

## Part II #1

The screenshot shows the Google Cloud Platform console interface. At the top, there's a header with the Google Cloud logo, a project selector set to 'My First Project', a search bar, and user profile icons. The left sidebar contains a navigation menu with categories like 'Compute Engine', 'Virtual machines', 'Storage', and 'Marketplace'. The 'Compute Engine' section is expanded, showing 'VM instances' as the selected option. The main content area displays the 'VM instances' page with tabs for 'Instances', 'Observability', and 'Instance schedules'. A table lists the VM instances, showing one instance named 'nginx' in the 'us-central1-c' zone. Below the table, there are several 'Related actions' cards such as 'Explore Backup and DR', 'View billing report', 'Monitor VMs', 'Explore VM logs', 'Set up firewall rules', 'Patch management', and 'Load balance between VMs'.

Google Cloud My First Project Search (/) for resources, docs, products, and more Search

Compute Engine VM instances Create Instance Import VM Refresh Learn

Overview Virtual machines VM instances Instance templates Sole-tenant nodes Machine images TPUs Committed use discou... Reservations Migrate to Virtual Mach... Storage Disks Storage Pools Marketplace Release Notes

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 type="checkbox"/>	nginx	us-central1-c			10.128.0.2 (nic0)	35.226.34.34 (nic0)	SSH

Related actions Hide

- Explore Backup and DR New: Back up your VMs and set up disaster recovery
- View billing report: View and manage your Compute Engine billing
- Monitor VMs: View outlier VMs across metrics like CPU and network
- Explore VM logs: View, search, analyze, and download VM instance logs
- Set up firewall rules: Control traffic to and from a VM instance
- Patch management: Schedule patch updates and view patch compliance on VM instances
- Load balance between VMs: Set up Load Balancing for your applications as your traffic and users grow

## Part II #5

The screenshot shows a dark-themed terminal window displaying the 'Welcome to nginx!' message. The text indicates that the nginx web server is successfully installed and working, but further configuration is required. It provides links to the online documentation and support at 'nginx.org' and mentions that commercial support is available at 'nginx.com'. The message is signed 'Thank you for using nginx.' and 'derrowjb'.

**Welcome to nginx!**

If you see this page, the nginx web server is successfully installed and working. Further configuration is required.

For online documentation and support please refer to [nginx.org](https://nginx.org).  
Commercial support is available at [nginx.com](https://nginx.com).

Thank you for using nginx.

derrowjb

## Part III #5

The screenshot shows the Google Cloud Platform console interface. The left sidebar contains navigation links for Compute Engine, Virtual machines, Instance templates, Sole-tenant nodes, Machine images, TPUs, Committed use discount, Reservations, and Migrate to Virtual Machine. The main content area is titled 'VM instances' and includes tabs for 'Instances', 'Observability', and 'Instance schedules'. A table lists several VM instances, including 'hpcslurm-controller' and 'hpcslurm-slurm-login-001'. Below the table, there are 'Related actions' such as 'Explore Backup and DR', 'View billing report', 'Monitor VMs', 'Explore VM logs', 'Set up firewall rules', 'Patch management', and 'Load balance between VMs'.

Status	Name	Zone	Recommendations	In use by	Internal IP	External IP	Connect
✓	hpcslurm-controller	us-central1-a			10.0.0.2 (nic0)	34.71.89.113 (nic0)	SSH
✓	hpcslurm-debugnodeset-0	us-central1-a			10.0.0.5 (nic0)		SSH
✓	hpcslurm-debugnodeset-1	us-central1-a			10.0.0.6 (nic0)		SSH
✓	hpcslurm-debugnodeset-2	us-central1-a			10.0.0.4 (nic0)		SSH
✓	hpcslurm-debugnodeset-3	us-central1-a			10.0.0.7 (nic0)		SSH
✓	hpcslurm-slurm-login-001	us-central1-a			10.0.0.3 (nic0)	34.72.120.156 (nic0)	SSH

## Part III #7

The screenshot shows an SSH terminal window with the following content:

```
ssh.cloud.google.com/v2/ssh/projects/fifth-inkwell-45700Q-n7/zones/us-central1-a/instances/hpcslurm-slurm-login-001?authuser=0&hl=en_US&projectNumber=517820908044&useAdminProxy=true - Google Chrome
ssh.cloud.google.com/v2/ssh/projects/fifth-inkwell-45700Q-n7/zones/us-central1-a/instances/hpcslurm-slurm-login-001?authuser=0&hl=en_US&projectNumber=517820908044&useAdminProxy=true
SSH-in-browser
UPLOAD FILE
DOWNLOAD FILE

srunc: error: Node failure on hpcslurm-computenodeset-4
srunc: error: Nodes hpcslurm-computenodeset-[4-7] are still not ready
srunc: error: Something is wrong with the boot of the nodes.
[joshb12d_gmail_com@hpcslurm-slurm-login-001 ~]$ srun -n 8 hostname
srunc: error: Unable to allocate resources: Requested topology configuration is not available
[joshb12d_gmail_com@hpcslurm-slurm-login-001 ~]$ srun -n 4 hostname
hpcslurm-debugnodeset-0
hpcslurm-debugnodeset-1
hpcslurm-debugnodeset-2
hpcslurm-debugnodeset-3
[joshb12d_gmail_com@hpcslurm-slurm-login-001 ~]$ module load mpi
mod has detected the following error: The following module(s) are unknown: "mpi"

Please check the spelling or version number. Also try "module spider ..."
It is also possible your cache file is out-of-date; it may help to try:
$ module --ignore-cache load "mpi"

Also make sure that all modulefiles written in TCL start with the string #Module

[joshb12d_gmail_com@hpcslurm-slurm-login-001 ~]$ module load openmpi
[joshb12d_gmail_com@hpcslurm-slurm-login-001 ~]$ curl -O https://w3.cs.jmu.edu/lam2mo/files/cluster/mpi_hello.c
% Total % Received % Xferd Average Speed Time Time Current
Dload Upload Total Spent Left Speed
100 635 100 635 0 0 2785 0 --:--:-- --:--:-- --:--:-- 2772
[joshb12d_gmail_com@hpcslurm-slurm-login-001 ~]$ mpicc -o hello mpi_hello.c
[joshb12d_gmail_com@hpcslurm-slurm-login-001 ~]$ srun -p compute -n 8 ./hello
srunc: error: Node failure on hpcslurm-computenodeset-4
srunc: error: Nodes hpcslurm-computenodeset-[4-7] are still not ready
srunc: error: Something is wrong with the boot of the nodes.
[joshb12d_gmail_com@hpcslurm-slurm-login-001 ~]$ srun -n 8 ./hello
srunc: error: Unable to allocate resources: Requested topology configuration is not available
[joshb12d_gmail_com@hpcslurm-slurm-login-001 ~]$ srun -n 4 ./hello
Supervisor: Rank 0 on hpcslurm-debugnodeset-0 (4 total processes)
Message from rank 1 on hpcslurm-debugnodeset-1
Message from rank 2 on hpcslurm-debugnodeset-2
Message from rank 3 on hpcslurm-debugnodeset-3
[joshb12d_gmail_com@hpcslurm-slurm-login-001 ~]$ srun -n 8 ./hello
srunc: error: Unable to allocate resources: Requested topology configuration is not available
[joshb12d_gmail_com@hpcslurm-slurm-login-001 ~]$ srun -n 4 ./hello
Supervisor: Rank 0 on hpcslurm-debugnodeset-0 (4 total processes)
Message from rank 1 on hpcslurm-debugnodeset-1
Message from rank 2 on hpcslurm-debugnodeset-2
Message from rank 3 on hpcslurm-debugnodeset-3
[joshb12d_gmail_com@hpcslurm-slurm-login-001 ~]$
```

Part IV #3

Google Cloud

My First Project

cloud fun

Search

Cloud Run

Service details

Edit & deploy new revision

Set up Continuous Deployment

Test

Learn

Deploying revision

Hide status

Building source (see logs)

Completed

Updating service

Completed

Creating revision

Completed

Routing traffic

Completed

sha512

Region: us-central1

URL: <https://sha512-517820908044.us-central1.run.app>

Scaling: Auto (Min: 0)

Metrics

SLOs

Logs

Revisions

Source

Triggers

Networking

Security

YAML

Source

Base image: Python 3.9 (Ubuntu 18 Full)

Function entry point: hello\_http

Edit source

Show payload

main.py

requirements.txt

1

2

3

4

5

6

7

8

9

10

11

12

import functions\_framework

import hashlib

@functions\_framework.http

def hello\_http(request):

if request.args and 'message' in request.args:

msg = request.args['message']

return hashlib.sha512(bytes(msg, 'utf-8')).hexdigest()

else:

return "Error"

Download ZIP

Part IV #5

3615f80c9d293ed7402687f94b22d58e529b8cc7916f8fac7fdd77fbd5af4cf777d3d795a7a00a16bf7e7f3fb9561ee9baae480da9fe7a18769e71886b03f315