

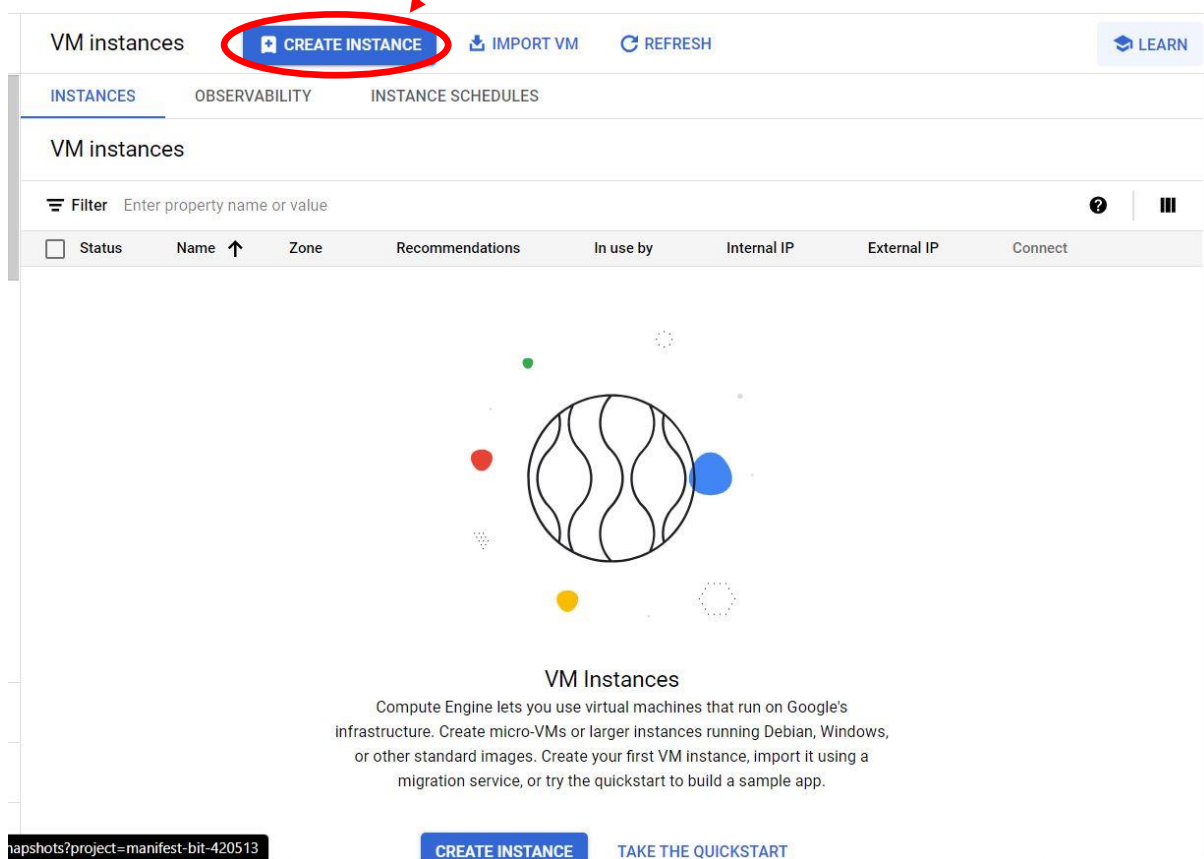
Google cloud platform Project – Lab1

Apache Web server on Google Cloud

By Sadeem Khalid Alqarni

VM settings:

Here I make my first VM:



The boot disk settings:

Boot disk ?

| | |
|----------------|--------------------------------|
| Name | instance-4 |
| Type | New balanced persistent disk |
| Size | 10 GB |
| License type ? | Free |
| Image | Debian GNU/Linux 12 (bookworm) |






Allow HTTP and HTTPS traffic:

Firewall

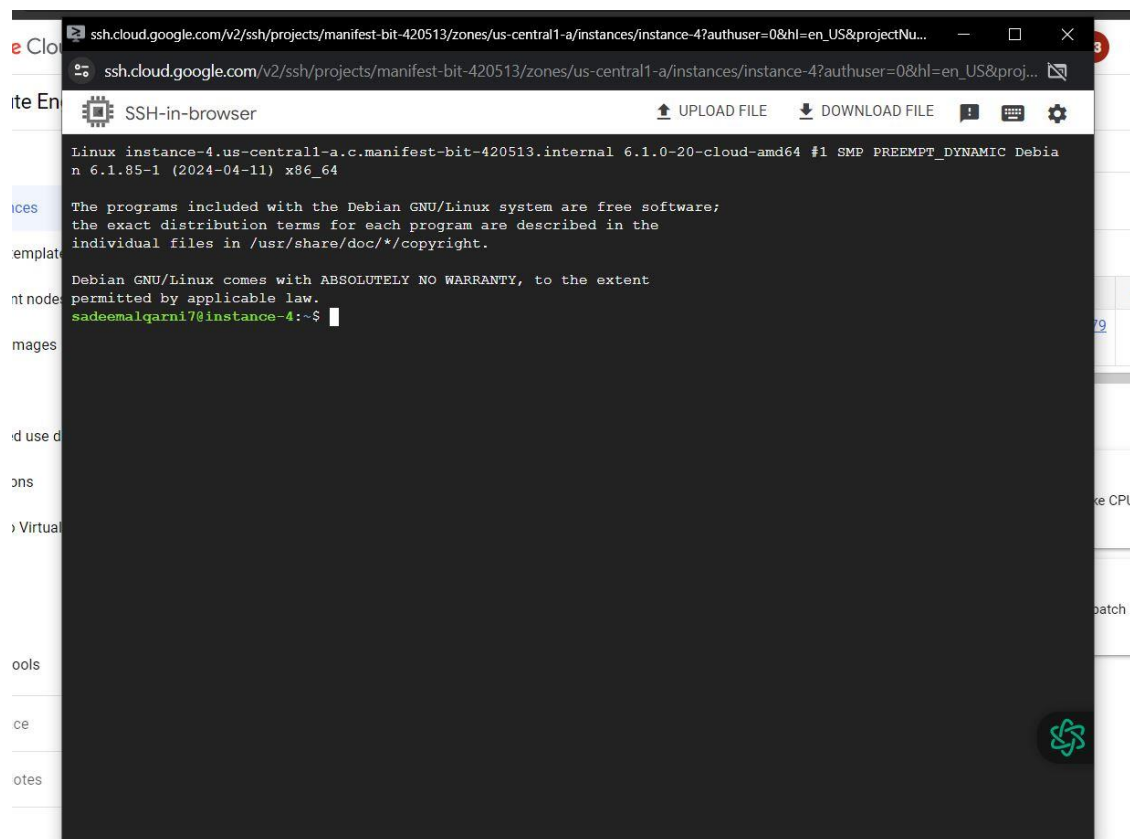
Add tags and firewall rules to allow specific network traffic from the Internet

- ☒ Allow HTTP traffic
- ☒ Allow HTTPS traffic
- ☐ Allow Load Balancer Health Checks

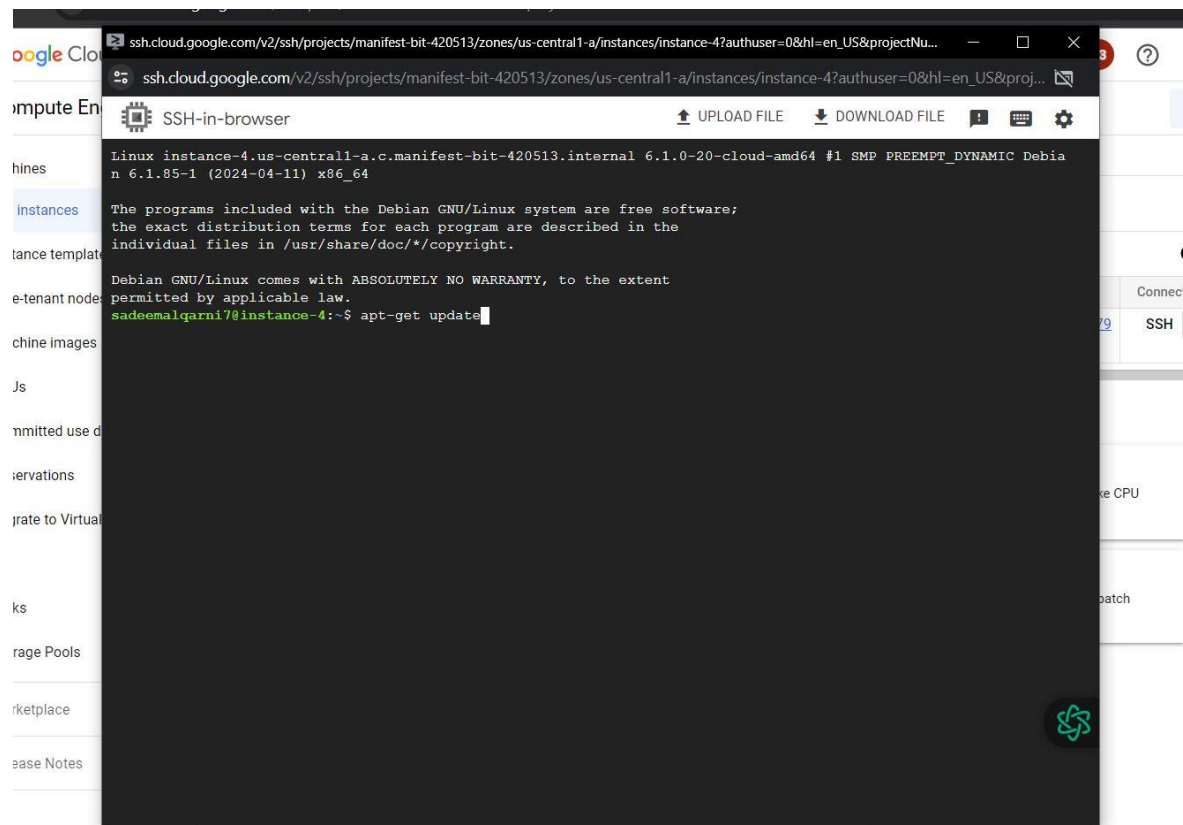
After I created my first VM, I will run SSH from clicking the SSH button:

| INSTANCES | | | | | | | | |
|--|--|---------------|-----------------|-----------|----------------------|---|---|---|
| OBSERVABILITY | | | | | | | | |
| INSTANCE SCHEDULES | | | | | | | | |
| VM instances | | | | | | | | |
| Filter Enter property name or value | | | | | | | | |
| <input type="checkbox"/> Status | Name  | Zone | Recommendations | In use by | Internal IP | External IP | Connect | |
| <input type="checkbox"/>  | instance-4 | us-central1-a | | | 10.128.0.5 (nic0) | 34.28.214.179 (nic0) |  SSH  |  |

Now the SSH window will open:



1- First update packages by the cmd: **apt-get update**



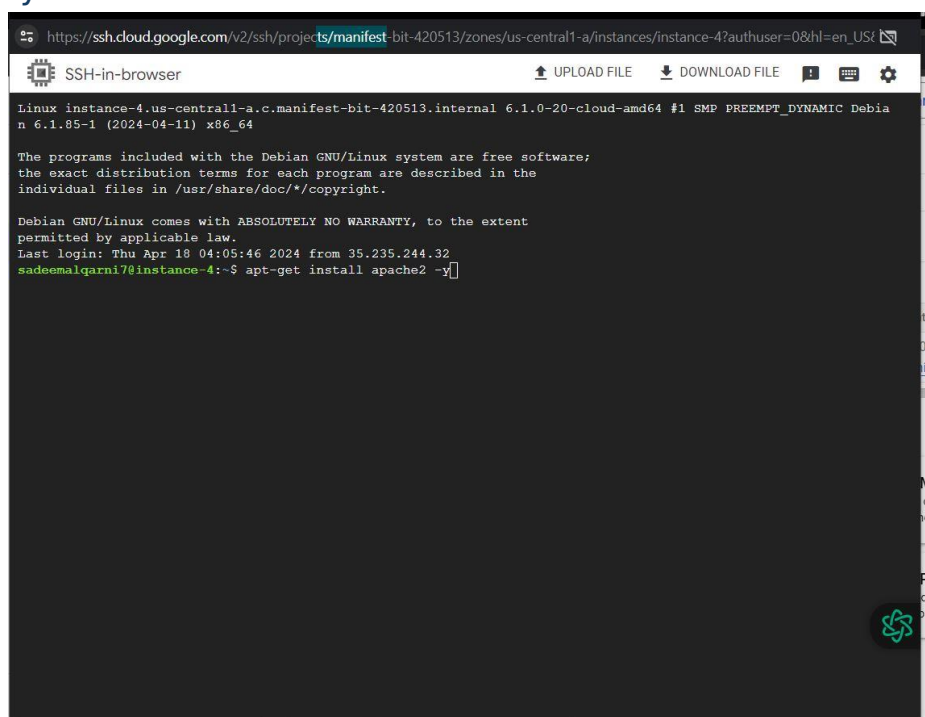
The screenshot shows a web browser window with an SSH-in-browser interface. The terminal output displays the Linux version and architecture, followed by the Debian GNU/Linux system's free software notice and warranty disclaimer. The command `sadeemalqarni7@instance-4:~$ apt-get update` is entered at the prompt.

```
Linux instance-4.us-central1-a.c.manifest-bit-420513.internal 6.1.0-20-cloud-amd64 #1 SMP PREEMPT_DYNAMIC Debian 6.1.85-1 (2024-04-11) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
sadeemalqarni7@instance-4:~$ apt-get update
```

2- Now install apache2 server by the cmd: **sudo apt-get install apache2 -y**



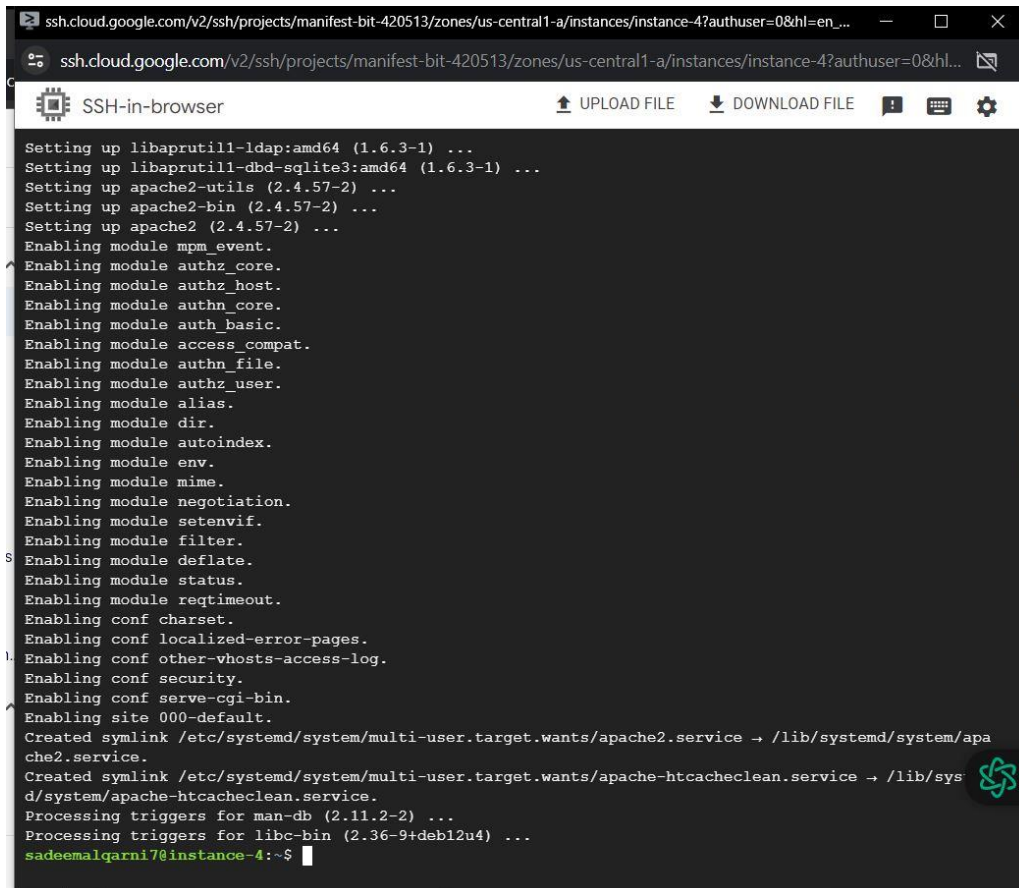
The screenshot shows the same SSH-in-browser terminal window. The terminal output includes the Linux version, Debian notice, and warranty disclaimer. The command `sadeemalqarni7@instance-4:~$ sudo apt-get install apache2 -y` is entered at the prompt.

```
Linux instance-4.us-central1-a.c.manifest-bit-420513.internal 6.1.0-20-cloud-amd64 #1 SMP PREEMPT_DYNAMIC Debian 6.1.85-1 (2024-04-11) x86_64

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permitted by applicable law.
Last login: Thu Apr 18 04:05:46 2024 from 35.235.244.32
sadeemalqarni7@instance-4:~$ sudo apt-get install apache2 -y
```

3- Now apache2 server installed successfully:



```
ssh.cloud.google.com/v2/ssh/projects/manifest-bit-420513/zones/us-central1-a/instances/instance-4?authuser=0&hl=en...
SSH-in-browser
UPLOAD FILE
DOWNLOAD FILE

Setting up libaprutil1-ldap:amd64 (1.6.3-1) ...
Setting up libaprutil1-dbd-sqlite3:amd64 (1.6.3-1) ...
Setting up apache2-utils (2.4.57-2) ...
Setting up apache2-bin (2.4.57-2) ...
Setting up apache2 (2.4.57-2) ...
Enabling module mpm_event.
Enabling module authz_core.
Enabling module authz_host.
Enabling module authn_core.
Enabling module auth_basic.
Enabling module access_compat.
Enabling module authn_file.
Enabling module authz_user.
Enabling module alias.
Enabling module dir.
Enabling module autoindex.
Enabling module env.
Enabling module mime.
Enabling module negotiation.
Enabling module setenvif.
Enabling module filter.
Enabling module deflate.
Enabling module status.
Enabling module reqtimeout.
Enabling conf charset.
Enabling conf localized-error-pages.
Enabling conf other-vhosts-access-log.
Enabling conf security.
Enabling conf serve-cgi-bin.
Enabling site 000-default.
Created symlink /etc/systemd/system/multi-user.target.wants/apache2.service → /lib/systemd/system/apache2.service.
Created symlink /etc/systemd/system/multi-user.target.wants/apache-htcacheclean.service → /lib/systemd/system/apache-htcacheclean.service.
Processing triggers for man-db (2.11.2-2) ...
Processing triggers for libc-bin (2.36-9+deb12u4) ...
sadeemalqarni7@instance-4:~$
```

4- now we check if the server is working by the cmd: `sudo service --status-all`

```
-bash: service: command not found
sadeemalqarni7@instance-4:~$ sudo service --status-all
```

5- the check is completed:

```
sadeemalqarni7@instance-4:~$ sudo service --status-all
[ + ] apache-htcacheclean
[ + ] apache2
[ + ] apparmor
[ + ] cron
[ + ] dbus
[ + ] exim4
[ + ] haveged
[ - ] hwclock.sh
[ + ] kmod
[ + ] procps
[ - ] screen-cleanup
[ + ] ssh
[ - ] sudo
[ + ] udev
[ + ] unattended-upgrades
[ - ] uuid
sadeemalqarni7@instance-4:~$
```

6- upload index.html and move it to **/var/www/html**

ssh.cloud.google.com/v2/ssh/projects/manifest-bit-420513/zones/us-central1-a/instances/instance-4?authuser=0&hl...

SSH-in-browser UPLOAD FILE DOWNLOAD FILE

```
Linux instance-4.us-central1-a.c.manifest-bit-420513.internal 6.1.0-20-cloud-amd64 #1 SMP PREEMPT_DYN
AMIC Debian 6.1.85-1 (2024-04-11) x86_64


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permitted by applicable law.
Last login: Thu Apr 18 12:53:48 2024 from 35.235.241.16
sadeemalqarni7@instance-4:~$ sudo mv -f index.html /var/www/html
```

7- go to external IP and click on it

| External IP |
|-------------------------------|
| 34.28.214.179 |
| 🔗 (nic0) |

Result:


Google Cloud

Welcome to Google Cloud Platform

What is Google Cloud Platform?

Google Cloud Platform (GCP) is a suite of cloud computing services offered by Google. It provides a range of on-demand services including:

- Compute: Create and manage virtual machines (VMs)
- Storage: Store your data securely and reliably
- Networking: Connect your applications and resources
- Big Data: Analyze large datasets
- Machine Learning: Build and train machine learning models
- And many more!

What are Virtual Machines (VMs)?

A virtual machine (VM) is a software computer that emulates a physical computer. It allows you to run an operating system and applications on a virtualized server. VMs offer several benefits including:

- Scalability: Easily scale your resources up or down as needed
- Cost-effectiveness: Pay only for the resources you use
- Flexibility: Deploy different types of VMs for different applications
- Isolation: Applications running on VMs are isolated from each other