

OBJECTIVE:

Containerize a Flask application by using Docker and deploy it to the IBM Cloud [Kubernetes Service](#).

Prerequisites

To complete this tutorial, you need the following prerequisites:

An [IBM Cloud account](#)

[IBM Cloud CLI](#)

[Docker CLI](#)

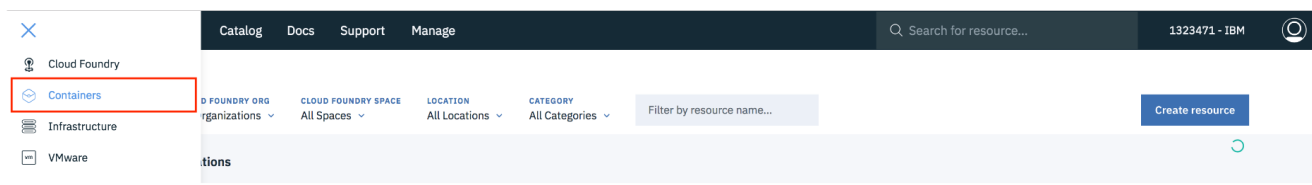
[Kubernetes CLI](#)

STEPS

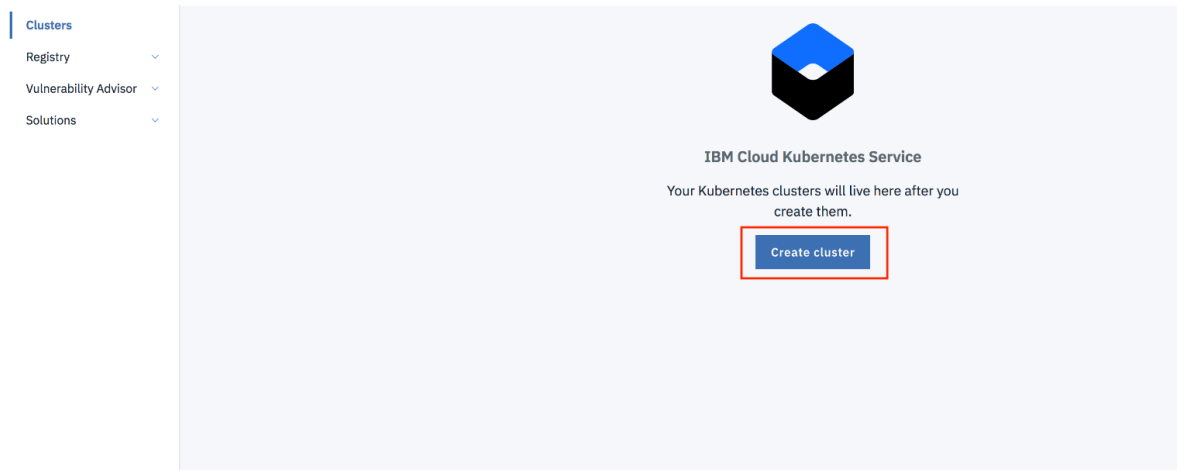
1. Create a Kubernetes cluster

- Sign in to IBM Cloud Dashboard by using your IBM Cloud Account username and password

Open IBM Kubernetes Service



➤ Click **Create Cluster**.



- Select the **Region** where you want to deploy the cluster, type in a **name** for your cluster, then click **Create Cluster**.
- Select the appropriate cluster type depending on your account.
- It takes some time for the cluster to get ready (around 30 minutes).

Catalog /

Kubernetes cluster

Author: IBM

Create

About

Deliver your apps quicker across clouds with Red Hat OpenShift ↗

Plan details

Learn more about the differences between plans in our [docs](#).

Pricing plan

Free ▾

You have already created your one free cluster
Ready to create more clusters? Choose the Standard cluster type.

Summary

Kubernetes cluster

1 Worker node

Free

Free - 2 vCPUs 4GB RAM

Total estimated cost

Free/mo

Additional charges for networking and bandwidth might apply.
Actual monthly total will vary with tiered pricing.
Estimate does not include costs for integrations.

Create

Add to estimate

- Once the cluster is ready, click on your cluster's name and you will be redirected to a new page with information about your cluster and worker node.

The screenshot shows the 'Overview' page for a Kubernetes cluster named 'mycluster-free'. The cluster status is 'Normal' and it expires in 24 days. A warning banner indicates that the cluster will be deleted in 24 days. The page displays four status cards: Node status (1 of 1, Normal), Add-on status (0 of 0, Normal), Master status (Normal), and Ingress status (Healthy). Below these is a 'Details' section with fields for Cluster ID, Version, Infrastructure, Zones, Created time, Resource group, and Image security enforcement. At the bottom, a 'Node health' section shows 1 total nodes.

Clusters / mycluster-free Normal Expires in 24 days [Add tags](#) [Help](#) [Kubernetes dashboard](#) [Actions...](#)

Overview

Worker nodes
Worker pools
DevOps New

Expires in 24 days:
Be sure to back up your data, your cluster will be deleted in 24 days. To access the full capabilities of the service, try out a [standard cluster](#).

Node status
1 of 1
Normal
[Details ↓](#)

Add-on status
0 of 0
Normal
[Details ↓](#)

Master status
Normal
✓
[Docs ↗](#)

Ingress status
Healthy ⓘ
✓
[Docs ↗](#)

Details

Cluster ID	Version	Infrastructure	Zones
cdnubvcf8c0ujj2md33g 📋	1.24.8_1544	Classic	Milan 01
Created	Resource group	Image security enforcement	
11/12/2022, 11:59 PM	Default	Enable	

Node health [Worker node details](#)

1 total nodes

- Click on the **Worker Nodes** tab to note the cluster's Public IP.

The screenshot shows the 'Worker nodes' tab. It displays a table with columns: Name, Status, Worker pool, Zone, Private IP, Public IP, and Version. There is one worker node listed with ID 000000021, status Normal, in the default pool, Milan 01 zone, with private IP 10.144.188.243 and public IP 169.51.206.72. The table has a search bar, a filter dropdown, and pagination controls at the bottom.

Clusters / mycluster-free Normal Expires in 24 days [Add tags](#) [Help](#) [Kubernetes dashboard](#) [Actions...](#)

Worker nodes

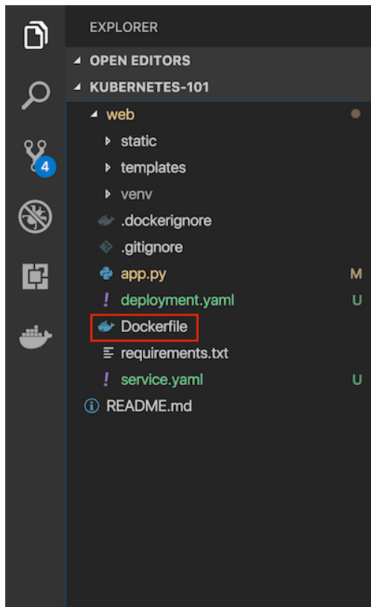
Pool: Filter... Search [Add](#) [+](#)

<input type="checkbox"/>	Name	Status	Worker pool	Zone	Private IP	Public IP	Version
<input checked="" type="checkbox"/>	000000021	Normal	default	Milan 01	10.144.188.243	169.51.206.72	1.24.7_1543

Items per page: 25 1-1 of 1 item 1 1 of 1 page [◀](#) [▶](#)

2.Containerize your Flask application

- In your project directory, create a file named "Dockerfile." *Suggestion: Name your file exactly "Dockerfile," nothing else.*



Site feedback

```
FROM python:2.7
LABEL maintainer="Kunal Malhotra,kunal.malhotra1@ibm.com"
RUN apt-get update
RUN mkdir /app
WORKDIR /app
COPY . /app
RUN pip install -r requirements.txt
EXPOSE 5000
ENTRYPOINT [ "python" ]
CMD [ "app.py" ]
```