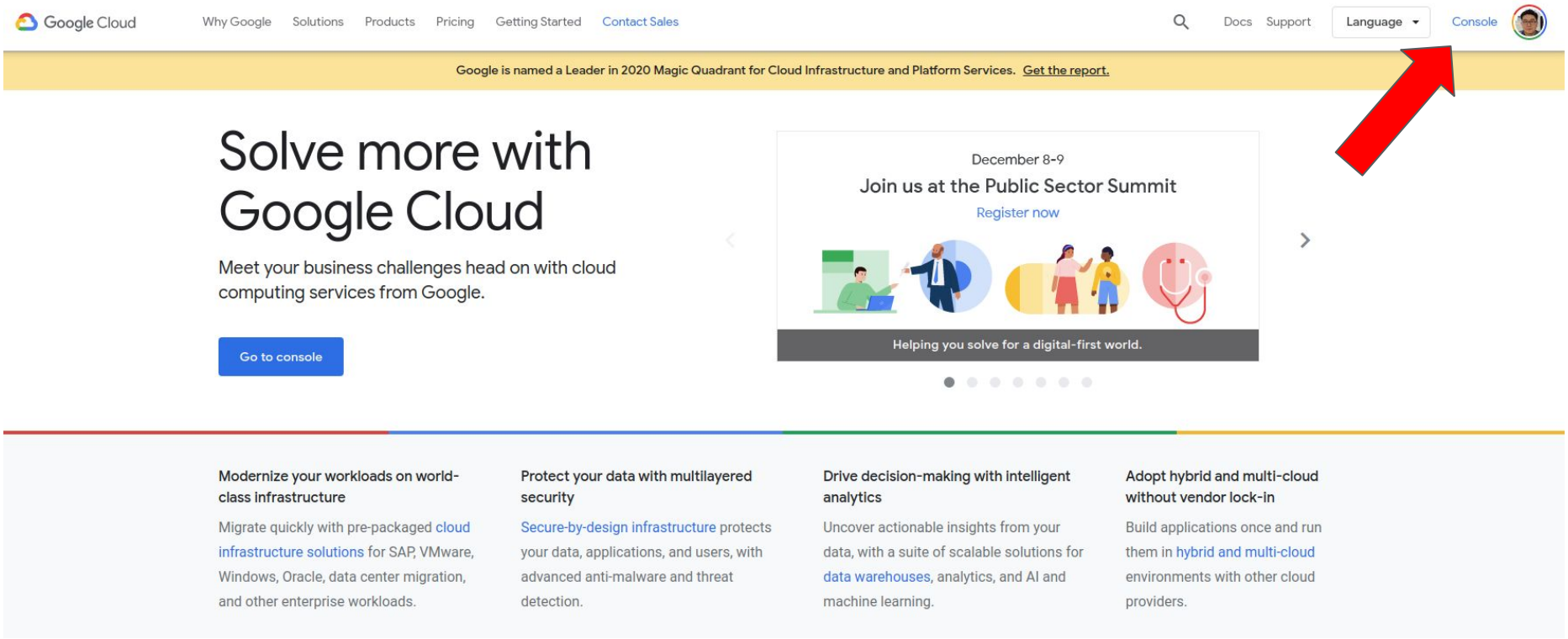
Flask

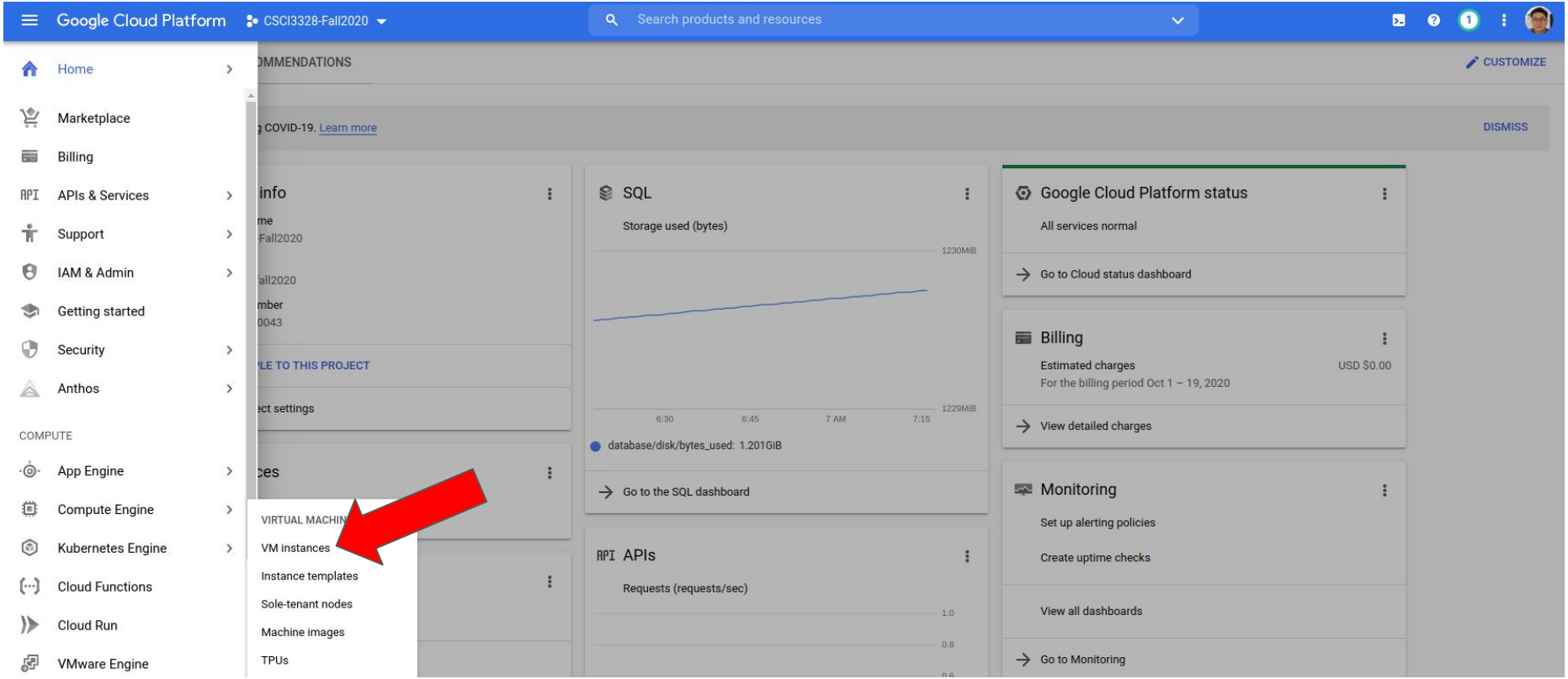
Dr. Dongchul Kim

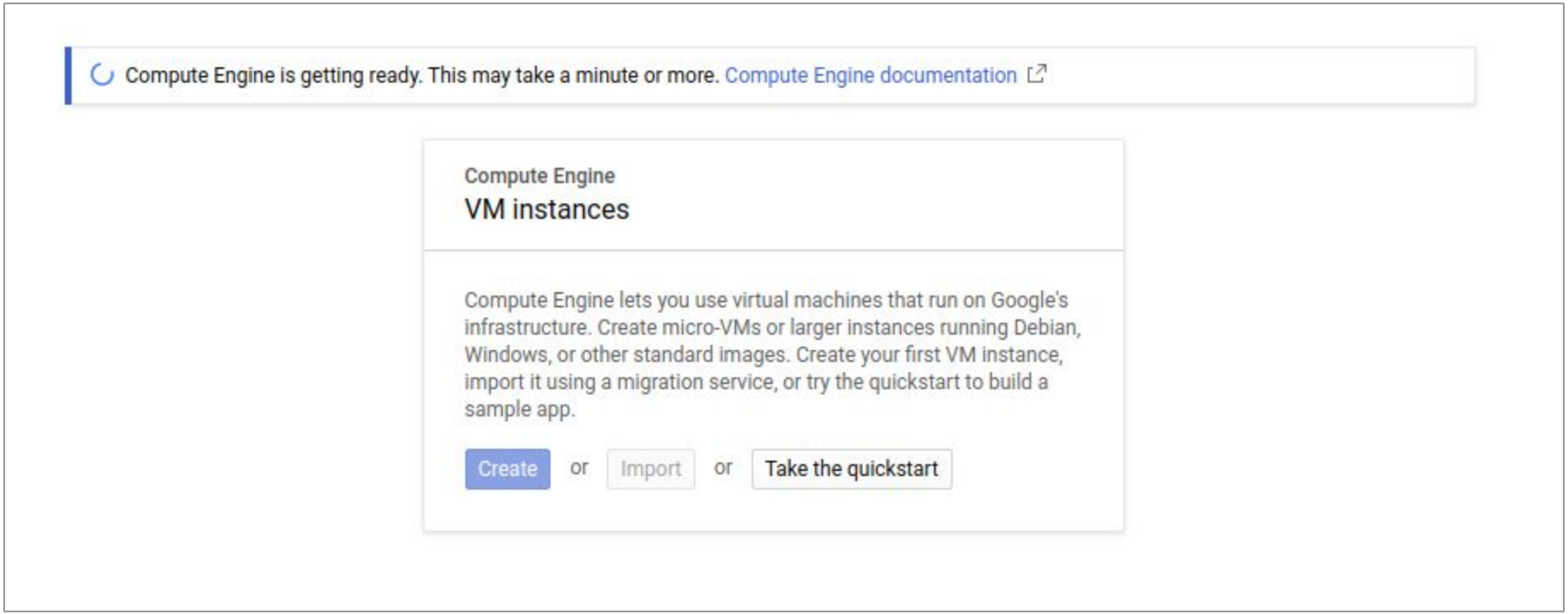
Part 1

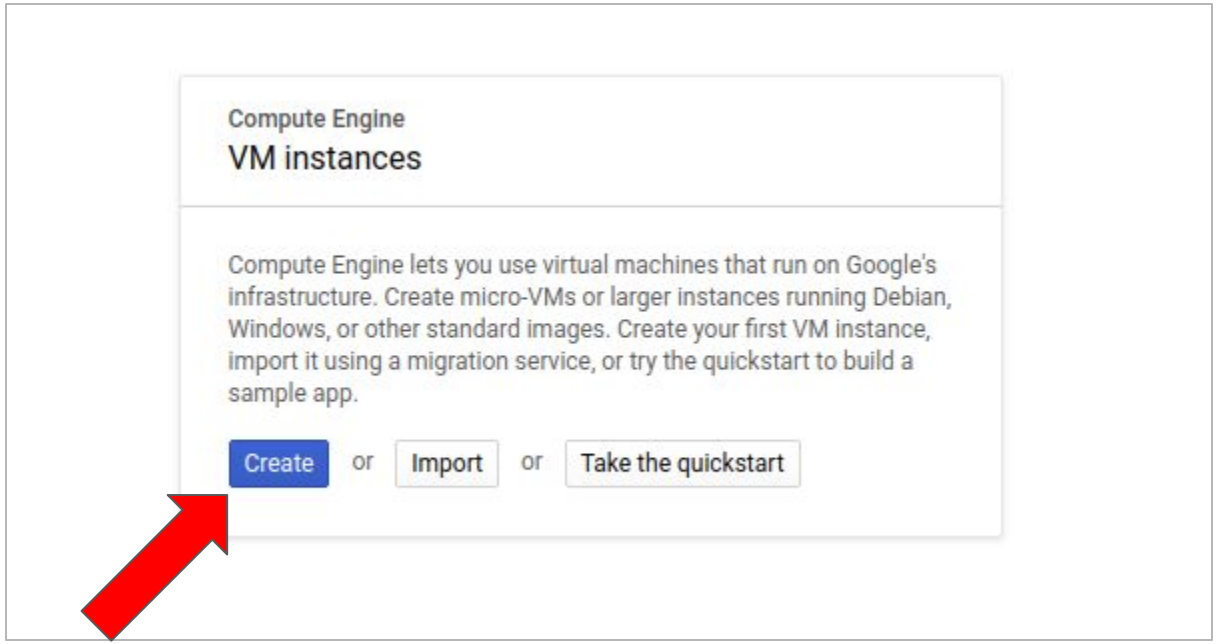
Install a compute engine



Select VM Instances




Compute Engine is getting ready. This may take a minute or more. Compute Engine documentation
Compute Engine
VM instances
Compute Engine lets you use virtual machines that run on Google's infrastructure. Create micro-VMs or larger instances running Debian, Windows, or other standard images. Create your first VM instance, import it using a migration service, or try the quickstart to build a sample app.
Create
or
Import
or
Take the quickstart


Compute Engine
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Create
or
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Take the quickstart

Name
Name is permanent

myserver

Labels (Optional)

+ Add label

Region
Region is permanent

us-central1 (Iowa)

Zone
Zone is permanent

us-central1-a

Machine configuration

Machine family

General-purpose | Compute-optimized | Memory-optimized

Machine types for common workloads, optimized for cost and flexibility

Series

E2

CPU platform selection based on availability

Machine type

e2-micro (2 vCPU, 1 GB memory)

vCPU	Memory	GPUs
1 shared core	1 GB	-

CPU platform and GPU

Confidential VM service
Enable the Confidential Computing service on this VM instance.

Container
Deploy a container image to this VM instance. Learn more

Boot disk

New 10 GB standard persistent disk
Image
Ubuntu 20.04 LTS
Change

Identity and API access

Service account
Compute Engine default service account

Access scopes
Allow default access
Allow full access to all Cloud APIs
Set access for each API

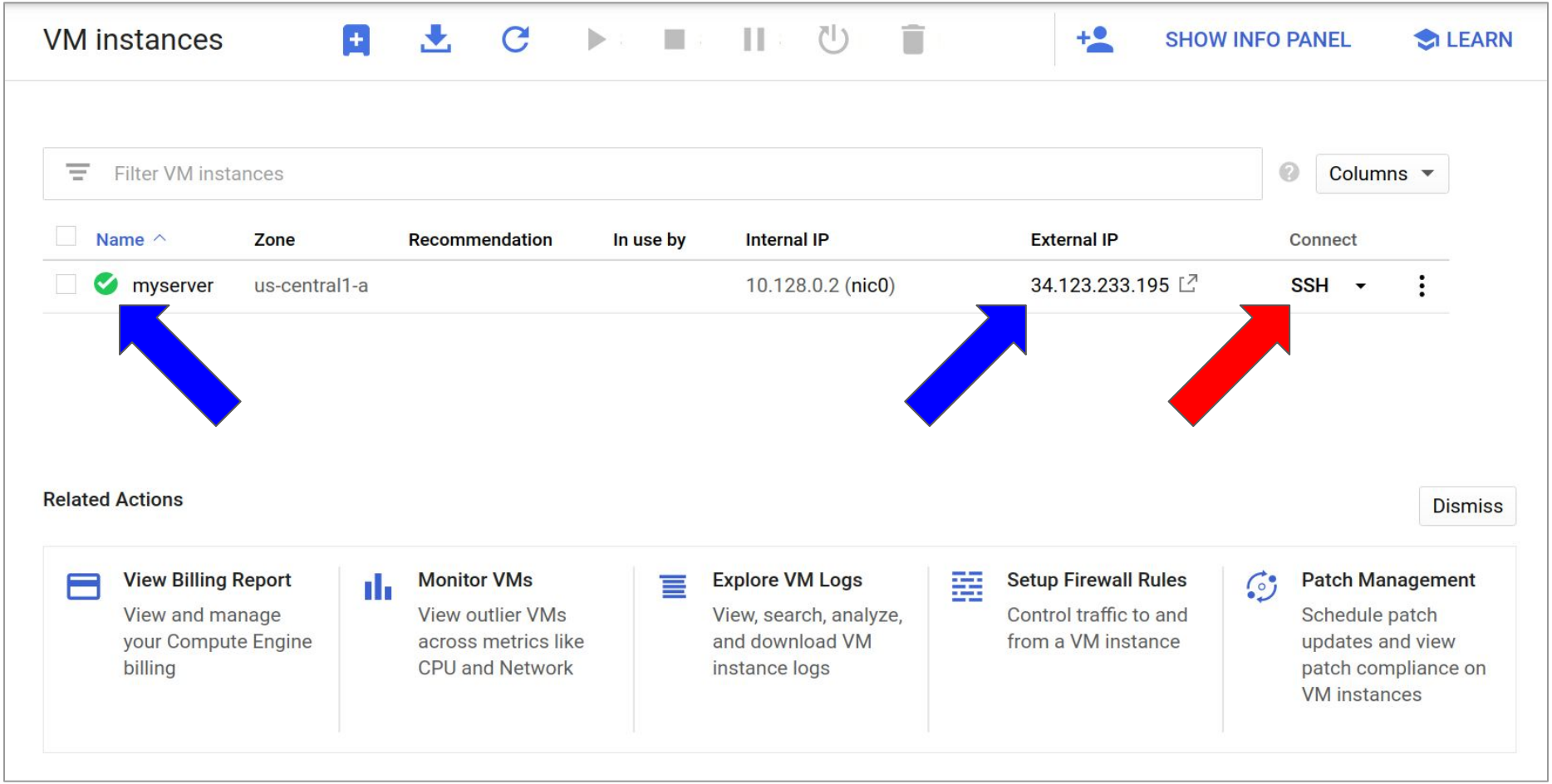
Firewall
Add tags and firewall rules to allow specific network traffic from the Internet
Allow HTTP traffic
Allow HTTPS traffic

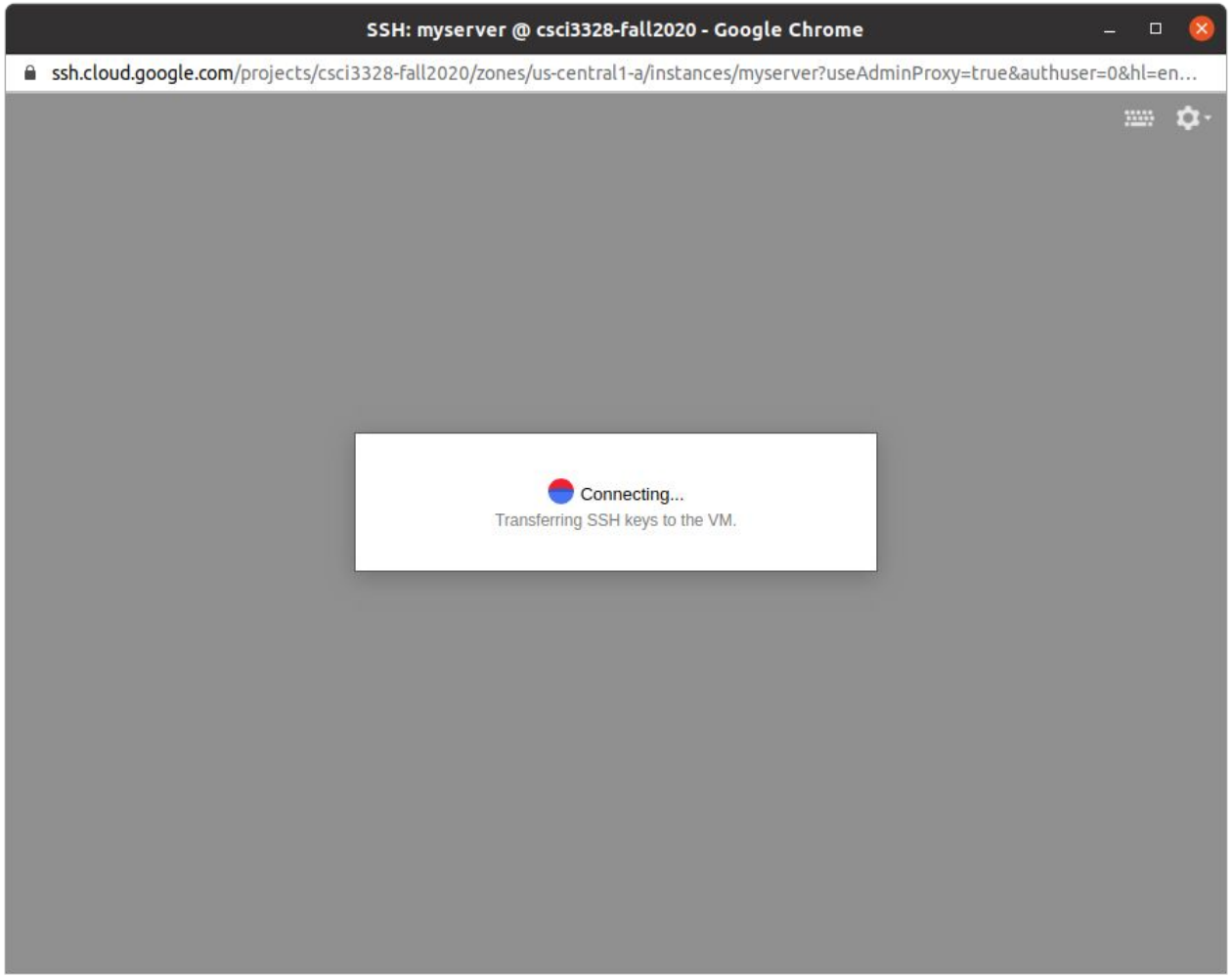
Management, security, disks, networking, sole tenancy

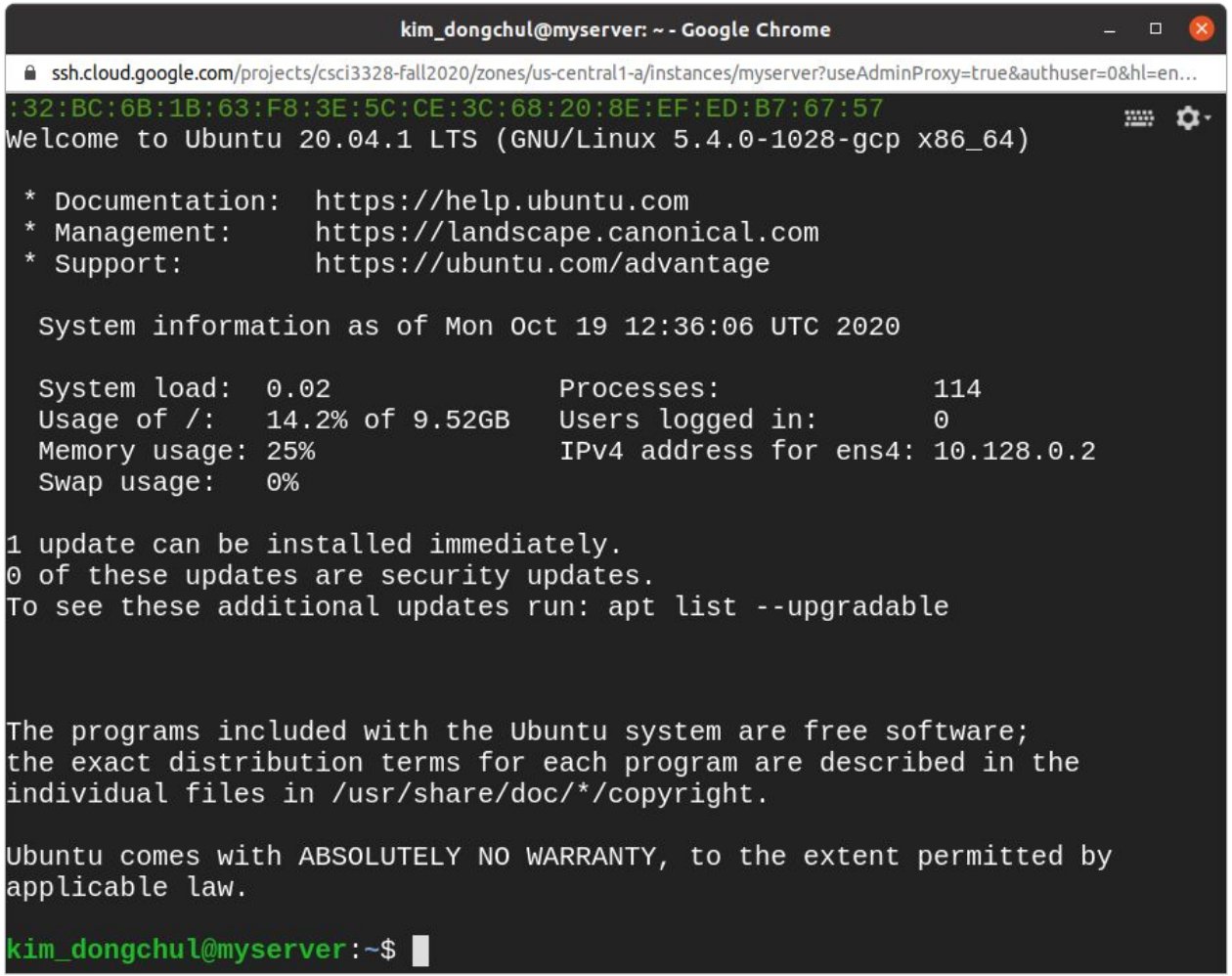
You will be billed for this instance. Compute Engine pricing

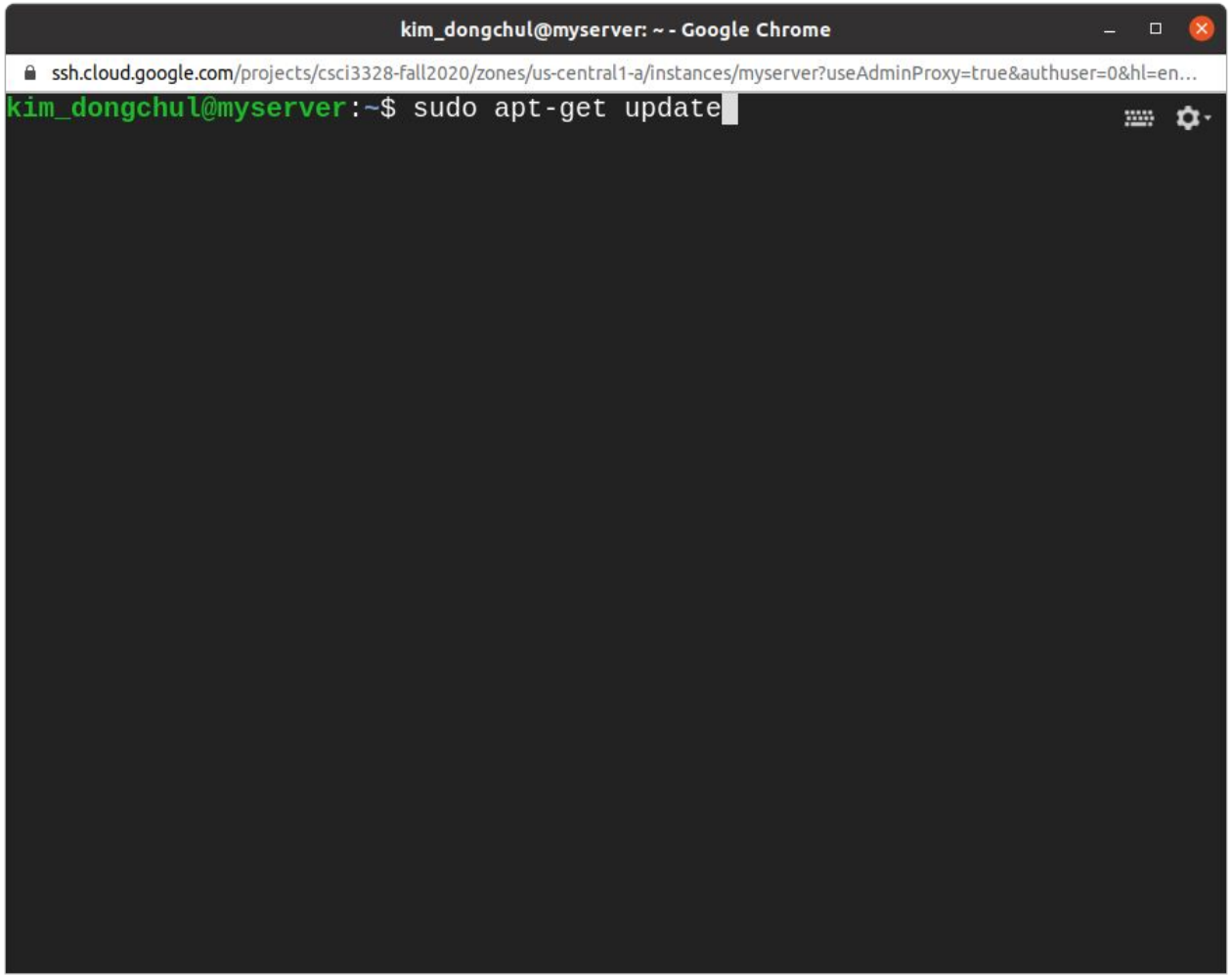
Create Cancel

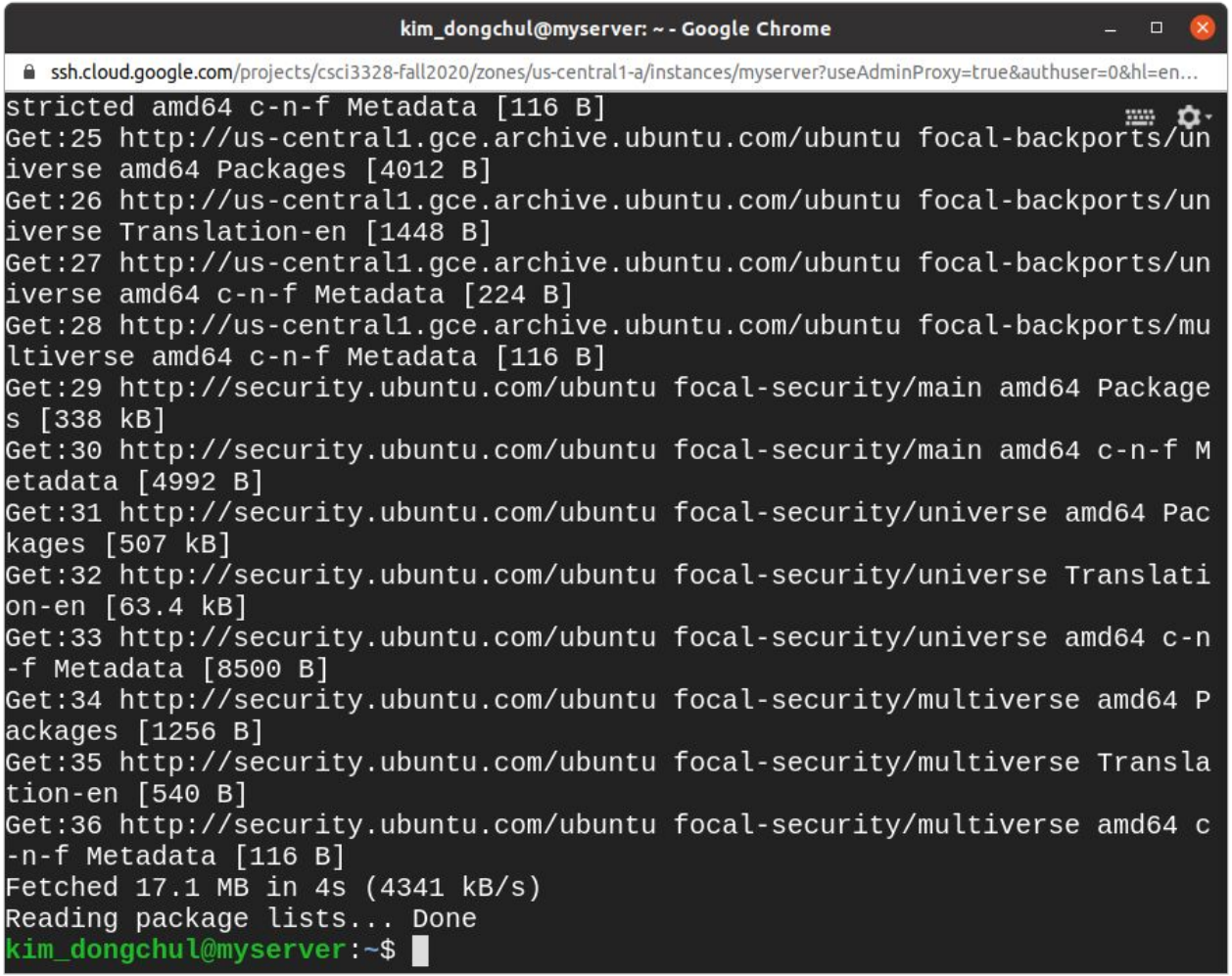
Equivalent REST or command line

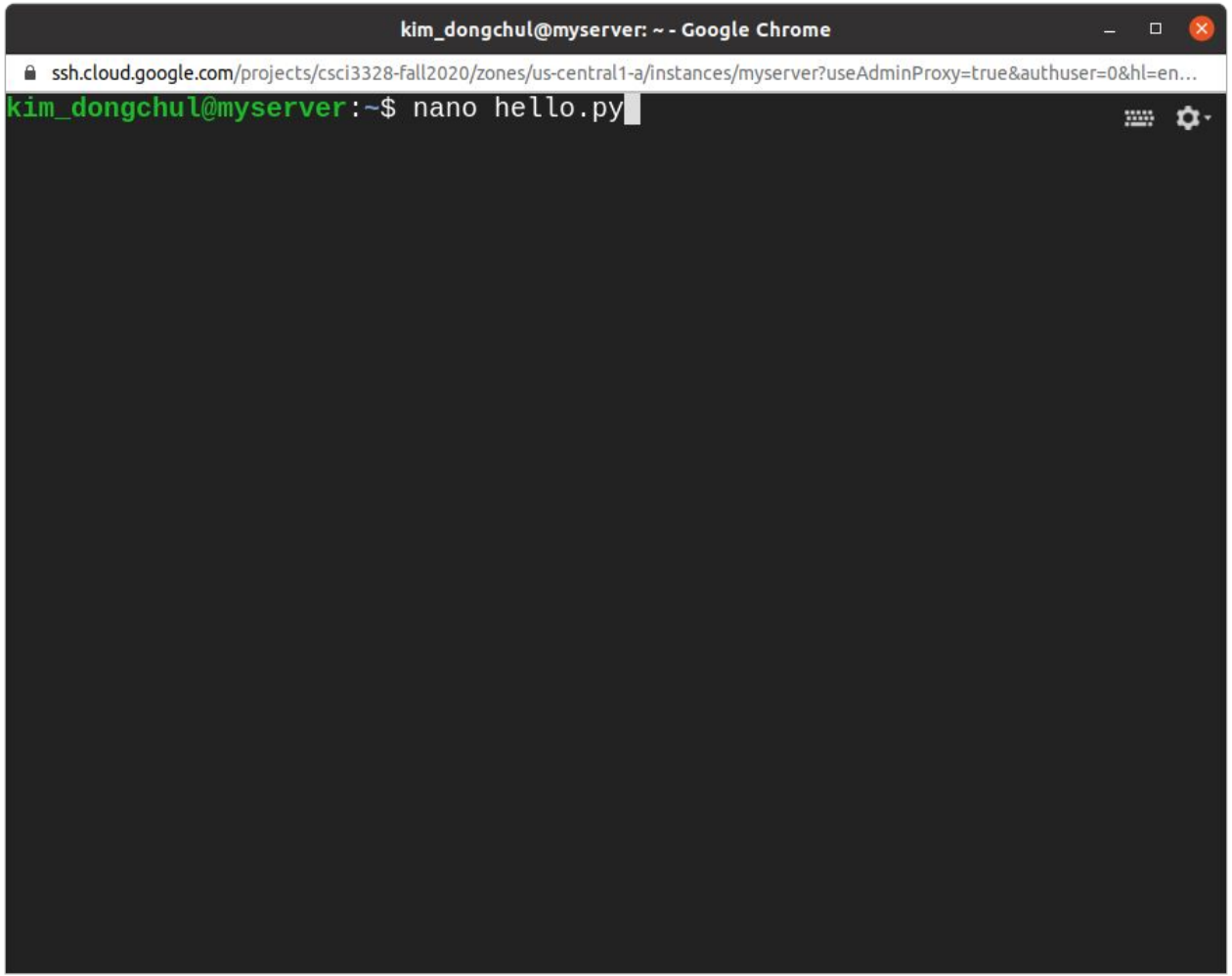

VM instances
SHOW INFO PANEL
LEARN
Filter VM instances
Columns
Name
Zone
Recommendation
In use by
Internal IP
External IP
Connect
myserver
us-central1-a
10.128.0.2 (nic0)
34.123.233.195
SSH
Related Actions
Dismiss
View Billing Report
View and manage your Compute Engine billing
Monitor VMs
View outlier VMs across metrics like CPU and Network
Explore VM Logs
View, search, analyze, and download VM instance logs
Setup Firewall Rules
Control traffic to and from a VM instance
Patch Management
Schedule patch updates and view patch compliance on VM instances


SSH: myserver @ csci3328-fall2020 - Google Chrome
ssh.cloud.google.com/projects/csci3328-fall2020/zones/us-central1-a/instances/myserver?useAdminProxy=true&authuser=0&hl=en...
Connecting...
Transferring SSH keys to the VM.


kim_dongchul@myserver: ~ - Google Chrome
ssh.cloud.google.com/projects/csci3328-fall2020/zones/us-central1-a/instances/myserver?useAdminProxy=true&authuser=0&hl=en...
:32:BC:6B:1B:63:F8:3E:5C:CE:3C:68:20:8E:EF:ED:B7:67:57
Welcome to Ubuntu 20.04.1 LTS (GNU/Linux 5.4.0-1028-gcp x86_64)
* Documentation: https://help.ubuntu.com
* Management: https://landscape.canonical.com
* Support: https://ubuntu.com/advantage
System information as of Mon Oct 19 12:36:06 UTC 2020
System load: 0.02
Processes: 114
Usage of /: 14.2% of 9.52GB
Users logged in: 0
Memory usage: 25%
IPv4 address for ens4: 10.128.0.2
Swap usage: 0%
1 update can be installed immediately.
0 of these updates are security updates.
To see these additional updates run: apt list --upgradable
The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.
kim_dongchul@myserver:~$


kim_dongchul@myserver: ~ - Google Chrome
ssh.cloud.google.com/projects/csci3328-fall2020/zones/us-central1-a/instances/myserver?useAdminProxy=true&authuser=0&hl=en...
kim_dongchul@myserver:~$ sudo apt-get update


kim_dongchul@myserver: ~ - Google Chrome
ssh.cloud.google.com/projects/csci3328-fall2020/zones/us-central1-a/instances/myserver?useAdminProxy=true&authuser=0&hl=en...
stricted amd64 c-n-f Metadata [116 B]
Get:25 http://us-central1.gce.archive.ubuntu.com/ubuntu focal-backports/universe amd64 Packages [4012 B]
Get:26 http://us-central1.gce.archive.ubuntu.com/ubuntu focal-backports/universe Translation-en [1448 B]
Get:27 http://us-central1.gce.archive.ubuntu.com/ubuntu focal-backports/universe amd64 c-n-f Metadata [224 B]
Get:28 http://us-central1.gce.archive.ubuntu.com/ubuntu focal-backports/multiverse amd64 c-n-f Metadata [116 B]
Get:29 http://security.ubuntu.com/ubuntu focal-security/main amd64 Packages [338 kB]
Get:30 http://security.ubuntu.com/ubuntu focal-security/main amd64 c-n-f Metadata [4992 B]
Get:31 http://security.ubuntu.com/ubuntu focal-security/universe amd64 Packages [507 kB]
Get:32 http://security.ubuntu.com/ubuntu focal-security/universe Translation-en [63.4 kB]
Get:33 http://security.ubuntu.com/ubuntu focal-security/universe amd64 c-n-f Metadata [8500 B]
Get:34 http://security.ubuntu.com/ubuntu focal-security/multiverse amd64 Packages [1256 B]
Get:35 http://security.ubuntu.com/ubuntu focal-security/multiverse Translation-en [540 B]
Get:36 http://security.ubuntu.com/ubuntu focal-security/multiverse amd64 c-n-f Metadata [116 B]
Fetched 17.1 MB in 4s (4341 kB/s)
Reading package lists... Done
kim_dongchul@myserver:~$


kim_dongchul@myserver: ~ - Google Chrome
ssh.cloud.google.com/projects/csci3328-fall2020/zones/us-central1-a/instances/myserver?useAdminProxy=true&authuser=0&hl=en...
kim_dongchul@myserver:~$ nano hello.py

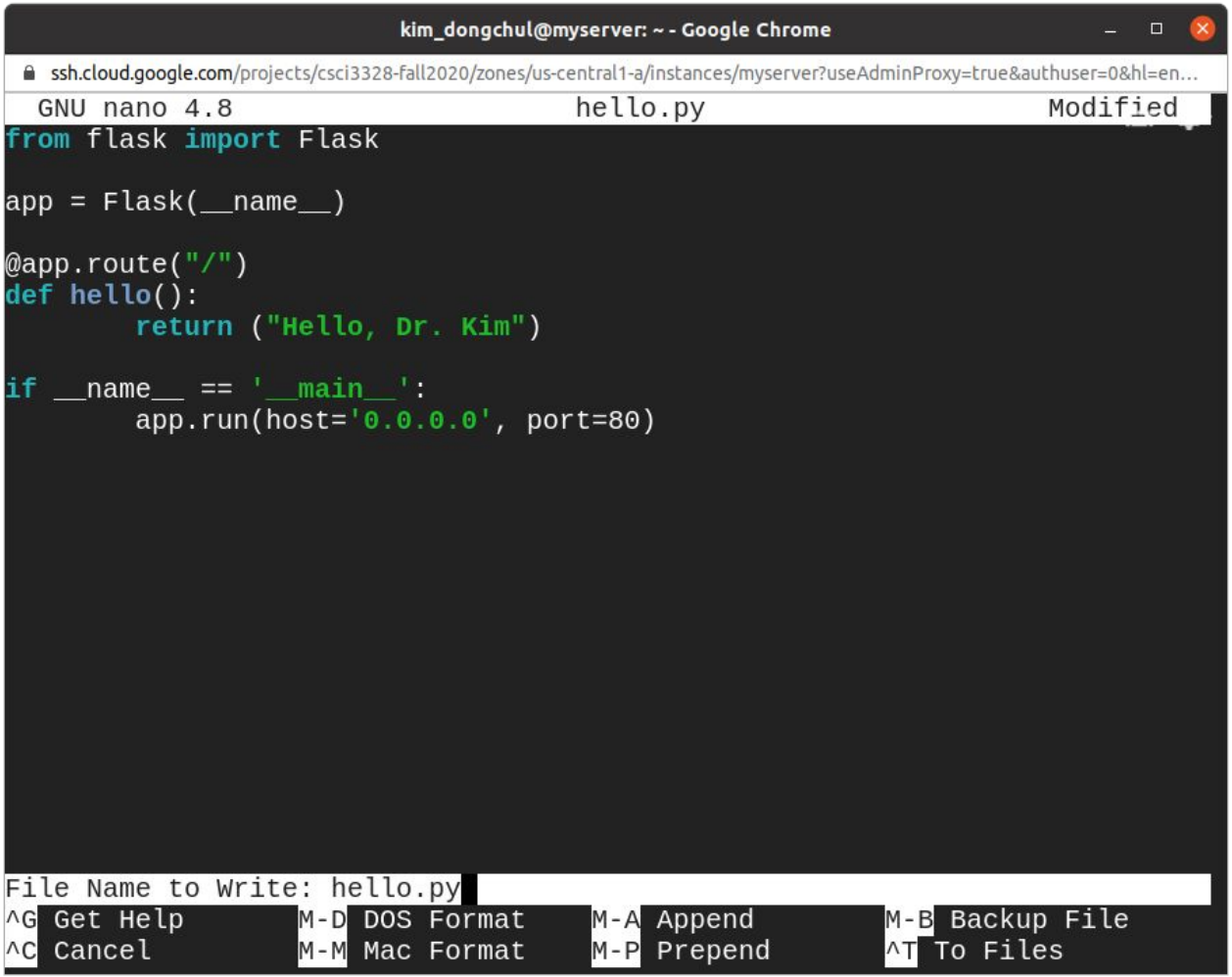
To save,

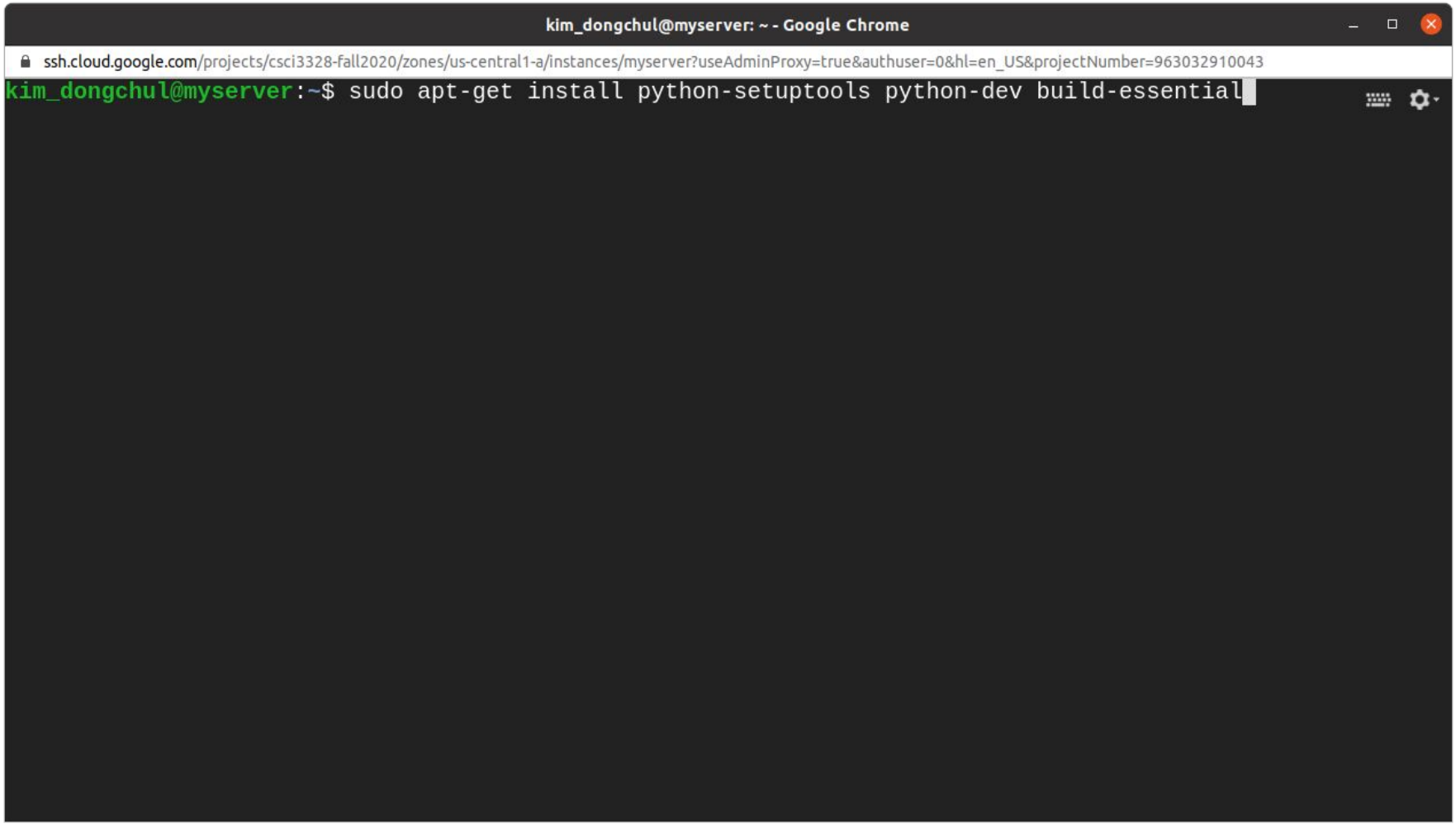
Ctrl + O

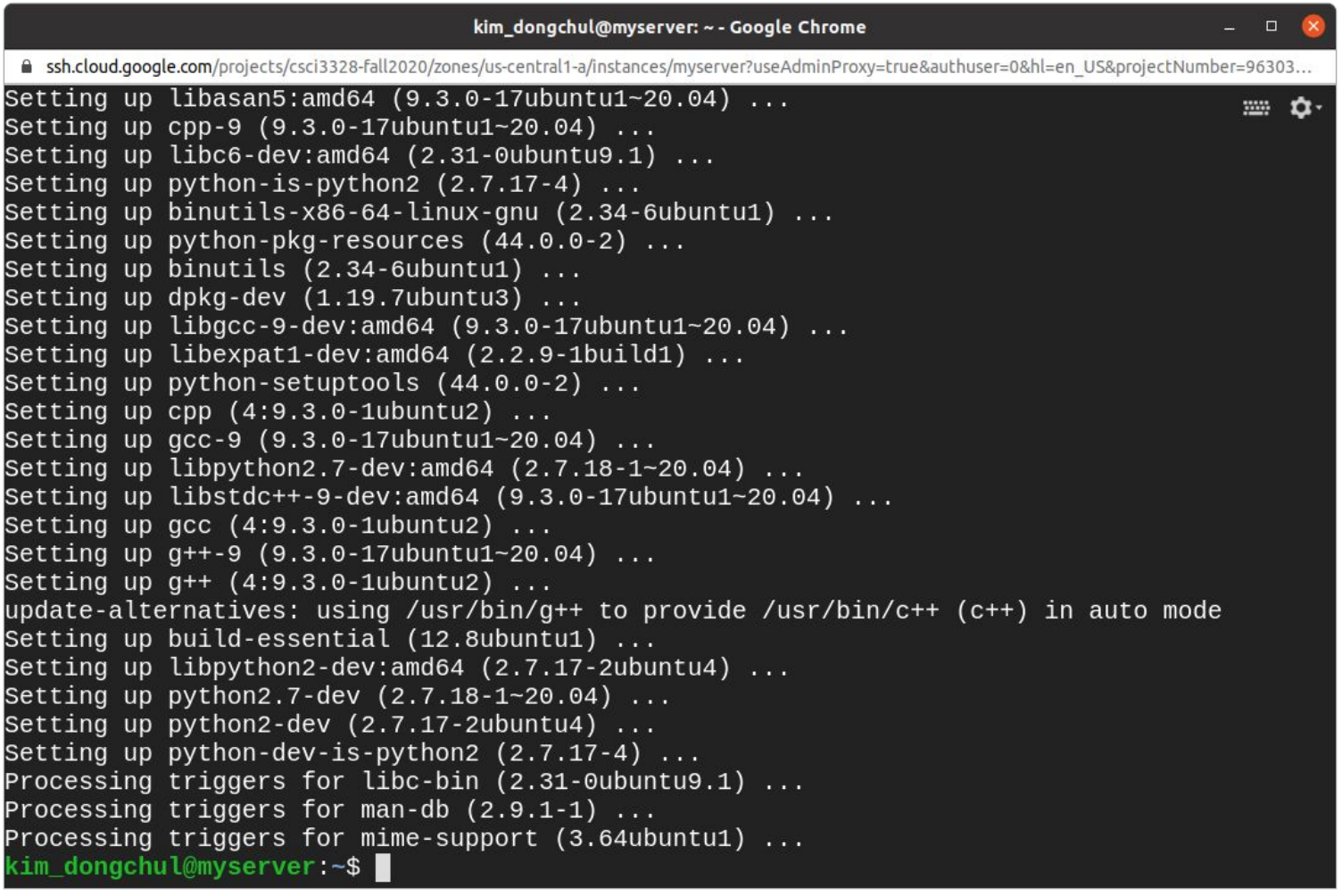
Enter Key

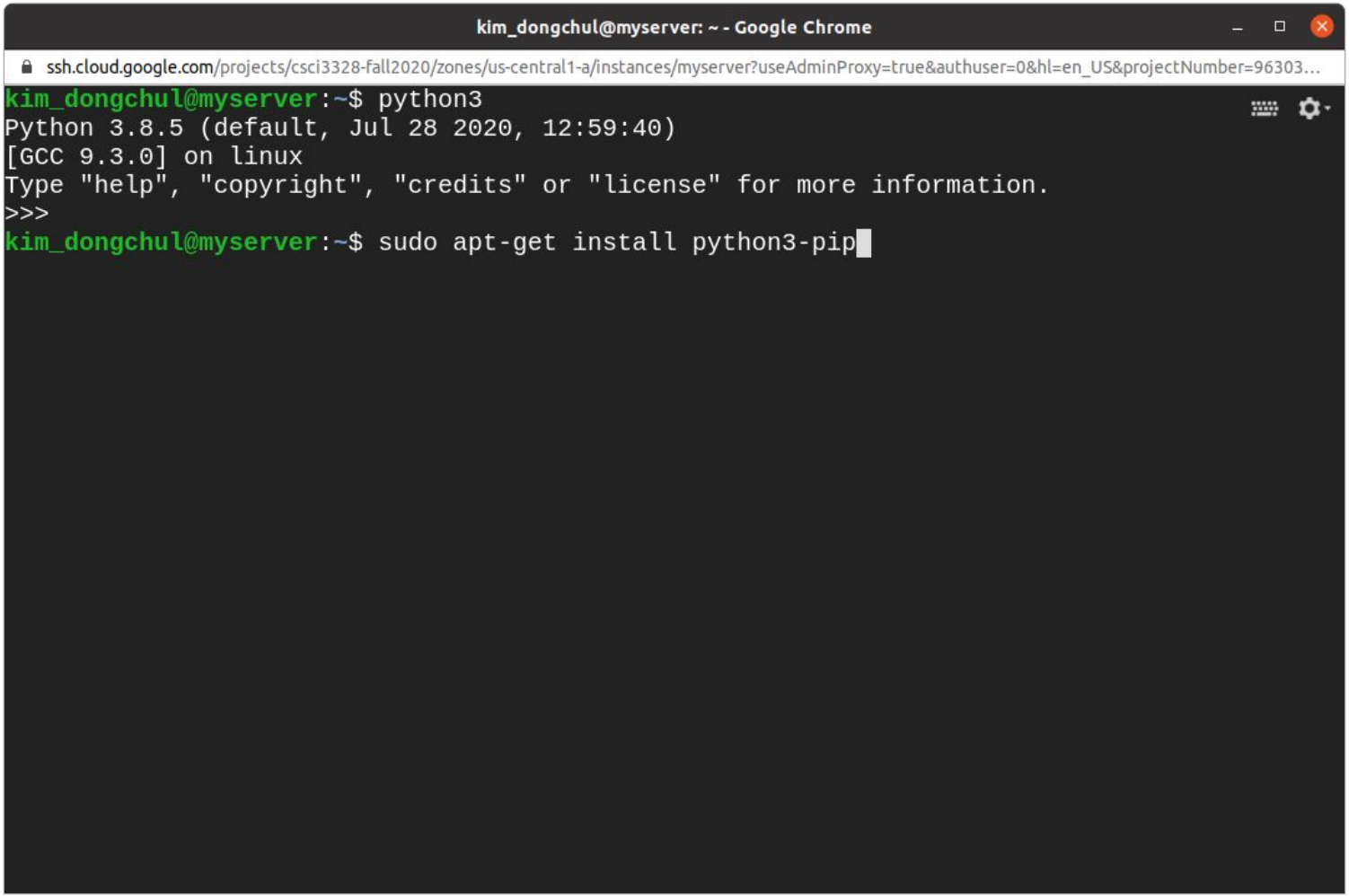
To exit,

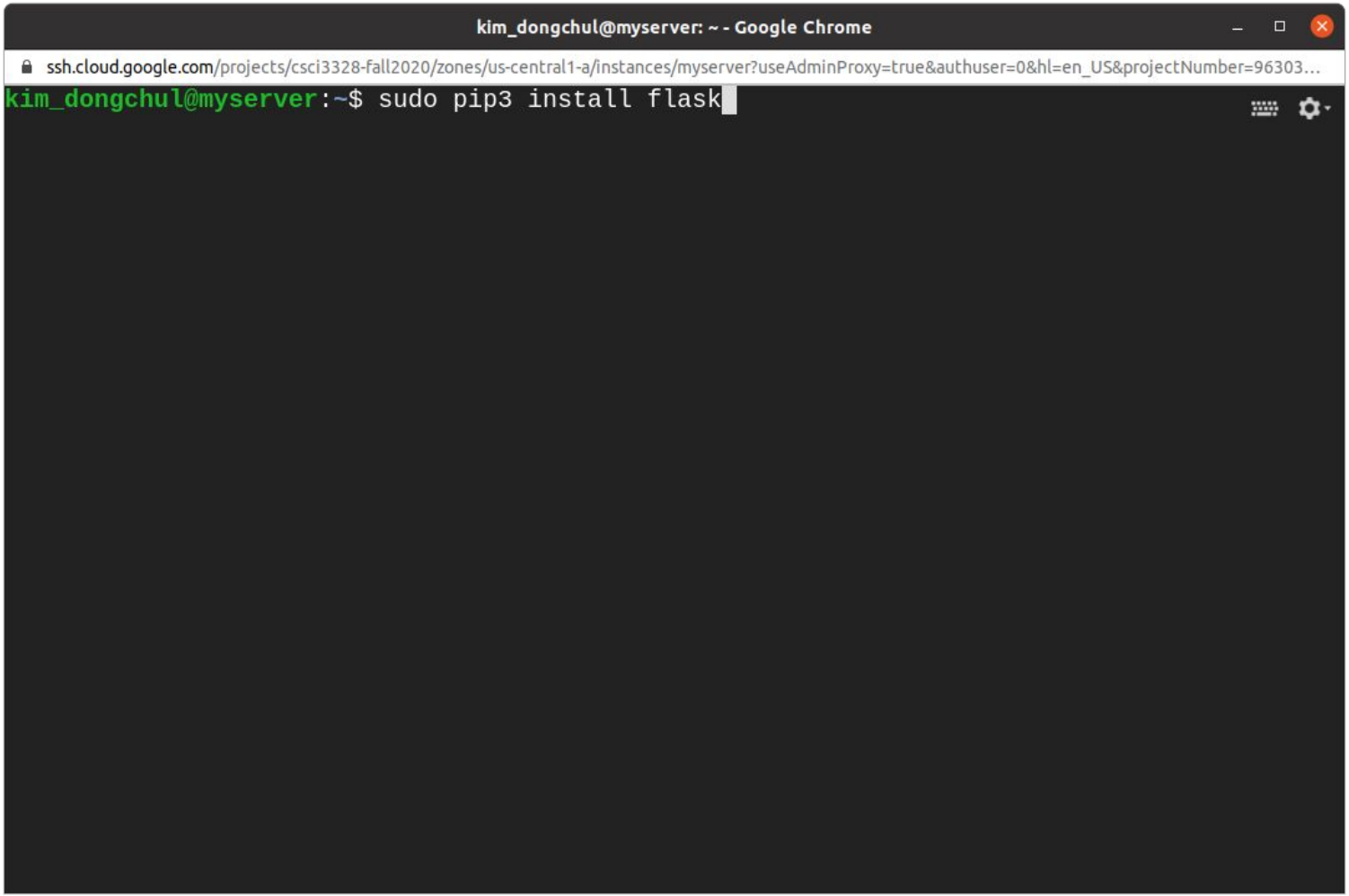
Ctrl + X

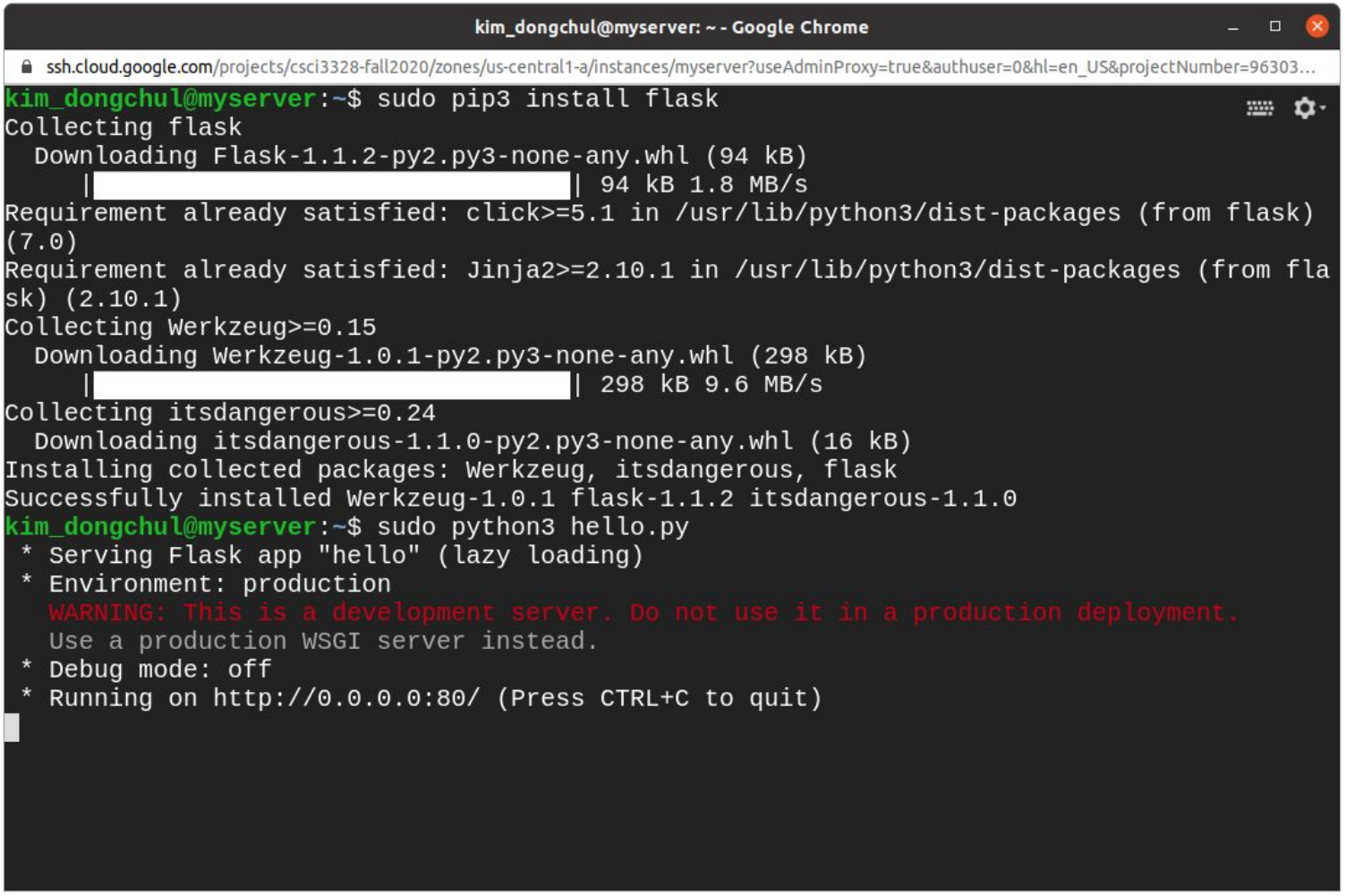


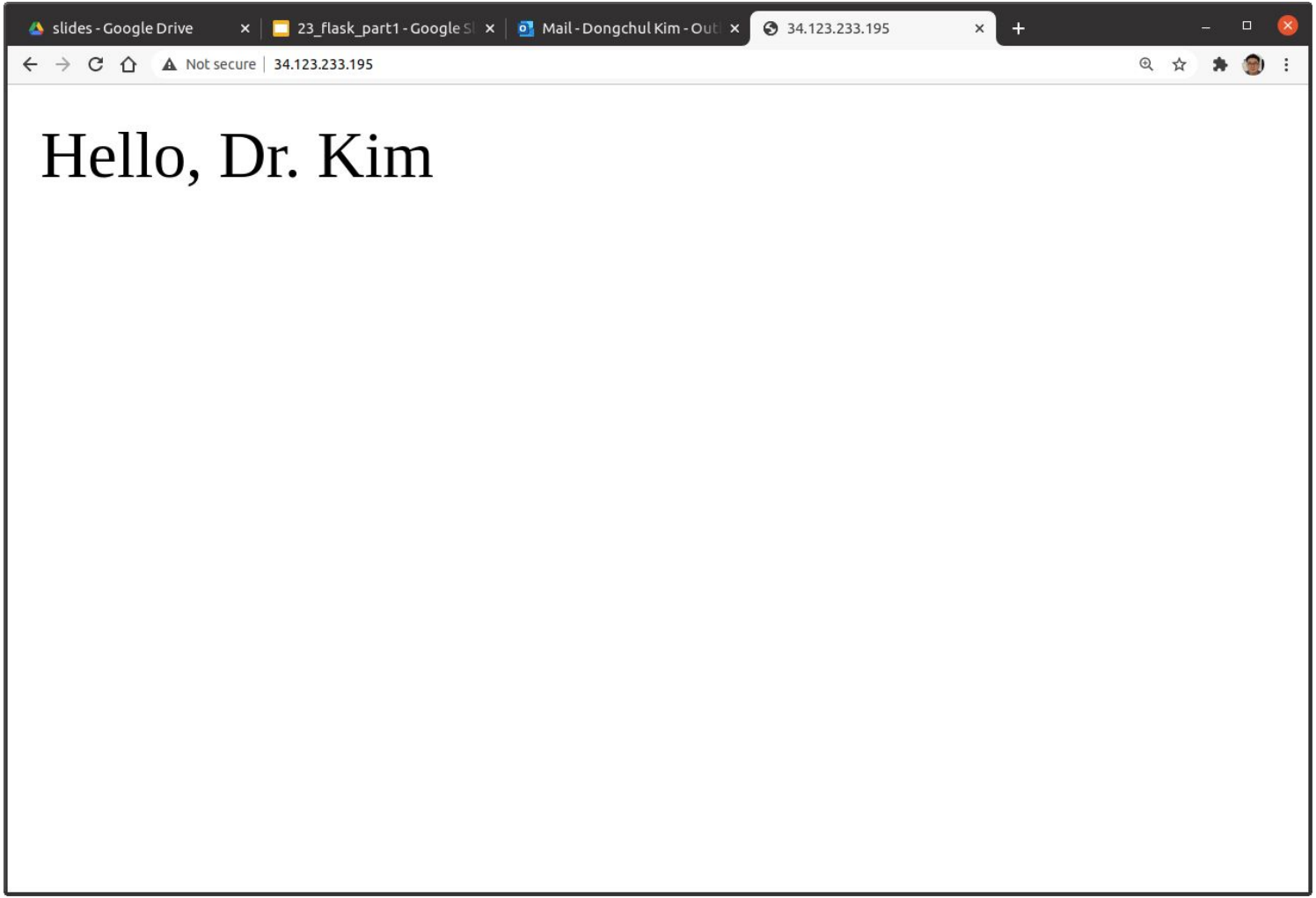

kim_dongchul@myserver: ~ - Google Chrome
ssh.cloud.google.com/projects/csci3328-fall2020/zones/us-central1-a/instances/myserver?useAdminProxy=true&authuser=0&hl=en_US&projectNumber=963032910043
kim_dongchul@myserver:~$ sudo apt-get install python-setuptools python-dev build-essential


kim_dongchul@myserver: ~ - Google Chrome
ssh.cloud.google.com/projects/csci3328-fall2020/zones/us-central1-a/instances/myserver?useAdminProxy=true&authuser=0&hl=en_US&projectNumber=96303...
Setting up libasan5:amd64 (9.3.0-17ubuntu1~20.04) ...
Setting up cpp-9 (9.3.0-17ubuntu1~20.04) ...
Setting up libc6-dev:amd64 (2.31-0ubuntu9.1) ...
Setting up python-is-python2 (2.7.17-4) ...
Setting up binutils-x86-64-linux-gnu (2.34-6ubuntu1) ...
Setting up python-pkg-resources (44.0.0-2) ...
Setting up binutils (2.34-6ubuntu1) ...
Setting up dpkg-dev (1.19.7ubuntu3) ...
Setting up libgcc-9-dev:amd64 (9.3.0-17ubuntu1~20.04) ...
Setting up libexpat1-dev:amd64 (2.2.9-1build1) ...
Setting up python-setuptools (44.0.0-2) ...
Setting up cpp (4:9.3.0-1ubuntu2) ...
Setting up gcc-9 (9.3.0-17ubuntu1~20.04) ...
Setting up libpython2.7-dev:amd64 (2.7.18-1~20.04) ...
Setting up libstdc++-9-dev:amd64 (9.3.0-17ubuntu1~20.04) ...
Setting up gcc (4:9.3.0-1ubuntu2) ...
Setting up g++-9 (9.3.0-17ubuntu1~20.04) ...
Setting up g++ (4:9.3.0-1ubuntu2) ...
update-alternatives: using /usr/bin/g++ to provide /usr/bin/c++ (c++) in auto mode
Setting up build-essential (12.8ubuntu1) ...
Setting up libpython2-dev:amd64 (2.7.17-2ubuntu4) ...
Setting up python2.7-dev (2.7.18-1~20.04) ...
Setting up python2-dev (2.7.17-2ubuntu4) ...
Setting up python-dev-is-python2 (2.7.17-4) ...
Processing triggers for libc-bin (2.31-0ubuntu9.1) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for mime-support (3.64ubuntu1) ...
kim_dongchul@myserver:~$


kim_dongchul@myserver: ~ - Google Chrome
ssh.cloud.google.com/projects/csci3328-fall2020/zones/us-central1-a/instances/myserver?useAdminProxy=true&authuser=0&hl=en_US&projectNumber=96303...
kim_dongchul@myserver:~$ python3
Python 3.8.5 (default, Jul 28 2020, 12:59:40)
[GCC 9.3.0] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>>
kim_dongchul@myserver:~$ sudo apt-get install python3-pip


kim_dongchul@myserver: ~ - Google Chrome
ssh.cloud.google.com/projects/csci3328-fall2020/zones/us-central1-a/instances/myserver?useAdminProxy=true&authuser=0&hl=en_US&projectNumber=96303...
kim_dongchul@myserver:~$ sudo pip3 install flask


kim_dongchul@myserver: ~ - Google Chrome
ssh.cloud.google.com/projects/csci3328-fall2020/zones/us-central1-a/instances/myserver?useAdminProxy=true&authuser=0&hl=en_US&projectNumber=96303...
kim_dongchul@myserver:~$ sudo pip3 install flask
Collecting flask
Downloading Flask-1.1.2-py2.py3-none-any.whl (94 kB)
| 94 kB 1.8 MB/s
Requirement already satisfied: click>=5.1 in /usr/lib/python3/dist-packages (from flask)
(7.0)
Requirement already satisfied: Jinja2>=2.10.1 in /usr/lib/python3/dist-packages (from fla
sk) (2.10.1)
Collecting Werkzeug>=0.15
Downloading Werkzeug-1.0.1-py2.py3-none-any.whl (298 kB)
| 298 kB 9.6 MB/s
Collecting itsdangerous>=0.24
Downloading itsdangerous-1.1.0-py2.py3-none-any.whl (16 kB)
Installing collected packages: Werkzeug, itsdangerous, flask
Successfully installed Werkzeug-1.0.1 flask-1.1.2 itsdangerous-1.1.0
kim_dongchul@myserver:~$ sudo python3 hello.py
* Serving Flask app "hello" (lazy loading)
* Environment: production
WARNING: This is a development server. Do not use it in a production deployment.
Use a production WSGI server instead.
* Debug mode: off
* Running on http://0.0.0.0:80/ (Press CTRL+C to quit)


slides - Google Drive
23_flask_part1 - Google Sl
Mail - Dongchul Kim - Outl
34.123.233.195
Not secure | 34.123.233.195
Hello, Dr. Kim

Lab 24

Set up a compute engine on Google Cloud and deploy a basic Flask application that displays your name on a webpage. Please provide a screenshot of the web browser showing your Flask application's output.

Standalone WSGI Containers

```
sudo python3 hello.py &
```

is not enough if you think a production. While it is lightweight and easy to use, Flask's built-in server is not suitable for production as it doesn't scale well and by default serves only one request at a time.

There are popular servers written in Python that contain WSGI applications and serve HTTP. These servers stand alone when they run. For example,

```
https://gunicorn.org/
```

HTTPS

If you expect more secure application, you can use https. Here is a good article for it.

https://blog.miguelgrinberg.com/post/running-your-flask-application-over-https