Getting Started: Create and Manage Cloud Resources: Challenge Lab

1 hour5 Credits
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GSP313

Overview

You must complete a series of tasks within the allocated time period. Instead of following step-by-step instructions, you'll be given a scenario and a set of tasks - you figure out how to complete it on your own! An automated scoring system (shown on this page) will provide feedback on whether you have completed your tasks correctly.

To score 100% you must complete all tasks within the time period!

When you take a Challenge Lab, you will not be taught Google Cloud concepts. To build the solution to the challenge presented, use skills learned from the labs in the quest this challenge lab is part of. You will be expected to extend your learned skills; you will be expected to change default values, but new concepts will not be introduced.

This lab is only recommended for students who have completed the labs in the Getting Started: Create and Manage Cloud Resources Quest. Are you up for the challenge?

Please make sure you review the labs in the Getting Started: Create and Manage Cloud Resources quest before starting this lab!

Topics tested:

- Create an instance.
- Create a 3 node Kubernetes cluster and run a simple service.
- Create an HTTP(s) Load Balancer in front of two web servers.

Setup

Before you click the Start Lab button
Read these instructions. Labs are timed and you cannot pause them. The timer, which starts when you click **Start Lab**, shows how long Google Cloud resources will be made available to you.

This Qwiklabs hands-on lab lets you do the lab activities yourself in a real cloud environment, not in a simulation or demo environment. It does so by giving you new, temporary credentials that you use to sign in and access Google Cloud for the duration of the lab.

What you need
To complete this lab, you need:

- Access to a standard internet browser (Chrome browser recommended).
- Time to complete the lab.

Note: If you already have your own personal Google Cloud account or project, do not use it for this lab.

Note: If you are using a Pixelbook, open an Incognito window to run this lab.

Challenge scenario

You have started a new role as a Junior Cloud Engineer for Jooli Inc. You are expected to help manage the infrastructure at Jooli. Common tasks include provisioning resources for projects.

You are expected to have the skills and knowledge for these tasks, so don't expect step-by-step guides to be provided.

Some Jooli Inc. standards you should follow:

- Create all resources in the default region or zone, unless otherwise directed.
- Naming is normally *team-resource*, e.g. an instance could be named **nucleus-webserver1**
- Allocate cost effective resource sizes. Projects are monitored and excessive resource use will result in the containing project's termination (and possibly yours), so beware. This is the guidance the monitoring team is willing to share; unless directed use **f1-micro** for small Linux VMs and **n1-standard-1** for Windows or other applications such as Kubernetes nodes.

Your challenge

As soon as you sit down at your desk and open your new laptop you receive several requests from the Nucleus team. Read through each description, then create the resources.

Task 1: Create a project jumphost instance

We will use this instance to perform maintenance for the project.

Make sure you:

- name the instance `nucleus-jumphost`
- use the machine type of f1-micro
- use the default image type (Debian Linux)

Click *Check my progress* to verify the objective.

Create a project jumphost instance

Check my progress

If you don't get a green check mark, please click on the Score fly-out on the top right and click Run Step on the relevant step. You will see a hint pop up giving you advice.

Task 2: Create a Kubernetes service cluster

You have a limit to the resources you are allowed to create in your project, if you don't get the result you expected please delete the cluster before you create another cluster or the lab might exit and you might get banned.

The team is building an application that will use a service. This service will run on Kubernetes. You need to:

- Create a cluster (in the us-east1-b zone) to host the service
- Use the Docker container hello-app (`gcr.io/google-samples/hello-app:2.0`) as a place holder, the team will replace the container with their own work later
- Expose the app on port 8080

Click *Check my progress* to verify the objective.

Create a Kubernetes cluster

Check my progress

If you don't get a green check mark, please click on the Score fly-out on the top right and click Run Step on the relevant step. You will see a hint pop up giving you advice.

Task 3: Setup an HTTP load balancer

We will serve the site via nginx web servers, but we want to ensure we have a fault tolerant environment, so please create an HTTP load balancer with a managed instance group of **two nginx web servers**. Use the following to configure the web servers, the team will replace this with their own configuration later.

You have a limit to the resources you are allowed to create in your project, so do not create more than two instances in your managed instance group or the lab might exit and you might get banned.

```
cat << EOF > startup.sh
#! /bin/bash
apt-get update
apt-get install -y nginx
service nginx start
sed -i -- 's/nginx/Google Cloud Platform - '"\$HOSTNAME"'/'
/var/www/html/index.nginx-debian.html
EOF
```

You need to:

- Create an instance template
- Create a target pool
- Create a managed instance group
- Create a firewall rule to allow traffic (80/tcp)
- Create a health check
- Create a backend service and attach the manged instance group
- Create a URL map and target HTTP proxy to route requests to your URL map
- Create a forwarding rule

Click *Check my progress* to verify the objective.

Create the website behind the HTTP load balancer

Check my progress

If you don't get a green check mark, please click on the Score fly-out on the top right and click Run Step on the relevant step. You will see a hint pop up giving you advice.

Congratulations!

Finish Your Quest

This self-paced lab is part of the Qwiklabs Getting Started: Create and Manage Cloud Resources Quest. A Quest is a series of related labs that form a learning path. Completing this Quest earns you the badge above, to recognize your achievement. You can make your badge (or badges) public and link to them in your online resume or social media account. Enroll in a Quest and get immediate completion credit if you've taken this lab. See other available Qwiklabs Quests.

Take your next lab

This lab is also part of a series of labs called Challenge Labs. These labs are designed test your Google Cloud knowledge and skill. Search for "Challenge Lab" in the lab catalog and challenge yourself!

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