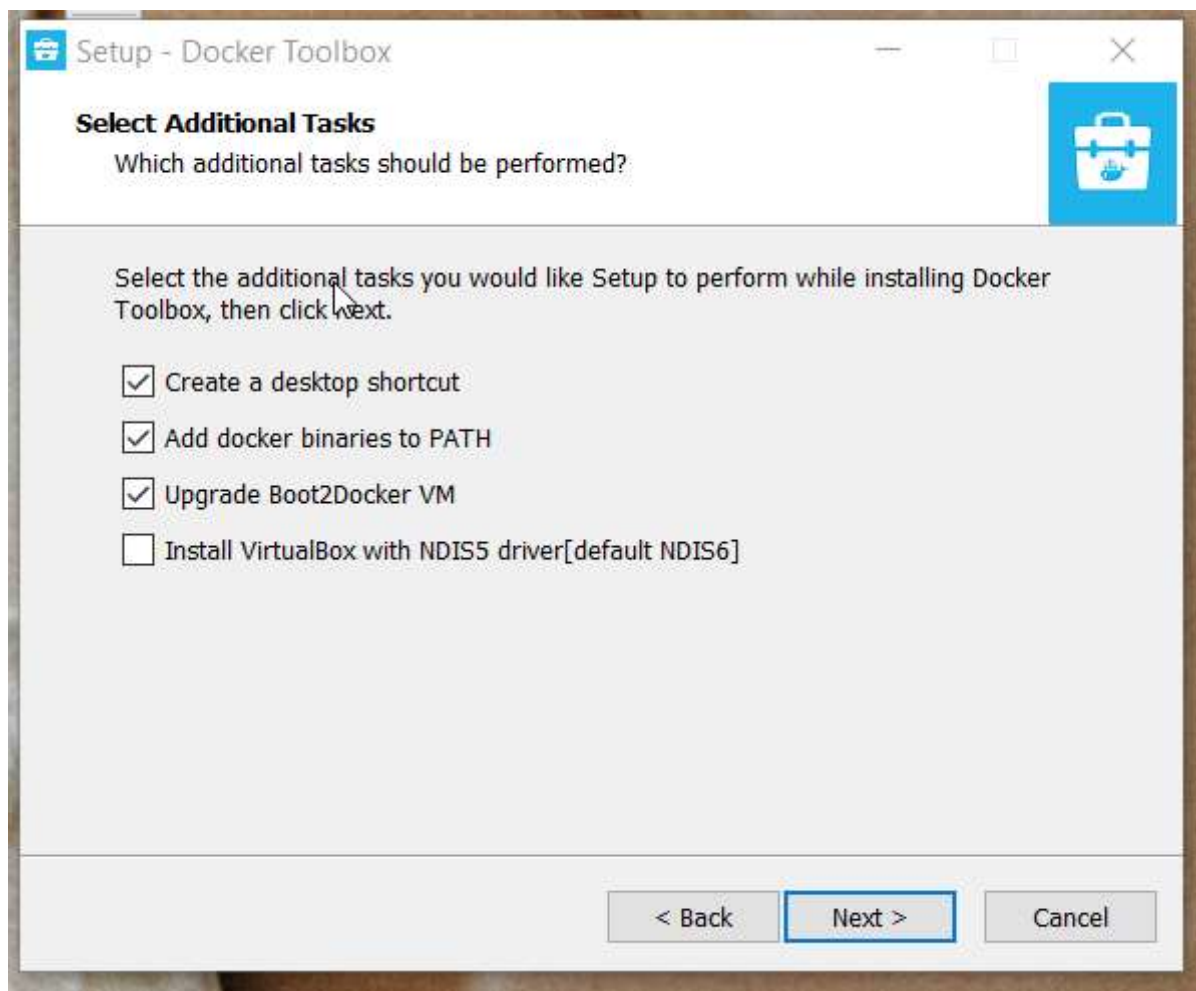
- [Docker 4.15.0](https://docs.docker.com/desktop/release-notes/#4150) ➞ [\(https://docs.docker.com/desktop/release-notes/#4150\)](https://docs.docker.com/desktop/release-notes/#4150)

IF YOU ARE USING WINDOWS 10 STANDARD EDITION

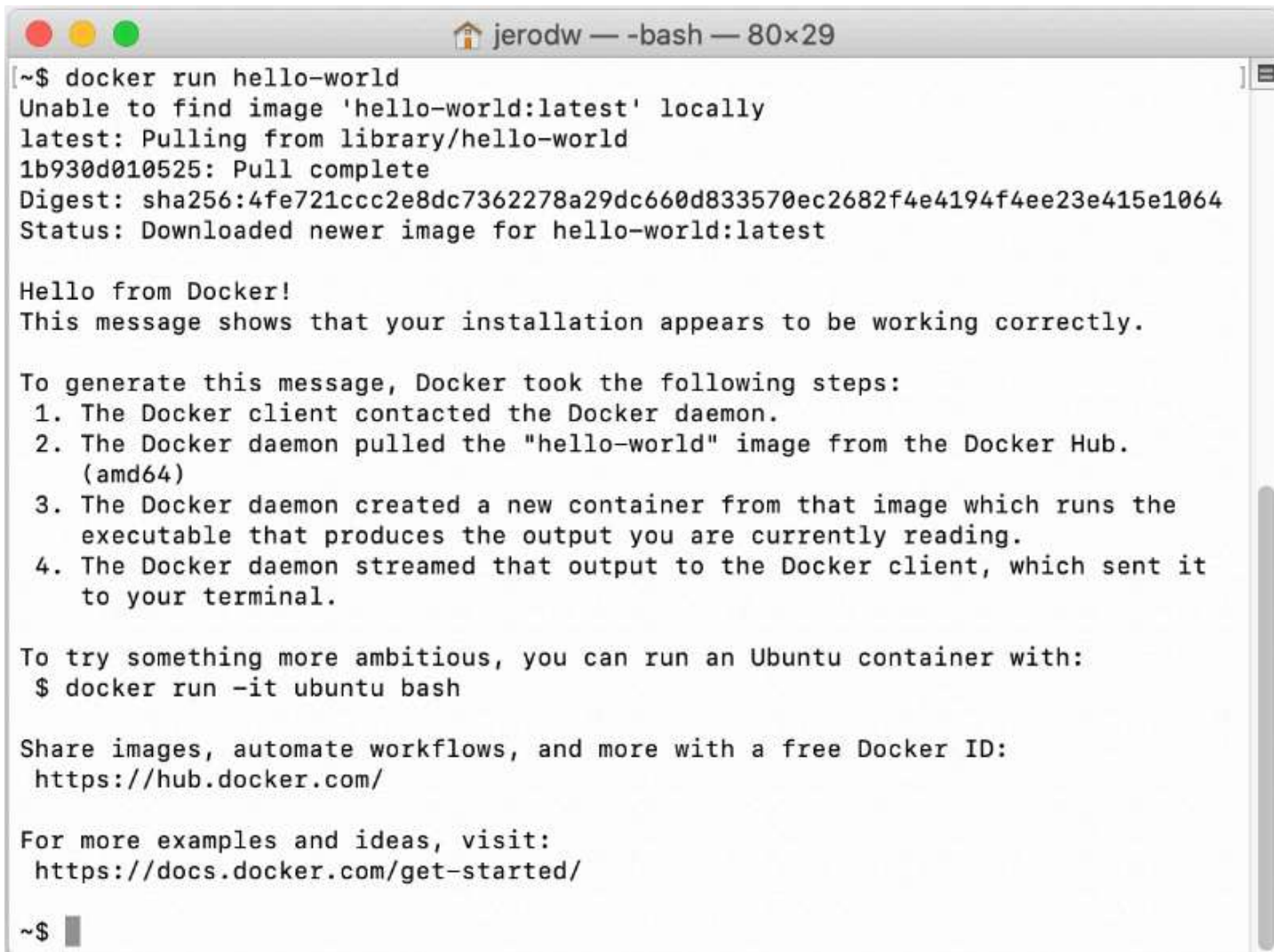
Docker Tool uses a virtual box to run. However, it requires a specific version of virtual box to work correctly. Because of this, it is easier to uninstall the virtual box and let Docker toolbox install the version it needs to run.

- To avoid compatibility issues, we recommend you uninstall your current version of virtual box **BEFORE** installing docker toolbox.
- When you install Docker toolbox with VirtualBox uninstalled, make sure you follow the following settings in your install wizard:





After installing either Docker Desktop or Docker Toolbox, confirm that Docker is working correctly by typing “docker run hello-world” at a command prompt. You should see output showing it is installed correctly. It might look something like this:

A screenshot of a terminal window titled "jerodw — -bash — 80x29". The terminal shows the output of the command "docker run hello-world". The output includes a message about pulling the "hello-world:latest" image from Docker Hub, a list of steps Docker took to generate the message, and a prompt to try running an Ubuntu container. The terminal ends with a shell prompt "~\$".

```
[~$ docker run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
1b930d010525: Pull complete
Digest: sha256:4fe721ccc2e8dc7362278a29dc660d833570ec2682f4e4194f4ee23e415e1064
Status: Downloaded newer image for hello-world:latest

Hello from Docker!
This message shows that your installation appears to be working correctly.

To generate this message, Docker took the following steps:
1. The Docker client contacted the Docker daemon.
2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
   (amd64)
3. The Docker daemon created a new container from that image which runs the
   executable that produces the output you are currently reading.
4. The Docker daemon streamed that output to the Docker client, which sent it
   to your terminal.

To try something more ambitious, you can run an Ubuntu container with:
$ docker run -it ubuntu bash

Share images, automate workflows, and more with a free Docker ID:
https://hub.docker.com/

For more examples and ideas, visit:
https://docs.docker.com/get-started/

~$
```

Docker Hello-World Output Screenshot Description

The output of running "docker run hello-world" is:

```
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
1b940d010525: Pull complete
Digest: sha256: [string of numbers and letters]
Status: Downloaded newer image for hello-world:latest
```

Hello from Docker!

This message shows that your installation appears to be working correctly.

To generate this message, Docker took the following steps:

1. The Docker client contacted the Docker daemon.
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3. The Docker daemon created a new container from that image which runs the executable that produces the output you are currently reading.

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To try something more ambitious, you can run an Ubuntu container with:

```
$ docker run -it ubuntu bash
```

In the next assignment we will be using two Docker images. Run the following commands to install them.

- ``docker pull ubuntu``
- ``docker pull openjdk``

Verification

To verify you have everything installed correctly

1. type ``docker images`` and check that your terminal output looks like this:

```
$ docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
ubuntu              latest             549b9b86cb8d       9 days ago         64.2MB
openjdk             7                 d735a2057e60       7 months ago       475MB
hello-world         latest            fce289e99eb9       12 months ago      1.84kB
```

What to Learn and Do

- What is Docker?
- What is an image?
- What is a container?
- What is the difference between a Virtual Machine and a Docker Container?
- Know basic Docker commands
 - How to create a container
 - How to stop a container
 - How to remove a container

Have Docker **installed and working** on your laptop



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