

Contents

Contents	1
Exercise 6 – Setup Kubernetes and Minikube	1
6.1 – Setup Kubernetes on Docker Desktop	1
6.2 – Install and Setup Minikube	4
6.2.1 – Install Minikube.....	4
6.2.2 – Start the Minikube Kubernetes Cluster	4
6.2.3 – In case of errors when starting Minikube	5
6.2.4 – Setup Minikube to use Docker Environment.....	5
6.2.5 – Open the Minikube Dashboard to verify the installation.	5
6.3 – Install Kompose	6

Exercise 6 – Setup Kubernetes and Minikube

Using WSL 2 and Minikube is a great way to start playing around with Kubernetes clusters without the need for extra VMs and complex setup. Make sure you have started Docker Desktop before continuing with this exercise.

6.1 – Setup Kubernetes on Docker Desktop

Open Docker Desktop and click on Settings > Kubernetes > Enable Kubernetes



Settings

- General
- Resources
- Docker Engine
- Kubernetes**
- Software updates
- Extensions
- Features in development

Kubernetes

Manage a personal cluster directly in Docker Desktop. You can also use tools like Telepresence to integrate local services with a remote development cluster. [Learn more](#)

v1.25.4

☐ Enable Kubernetes

Start a Kubernetes single-node cluster when starting Docker Desktop.

☐ Show system containers (advanced)

Show Kubernetes internal containers when using Docker commands.

Reset Kubernetes Cluster

All stacks and Kubernetes resources will be deleted.

Docker Desktop Upgrade plan Search for local and... Ctrl+K Sign in

Settings

- General
- Resources
- Docker Engine
- Kubernetes**
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Kubernetes

Manage a personal cluster directly in Docker Desktop. You can also use tools like Telepresence to integrate local services with a remote...

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☒ Enable Kubernetes
Start a Kubernetes single-node cluster when starting Docker Desktop.

☐ Show system containers (advanced)
Show Kubernetes internal containers when using Docker commands.

Reset Kubernetes Cluster

All stacks and Kubernetes resources will be deleted.

Cancel

Apply & restart

RAM 5.82 GB CPU 0.06% Not connected to Hub v4.17.1

Kubernetes Cluster Installation

Installation takes a few minutes and requires an internet connection.

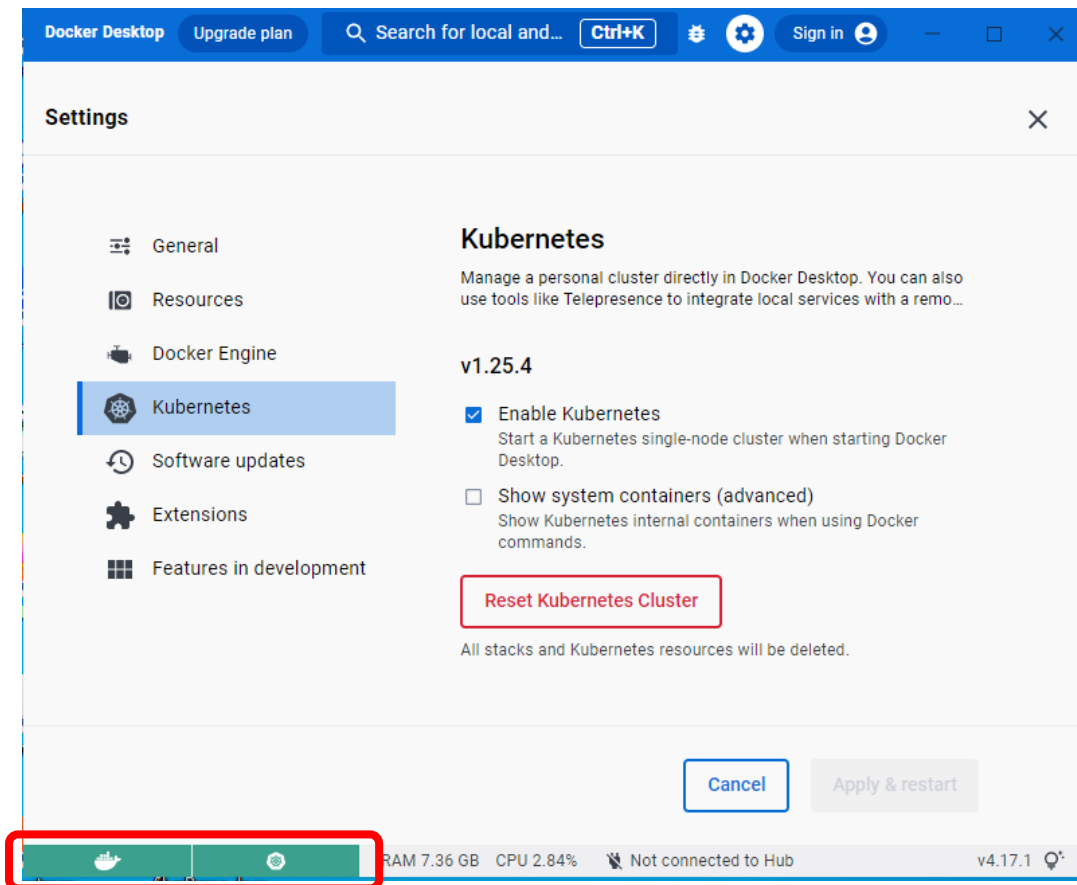
Cancel

Install

DOC1

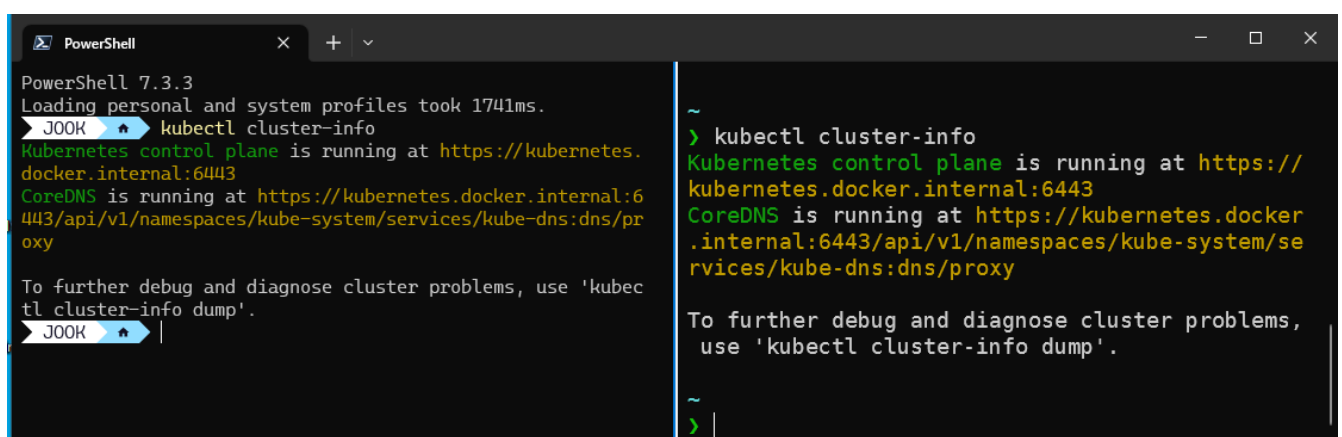
2/6

When completed, both Docker and Kubernetes should be green as shown below:



Enabling Kubernetes on Docker Desktop will install kubectl (Kubernetes command-line tool that allows us to run commands against Kubernetes clusters) by default.

Run the following command on both Windows and WSL2 UbuntuLinux terminal to confirm the installation.



6.2 – Install and Setup Minikube

We need only one prerequisite (contrack) in order to install Minikube in WSL2. Run the following command to install contrack before installing Minikube:

N/B: This part of this exercise should be done in a WSL (Linux) terminal window.

```
> sudo apt-get update -y
> sudo apt-get upgrade -y
> sudo apt install -y contrack
```

6.2.1 – Install Minikube

Download Minikube binary and move it into your system path as follows:

Download the latest version of Minikube (a single long line, you can copy-past it)

```
> curl -Lo minikube
https://storage.googleapis.com/minikube/releases/latest/minikube-linux-
amd64
```

Install the binary in /usr/local/bin, make it executable and cleanup the downloaded file

```
> sudo install minikube-linux-amd64 /usr/local/bin/minikube
> rm minikube-linux-amd64
```

6.2.2 – Start the Minikube Kubernetes Cluster

Check the Minikube version and start the cluster with the following command:

```
> minikube version
minikube version: v1.30.1
commit: 08896fd1dc362c097c925146c4a0d0dac715ace0

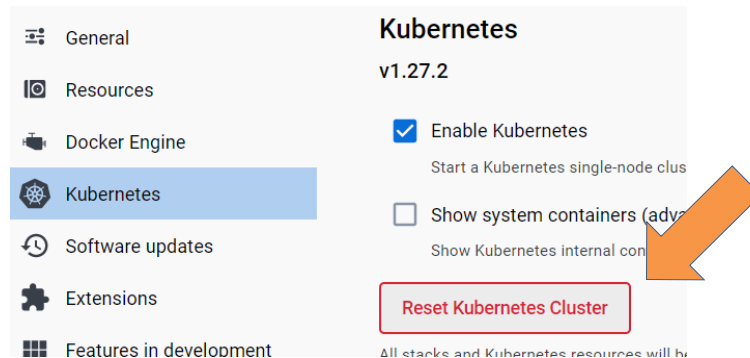
~ on 🐧
> minikube start --driver=docker
🐶 minikube v1.30.1 on Ubuntu 20.04 (amd64)
   ▪ KUBECONFIG=/mnt/c/Users/jook/.kube/config
🌟 Using the docker driver based on existing profile
👍 Starting control plane node minikube in cluster minikube
```

6.2.3 – In case of errors when starting Minikube

Try these 3 steps

Step 1: Check that you remembered to install contrack in step 6.2.

Step 2: reset the Kubernetes cluster in Docker Desktop



Step 3:

Reset the Minikube cluster completely

```
> minikube delete
```

Then try to restart the cluster

```
> minikube start --driver=docker
```

And if step 1-3 doesn't work, try all over again from the beginning.

6.2.4 – Setup Minikube to use Docker Environment

Make Minikube to use the docker environment and check the status:

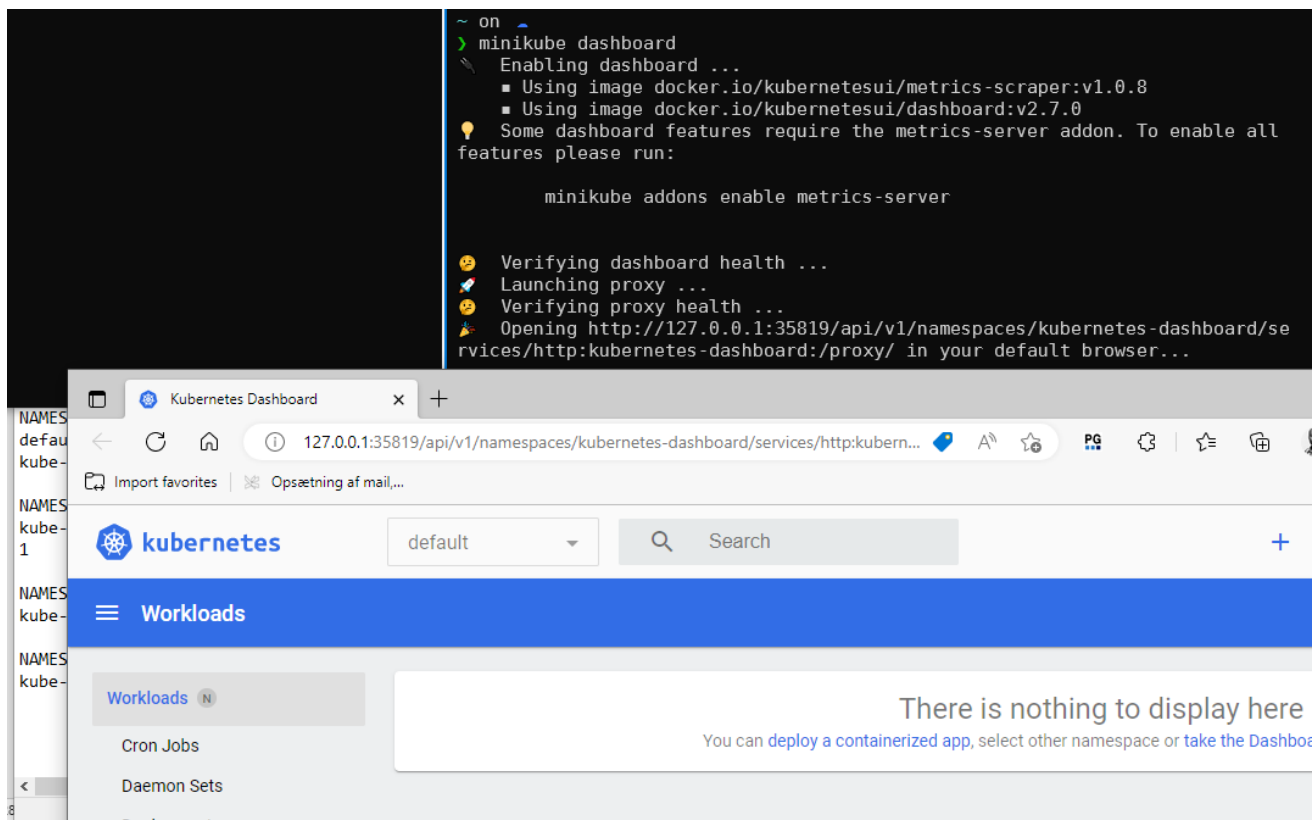
```
> eval $(minikube docker-env)

~ on ~
> minikube status
minikube
type: Control Plane
host: Running
kubelet: Running
apiserver: Running
kubeconfig: Configured
docker-env: in-use
```

docker-env should be set to in-use

6.2.5 – Open the Minikube Dashboard to verify the installation.

Run the `minikube dashboard` to open the Kubernetes dashboard. Note that you can enable the metrics -server as well.



You can stop Minikube by running:

```
> minikube stop
```

6.3 – Install Kompose

Kompose takes a Docker Compose file and translates it into Kubernetes resources.

Download Kompose binary and move it into your system path as follows:

Download the latest version of Kompose (a single long line, you can copy-past it)

```
> curl -Lo kompose
https://github.com/kubernetes/kompose/releases/download/v1.30.0/kompose-
linux-amd64
```

Install the binary in /usr/local/bin, make it executable and cleanup the downloaded file

```
> sudo install kompose-linux-amd64 /usr/local/bin/kompose
> rm kompose-linux-amd64
```