

## **Module 3: Google Cloud Platform quest**

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### **1. Your familiarity with Qwiklabs**

I have some experience using Qwiklabs, a hands-on learning platform that provides access to various cloud technologies such as Google Cloud Platform (GCP). During my undergraduate studies, I had a web development project that required hosting a website on GCP, which allowed me to gain some familiarity with the platform. However, my exposure to Qwiklabs was a unique experience that enabled me to expand my knowledge of creating virtual machines, using the Google Cloud Shell, and deploying containers using the Kubernetes Engine. Overall, Qwiklabs provides a practical way to learn about various cloud technologies by providing users with step-by-step instructions on how to set up and use these technologies in a sandboxed environment.

### **2. Any challenges you encountered while doing this exercise?**

1. The user interface of the Google Cloud Platform (GCP) can be challenging to navigate, particularly for those unfamiliar with cloud computing. The platform's comprehensive UI has many features and options.
2. Users may experience difficulty with the instructions provided in Qwiklabs, which may result in errors or unexpected outcomes. These challenges can be frustrating for learners and impede their progress.
3. Prior knowledge of cloud technologies is beneficial when using Qwiklabs. While the platform provides step-by-step instructions, learners may encounter difficulties without some background knowledge of the concepts involved.

# Task 1: A Tour of Qwiklabs and Google Cloud (free)

## Task 1.1 Task 1. Accessing the Cloud Console

Google Cloud Platform Dashboard for project `qwiklabs-gcp-01-15f868d68599`. The dashboard includes sections for Project info, APIs, Resources, Google Cloud Platform status, Monitoring, and API Error Reporting. A tooltip indicates "Now viewing project 'qwiklabs-gcp-01-15f868d68599' in organization 'No organization'".

## Task 1.2: Task 2. Projects in the Cloud console

Google Cloud Platform Dashboard for project `Qwiklabs Resources`. The dashboard shows Project info, App Engine, Compute Engine, SQL, and various monitoring and error reporting sections. A tooltip indicates "Now viewing project 'Qwiklabs Resources' in organization 'No organization'".

### Task 1.3: Task 3. Roles and permissions

The screenshot shows the Google Cloud IAM & Admin interface. The left sidebar is titled 'IAM & Admin' and contains several sections: Identity & Organization, Policy Troubleshooter, Policy Analyzer (NEW), Organization Policies, Service Accounts, Workload Identity Federation, Labels, Tags, Settings, Privacy & Security, Identity-Aware Proxy, Roles, Audit Logs, Manage Resources, and Release Notes. The 'IAM' section is currently selected. The main content area is titled 'Permissions for project "qwiklabs-gcp-01-15f868d68599"' and displays a table of roles assigned to principals. The table includes columns for Type, Principal, Name, Role, Security insights, and Inheritance. The principals listed are an administrator service account, the project service account, and a student user. A checkbox at the top right of the table allows selecting 'Include Google-provided role grants'. A message at the bottom of the table indicates the project is being viewed in 'No organization'. On the right side, there is a 'LEARN' section with links to various IAM-related topics like 'Grant an IAM role using the Google Cloud console', 'IAM overview', 'Understanding roles', 'Manage access to projects, folders, and organizations', 'Understanding allow policies', and 'Troubleshoot IAM permissions'.

### Task 1.4: Task 4. APIs and services

The screenshot shows the Google Cloud API & Services interface. The left sidebar is titled 'API' and contains sections for Enabled APIs & services (Library, Credentials, OAuth consent screen, Page usage agreements), Metrics, Quotas, Credentials, and Cost. The main content area is titled 'API/Service Details - APIs & Services' and shows the 'Dialogflow API'. It provides a brief description: 'Builds conversational interfaces (for example, chatbots, and voice-powered apps and devices). By Google Enterprise API'. The service name is dialogflow.googleapis.com, the type is Public API, and the status is Enabled. Below this, there are tabs for METRICS, QUOTAS, CREDENTIALS, and COST. The METRICS tab shows a graph for '4 Graphs' with a time range from 1 hour to 30 days, with '30 days' selected. It also includes filters for Versions (v1, v2, v2beta1, v3, and v3...), Credentials (Qwiklabs User Service Ac...), and Methods (397 options selected). A message at the bottom of the metrics section states 'No data is available for the selected time frame.' A message at the bottom of the page indicates the project is being viewed in 'No organization'.

## Task 1.5: Task 5. Ending your lab

The screenshot shows a Chrome browser window with the following details:

- Address Bar:** cloudskillsboost.google/focuses/2794?parent=catalog
- Header:** A Tour of Google Cloud Hands-on Labs
- Time:** 00:45:00
- Section:** Congratulations!
- Text:** In just 30 minutes, you developed a solid understanding of the Cloud console and the platform's key features. You learned about projects, roles, and the types of services the platform offers. You also practiced with Cloud IAM and the API libraries. You are now ready to take more labs.
- Section:** Finish your quest
- Text:** This self-paced lab is part of the [Google Cloud Essentials](#) and [Understanding Your Google Cloud Costs](#) quests. A quest is a series of related labs that form a learning path. Completing a quest earns you a badge 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 any quest that contains this lab and get immediate completion credit. Refer to the [Google Cloud Skills Boost catalog](#) for all available quests.
- Section:** Take your next lab
- Text:** Continue your quest with [Creating a Virtual Machine](#), or check out these other Google Cloud Skills Boost labs:
  - [Compute Engine: Qwik Start - Windows](#)
  - [Getting Started with Cloud Shell and gcloud](#)
- Right Panel:** GSP282, Overview, Lab fundamentals, Task 1. Accessing the Cloud Console, Task 2. Projects in the Cloud console, Task 3. Roles and permissions, Task 4. APIs and services, Task 5. Ending your lab, Congratulations! (with a yellow progress bar showing 0/100)

## Task 2: Creating a Virtual Machine

### Task 2.1: Task 1. Create a new instance from the Cloud Console

The screenshot shows the Google Cloud Compute Engine interface. On the left, a sidebar menu has 'Virtual machines' expanded, with 'VM instances' selected. The main area is titled 'VM Instances' with a sub-instruction: 'Compute Engine lets you use virtual machines that run on Google's'. Below this is a terminal window titled 'Terminal (qwiklabs-gcp-04-da7e46322f63)'. The terminal output shows the user is in a Cloud Shell session for project 'qwiklabs-gcp-04-da7e46322f63'. It lists active accounts ('ACTIVE: \*'), the current account ('ACCOUNT: student\_01-d5e0299ab227@qwiklabs.net'), and the configuration ('ACTIVE CONFIGURATION: [core] project = qwiklabs-gcp-04-da7e46322f63'). The user runs 'gcloud auth list' to show their credentials.

### Task 2.2: Task 2. Install an NGINX web server

The screenshot shows the Google Cloud Compute Engine interface. On the left, a sidebar menu has 'Virtual machines' expanded, with 'VM instances' selected. The main area is titled 'VM instances' with a sub-instruction: 'Compute Engine lets you use virtual machines that run on Google's'. Below this is a terminal window titled 'Terminal (qwiklabs-gcp-04-da7e46322f63)'. The terminal output shows the user is in a Cloud Shell session for project 'qwiklabs-gcp-04-da7e46322f63'. It lists active accounts ('ACTIVE: \*'), the current account ('ACCOUNT: student\_01-d5e0299ab227@qwiklabs.net'), and the configuration ('ACTIVE CONFIGURATION: [core] project = qwiklabs-gcp-04-da7e46322f63'). The user runs 'gcloud auth list' to show their credentials.

## Task 2.3: Task 3. Create a new instance with gcloud

The screenshot shows the Google Cloud VM Instances page. On the left, there's a sidebar with 'Compute Engine' selected under 'Virtual machines'. The main area shows a table of VM instances with one row for 'gcelab'. Below the table are several related actions: 'Explore Backup and DR', 'Monitor VMs', 'Explore VM logs', 'Set up firewall rules', 'Patch management', and 'Load balance between VMs'. At the bottom, there's a terminal window titled 'CLOUD SHELL Terminal' showing the command \$ gcloud config set account 'ACCOUNT' followed by the output of gcloud config list project, which includes the instance details: NAME: gcelab2, ZONE: us-east1-c, MACHINE\_TYPE: e2-medium, INTERNAL\_IP: 10.142.0.3, EXTERNAL\_IP: 35.243.166.148, and STATUS: RUNNING.

## Task 2.4: Task 4. Test your knowledge

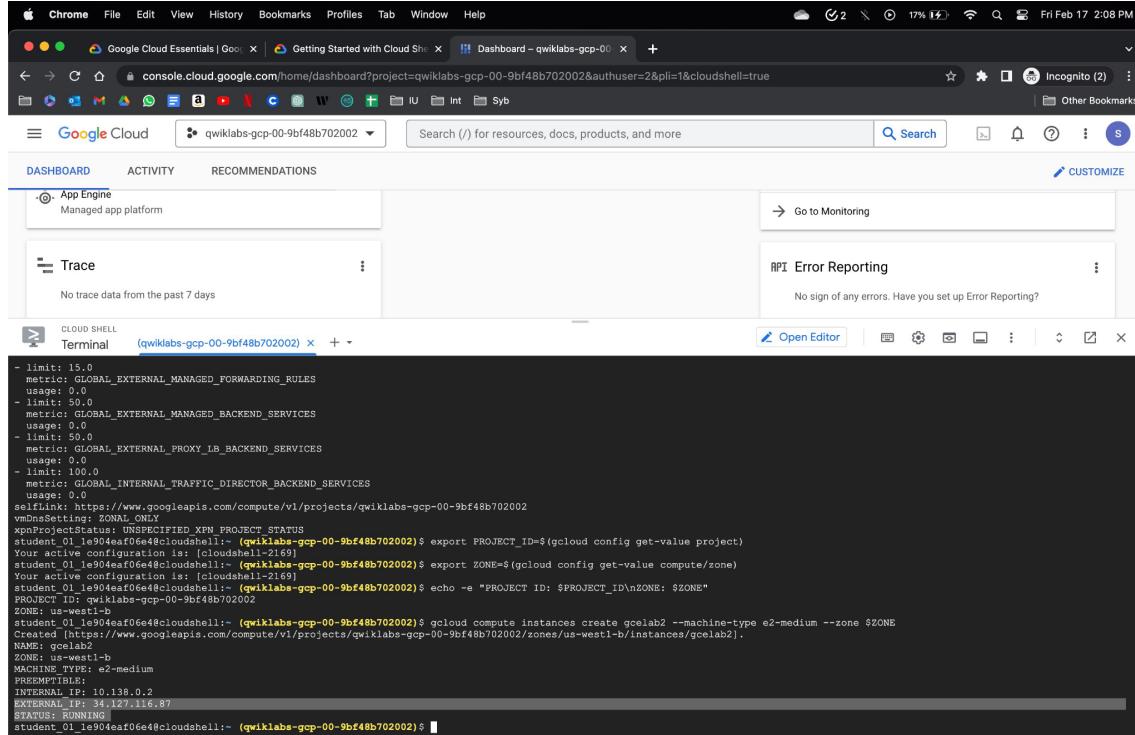
The screenshot shows a quiz interface. At the top, it says 'Creating a Virtual Machine' and has a timer of '00:20:43'. There's a red button labeled 'End Lab'. Below the timer, there's a 'Checkpoints' section with two items: 'Create a Compute Engine instance and add Nginx Server to your instance with necessary firewall rules.' and 'Create a new instance with gcloud.'. Each item has a 'Check my progress' button and a score of '50 / 50'. In the center, there's a question: 'Through which of the following ways can you create a VM Compute Engine?' with two options: 'The Cloud Console' (marked with a green checkmark) and 'The gcloud command line tool'. A 'Submit' button is below the question. To the left, there are input fields for 'Username' (student-01-d5e0299ab227), 'Password' (HNihPLQe4gdN), and 'GCP Project ID' (qwiklabs-gcp-04-da7e46322f63). A 'Student Resources' sidebar lists 'Create a Virtual Machine, GCP Essentials'. At the bottom, a 'Congratulations!' message is displayed.

Congratulations!

Compute Engine is the foundation of Google Cloud's infrastructure as a service. You created a virtual machine with Compute Engine and can now map your existing server infrastructure, load balancers, and network topology to Google Cloud.

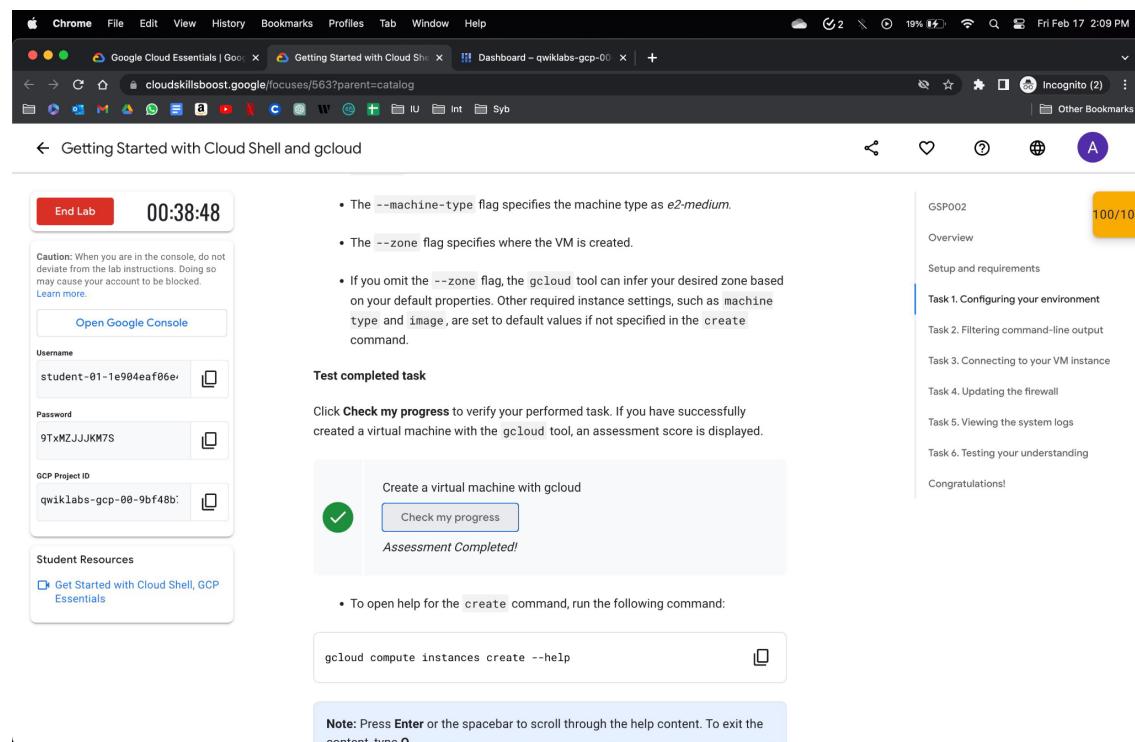
## Task 3: Getting Started with Cloud Shell and gcloud

### Task 3.1: Task 1. Configuring your environment



The screenshot shows the Google Cloud Dashboard with the Cloud Shell terminal open. The terminal window displays the following command-line session:

```
- limit: 15.0
metric: GLOBAL_EXTERNAL_MANAGED_FORWARDING_RULES
usage: 0.0
- limit: 50.0
metric: GLOBAL_EXTERNAL_MANAGED_BACKEND_SERVICES
usage: 0.0
- limit: 50.0
metric: GLOBAL_EXTERNAL_PROXY_LB_BACKEND_SERVICES
usage: 0.0
- limit: 100.0
metric: GLOBAL_INTERNAL_TRAFFIC_DIRECTOR_BACKEND_SERVICES
usage: 0.0
selfLink: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-00-9bf48b702002
vmNsSetting: ZONAL ONLY
xpnProjectStatus: UNSPECIFIED_XPN_PROJECT_STATUS
student_O1_1e904ea06e4@cloudshell:~ (qwiklabs-gcp-00-9bf48b702002)$ export PROJECT_ID=$(gcloud config get-value project)
Your active configuration is: [cloudshell-2169]
student_O1_1e904ea06e4@cloudshell:~ (qwiklabs-gcp-00-9bf48b702002)$ export ZONE=$(gcloud config get-value compute/zone)
Your active configuration is: [cloudshell-2169]
student_O1_1e904ea06e4@cloudshell:~ (qwiklabs-gcp-00-9bf48b702002)$ echo -e "PROJECT ID: $PROJECT_ID\nZONE: $ZONE"
PROJECT ID: qwiklabs-gcp-00-9bf48b702002
ZONE: us-west1-b
student_O1_1e904ea06e4@cloudshell:~ (qwiklabs-gcp-00-9bf48b702002)$ gcloud compute instances create gcelab2 --machine-type e2-medium --zone $ZONE
Created: (https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-00-9bf48b702002/zones/us-west1-b/instances/gcelab2).
NAME: gcelab2
ZONE: us-west1-b
MACHINE_TYPE: e2-medium
PREEMPTIBLE: False
INTERNAL_IP: 10.139.0.2
EXTERNAL_IP: 34.127.116.87
STATUS: RUNNING
student_O1_1e904ea06e4@cloudshell:~ (qwiklabs-gcp-00-9bf48b702002)$
```



The screenshot shows the Cloud Skills Boost interface for the 'Getting Started with Cloud Shell and gcloud' task. The progress bar indicates 00:38:48 remaining.

**Task completed task:**

Click **Check my progress** to verify your performed task. If you have successfully created a virtual machine with the `gcloud` tool, an assessment score is displayed.

**Create a virtual machine with gcloud**

**Assessment Completed!**

To open help for the `create` command, run the following command:

```
gcloud compute instances create --help
```

**Note:** Press **Enter** or the spacebar to scroll through the help content. To exit the content type **Q**.

## Task 3.2: Task 3. Connecting to your VM instance

The screenshot shows a Google Cloud Dashboard with a terminal window open. The terminal output is as follows:

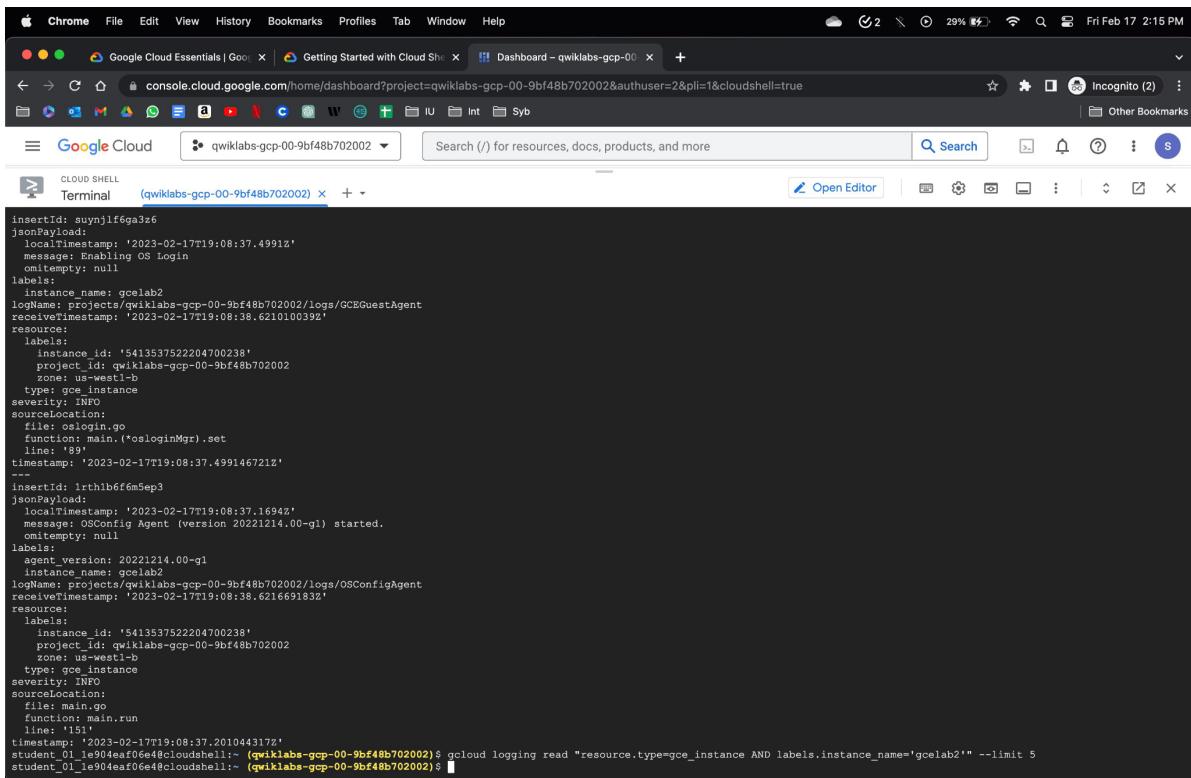
```
Setting up nginx-common (1.18.0-6.1+deb11u3) ...
Created symlink /etc/systemd/system/multi-user.target.wants/nginx.service --> /lib/systemd/system/nginx.service.
Setting up libnginx-mod-http-amd64 (2.1-3.1+deb2) ...
Setting up libnginx-mod-turbo:amd64 (1:2.0.6-4) ...
Setting up libpxi11-data (2:1.7.2-1) ...
Setting up libwebp6:amd64 (0.6.1-1) ...
Setting up libxkbcommon-dkms:amd64 (0.6.3-1) ...
Setting up libxkbcommon0:amd64 (1:0.12.2-1) ...
Setting up libxim1:amd64 (2:1.7.2-1) ...
Setting up libxtiff5:amd64 (4.2.0-1+deb11u3) ...
Setting up geolip-database (20191224-3) ...
Setting up libxml2:amd64 (2.9.10+dfsg-6.7+deb11u3) ...
Setting up libxml-xslt:amd64 (1:0.6.1+deb11u3) ...
Setting up libxpm4:amd64 (1:3.5.12-1) ...
Setting up fontconfig-config (2.13.1-4.2) ...
Setting up libnginx-mod-stream (1.18.0-6.1+deb11u3) ...
Setting up libnginx-mod-geolip (1.18.0-6.1+deb11u3) ...
Setting up libxslt1.1:amd64 (1.1.34-4+deb11u1) ...
Setting up libfontconfig1:amd64 (2.13.1-4.2) ...
Setting up libnginx-mod-http-image-filter (1.18.0-6.1+deb11u3) ...
Setting up libnginx-mod-allow-newline (1.18.0-6.1+deb11u3) ...
Setting up nginx-core (1.18.0-6.1+deb11u3) ...
Upgrading binary: nginx.
Setting up nginx (1.18.0-6.1+deb11u3) ...
Processing triggers for man-db (2.9.4-2) ...
Processing triggers for libc-bin (2.31-13+deb11u5) ...
student_01_le904ea0f06e4@gcelab2:~$ exit
logout
Connection to 34.127.116.87 closed.
student_01_le904ea0f06e4@cloudshell:~ (qwiklabs-gcp-00-9bf48b702002)$
```

## 3.4 Task 4. Updating the firewall

The screenshot shows a Google Cloud Dashboard with a terminal window open. The terminal output is as follows:

```
Creating firewall...working...Created [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-00-9bf48b702002/global火walls/default-allow-http].
NAME: default-allow-http
NETWORK: default
DIRECTION: INGRESS
PRIORITY: 1000
ALLOW: tcp:80
DENY:
DISABLED: False
student_01_le904ea0f06e4@cloudshell:~ (qwiklabs-gcp-00-9bf48b702002)$ gcloud compute firewall-rules list --filter=ALLOW:'80'
NAME: default-allow-http
NAME: default-allow-https
NETWORK: default
DIRECTION: INGRESS
PRIORITY: 1000
ALLOW: tcp:80
DENY:
DISABLED: False
To show all fields of the firewall, please show in JSON format: --format=json
To show all fields in table format, please see the examples in --help.
student_01_le904ea0f06e4@cloudshell:~ (qwiklabs-gcp-00-9bf48b702002)$ curl http://$(gcloud compute instances list --filter=name:gcelab2 --format='value(INTERNAL_IP)')
<!DOCTYPE html>
<html>
<head>
<title>Welcome to nginx!</title>
<style>
body {
    width: 35em;
    margin: 0 auto;
    font-family: Tahoma, Verdana, Arial, sans-serif;
}
</style>
</head>
<body>
<h1>Welcome to nginx!</h1>
<p>If you see this page, the nginx web server is successfully installed and working. Further configuration is required.</p>
<p>For online documentation and support please refer to
<a href="http://nginx.org/">nginx.org/<a>.br>
Commercial support is available at
<a href="http://nginx.com/">nginx.com/<a>.</p>
<p><em>Thank you for using nginx!</em></p>
</body>
```

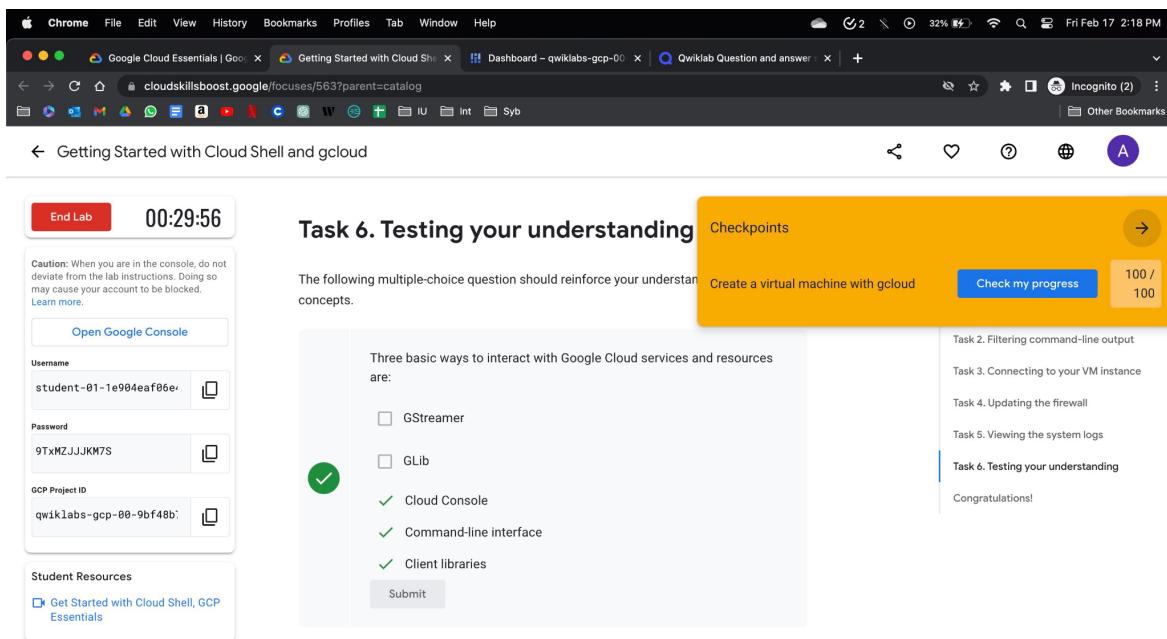
### 3.5 Task 5. Viewing the system logs



The screenshot shows a Google Cloud Terminal window with the URL <https://console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-00-9bf48b702002&authuser=2&pli=1&cloudshell=true>. The terminal displays several log entries from a GCE instance named 'gcelab2'. One entry shows the 'oslogin' service starting up. Another entry shows the 'OSConfig Agent' starting up. The logs also mention the creation of a virtual machine with 'gcloud'.

```
insertId: sunyjlf6ga3z6
jsonPayload:
  logName: projects/qwiklabs-gcp-00-9bf48b702002/logs/GCEGuestAgent
  receiveTimestamp: '2023-02-17T19:08:37.4991Z'
  message: Enabling OS Login
  omitEmpty: null
  labels:
    instance_name: gcelab2
  logName: projects/qwiklabs-gcp-00-9bf48b702002/logs/GCEGuestAgent
  receiveTimestamp: '2023-02-17T19:08:38.621010039Z'
  resource:
    labels:
      instance_id: '5413537522204700238'
      project_id: qwiklabs-gcp-00-9bf48b702002
      zone: us-west1-b
    type: gce_instance
  severity: INFO
  sourceLocation:
    file: oslogin.go
    function: main.(*osloginMgr).set
    line: '89'
  timestamp: '2023-02-17T19:08:37.499146721Z'
---
insertId: lrthlb6f6m5ep3
jsonPayload:
  logName: projects/qwiklabs-gcp-00-9bf48b702002/logs/OSConfigAgent
  receiveTimestamp: '2023-02-17T19:08:37.1694Z'
  message: OSConfig Agent (version 20221214.00~g1) started.
  omitEmpty: null
  labels:
    agent_version: 20221214.00~g1
    instance_name: gcelab2
  logName: projects/qwiklabs-gcp-00-9bf48b702002/logs/OSConfigAgent
  receiveTimestamp: '2023-02-17T19:08:38.621669183Z'
  resource:
    labels:
      instance_id: '5413537522204700238'
      project_id: qwiklabs-gcp-00-9bf48b702002
      zone: us-west1-b
    type: gce_instance
  severity: INFO
  sourceLocation:
    file: main.go
    function: main.run
    line: '151'
  timestamp: '2023-02-17T19:08:37.201044317Z'
student_01_le904ea0f06e4@cloudshell:~ (qwiklabs-gcp-00-9bf48b702002)$ gcloud logging read "resource.type=gce_instance AND labels.instance_name='gcelab2'" --limit 5
student_01_le904ea0f06e4@cloudshell:~ (qwiklabs-gcp-00-9bf48b702002)$
```

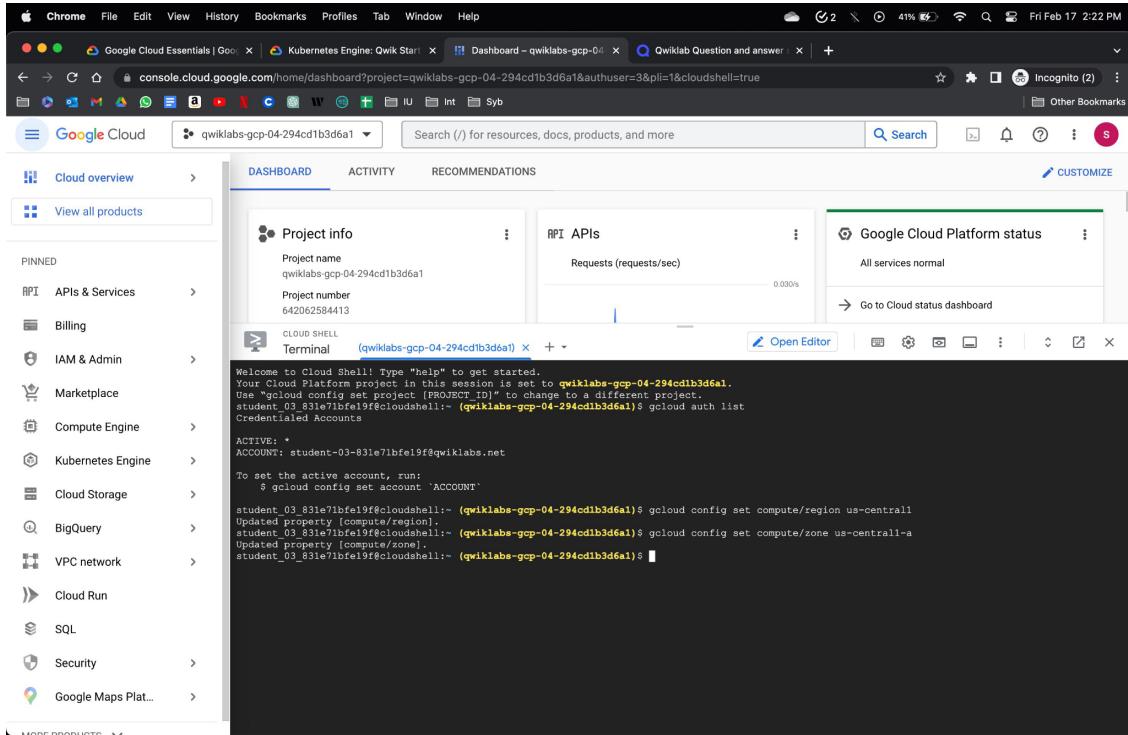
### 3.6 Testing my Understanding



The screenshot shows a Qwiklab question titled 'Task 6. Testing your understanding'. The question asks: 'The following multiple-choice question should reinforce your understanding concepts.' It lists four options: 'GStreamer', 'GLib', 'Cloud Console', and 'Command-line interface'. The 'Cloud Console' option is checked with a green checkmark. A 'Submit' button is at the bottom of the list. To the right, there's a yellow 'Checkpoints' section with a progress bar showing '100 / 100'. Below the progress bar are links to other tasks: 'Task 2. Filtering command-line output', 'Task 3. Connecting to your VM instance', 'Task 4. Updating the firewall', 'Task 5. Viewing the system logs', 'Task 6. Testing your understanding', and 'Congratulations!'. On the left, there's a sidebar with 'End Lab' and a timer '00:29:56'. Other sections include 'Open Google Console', 'Username' (student-01-le904ea0f06e4), 'Password' (9TxMZJJJKM7S), 'GCP Project ID' (qwiklabs-gcp-00-9bf48b702002), and 'Student Resources' (Get Started with Cloud Shell, GCP Essentials).

## Task 4. Kubernetes Engine: Qwik Start

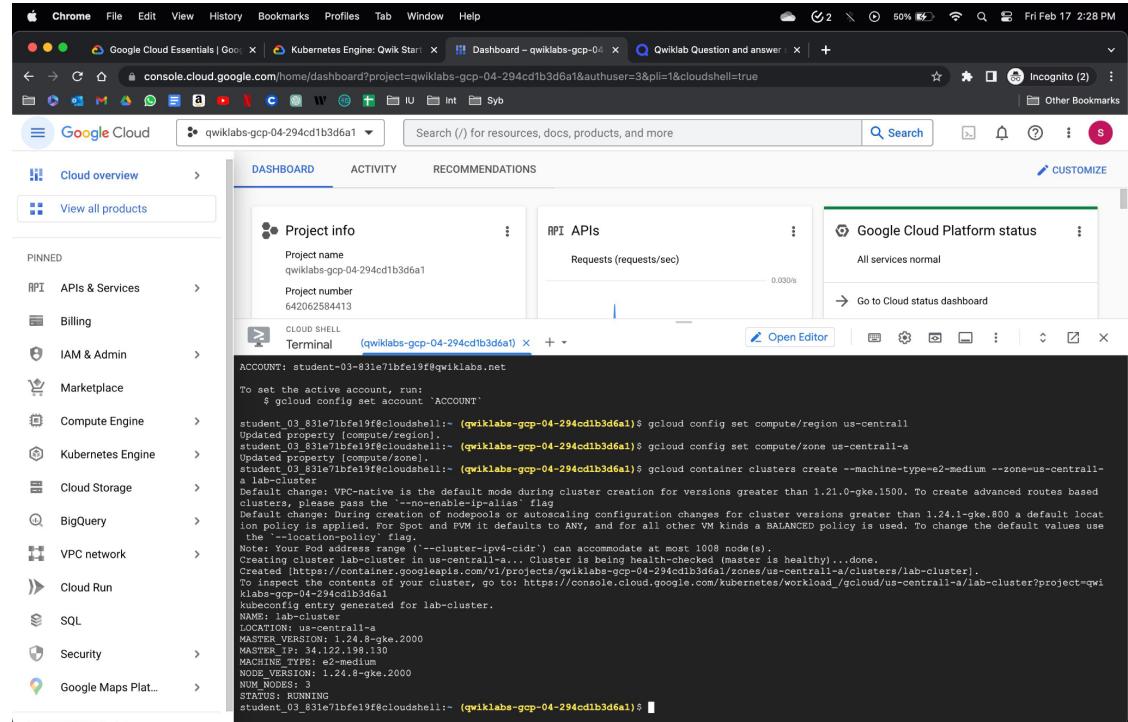
### Task 4.1: Task 1. Set a default compute zone



The screenshot shows the Google Cloud Platform Dashboard for a project named "qwiklabs-gcp-04-294cd1b3d6a1". The left sidebar lists various services like Cloud Storage, Compute Engine, and Kubernetes Engine. The main area is a "DASHBOARD" tab showing "Project info" (Project name: qwiklabs-gcp-04-294cd1b3d6a1, Project number: 642062584413) and "API APIs" (Requests (requests/sec): 0.030/s). On the right, there's a "Google Cloud Platform status" card indicating "All services normal". Below these is a "CLOUD SHELL" terminal window titled "(qwiklabs-gcp-04-294cd1b3d6a1)". It displays a series of gcloud commands being run:

```
Welcome to Cloud Shell! Type 'help' to get started.  
Your Cloud Platform project in this session is set to qwiklabs-gcp-04-294cd1b3d6a1.  
Use "gcloud config set project [PROJECT_ID]" to change to a different project.  
student_03_831e71bfe19f@cloudshell:~ (qwiklabs-gcp-04-294cd1b3d6a1)$ gcloud auth list  
Credentialed Accounts  
  
ACTIVE : *  
ACCOUNT: student_03-831e71bfe19f@qwiklabs.net  
  
To set the active account, run:  
$ gcloud config set account 'ACCOUNT'  
  
student_03_831e71bfe19f@cloudshell:~ (qwiklabs-gcp-04-294cd1b3d6a1)$ gcloud config set compute/region us-central1  
Updated property [compute/region].  
student_03_831e71bfe19f@cloudshell:~ (qwiklabs-gcp-04-294cd1b3d6a1)$ gcloud config set compute/zone us-central1-a  
Updated property [compute/zone].  
student_03_831e71bfe19f@cloudshell:~ (qwiklabs-gcp-04-294cd1b3d6a1)$
```

### Task 4.2: Task 2. Create a GKE cluster



The screenshot shows the Google Cloud Platform Dashboard for the same project. The terminal window now displays the creation of a GKE cluster:

```
ACCOUNT: student_03-831e71bfe19f@qwiklabs.net  
  
To set the active account, run:  
$ gcloud config set account 'ACCOUNT'  
  
student_03_831e71bfe19f@cloudshell:~ (qwiklabs-gcp-04-294cd1b3d6a1)$ gcloud config set compute/region us-central1  
Updated property [compute/region].  
student_03_831e71bfe19f@cloudshell:~ (qwiklabs-gcp-04-294cd1b3d6a1)$ gcloud config set compute/zone us-central1-a  
Updated property [compute/zone].  
student_03_831e71bfe19f@cloudshell:~ (qwiklabs-gcp-04-294cd1b3d6a1)$ gcloud container clusters create --machine-type=e2-medium --zone=us-central1-a lab-cluster  
Default changes: VPC-native is the default mode during cluster creation for versions greater than 1.21.0-gke.1500. To create advanced routes based  
cluster, please pass the '--enable-advanced-ip-allocation' flag.  
Default changes: During creation of nodepools or auto-scaling configuration changes for cluster versions greater than 1.24.1-gke.800 a default location  
policy is applied. For Spot and FVM it defaults to ANY, and for all other VM kinds a BALANCED policy is used. To change the default values use  
the '--location-policy' flag.  
Note: Your Pod address range ('--cluster-ip-cidr') can accommodate at most 1008 node(s).  
Creating cluster lab-cluster in us-central1-a... Cluster is being health-checked (master_is healthy)...done.  
Created [https://container.googleapis.com/v1/projects/qwiklabs-gcp-04-294cd1b3d6a1/zones/us-central1-a/clusters/lab-cluster].  
To inspect the contents of your cluster, go to: https://console.cloud.google.com/kubernetes/workload/\_gcloud/us-central1-a/lab-cluster?project=qwiklabs-gcp-04-294cd1b3d6a1  
kubeconfig entry generated for lab-cluster.  
NAME: lab-cluster  
LOCATION: us-central1-a  
MASTER_VERSION: 1.24.8-gke.2000  
MASTER_IP: 34.122.198.130  
MACHINE_TYPE: e2-medium  
NODE_VERSION: 1.24.8-gke.2000  
NUM_NODES: 3  
STATUS: RUNNING  
student_03_831e71bfe19f@cloudshell:~ (qwiklabs-gcp-04-294cd1b3d6a1)$
```

### Task 4.3: Task 3. Get authentication credentials for the cluster

The screenshot shows the Google Cloud Platform Dashboard for a project named 'qwiklabs-gcp-04-294cd1b3d6a1'. The terminal window displays the following command and its output:

```
student_03:831e71bfe19f@cloudshell:~ (qwiklabs-gcp-04-294cd1b3d6a1)$ gcloud container clusters get-credentials lab-cluster
Fetching cluster endpoint and auth data.
Kubeconfig entry generated for lab-cluster.
student_03:831e71bfe19f@cloudshell:~ (qwiklabs-gcp-04-294cd1b3d6a1)$
```

### 4.4 Task 4. Deploy an application to the cluster

The screenshot shows the 'Kubernetes Engine: Qwik Start' page. A progress bar indicates '00:18:06' has passed. The main area shows a deployment creation process:

- Caution:** When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked.
- Open Google Console** button.
- Username:** student-03-831e71bfe19f
- Password:** Et3moz1ufnvv
- GCP Project ID:** qwiklabs-gcp-04-294cd1b3d6a1
- Create a new Deployment: hello-server** button.
- Assessment Completed!**

The sidebar on the right lists tasks:

- GSP100** (highlighted)
- Overview**
- Setup and requirements**
- Task 1. Set a default compute zone**
- Task 2. Create a GKE cluster**
- Task 3. Get authentication credentials for the cluster**
- Task 4. Deploy an application to the cluster** (highlighted)
- Task 5. Deleting the cluster**
- Congratulations!**

## 4.5 Task 5. Deleting the cluster

The screenshot shows a Chrome browser window with the following details:

- Address Bar:** cloudskillsboost.google/focuses/878?parent=catalog
- Page Title:** Kubernetes Engine: Qwik Start
- Header:** End Lab (red button), 00:09:44 (timer).
- Content Area:**
  - Caution:** When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. [Learn more.](#)
  - Form Fields:** Username (student-03-831e71bfe19), Password (Et3moz1ufnvv), GCP Project ID (qwiklabs-gcp-04-294cd11).
  - Text:** 1. To **delete** the cluster, run the following command:  
`gcloud container clusters delete lab-cluster`
  - Text:** 2. When prompted, type **Y** to confirm.  
Deleting the cluster can take a few minutes. For more information on deleted GKE clusters from the Google Kubernetes Engine (GKE) article, [Deleting a cluster](#).
  - Text:** Click **Check my progress** to verify the objective.
  - Buttons:** Delete the cluster (with a checkmark icon), Check my progress.
  - Message:** Assessment Completed!
- Right Sidebar:** GSP100, Overview, Setup and requirements, Task 1. Set a default compute zone, Task 2. Create a GKE cluster, Task 3. Get authentication credentials for the cluster, Task 4. Deploy an application to the cluster, Task 5. Deleting the cluster (highlighted), Congratulations!, 75/100.