Deploying Google Kubernetes Engine

# Overview

In this lab, you will use the Google Cloud Console to build a GKE cluster and deploy Pods with containers running your React app.

# Objectives

In this lab, you learn how to perform the following tasks:

Use the Google Cloud Console to build and manipulate GKE clusters

Use the Google Cloud Console to deploy a Pod

Use the Google Cloud Console to examine the cluster and Pods

# Lab setup

## Task 1. Deploy GKE clusters

In this task, you use the Google Cloud Console and Cloud Shell to deploy GKE clusters.

Use the Google Cloud Console to deploy a GKE cluster:

In the Google Cloud Console, use the search bar to find and navigate to “Google Kubernetes Engine”…

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On the left menu click on “Clusters” and then click “Create” to begin creating a GKE cluster.

The first time you visit this part of the portal you may get informational pop-ups. If so, dismiss them. A tutorial might also appear on the right of the page. If so, close it.

Click “Switch to Standard Cluster” in the top right of the screen to switch operation modes. Click on SWITCH TO STANDARD CLUSTER.

Examine the console UI and the controls to change the cluster name, the cluster location.

Clusters can be created across a region or in a single zone. A single zone is the default. When you deploy across a region the nodes are deployed to three separate zones and the total number of nodes deployed will be three times higher.

Change the cluster name to “{yourname}-cluster-1”. Choose a Zone to create the cluster that is in the same region in which you created your Artifact Registry repository yesterday.

Leave all the values at their defaults and click “Create”

The cluster begins provisioning.

When provisioning is complete (it may take several minute), the Kubernetes Engine > Clusters page should display your cluster along with others using this project. Dismiss any promotional advertisements to free up more display space:

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Once provisioned, click on your cluster to view its details

You can scroll down the page to view more details.

Click the Storage and Nodes tabs under the cluster name at the top to view more of the cluster details.

On the left menu, Click on “Clusters” to return to the main cluster listing

## Task 2. Modify GKE clusters

It is easy to modify many of the parameters of existing clusters using either the Google Cloud Console or Cloud SDK. In this task, you use the Google Cloud Console to modify the size of GKE clusters.

Click into your cluster and then click NODES at the top of the details page.

In Node Pools section, click “default-pool”

Click “RESIZE” at the top of the Node Pool Details page.

Change the number of nodes from 3 to 4 and click RESIZE.

When the operation is complete, the Clusters page should show that your cluster now has four nodes.

## Task 3. Deploy a workload

In this task, using the Google Cloud console you will deploy a Pod running your React application image as a sample workload.

In the Google Cloud Console, on the left menu click “Workloads”.

Click “Create Deployment” to show the “Create a deployment wizard”.

If it appears, hide the Info Panel on the right of the page.

Click “Select” to view a list of all artifact registries in this project. Navigate into your registry.

Your image(s) will be displayed. Navigate into the image you uploaded yesterday.

Versions of the image will be displayed. Select your latest image version.

We will not be passing any variable values into this deployment, so click on DONE then on CONTINUE

In Configuration, name your deployment {yourname}-react..

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Scroll down and select CONTINUE

Check the “Expose deployment as a new service” checkbox

The default Port 80 is correct here as our image was configured port 80 access to the container.

Select DEPLOY

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## Task 4. View details about workloads in the Google Cloud Console

Once the deployment is complete, you will be taken to its details page

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This displays the overview information for the workload showing details like resource utilization charts, links to logs, and details of the Pods associated with this workload.

Click the “REVISION HISTORY” tab. This displays a list of the revisions that have been made to this workload.  
  
Click the “EVENTS” tab. This tab lists events associated with this workload.  
  
And then the “YAML” tab. This tab provides the complete YAML file that defines these components and full configuration of this sample workload.  
  
Return to “OVERVIEW” tab, scroll down to the Managed Pods. It’s inside these pods that the container is running. Click the name of one of your Pods to view the details page for that Pod.

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The Pod details page provides information on the Pod configuration, resource utilization and the node where the Pod is running.  
  
In the Pod pane, you can click the Events and Logs tabs to view event details and links to container logs in Cloud Operations.  
  
Click the YAML tab to view the detailed YAML file for the Pod configuration.

## Task 5. Access the Service

On the main navigation menu, scroll down and select “Gateways, Services and Ingress”, then select the SERVICES tab.

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Find your service and click on the ‘open in browser’ link against the IP address allocated to the load balancer that will distribute traffic to your pods..

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**End of lab**