

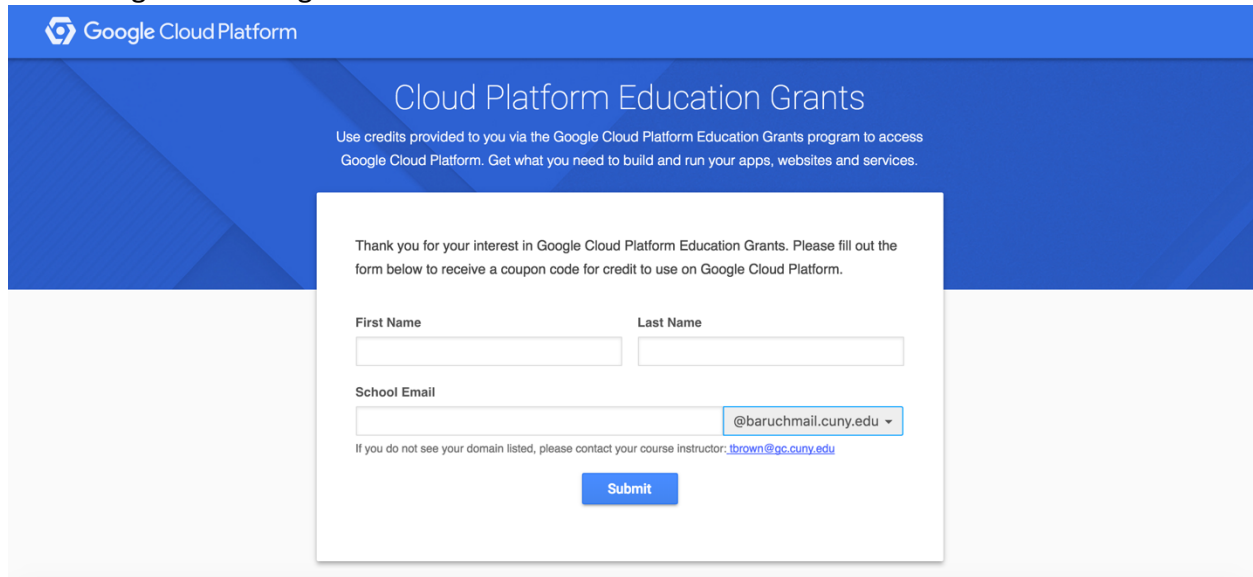
Setting up a Compute Engine VM on the Google Cloud Platform

By: Ammad Khan

The following are the list of steps to create a VM on Google cloud platform

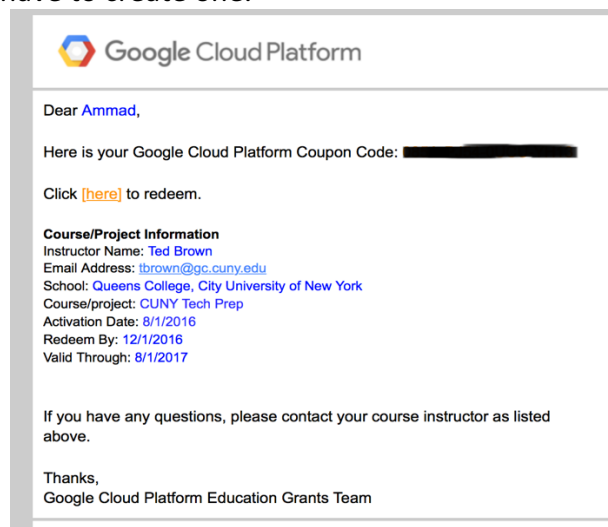
Part 1: Receiving credits and creation of account

- First create your account on the provided link (<http://goo.gl/gcpedu/d8K7RY>)
- Note this will give you \$50 dollar credit for your Google cloud platform which will be registered using the schools email.



The screenshot shows the Google Cloud Platform Education Grants registration page. It features a blue header with the Google Cloud Platform logo and the text 'Cloud Platform Education Grants'. Below the header, there is a white box containing a form. The form asks for the user's First Name, Last Name, and School Email. The School Email field has a dropdown menu showing '@baruchmail.cuny.edu'. A 'Submit' button is at the bottom of the form. Above the form, there is a message: 'Thank you for your interest in Google Cloud Platform Education Grants. Please fill out the form below to receive a coupon code for credit to use on Google Cloud Platform.'

- After inputting your details, you will be receiving, email verification link on your school email id. After verification of our email address you will receive the link to the cloud platform. You have to use your google account to login to the Google cloud platform. If you don't have one you have to create one.



The screenshot shows an email from the Google Cloud Platform Education Grants Team. The email is addressed to 'Ammad' and contains a coupon code for Google Cloud Platform. The coupon code is redacted with a black box. The email also includes course/project information, instructor name, email address, school, course/project, activation date, redeem by date, and valid through date. The email concludes with a thank you and contact information for the Google Cloud Platform Education Grants Team.

Education grants

Please enter the coupon code provided to you via the Google Cloud Platform Education Grants program to receive credit for Google Cloud Platform. Get what you need to build and run your apps, websites and services.

Coupon code

085 RJ54 0000 TH13

Credit amount	Expiration date	Course
\$50.00	Aug 16, 2017	CUNY Tech Prep

Google Cloud Platform educational grants credits terms and conditions

You, on behalf of yourself and the organization you represent ("You") agree to these terms and conditions:


The credit is valid for Google Cloud Platform products and is subject to Your acceptance of the applicable Google Cloud Platform License Agreement and any other applicable terms of service. The credit is non-transferable and may not be sold or bartered. Unused credit expires on the date indicated on the media conveying the promotion code. The credit may be issued in increments as You use the credit over the period of time during which the credit is valid. Offer void where prohibited by law.

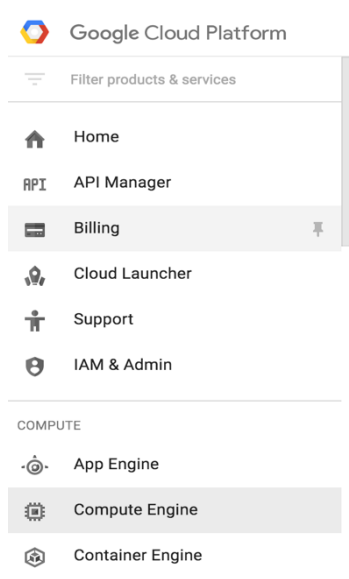
Additional terms for employees of public educational institutions

Accept and continue

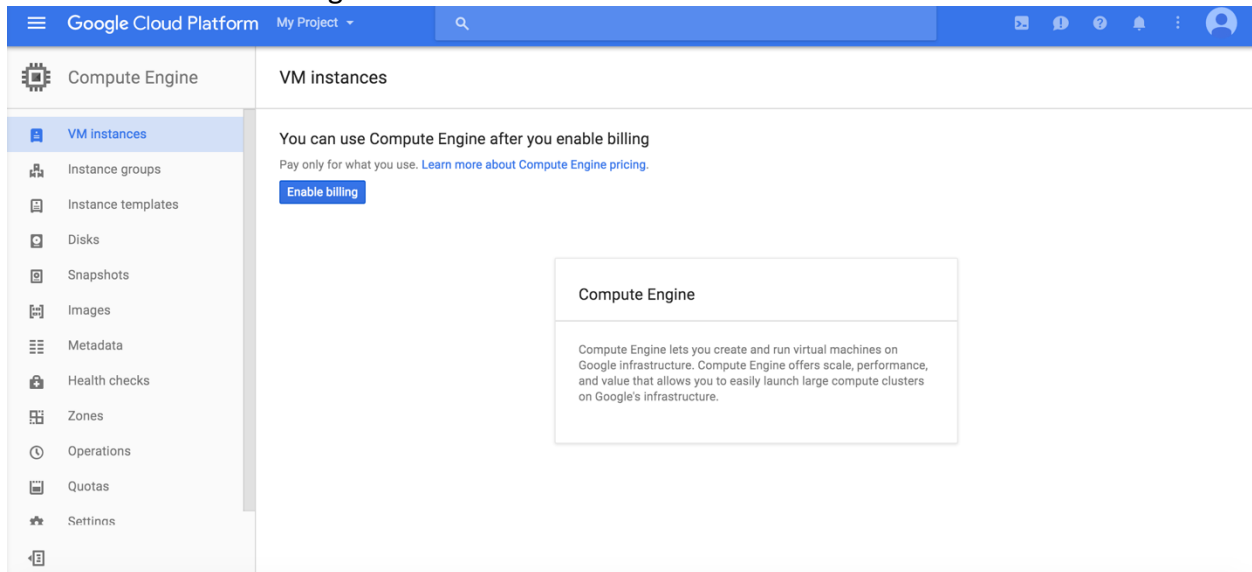
Clear

Part 2: Creating a Project and Link the credits to Billing

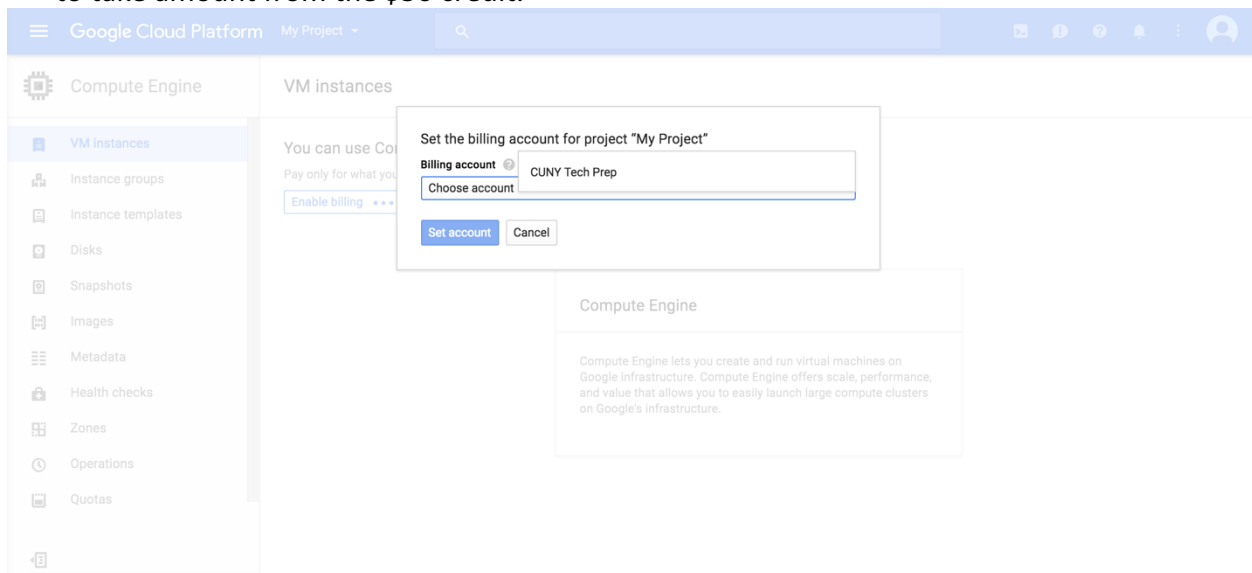
- The next step is to link the received credit to the Compute Engine Billing. Click the  icon on the left corner this will open a menu from here click the compute engine.



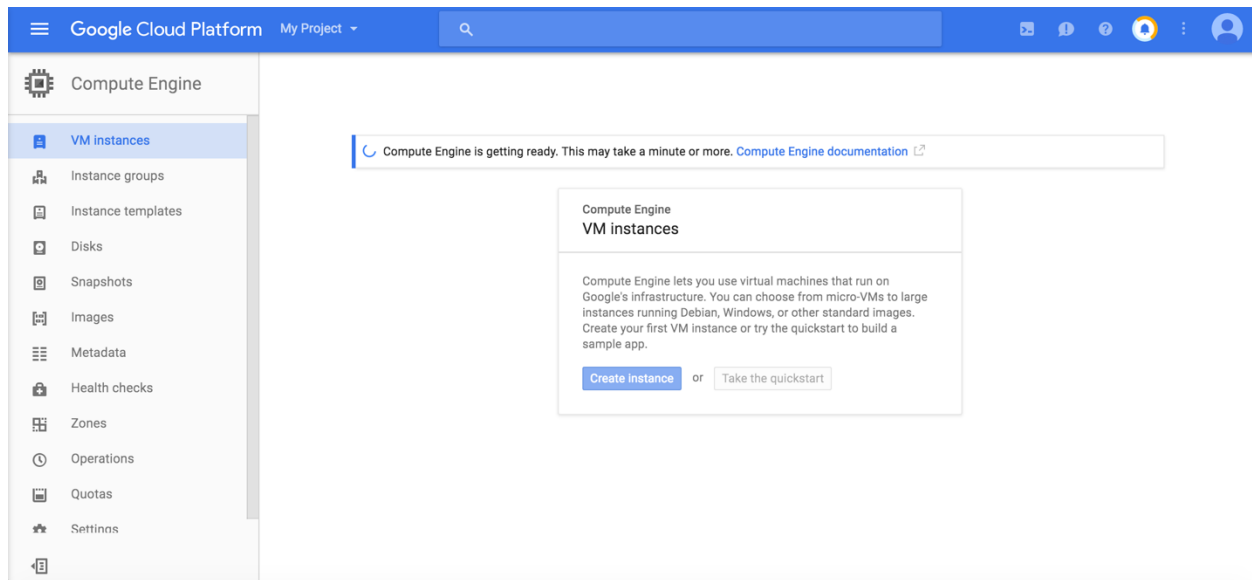
- You will be getting the following Google Compute Engine VM Console. Here first step is to click the enable billing button.



- After clicking the enable billing you will be getting the following option to select the billing account for your VM instance. Select the "CUNY TECH PREP". This will link the VM instance to take amount from the \$50 credit.



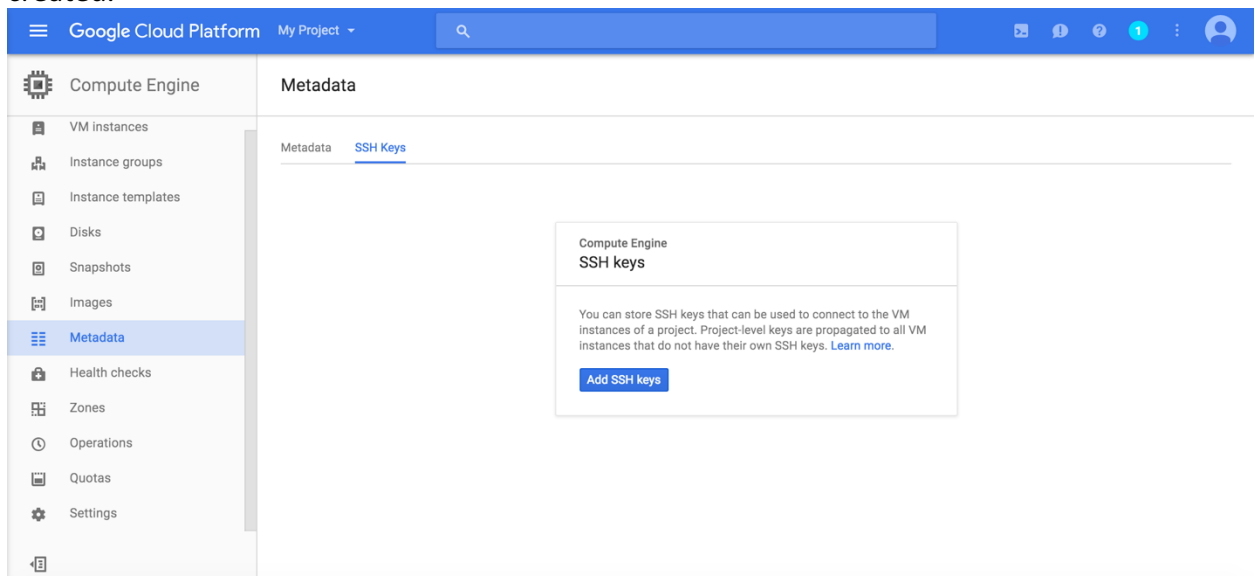
- Wait for the Compute Engine to get ready. And you will be getting the message that you can create a VM instance. But before creating an VM instance we have to create SSH keys to connect to the VM instance.



Part 3. Create SSH Keys

SSH keys are keys used to connect to the remote machine securely. We are creating SSH keys to connect securely to our VM instance.

- Go the metadata from the left sidebar you will notice that currently there are no SSH key created.



- In order to create an SSH Key use the following command in the terminal window

```
ssh-keygen -t rsa -f ~/.ssh/[KEY_FILE_NAME] -C [USERNAME]
```



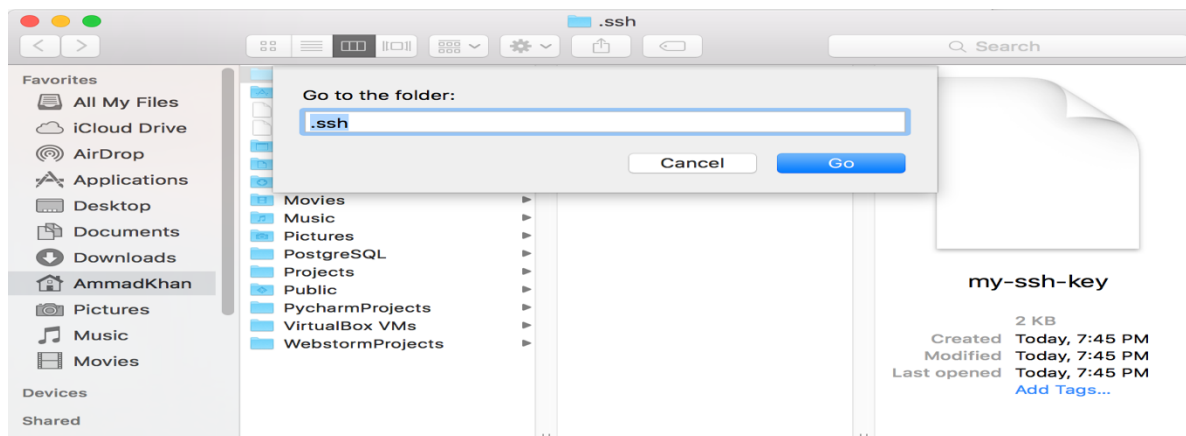
```

AmmadKhan — -bash — 80x24
Last login: Tue Aug 16 19:18:03 on ttys000
Ammads-MBP:~ AmmadKhan$ ssh-keygen -t rsa -f ~/.ssh/my-ssh-key -C ammadrkx
Generating public/private rsa key pair.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /Users/AmmadKhan/.ssh/my-ssh-key.
Your public key has been saved in /Users/AmmadKhan/.ssh/my-ssh-key.pub.
The key fingerprint is:
SHA256:xi0e4/qY4BW1cX3m7rL9+rvWKohFNja3lEoQ3iP5vXs ammadrkx
The key's randomart image is:
+---[RSA 2048]-----+
|
| ..
| ..+
| 0 =.+ 0.
| . = oB*+
| . o S=. *0.
| 0 + .0...
| . . + 0 .0 .
| . o + .. oo..E .
| . +oo .o=B*+
|
+---[SHA256]-----+
Ammads-MBP:~ AmmadKhan$

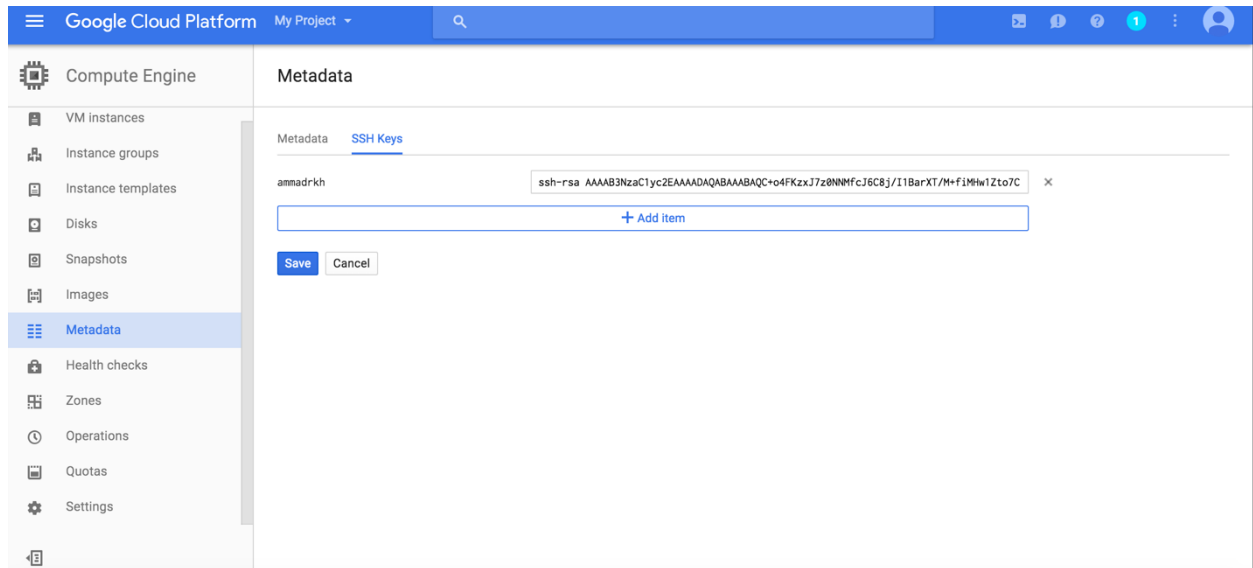
```

For passphrase its up to you to set it up or leave it black.

- Next step is to add the SSH-key that is generated on your local system to your Google cloud platform Compute Engine. This will ensure only your local machine is connected to the VM instance that you created.
- Note that the key generated is in .ssh folder in your user directory which is a hidden folder. You can access the folder in mac by going to finder and select go option from the top bar and go to folder and type .ssh



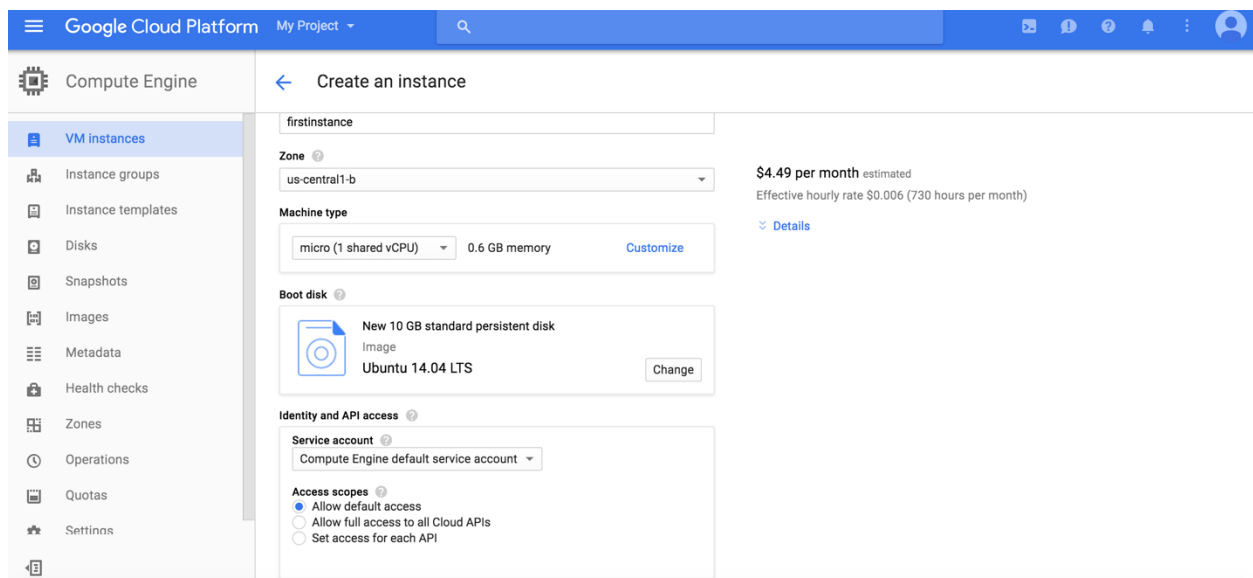
- Open the file “my-ssh-key.pub” in text-editor and copy into the SSH keys console on Google Cloud Platform and add the key. **MAKE SURE IT IS THE PUBLIC key**



Part 4. Create the instance

The next step is to go on the VM instance option. And click create instance. After creating the instance, you will be getting the option of choosing the settings. Choose the following settings

- Change machine type from “1vCPU” to “micro (1 shared vCPU)”. **This will ensure that you credit will last more. As 1vCPU cost more.**
- Put **check on** HTTP and HTTPS traffic.
- Change Boot disk from “Debian GNU/Linux 8(jessie)” to “**Ubuntu 14.04 LTS**”



Step 5. Login to the instance via SSH on your Host machines command line and the SSH key generated in step 3

Connect to the VM instance. There are two ways to connect to the VM instance.

- First way is to click connect ssh located in the right end of the instance row.

Google Cloud Platform My Project

Compute Engine VM instances CREATE INSTANCE CREATE INSTANCE GROUP RESET START STOP DELETE

Filter by label or name Columns Labels Recommendations

CPU utilization 1 hour 6h 12h 1 day 2d 4d 7d 14d 30d

CPU % CPU

There is no data for this chart.

Name	Zone	Machine type	Recommendation	In use by	Internal IP	External IP	Connect
firstinstance	us-central1-b	1 vCPU, 0.6 GB			10.128.0.2	8.34.218.195	SSH

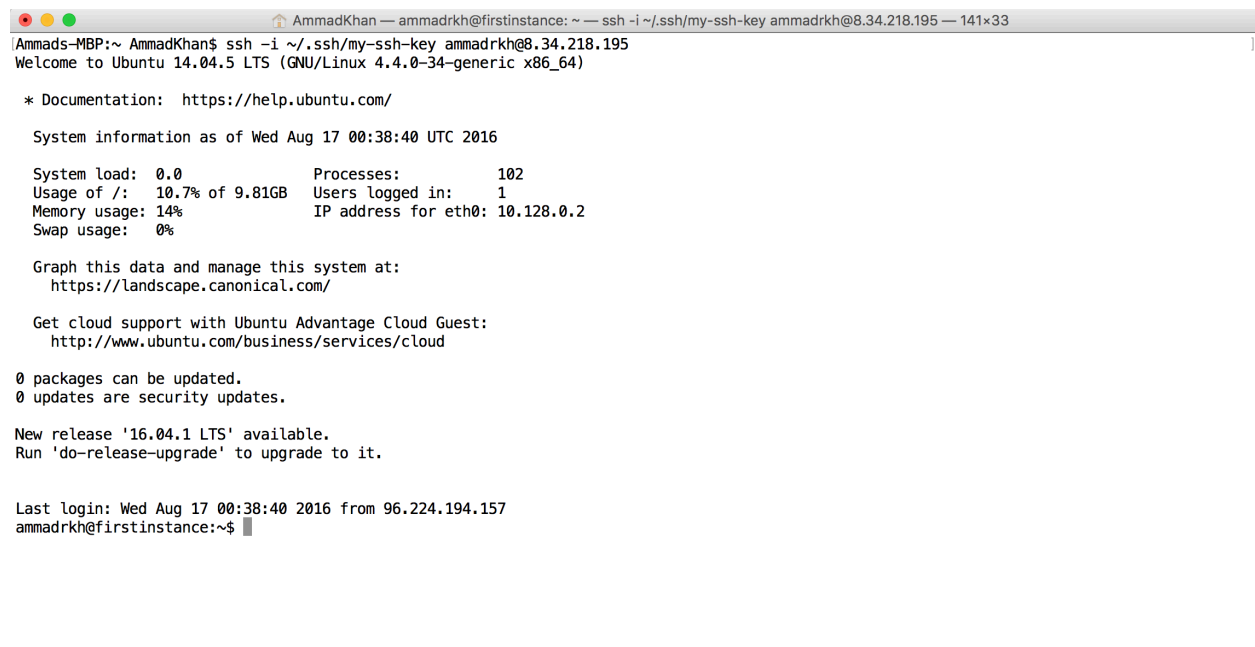
```
ammadrkh@firstinstance: ~  
https://ssh.cloud.google.com/projects/virtual-plating-140200/zones/us-central1-b/instances/firstinstance?authuser=0&hl=en_US&...  
Connected, host fingerprint: ssh-rsa 2048 A8:32:54:23:BA:25:94:17:5D:7F:DB:83:EB:29:FB:1D  
Welcome to Ubuntu 14.04.5 LTS (GNU/Linux 4.4.0-34-generic x86_64)  
  
* Documentation: https://help.ubuntu.com/  
  
System information as of Wed Aug 17 00:06:34 UTC 2016  
  
System load: 0.08      Memory usage: 9%      Processes:      76  
Usage of /: 10.2% of 9.81GB  Swap usage: 0%      Users logged in: 0  
  
Graph this data and manage this system at:  
https://landscape.canonical.com/  
  
Get cloud support with Ubuntu Advantage Cloud Guest:  
http://www.ubuntu.com/business/services/cloud  
  
0 packages can be updated.  
0 updates are security updates.  
  
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.  
  
ammadrkh@firstinstance:~$
```

- 2nd (**BETTER**) way is to login from the terminal window.
- First you need to change the permission of the key file from public to private using the following syntax

```
chmod 400 ~/.ssh/my-ssh-key
```

- Then connect to you VM instance with the following address. You can get the public IP of VM instance from the VM page which is labelled as **“External IP”**.

```
ssh -i ~/.ssh/my-gcloud-key googleID@pubic_IP_VM_Instance
```

A terminal window showing an SSH connection from a local machine to a VM instance. The terminal title bar indicates the user is 'AmmadKhan' and the session is 'ssh -i ~/.ssh/my-ssh-key ammadrkx@8.34.218.195'. The prompt shows the user is logged in as 'AmmadKhan' on a machine named 'Ammads-MBP'. The terminal output displays the Ubuntu 14.04.5 LTS welcome message, system information, and update notifications. The system information shows a system load of 0.0, 10.7% disk usage, 14% memory usage, and 102 processes. The terminal also shows the last login time and the user's current shell prompt.

```
Ammads-MBP:~ AmmadKhan$ ssh -i ~/.ssh/my-ssh-key ammadrkx@8.34.218.195
Welcome to Ubuntu 14.04.5 LTS (GNU/Linux 4.4.0-34-generic x86_64)

* Documentation:  https://help.ubuntu.com/

System information as of Wed Aug 17 00:38:40 UTC 2016

System load:  0.0               Processes:    102
Usage of /:   10.7% of 9.81GB   Users logged in: 1
Memory usage: 14%              IP address for eth0: 10.128.0.2
Swap usage:   0%

Graph this data and manage this system at:
https://landscape.canonical.com/

Get cloud support with Ubuntu Advantage Cloud Guest:
http://www.ubuntu.com/business/services/cloud

0 packages can be updated.
0 updates are security updates.

New release '16.04.1 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

Last login: Wed Aug 17 00:38:40 2016 from 96.224.194.157
ammadrkx@firstinstance:~$
```

You are now connected to your VM instance.