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How to setup GKE Cluster directly using Docker Desktop for Mac

Kubernetes - Beginners | Intermediate | Advanced

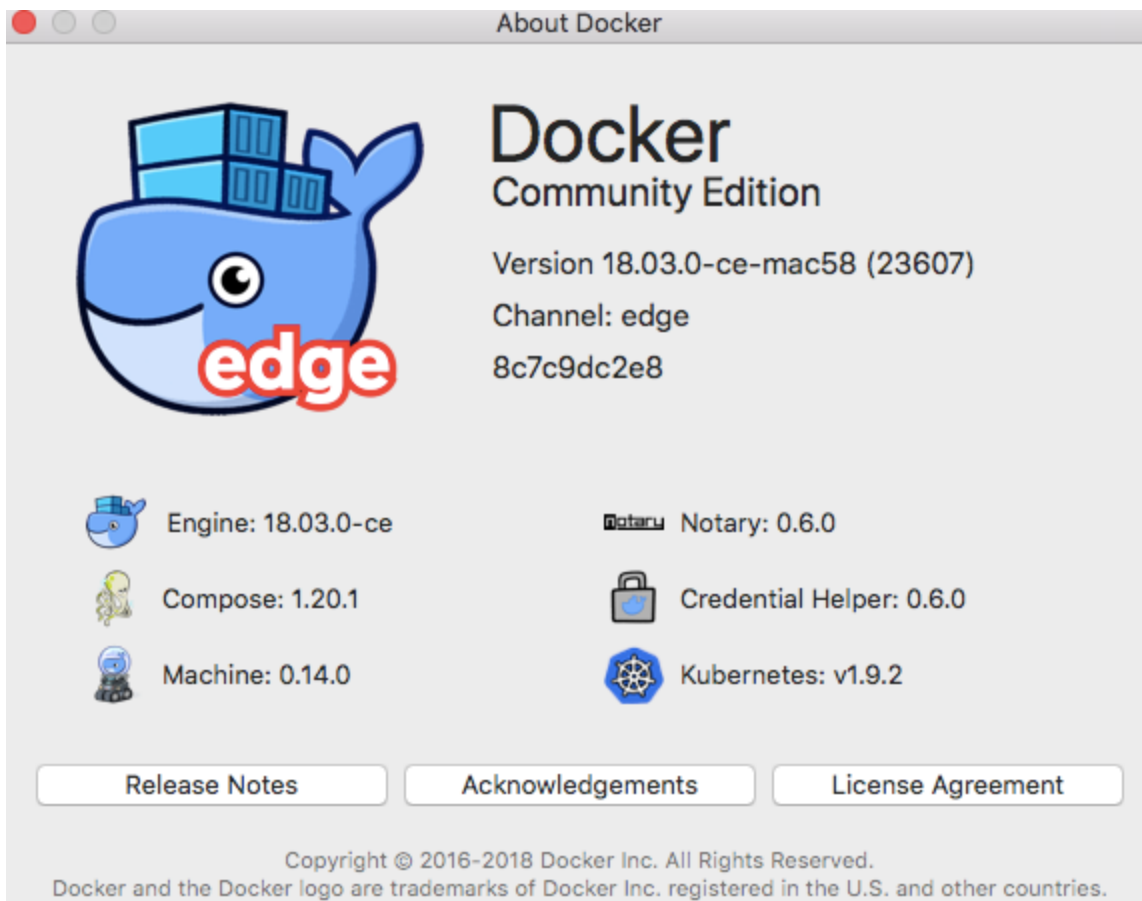
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How to setup GKE Cluster directly using Docker Desktop for Mac

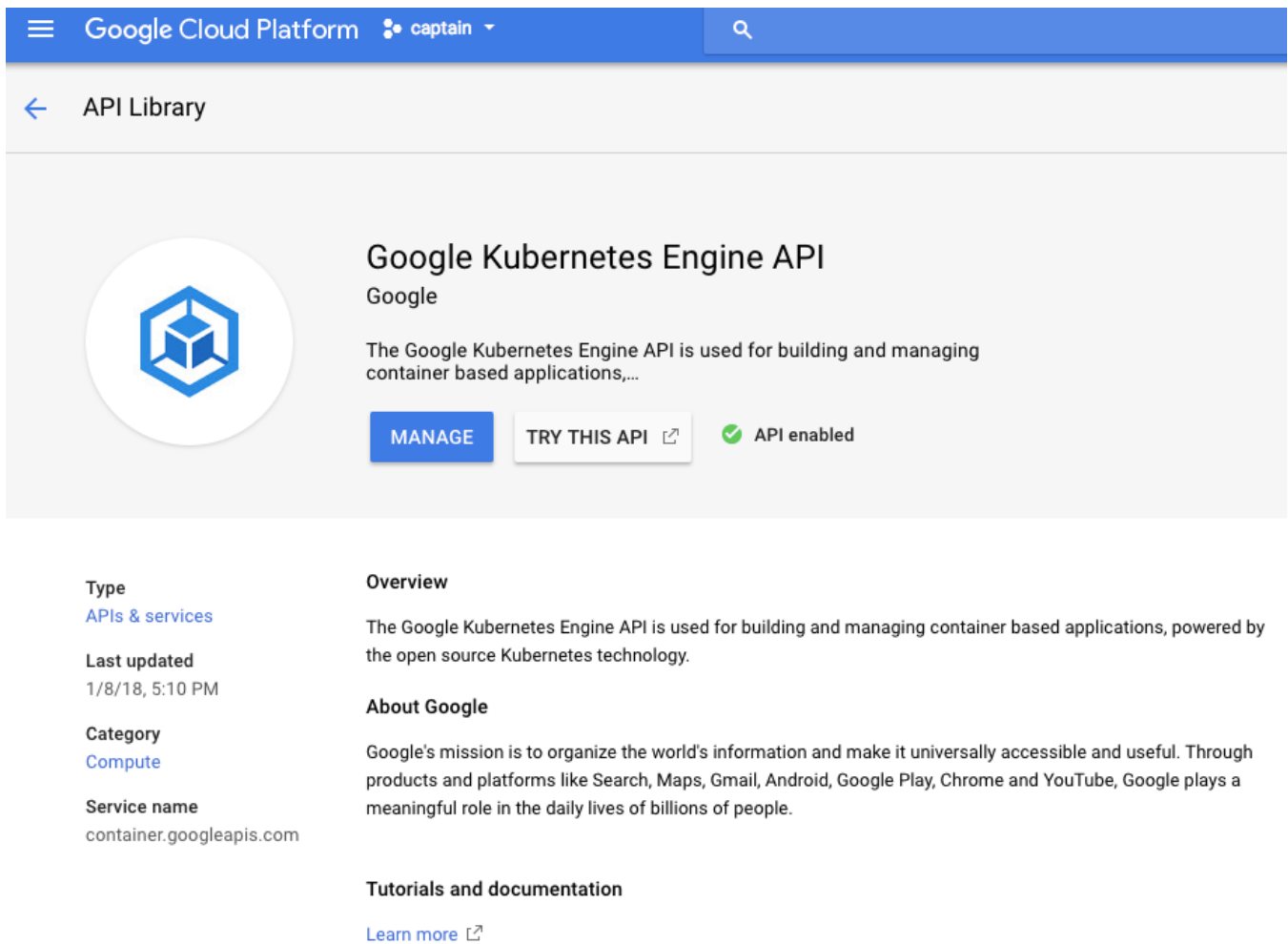
Refer [this](#) link

Pre-requisite

- Install/Upgrade Docker for Mac 18.03 CE Edition



- Install [google-cloud-sdk](#)
- Enable Google Cloud Engine API



The screenshot shows the Google Cloud Platform API Library interface. At the top, there's a blue header with the Google Cloud Platform logo, a user profile 'captain', and a search icon. Below the header, the page is titled 'API Library'. The main content area features the 'Google Kubernetes Engine API' by Google. It includes a circular icon with the Kubernetes logo, a description: 'The Google Kubernetes Engine API is used for building and managing container based applications,...', and two buttons: 'MANAGE' and 'TRY THIS API'. A green checkmark indicates 'API enabled'. On the left side, there's a sidebar with metadata: Type (APIs & services), Last updated (1/8/18, 5:10 PM), Category (Compute), and Service name (container.googleapis.com). The right side has sections for Overview, About Google, and Tutorials and documentation, each with a brief description and a 'Learn more' link.

Google Kubernetes Engine API
Google

The Google Kubernetes Engine API is used for building and managing container based applications,...

[MANAGE](#) [TRY THIS API](#) ✓ API enabled

Type
[APIs & services](#)

Last updated
1/8/18, 5:10 PM

Category
[Compute](#)

Service name
container.googleapis.com

Overview
The Google Kubernetes Engine API is used for building and managing container based applications, powered by the open source Kubernetes technology.

About Google
Google's mission is to organize the world's information and make it universally accessible and useful. Through products and platforms like Search, Maps, Gmail, Android, Google Play, Chrome and YouTube, Google plays a meaningful role in the daily lives of billions of people.

Tutorials and documentation
[Learn more](#)

- Authenticate Your Google Cloud using `gcloud auth`

Step-1

Installing Google Cloud SDK on your macOS

Make sure that Python 2.7 is installed on your system:

```
Ajeets-MacBook-Air:~ ajeetraina$ python -V  
Python 2.7.10
```

Download the corresponding version of Google Cloud SDK. In this case the Mac OS version for 64-bits systems is downloaded.

```
wget https://dl.google.com/dl/cloudsdk/channels/rapid/downloads/google-cloud
```

Untar the downloaded file, as follows:

```
tar xzf google-cloud-sdk-195.0.0-darwin-x86_64.tar.gz
```

and execute the following command to install Google Cloud SDK in your system:

```
./google-cloud-sdk/install.sh
```

Initializing the SDK

```
gcloud init
```

In your browser, log in to your Google user account when prompted and click **Allow** to grant permission to access Google Cloud Platform resources.

Enabling Kubernetes Engine API

Authenticate Your Google Cloud

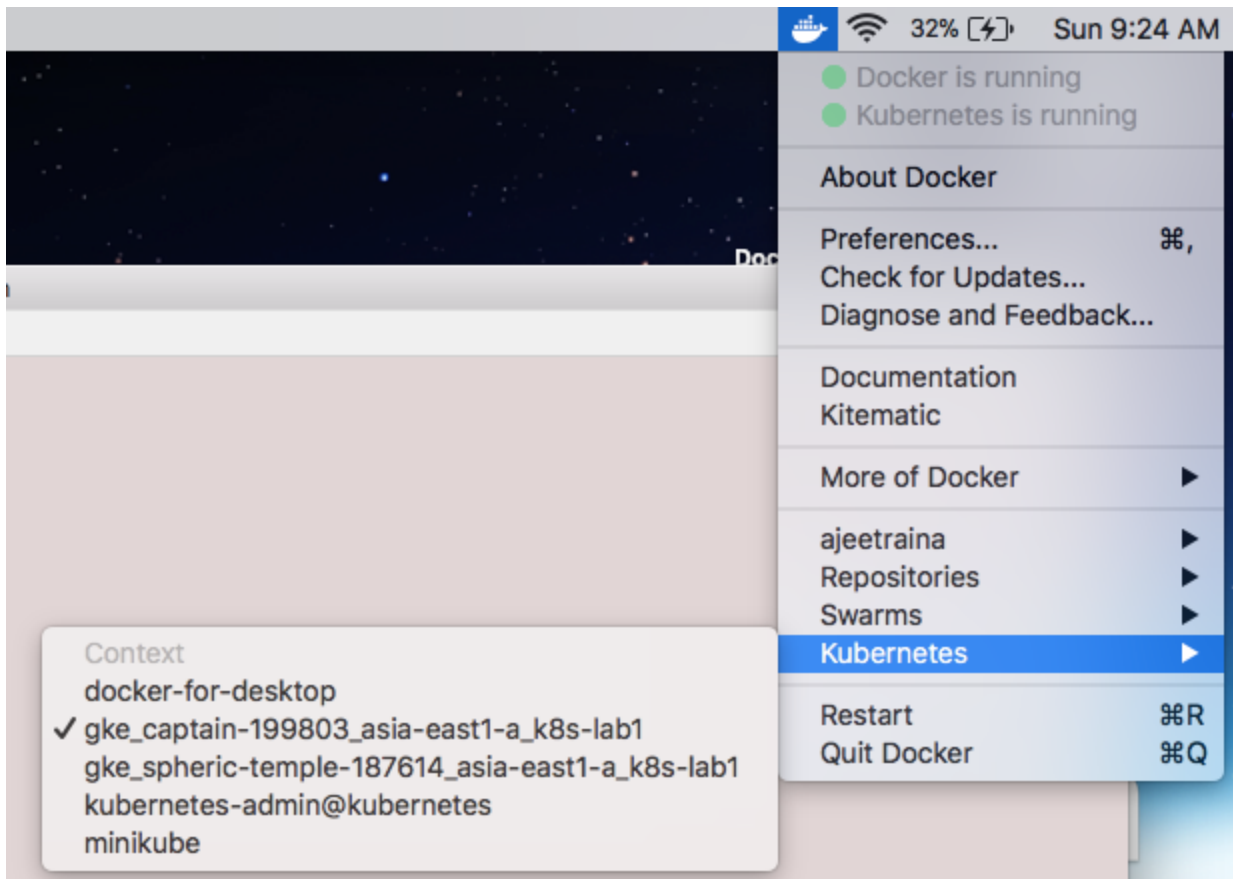
```
gcloud auth login
```

Creating GKE Cluster

```
gcloud container clusters create k8s-lab1 --disk-size 10 --zone asia-east1-a
```

Viewing it on Docker for Mac UI

You should be able to view GKE cluster under Preference UI by now.



Be aware that your Kubernetes context can be named differently and it depends on the project's name under which the Kubernetes cluster is being deployed.

Listing the Nodes

```
kubectl get nodes
```

You can connect to your cluster via command-line or using a dashboard. **Remember** your project's name can be different.

```
gcloud container clusters get-credentials k8s-lab1 --zone asia-east1-a --pro
```

Deploy Nginx on GKE Cluster

```
$ kubectl run nginx --image=nginx --replicas=3
```

```
deployment "nginx" created
```

Verify that the pods are running

```
kubectl get pods -owide
```

NAME	READY	STATUS	RESTARTS	AGE	IP
nginx-7c87f569d-glczej	1/1	Running	0	8s	10.12.2.6
nginx-7c87f569d-pll76	1/1	Running	0	8s	10.12.0.8
nginx-7c87f569d-sf8z9	1/1	Running	0	8s	10.12.1.8

You can see that each `nginx` pod is now running in a different node (virtual machine).

Expose the nginx cluster as an external service

```
$ kubectl expose deployment nginx --port=80 --target-port=80 \
--type=LoadBalancer
```

```
service "nginx" exposed
```

Find the network load balancer address:

```
kubectl get service nginx
```

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
nginx	LoadBalancer	10.15.247.8	<pending>	80:30253/TCP	12s

It may take several minutes to see the value of `EXTERNAL_IP`. If you don't see it the first time with the above command, retry every minute or so until the value of `EXTERNAL_IP` is displayed.

You can then visit `http://EXTERNAL_IP/` to see the server being served through network

load balancing.



GKE provides amazing platform to view Workloads & Load-balancer as shown below:

A screenshot of the Google Kubernetes Engine (GKE) console interface. The page title is "Discovery & load balancing" with a "REFRESH" button. A sidebar on the left contains navigation icons. The main content area explains that services are sets of pods with a network endpoint. Below this is a filter bar with the text "Is system object : False" and a "Filter resources" input. A table lists the discovered services:

Name ^	Status	Service Type	Endpoints	Pods	Namespace	Cluster
nginx	✓ Ok	Load balancer	35.194.209.174:80	3 / 3	default	k8s-lab1

GKE also provides UI for displaying Loadbalancer :

Google Cloud Platform captain

Service details

REFRESH

EDIT

DELETE

KUBECTL

nginx

Overview Details Events YAML

Select the Stackdriver account to see charts.

Cluster

k8s-lab1

Namespace

default

Labels

run : nginx

Type

LoadBalancer

External endpoints

35.194.209.174:80

LoadBalancer

Cluster IP

10.15.247.8

Load balancer IP

35.194.209.174

Load balancer

a22869596454c11e8a18a42010af0011

Deployments

Name	Status	Pods
nginx	OK	0/3

Serving pods

Name	Status	Restarts	Created on
nginx-7c87f569d-glczej	Running	0	Apr 21, 2018, 3:39:22 PM
nginx-7c87f569d-pll76	Running	0	Apr 21, 2018, 3:39:22 PM
nginx-7c87f569d-sf8z9	Running	0	Apr 21, 2018, 3:39:22 PM

Cleaning Up

```
gcloud container clusters delete k8s-lab1 --zone asia-east1-a
```



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