

## Monitoring Multiple Projects with Cloud Monitoring

### **Objective**

The objective of this lab was to explore the features of **Google Cloud Monitoring**, including creating virtual machines across projects, setting up monitoring metrics scopes, defining groups, performing uptime checks, configuring alerting policies, and customizing dashboards.

### **Tasks Completed**

#### **Task 1: Create Project 2's Virtual Machine**

- Navigated to **Project 2** from the GCP project selector.
- Went to Compute Engine > VM instances.
- Created a VM named **instance2** in the specified REGION and ZONE.
- Left all configurations at default settings and successfully launched the VM.

The screenshot shows the Google Cloud Platform Dashboard for project "qwiklabs-gcp-00-f63426c96084". The dashboard includes sections for Project info, APIs, Billing, and Monitoring. The APIs section displays a chart of requests per second over time, with a note that requests are at 0.023/s. The Billing section shows estimated charges of \$0.00 for the period May 1 - 20, 2025. The Monitoring section allows creating a dashboard and setting alerting policies.

**Project info**

- Project name: qwiklabs-gcp-00-f63426c96084
- Project number: 390323713026
- Project ID: qwiklabs-gcp-00-f63426c96084

**API APIs**

Requests (requests/sec)

| Time  | Requests/sec |
|-------|--------------|
| 10:15 | 0.015s       |
| 10:30 | 0.025s       |
| 10:45 | 0.015s       |

Requests: 0.023/s

**Billing**

Estimated charges USD \$0.00  
For the billing period May 1 – 20, 2025

**Monitoring**

Create my dashboard  
Set up alerting policies

**Cloud Engine VM Instances**

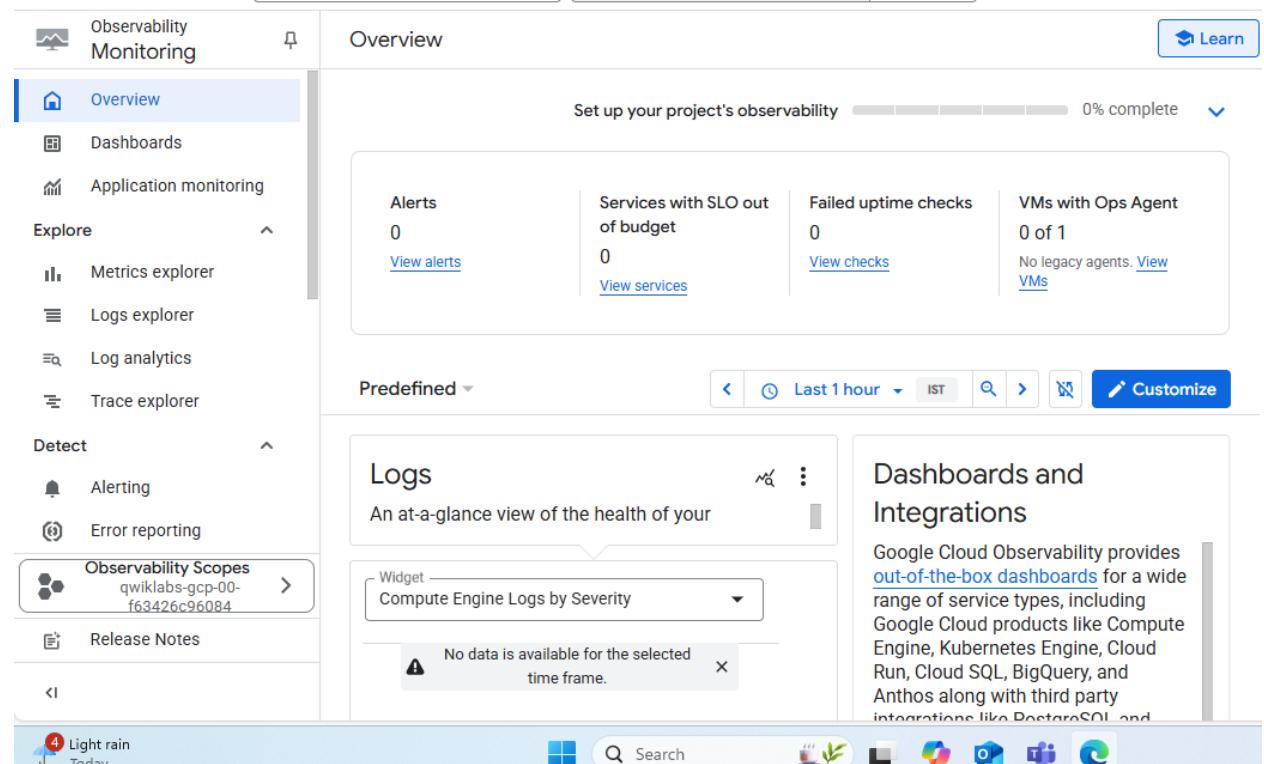
**VM instances**

| Status | Name      | Zone       | Recommendations | In use by | Internal IP       | External IP          | Connect |
|--------|-----------|------------|-----------------|-----------|-------------------|----------------------|---------|
| Green  | instance2 | us-east1-c |                 |           | 10.142.0.2 (nic0) | 35.237.219.55 (nic0) | SSH     |

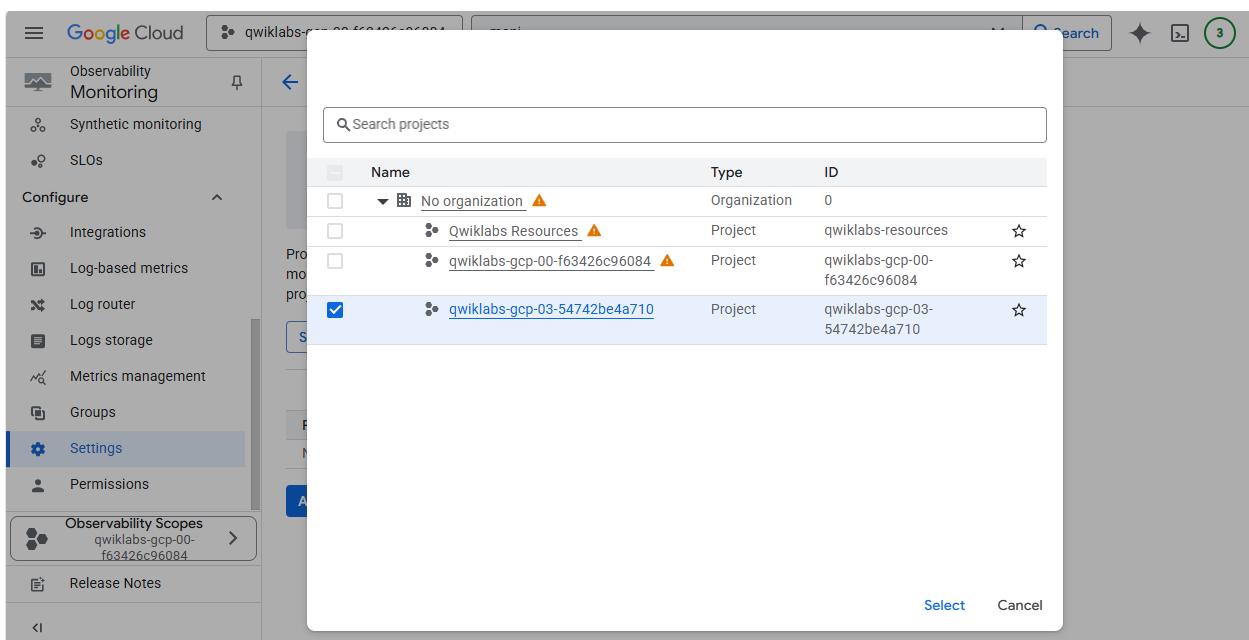
**Related actions**

## Task 2: Monitoring Overview and Metrics Scope

- Enabled **Cloud Monitoring** through the Observability menu.
- Created a **Metrics Scope** for Project 2.
- Added **Project 1** to the metrics scope to monitor both projects centrally.



The screenshot shows the Google Cloud Observability Monitoring Overview page. The left sidebar includes sections for Observability Monitoring, Explore (Metrics explorer, Logs explorer, Log analytics, Trace explorer), Detect (Alerting, Error reporting), and Observability Scopes (qwiklabs-gcp-00-f63426c96084). A central dashboard displays metrics like Alerts (0), Services with SLO out of budget (0), Failed uptime checks (0), and VMs with Ops Agent (0 of 1). Below this is a logs section with a widget showing Compute Engine Logs by Severity, which indicates "No data is available for the selected time frame." To the right is a section on Dashboards and Integrations, stating that Google Cloud Observability provides out-of-the-box dashboards for various services.



The screenshot shows a modal dialog titled "Select Project" from the Google Cloud Settings menu. The left sidebar lists Observability Monitoring, SLOs, Configure (Integrations, Log-based metrics, Log router, Logs storage, Metrics management, Groups, Settings, Permissions), and Observability Scopes (qwiklabs-gcp-00-f63426c96084). The main area shows a list of projects: "No organization" (Organization, ID 0), "Qwiklabs Resources" (Project, ID qwiklabs-resources), "qwiklabs-gcp-00-f63426c96084" (Project, ID qwiklabs-gcp-00-f63426c96084), and "qwiklabs-gcp-03-54742be4a710" (Project, ID qwiklabs-gcp-03-54742be4a710, currently selected). A search bar at the top of the modal allows filtering by project name.

The screenshot shows the Google Cloud Observability Monitoring interface. On the left, a sidebar menu includes options like Synthetic monitoring, SLOs, Configure (Integrations, Log-based metrics, Log router, Logs storage, Metrics management, Groups, Settings, Permissions), Observability Scopes (qwiklabs-gcp-00-f63426c96084), and Release Notes. The 'Settings' option is currently selected. The main area is titled 'Add Google Cloud projects' with a back arrow icon. It contains a informational message: 'If you want to have a dedicated scoping project to monitor the metrics stored in multiple projects, [create a new project](#)'. A 'Dismiss' button is present. Below this, a note states: 'Projects can share their data with other projects to create dashboards, alerts and more that span multiple projects. When a project is added to a metrics scope, that project shares its data with the scoping project. No data is moved.' with a link to 'Learn more'. A 'Select projects' button is highlighted in blue. A filter bar allows entering a property name or value. A table lists a single project: 'Project Name' (qwiklabs-gcp-03-54742be4a710), 'Project ID' (54742be4a710), and 'Action' (a delete icon). At the bottom are 'Add projects' and 'Cancel' buttons.

### Task 3: Create a Cloud Monitoring Group

- Navigated to Monitoring > Groups.
- Created a group named **DemoGroup**.
- Criteria: Resource name contains the word "**instance**".
- The group dynamically includes both instance1 and instance2.

The screenshot shows the CloudWatch Metrics console for a group named "DemoGroup". The top navigation bar includes links for "Edit group", "Delete", and "Policies", along with search and filter tools. The main content area is divided into three sections:

- Incidents**: A table with columns for State, Severity, Policy name, Incident summary, and Opened. It displays the message "No rows to display".
- Disks**: A table with columns for Disk, Instance, and Size. It shows one entry: "instance2" with "0 B" size.
- VM Instances**: A table with columns for Name, Zone, Size, and Connect. It shows one entry: "instance2" in "us-east1-c" zone, "e2-medium" size, and "SSH" connect option.

A note on the right side states: "Display any metric type collected by your project, including custom metrics, so you can spot trends or issues before they happen." There is also a "Add Chart" button.

#### Task 4: Uptime Check for the Group

- Created an **Uptime Check** for **DemoGroup**.
  - Protocol: **TCP**
  - Port: **22**
  - heck Frequency: **1 minute**
- Successfully tested and created the uptime check.
- Enabled alerting option.

The screenshot shows the Google Cloud Observability Monitoring interface. On the left, there's a sidebar with options like Synthetic monitoring, SLOs, Configure, Integrations, Log-based metrics, Log router, Logs storage, Metrics management, Groups, Settings, and Permissions. Below that is an 'Observability Scopes' section for 'qwiklabs-gcp-00-f63426c96084'. At the bottom of the sidebar are 'Release Notes' and a 'Create Synthetic Monitor' button.

The main area is titled 'Uptime checks' with a sub-section 'Try the new Synthetic monitoring'. It includes a callout box with the following text:

Monitor availability of internal applications  
Select the 'Internal IP' option to create uptime checks for private network resources.

At the top right of the main area, there's a message '+ 1 recommended alert' and a 'Learn' button.

## Create Uptime Check

- Target
- Response Validation (optional)
- Alert & Notification (optional)
- Review

[Create](#) [Cancel](#)

Select the resource to be monitored.

Protocol

Resource Type

Applies to

Single  
Apply to one resource.  
 Group  
Apply to a collection of resources that is defined as a Monitoring Group.

Group\*

Port

Check Frequency

[More target options](#)

[← Create Uptime Check](#)

|                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> Target<br><input checked="" type="checkbox"/> Response Validation (optional)<br><input checked="" type="checkbox"/> Alert & Notification (optional)<br><span style="background-color: #e0f2ff; padding: 2px;">• Review</span> | <p>Enter a name for the uptime check.</p> <p>Title * <input type="text" value="DemoGroup uptime check"/></p> <p>User Labels <a href="#">?</a></p> <p><input type="text" value="Key"/> <input type="text" value="Value (optional)"/></p> <p><a href="#">+ Add user label</a></p> <p><a href="#">^ Hide user labels</a></p> <p>Test uptime check (optional)</p> <p>We recommend that you test your uptime check before creating.</p> <p><input checked="" type="checkbox"/> Responded with "SUCCESS" in 222 ms.</p> <p><a href="#">Test</a> <a href="#">View Details</a></p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Uptime checks [↓](#) [+ Create uptime check](#) [+ 1 recommended alert](#) [Learn](#)

Try the new Synthetic monitoring capability! [New](#) [X](#)

(o) Proactively monitor your application's critical user journeys by simulating user behavior. Detect and alert on failures, and receive detailed reports for debugging. [Learn more.](#)

[Create Synthetic Monitor](#) [View Documentation](#)

| Display Name ↑                         | Asia Pacific | Europe | North America | South America | Policies |   |
|----------------------------------------|--------------|--------|---------------|---------------|----------|---|
| <a href="#">DemoGroup uptime check</a> | ●            | ●      | ●             | ●             | 1        | ⋮ |

Uptime check and alert saved [X](#)

## Task 5: Alerting Policy for the Group

- From the uptime check, added an **alerting policy**.
- Selected metric: **check\_passed** for **VM Instances**.
- Filtered using **check\_id** for **demogroup-uptime-check-id**.

- Condition type: **Metric absence**
- Alert policy name: **Uptime Check Policy**
- Successfully created the policy.

[Create alerting policy](#) [+ Add alert condition](#) [Delete alert condition](#) [View Code](#)

**ALERT CONDITIONS**

- Uptime Health
  - Check on DemoGro...
  - Configure trigger

**ALERT DETAILS**

- Notifications and name
- Review alert

**Policy configuration mode**

Builder  Code editor (MQL or PromQL)

**Select a metric** [?](#)

```
Enter a Monitoring filter
metric.type="monitoring.googleapis.com/uptime_check/check_passed"
metric.label.check_id="demogroup-uptime-check-WGLYWFBFXb4"
group.id="101065878526447777"
```

**Transform data**

Within each time series [?](#)

Rolling window \* —  Custom

Adjust the length of time a signal is calculated for. Example: Mean of CPU utilization for 5 minutes is above 80%

Custom Value  Custom Unit

Create Policy
Provide feedback
Cancel

**Policy configuration mode**

Builder  Code editor (MQL or PromQL)

**Select a metric** [?](#)

**VM Instance - Check passed** [▼](#)

**Add filters** Optional

Selections made on the chart do not affect the alert policy [Learn more](#) [?](#)

**New filter**

Filter \*  Comparator \*  Value \*

[Done](#)

UTC+5:30
10:30 AM
10:40 AM
10:50 AM
11:00 AM
11:10 AM

Filter
Enter property name or value
[?](#)
[☰](#)

|                                     | Metric ↑     | Value             |
|-------------------------------------|--------------|-------------------|
| <input type="checkbox"/>            | check_id     | check-WGLYWFBFXb4 |
| <input checked="" type="checkbox"/> | check_passed | -                 |

VM Instance - Check passed [?](#)

100

50%

UTC+5:30
10:30 AM
10:40 AM
10:50 AM
11:00 AM
11:10 AM

Filter
Enter property name or value
[?](#)
[☰](#)

|                          | checker_location ↑ | Value |
|--------------------------|--------------------|-------|
| <input type="checkbox"/> | checker_location   | -     |

No rows to display.

Create Policy
Provide feedback
Cancel

[Policy details](#)   Enabled   [Edit](#)   [Copy](#)   [Delete](#)   [JSON](#)   1 hour   6 hours   1 day   1 week   1 month   6 weeks

### Uptime Check Policy

| Conditions                                | Severity    |
|-------------------------------------------|-------------|
| Policy violates when ANY condition is met | No severity |

**VM Instance - Check passed**

Condition type: Absence   Triggers when: Any time series cross threshold   Trigger absence time: 5 min

Alert policy Uptime Check Policy saved X

The chart displays a single data series over time. The y-axis represents percentage (0% to 200%) and the x-axis represents time. A horizontal purple line is drawn at 100%. The data points are blue diamonds. Most points are at 100%, indicating uptime. One point is slightly below 100%, indicating a brief downtime event.

## Task 6: Custom Dashboard

- Created a **Custom Dashboard** named **Uptimedashboard**.
- Added a **Line chart** widget.
- Metric: **VM Instance > Instance > Uptime**
- Successfully visualized uptime for both instances.

Configure widget

Queries [Add query](#) [Create ratio](#)

Metric [Select a metric](#) [Filter](#) [Add filter](#) Aggregation Unaggregated by None [+](#)

**Results**

Select a metric

up time

Active

**ACTIVE METRIC CATEGORIES**

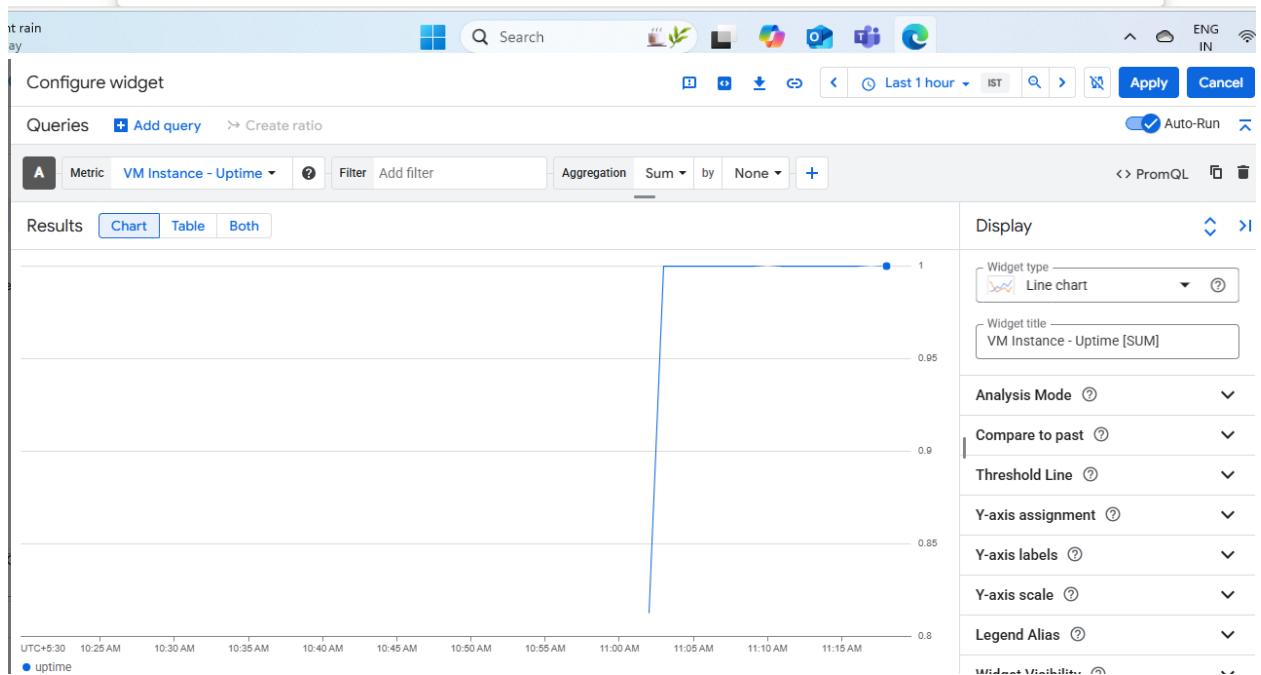
- Agent 1 metric [Uptime](#)
- Instance 2 metrics [Uptime](#)
- Uptime\_check 6 metrics [Uptime Total](#)

**INACTIVE METRIC CATEGORIES**

- Popular metrics 5 metrics [Uptime Total](#)
- Guest 1 metric [Uptime Total](#)
- Jvm 1 metric [Uptime Total](#)
- Redis 1 metric [Uptime Total](#)

Selection preview  
VM Instance > instance > Uptime

Cancel [Apply](#)



[New Dashboard - May 21, 2025 11:19 AM](#) [Add widget](#)

Annotations (2) Group by + Filter Last 1 hour IST [Saved 5/21/25, 11:21 AM](#) [Cloud](#)

VM Instance - Uptime [SUM]

| Time     | Uptime |
|----------|--------|
| UTC+5:30 | ~0.85  |
| 10:30 AM | ~0.85  |
| 10:40 AM | ~0.85  |
| 10:50 AM | ~0.85  |
| 11:00 AM | ~0.0   |
| 11:10 AM | 1.0    |

VM instances [Create instance](#) [Import VM](#) [Refresh](#) [Learn](#)

Instances Observability Instance schedules

VM instances

Filter Enter property name or value

| Status                              | Name                      | Zone       | Recommendations | In use by | Internal IP          | External IP            | Connect |
|-------------------------------------|---------------------------|------------|-----------------|-----------|----------------------|------------------------|---------|
| <input checked="" type="checkbox"/> | <a href="#">instance2</a> | us-east1-c |                 |           | 10.142.0.2<br>(nic0) | 35.237.219.5<br>(nic0) | SSH     |

Related actions [Show](#)

Stopping instance2... [X](#)

## Task 7: Simulating an Incident

- Stopped **instance2** to simulate a failure.
- Observed alert and incident generation in the **Monitoring > Alerting** section.
- Restarted the instance and verified the incident was **closed** after the issue resolved.

## Test Your Understanding

### Statement:

*Cloud Monitoring lets you define and monitor groups of resources with Cloud Monitoring Group.*

### Answer:

True

### Explanation:

Google Cloud Monitoring allows users to **define logical groups** of resources such as VM instances, databases, and load balancers using **Cloud Monitoring Groups**. These groups support **dynamic filtering criteria** and help monitor and visualize health and performance metrics efficiently.

### Conclusion

Through this lab, we gained hands-on experience in setting up and configuring Cloud Monitoring features in GCP. We understood how to monitor resources across multiple projects, use uptime checks and alerting policies, and visualize system health using dashboards. These are critical tools for any cloud-based production environment.