

## Monitoring and Logging for Cloud Run Functions

### Objective:

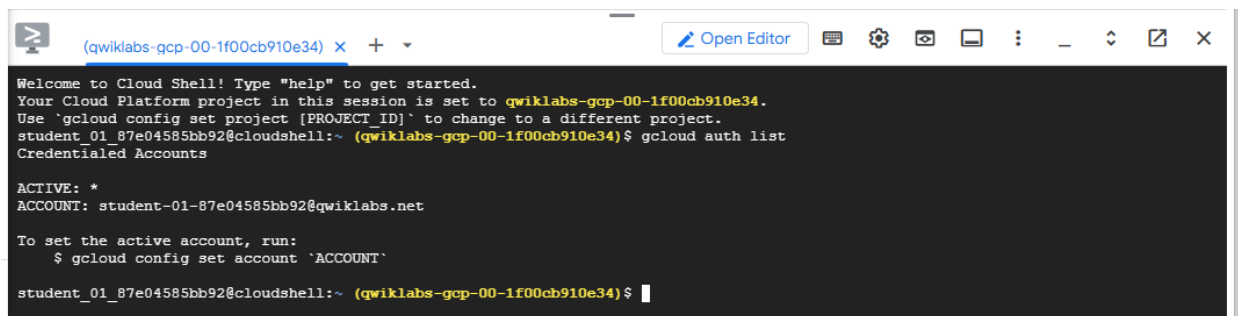
To deploy a serverless web service using **Cloud Run**, simulate traffic using **Vegeta**, and monitor performance using **logs-based metrics** and **Cloud Monitoring**.

### Tools & Technologies:

- Google Cloud Platform (GCP)
- Cloud Run
- Cloud Shell
- Vegeta (Load Testing Tool)
- Cloud Monitoring
- Logs Explorer
- Node.js 22

### Task 1: Setup and Deploy Cloud Run Function

- Use GCP Console → Cloud Run → Create a service named helloworld
- Use Node.js 22 Runtime
- Allow unauthenticated access
- Enable 2nd generation execution environment
- Set Max instances = 5
- Deploy and test with Hello World URL



```
(qwiklabs-gcp-00-1f00cb910e34) x + v [Open Editor] [Icons]
Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to qwiklabs-gcp-00-1f00cb910e34.
Use 'gcloud config set project [PROJECT_ID]' to change to a different project.
student_01_87e04585bb92@cloudshell:~ (qwiklabs-gcp-00-1f00cb910e34) $ gcloud auth list
Credentialed Accounts

ACTIVE: *
ACCOUNT: student-01-87e04585bb92@qwiklabs.net

To set the active account, run:
$ gcloud config set account 'ACCOUNT'

student_01_87e04585bb92@cloudshell:~ (qwiklabs-gcp-00-1f00cb910e34) $
```

```
student_01_87e04585bb92@cloudshell:~ (qwiklabs-gcp-00-1f00cb910e34) $ gcloud config list project
[core]
project = qwiklabs-gcp-00-1f00cb910e34

Your active configuration is: [cloudshell-9294]
student_01_87e04585bb92@cloudshell:~ (qwiklabs-gcp-00-1f00cb910e34) $
```

Cloud Run

Create service

Show command line

Some locations have been restricted due to a policy set by your organization. [Learn more about restricting locations.](#)

Region \*

us-east1 (South Carolina)

[How to pick a region?](#)

Endpoint URL

https://helloworld-868007592188.us-east1.run.app

Runtime \*

Node.js 22

Trigger (optional)

+ Add trigger

Authentication \*

☒ Use IAM to authenticate incoming requests  
All invocations of this service's endpoint will be authorized by IAM.

Create

Cancel

Pricing summary

Cloud Run pricing

Free tier

First 180,000 vCPU-seconds/month

First 360,000 GiB-seconds/month

2 million requests/month

→ Check paid tiers details

Cloud Run Admin API has been enabled

Cloud Run

Create service

Show command line

Execution environment

The execution environment your container runs in. [Learn More](#)

Default

Cloud Run will select a suitable execution environment for you.

First generation

Faster cold starts.

Second generation

Network file system support, full Linux compatibility, faster CPU and network performance.

Revision scaling

Minimum and maximum numbers of instances for the new revision.

Minimum number of instances \*

0

Maximum number of instances \*

5

The service minimum instances is preferable for most use-cases. Only use this setting if you specifically require per-revision settings.

☒ Startup CPU boost

Create

Cancel

Pricing summary

Cloud Run pricing

Free tier

First 180,000 vCPU-seconds/month

First 360,000 GiB-seconds/month

2 million requests/month

→ Check paid tiers details

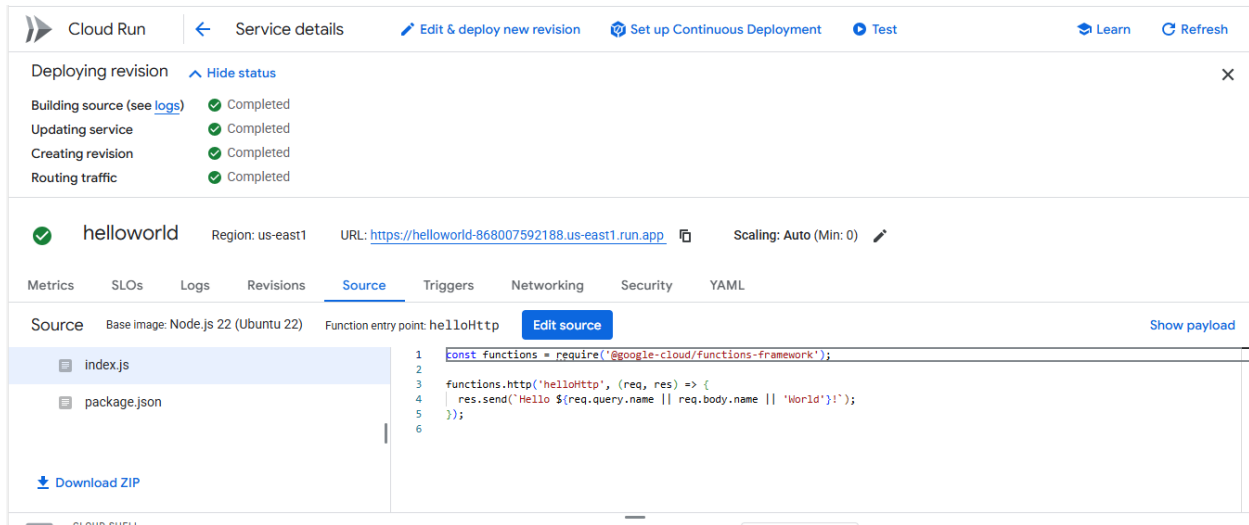
CLOUD SHELL

Terminal

(qwiklabs-gcp-00-1f00cb910e34)

Cloud Run Admin API has been enabled

Editor



## Task 2: Load Testing with Vegeta

- Download Vegeta in Cloud Shell

```
bashCopyEdit
```

```
curl -LO
```

```
'https://github.com/tsenart/vegeta/releases/download/v12.12.0/vegeta_12.12.0_linux_386.tar.gz'
```

```
tar -xvzf vegeta_12.12.0_linux_386.tar.gz
```

- Get the Cloud Run service URL:

```
bash
```

```
CLOUD_RUN_URL=$(gcloud run services describe helloworld --region=YOUR_REGION --
format='value(status.url)')
echo $CLOUD_RUN_URL
```

- Start traffic simulation:

```
bash
```


```
echo "GET $CLOUD_RUN_URL" | ./vegeta attack -duration=300s -rate=200 > results.bin
```

```

student_01_87e04585bb92@cloudshell:~ (qwiklabs-gcp-00-1f00cb910e34) $ curl -LO 'https://github.com/tsenart/vegeta/releases/download/v12.12.0/vegeta_12.12.0_linux_386.tar.gz'
% Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
           Dload  Upload   Total   Spent    Left   Speed
100 4014k    100 4014k    0     0  3001k      0  0:00:01  0:00:01 --:--:-- 279M
student_01_87e04585bb92@cloudshell:~ (qwiklabs-gcp-00-1f00cb910e34) $

```

```
student_01_87e04585bb92@cloudshell:~ (qwiklabs-gcp-00-1f00cb910e34) $ tar -xvzf vegeta_12.12.0_linux_386.tar.gz
vegeta
student_01_87e04585bb92@cloudshell:~ (qwiklabs-gcp-00-1f00cb910e34) $
```

← ↻  https://helloworld-tfdmunv2kq-ue.a.run.app

Hello World!

```
student_01_87e04585bb92@cloudshell:~ (qwiklabs-gcp-00-1f00cb910e34) $ CLOUD_RUN_URL=$(gcloud run services describe helloworld --region=us-east1 --format='value(status.url)')
echo $CLOUD_RUN_URL
https://helloworld-tfdmunv2kq-ue.a.run.app
student_01_87e04585bb92@cloudshell:~ (qwiklabs-gcp-00-1f00cb910e34) $
```

### Task 3: Create Logs-Based Metrics

- Go to Logs Explorer
- Filter logs for Cloud Run service
- Create new **distribution-type** metric:
  - Field: httpRequest.latency
  - Metric Name: CloudRunFunctionLatency-Logs

Logs Explorer

Query library Share link Preferences Last 1 hour IST Run query Show query

Project logs Search all fields

All resources All log names All severities Correlate by

Example queries Query language guide Language: LQL

Fields Search fields and values

System Metadata

Severity 17,300

Showing top 5 of 5 values

Info 17,259

Notice 33

Error 6

Default 1

Timeline

May 21, 4:56 PM

May 21, 5:58 PM

17,300 results

SEVERITY	TIME	SUMMARY
>	2025-05-21 17:57:23.381	GET 200 146 B 1 ms Go-http-clie... https://helloworld-tfdmunv2kq-ue.a.run.app/
>	2025-05-21 17:57:23.383	GET 200 146 B 1 ms Go-http-clie... https://helloworld-tfdmunv2kq-ue.a.run.app/
>	2025-05-21 17:57:23.385	GET 200 146 B 1 ms Go-http-clie... https://helloworld-tfdmunv2kq-ue.a.run.app/
>	2025-05-21 17:57:23.396	GET 200 146 B 1 ms Go-http-clie... https://helloworld-tfdmunv2kq-ue.a.run.app/

CLOUD SHELL Terminal /root@helloworld-00-1f00cb910e34

Open Editor

Google Cloud qwiklabs-gcp-00-1f00cb910e34 cloud run Search

Logs Explorer Query library Share link Preferences Last 1 hour IST Run query Show query

Project logs Search all fields

Select resource

Search resource filters

ALL RESOURCE TYPES

Audited Resource >

Cloud Build >

Cloud Pub/Sub Topic >

Cloud Run Revision >

GCS Bucket >

Google Project >

Project >

Search by prefix...

All service\_name

SERVICE\_NAME

helloworld >

Cancel Apply

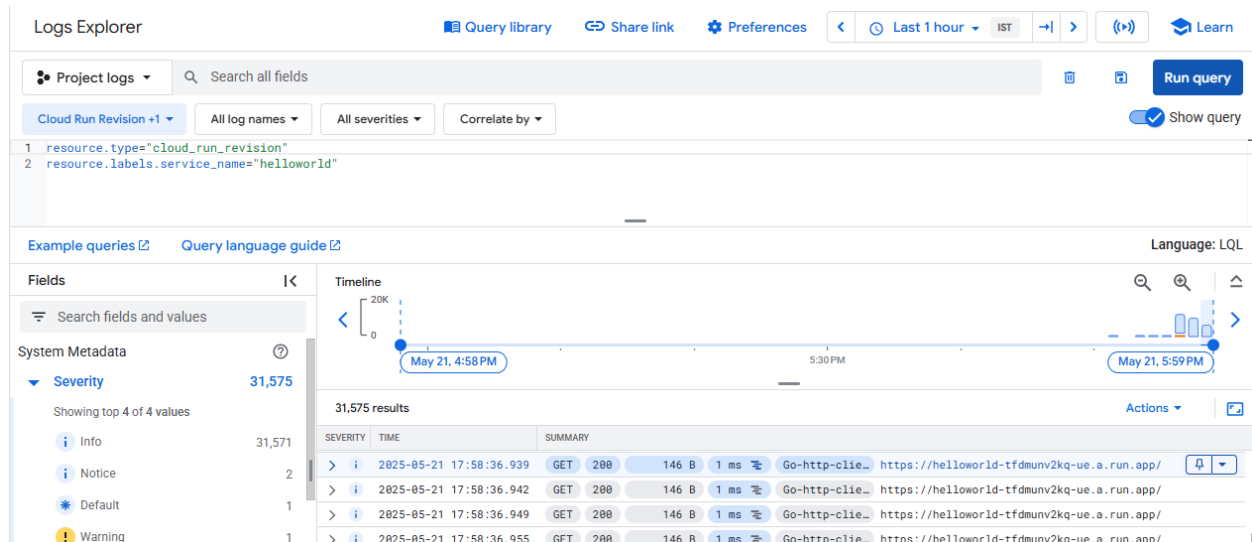
Timeline

May 21, 5:30 PM

Act

146 B	1 ms	Go-http-clie...	https://helloworld-tfdmunv2kq-ue.a.run.ap
146 B	1 ms	Go-http-clie...	https://helloworld-tfdmunv2kq-ue.a.run.ap
146 B	1 ms	Go-http-clie...	https://helloworld-tfdmunv2kq-ue.a.run.ap
146 B	1 ms	Go-http-clie...	https://helloworld-tfdmunv2kq-ue.a.run.ap

Open Editor



## Task 4: Visualize Metrics in Monitoring

- Open Metrics Explorer
- Add widgets using the following metrics:
  - Logs-based metric CloudRunFunctionLatency-Logs
  - Request Count
  - Container CPU Allocation
  - Request Latency (Aggregation: Mean, 95th percentile)
- Create a custom dashboard: Cloud Run Function Custom Dashboard

Logs Explorer

Query library

Share link

Preferences

< Last 1 hour IST >

<>

<>>

Learn

Project logs

Search all fields

Run query

Cloud Run Revision +1

All log names

All severities

Correlate by

Show query

Fields

Search fields and values

System Metadata

Severity60,011

Showing top 4 of 4 values

Info60,007

Notice2

Default1

Warning1

Resource type

Showing top 1 of 1 value

Cloud Run Revision

Timeline

20K

0

May 21, 5:01PM

5:30 PM

May 21, 6:02 PM

60,011 results

Actions

Highlight in results

Create metric

Create sink

Create log alert

Manage alerts

Download

SEVERITY	TIME	SUMMARY
> i	2025-05-21 17:58:39.342	GET 200 146 B 1 ms Go-http-c
> i	2025-05-21 17:58:39.348	GET 200 146 B 1 ms Go-http-c
> i	2025-05-21 17:58:39.354	GET 200 146 B 1 ms Go-http-c
> i	2025-05-21 17:58:39.355	GET 200 146 B 0 ms Go-http-c
> i	2025-05-21 17:58:39.362	GET 200 146 B 1 ms Go-http-c
> i	2025-05-21 17:58:39.368	GET 200 146 B 1 ms Go-http-c
> i	2025-05-21 17:58:39.375	GET 200 146 B 1 ms Go-http-c
> i	2025-05-21 17:58:39.376	GET 200 146 B 1 ms Go-http-c

>00-1f00cb910e34<

Open Editor

ENG IN

18:02 21-05-2025

## Filter selection

[Preview logs](#)

Define your log-based metric

Select project or log bucket

Project logs

Select whether your log-based metric examines (or counts) log entries that are routed by your project, or only those log entries in a log bucket.

### Build filter \*

[Query language](#)

Press Alt+F1 for accessibility options.

```
1 resource.type="cloud_run_revision"
2 resource.labels.service_name="helloworld"
```

Field name \*

httpRequest.latency

Select the name of the log entry field from which the metric value is retrieved

Regular expression

Extracts a value from the field that must contain exactly one regex group ( )

✓ [Advanced](#)



Google Cloud | qwiklabs-gcp-00-1f00cb910e34 | Create metric | Search

Observability Logging

Overview Dashboards Application monitoring

Explore

- Metrics explorer
- Logs explorer**
- Log analytics
- Trace explorer

Detect

- Alerting
- Observability Scopes  
quwiklabs-gcp-00-1f00cb910e34
- Release Notes

Logs Explorer

Project logs Search all fields

Cloud Run Revision +1 All log names All severities Correlate by

Fields

Search fields and values

System Metadata

- Severity 60,011
  - Info 60,007
  - Notice 2
  - Default 1
  - Warning 1
- Resource type
  - Cloud Run Revision

Timeline

May 21, 5:01 PM 5:30 PM May 21, 6:02 PM

60,011 results

SEVERITY	TIME	SUMMARY
> i	2025-05-21 17:58:39.342	GET 200 146 B 1 ms Go-http-clie... https://helloworld-tfdmunv...
> i	2025-05-21 17:58:39.348	GET 200 146 B 1 ms Go-http-clie... https://helloworld-tfdmunv...
> i	2025-05-21 17:58:39.354	GET 200 146 B 1 ms Go-http-clie... https://helloworld-tfdmunv...
> i	2025-05-21 17:58:39.355	GET 200 146 B 0 ms Go-http-clie... https://helloworld-tfdmunv...
> i	2025-05-21 17:58:39.362	GET 200 146 B 1 ms Go-http-clie... https://helloworld-tfdmunv...
> i		146 B 1 ms Go-http-clie... https://helloworld-tfdmunv...
> i		146 B 1 ms Go-http-clie... https://helloworld-tfdmunv...
> i		146 B 1 ms Go-http-clie... https://helloworld-tfdmunv...
> i		146 B 1 ms Go-http-clie... https://helloworld-tfdmunv...
> i		146 B 1 ms Go-http-clie... https://helloworld-tfdmunv...

Metric "CloudRunFunctionLatency-Logs" created. Data should be available soon. View in Metrics explorer Close message

CLOUD SHELL Terminal (quwiklabs-gcp-00-1f00cb910e34)

Google Cloud | qwiklabs-gcp-00-1f00cb910e34 | Create metric | Search

Observability Monitoring

Overview Dashboards Application monitoring

Explore

- Metrics explorer**
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- Observability Scopes  
quwiklabs-gcp-00-1f00cb910e34
- Release Notes

Metrics explorer

Queries Add query Create ratio

Results

Select a metric

CloudRunFunctionLatency-Logs

Active

POPULAR RESOURCES

No results

ACTIVE RESOURCES

No results

INACTIVE RESOURCES

Cloud Run Revision 1 metric >

Unspecified resource 1 metric >

Logs-based metrics 1 metric >

Display

Widget type Line chart

Analysis Mode

Compare to past

Threshold Line

Y-axis scale

Widget Visibility

Selection preview Cloud Run Revision

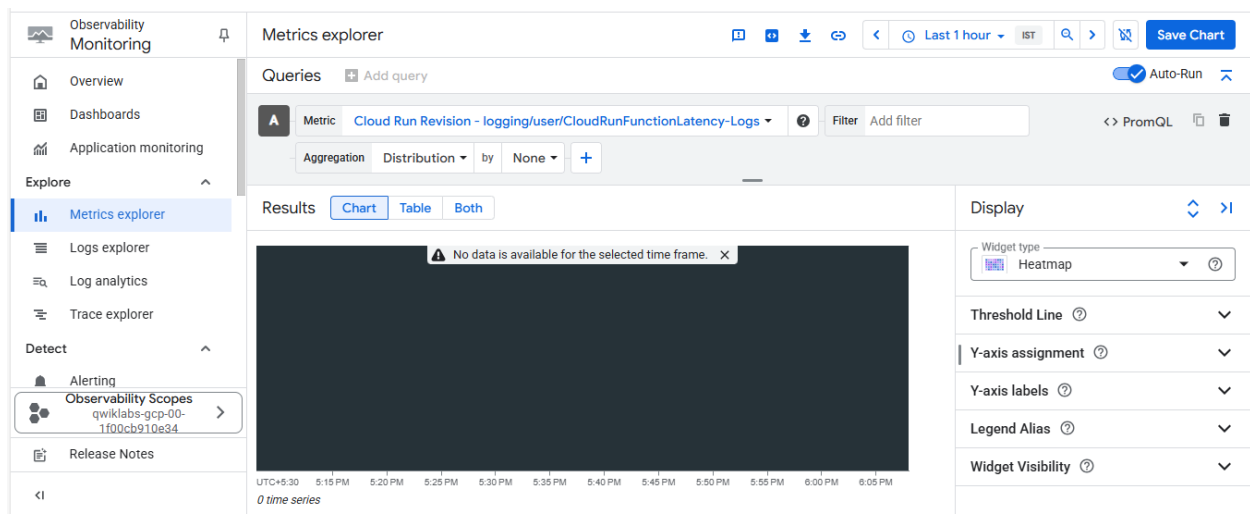
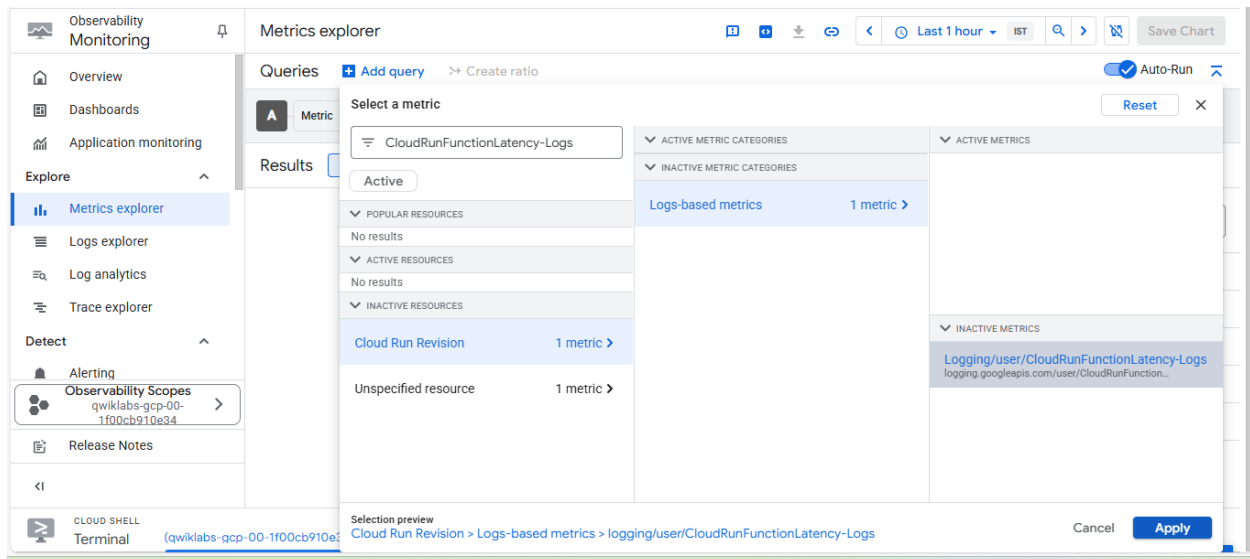
Cancel Apply

CLOUD SHELL Terminal (quwiklabs-gcp-00-1f00cb910e34)

Top Stories Waqf Not An Es...

Search

ENG IN 21-05



## Expected Outcome:

- Cloud Run service that responds with "Hello World"
- Traffic generated using Vegeta
- Custom log-based metrics created and visualized in dashboards
- Performance analytics using stacked charts, heatmaps, and line graphs

## Conclusion:

This project demonstrates how serverless applications can be deployed and monitored effectively using GCP tools. Vegeta helped simulate real-world traffic, and Cloud Monitoring provided visibility into application performance through custom metrics.

