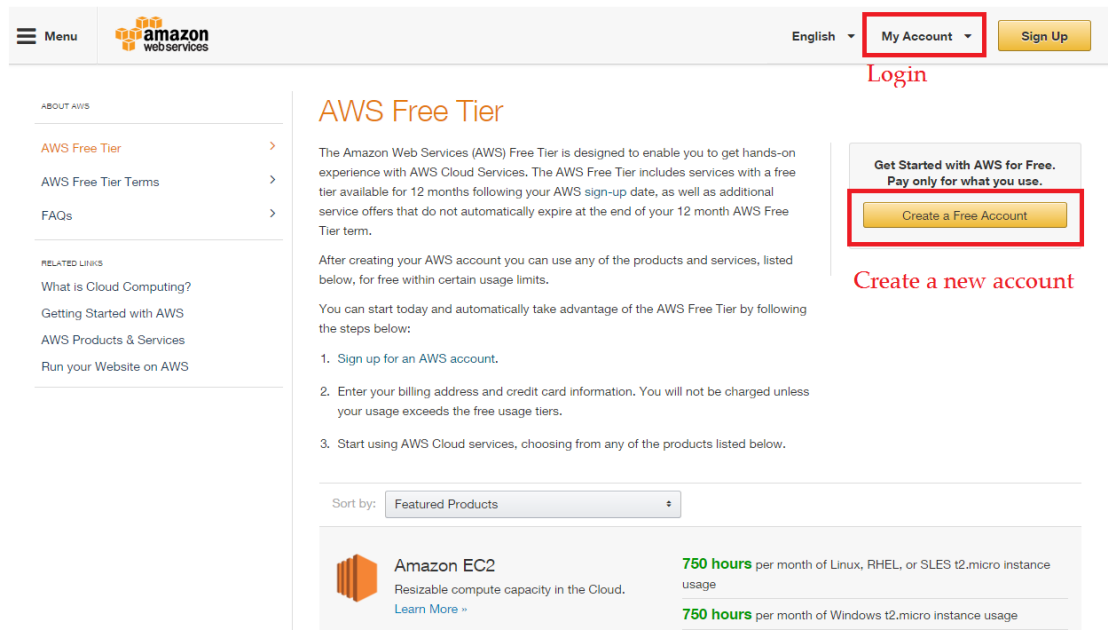
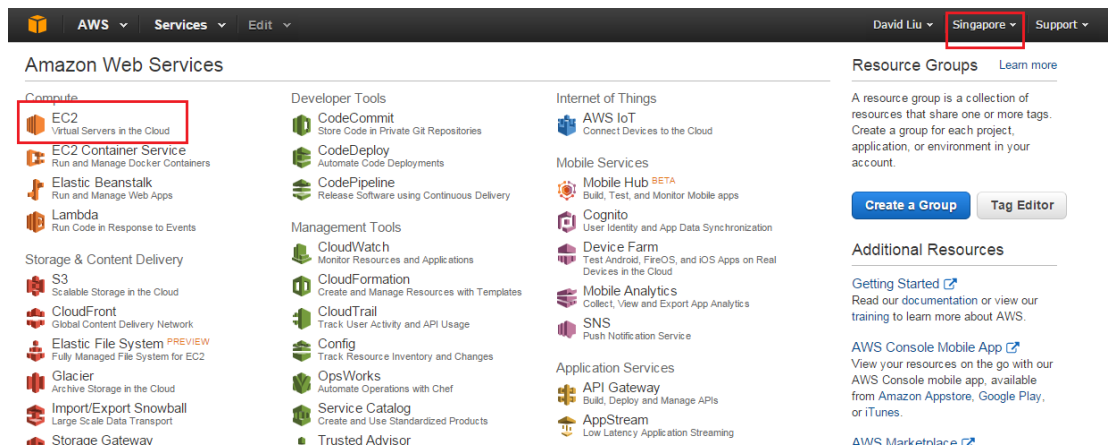


Launch instances with Amazon AWS:

1. Go to <http://aws.amazon.com/free> to create a free account. If already registered, go to “My Account”.



2. Change the region at the top right corner. Then choose EC2.



3. Click Launch Instance.

4. Choose Ubuntu Server 14.04 LTS (HVM).
5. Choose t2.micro as the machine type. Then click “Review and Launch”.

Step 2: Choose an Instance Type

Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. Instances are virtual servers that can run applications. They have varying combinations of CPU, memory, storage, and networking capacity, and give you the flexibility to choose the appropriate mix of resources for your applications. [Learn more](#) about instance types and how they can meet your computing needs.

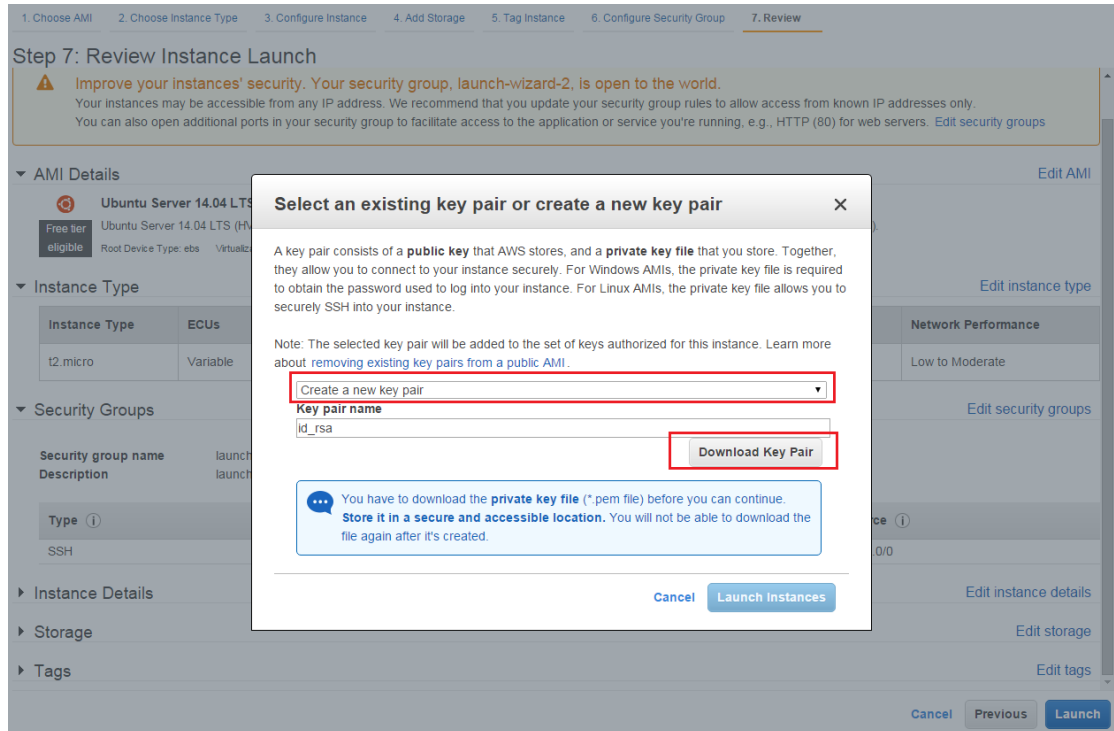
Filter by: All instance types Current generation Show/Hide Columns

Currently selected: t2.micro (Variable ECUs, 1 vCPUs, 2.5 GHz, Intel Xeon Family, 1 GiB memory, EBS only)

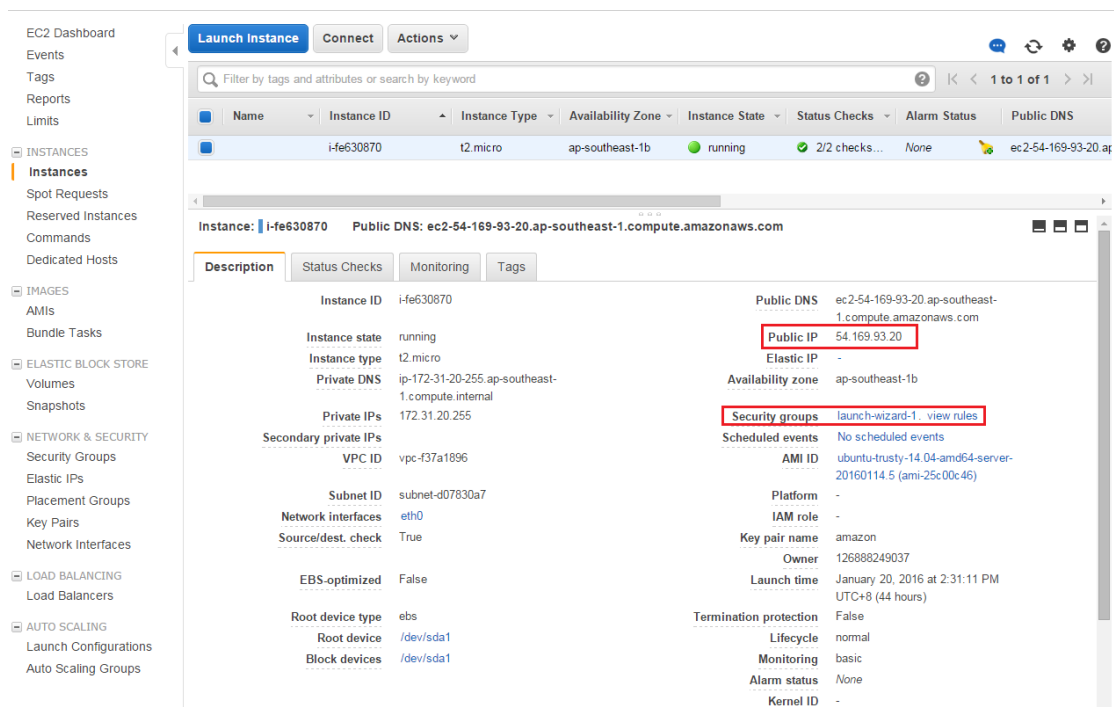
	Family	Type	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
<input type="checkbox"/>	General purpose	t2.nano	1	0.5	EBS only	-	Low to Moderate
<input checked="" type="checkbox"/>	General purpose	t2.micro Free tier eligible	1	1	EBS only	-	Low to Moderate
<input type="checkbox"/>	General purpose	t2.small	1	2	EBS only	-	Low to Moderate
<input type="checkbox"/>	General purpose	t2.medium	2	4	EBS only	-	Low to Moderate
<input type="checkbox"/>	General purpose	t2.large	2	8	EBS only	-	Low to Moderate
<input type="checkbox"/>	General purpose	m4.large	2	8	EBS only	Yes	Moderate
<input type="checkbox"/>	General purpose	m4.xlarge	4	16	EBS only	Yes	High
<input type="checkbox"/>	General purpose	m4.2xlarge	8	32	EBS only	Yes	High
<input type="checkbox"/>	General purpose	m4.4xlarge	16	64	EBS only	Yes	High
<input type="checkbox"/>	General purpose	m4.10xlarge	40	160	EBS only	Yes	10 Gigabit
<input type="checkbox"/>	General purpose	m3.medium	1	3.75	1 x 4 (SSD)	-	Moderate

Cancel Previous **Review and Launch** Next: Configure Instance Details

6. When pop up the key pair window, choose “Create a new key pair”. Input the file name and click “Download Key Pair” to download the private key file.

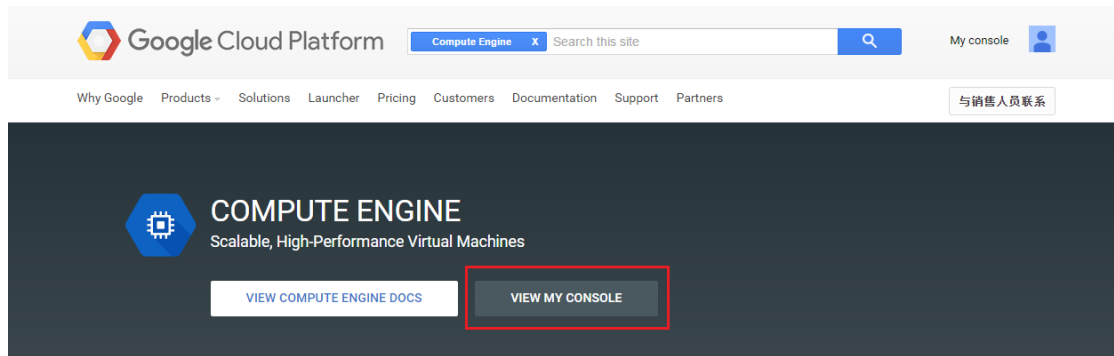


- After launching the instance, select the instance to check details like Public IP and Security Groups.



Launch instances with Google Compute Engine:

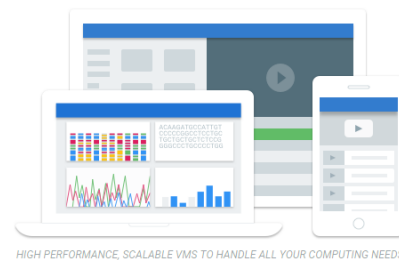
- Go to <https://cloud.google.com/compute/> and click "View My Console".



High-Performance, Scalable VMs

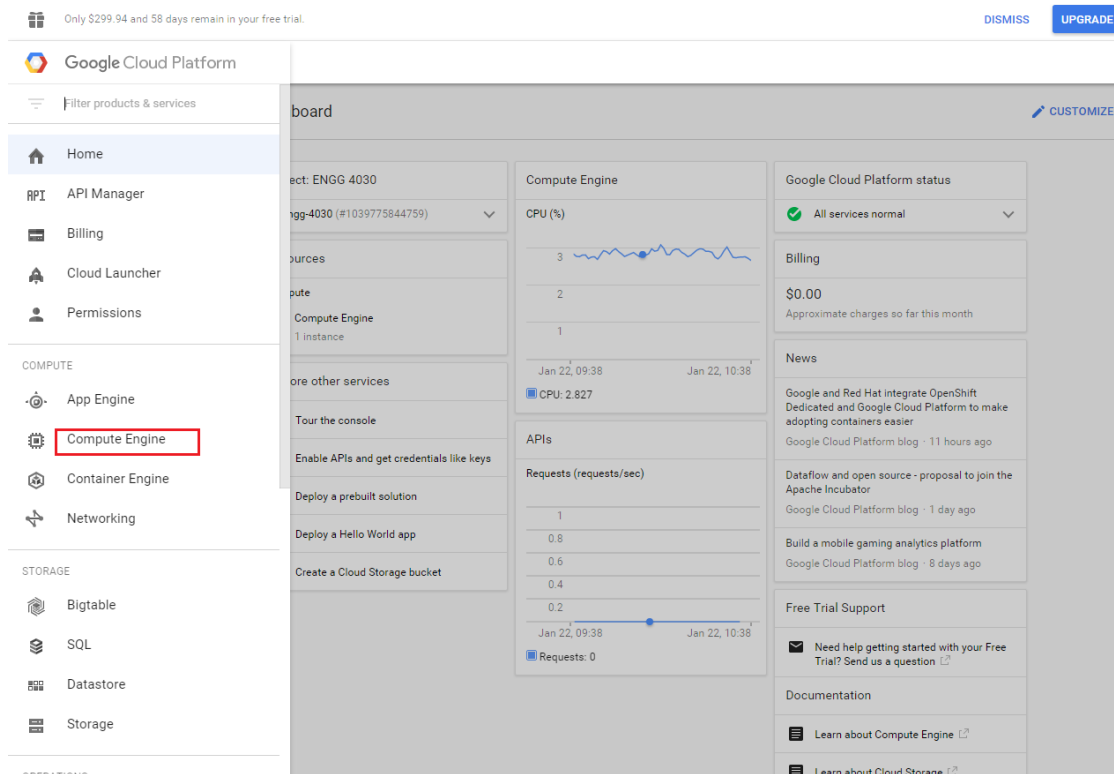
Google Compute Engine delivers virtual machines running in Google's innovative data centers and worldwide fiber network. Compute Engine's tooling and workflow support **enable scaling from single instances to global**, load-balanced cloud computing.

Compute Engine's **VMs boot quickly**, come with persistent disk storage, deliver consistent performance and are available in many configurations including predefined sizes or the option to **create Custom Machine Types optimized for your specific needs**. Flexible pricing and automatic sustained use discounts make Compute Engine the leader in price/performance.

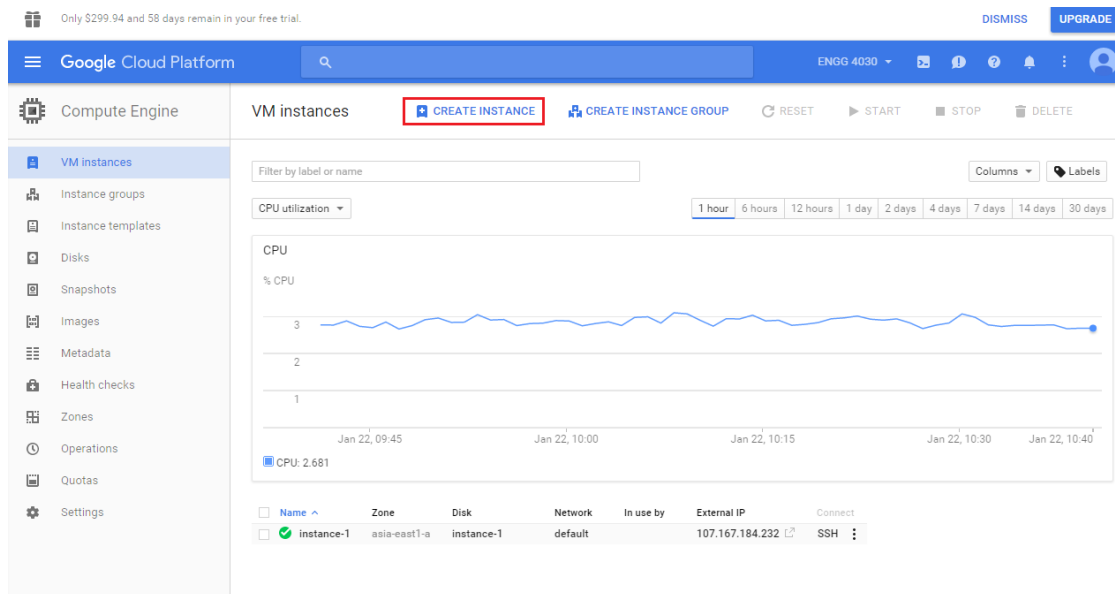


HIGH PERFORMANCE, SCALABLE VMs TO HANDLE ALL YOUR COMPUTING NEEDS

2. Choose "Compute Engine".



3. Choose Create Instance.



4. Set Zone to be “asia-east”, Boot disk to be Ubuntu 14.04 LTS. Allow HTTP/HTTPS and input your public key.

Compute Engine

Create an instance

Name

Zone

Machine type 3.75 GB memory [Customize](#)

[Upgrade your account](#) to create instances with up to 32 cores

Boot disk

Image [Change](#)

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

☒ Allow HTTP traffic

☒ Allow HTTPS traffic

Project access ☐ Allow API access to all Google Cloud services in the same project. [Learn more](#)

Management Disks Networking Access & security

SSH Keys

Per-instance SSH keys override project-level keys. [Learn more about using SSH keys.](#)

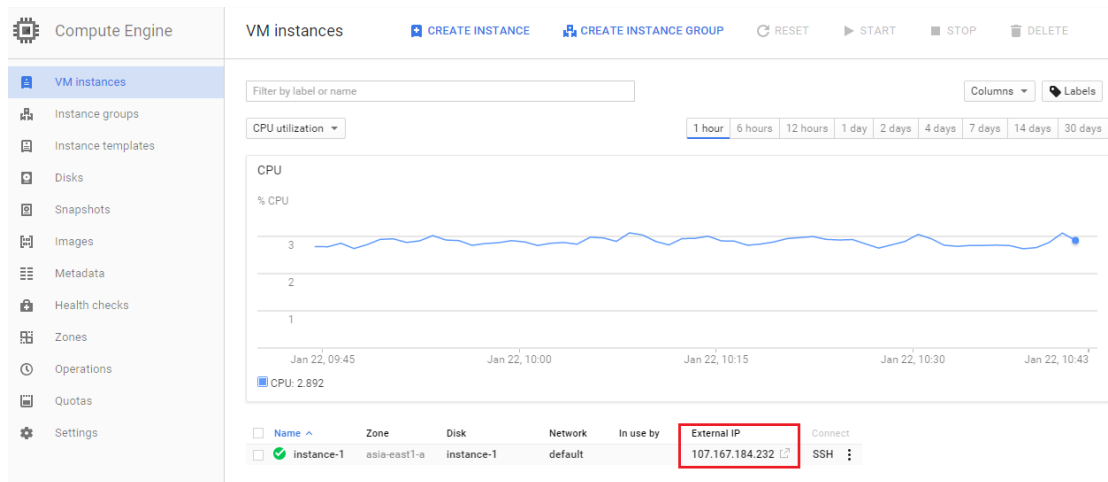
Username [Add item](#)

\$28.50 per month estimated

Effective hourly rate \$0.039 (730 hours per month)

[Details](#)

5. Select the instance you created, and keep a record of the external IP.

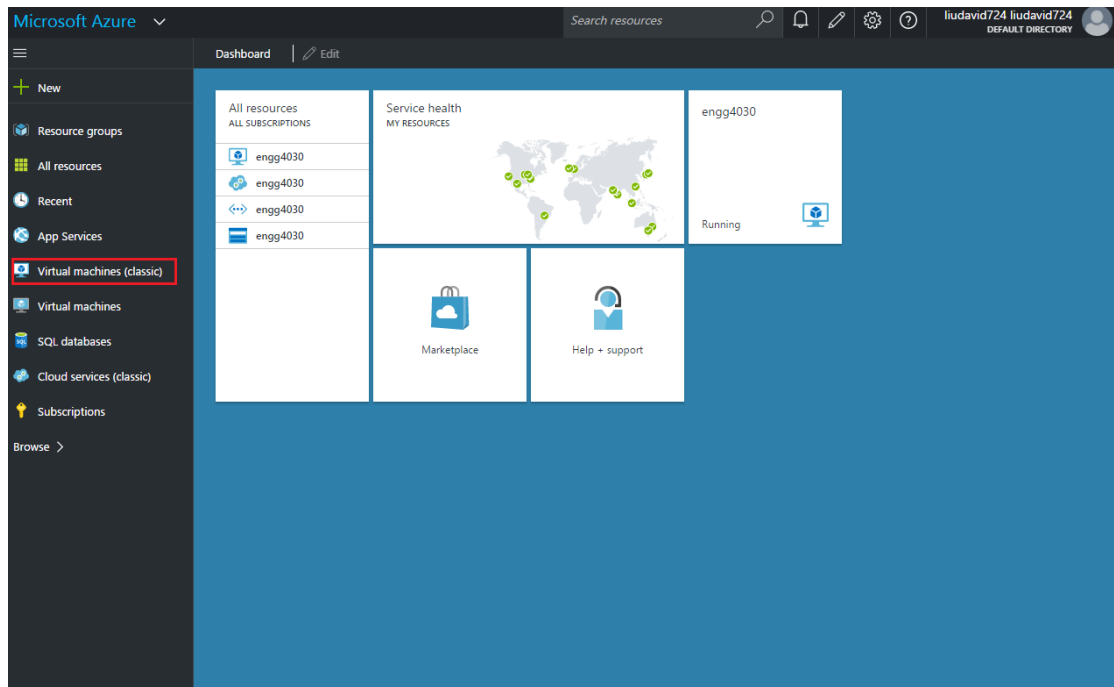


Launch instances with Microsoft Azure:

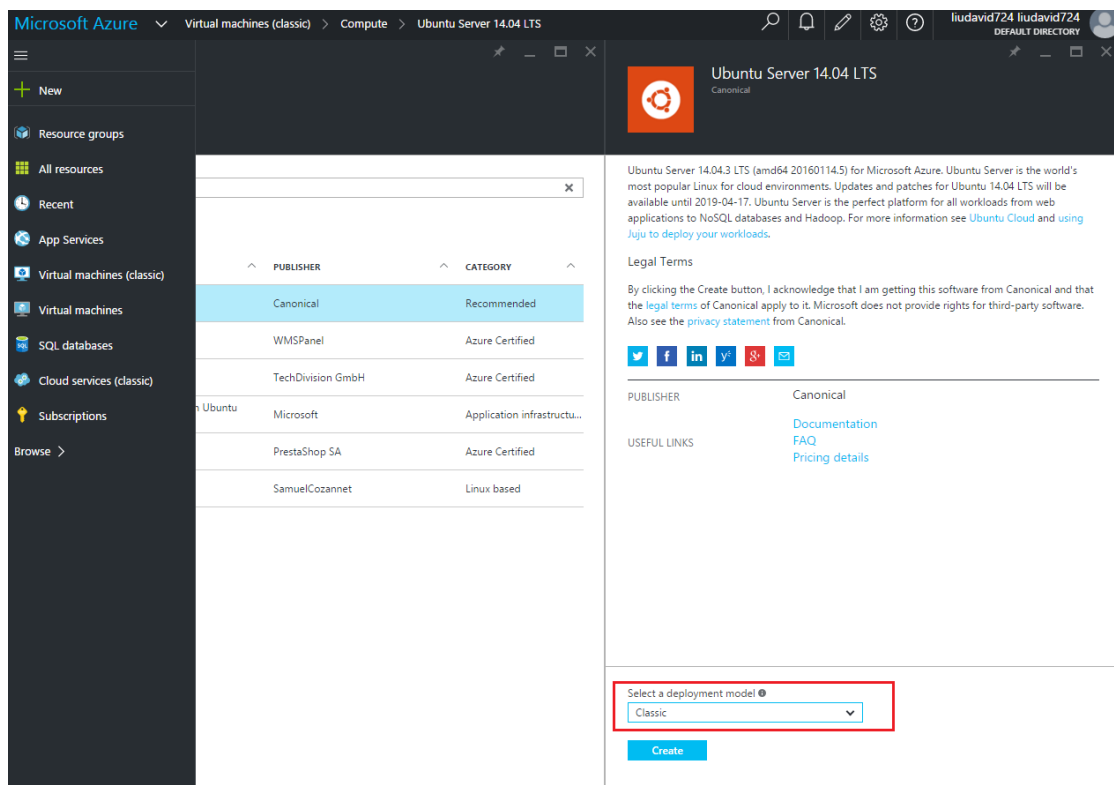
1. Go to <https://azure.microsoft.com/en-us/>. If you don't have an account, click "Free Trial"; otherwise, click "portal".

The screenshot shows the Microsoft Azure website homepage. The header includes the 'Microsoft Azure' logo, a phone number, 'MY ACCOUNT', a 'PORTAL' button (highlighted with a red box), and a search bar. Below the header is a navigation bar with links like 'Why Azure', 'Products', 'Documentation', 'Pricing', 'Partners', 'Blog', 'Resources', and 'Support'. A large banner features the text 'The cloud for modern business' and 'Move faster, Save money, Integrate on-premises apps and data'. A blue box on the right states '57% of Fortune 500 companies already use Azure.' and a green 'FREE TRIAL' button is visible. Below the banner, a section titled 'Sign up and deploy your first cloud solution in under 5 minutes' includes a 'Try for free' button. The bottom section has three columns: 'Get Started' with a 'Watch three minute videos' link, 'Free Webinars' with an 'Azure Licensing' webinar, and 'Azure Friday' with a 'Watch the weekly 10 minute video series' link.

2. Select "Virtual machines (classic)" on the left menu bar.



- Click “Add”. Search for “Ubuntu Server 14.04 LTS”. Then choose “Classic” as the deployment model.



- Input the host name, user name, password/public key, and set the location to be “Japan West”.

Microsoft Azure Virtual machines (classic) > Compute > Ubuntu Server 14.04 LTS > Create VM

Ubuntu Server 14.04 LTS

Create VM
Ubuntu Server 14.04 LTS

* Host Name

* User name

Authentication type
Password SSH public key

* Password

Pricing Tier
Standard_DS1

Optional Configuration
Network, storage, diagnostics

Resource Group
Group-1

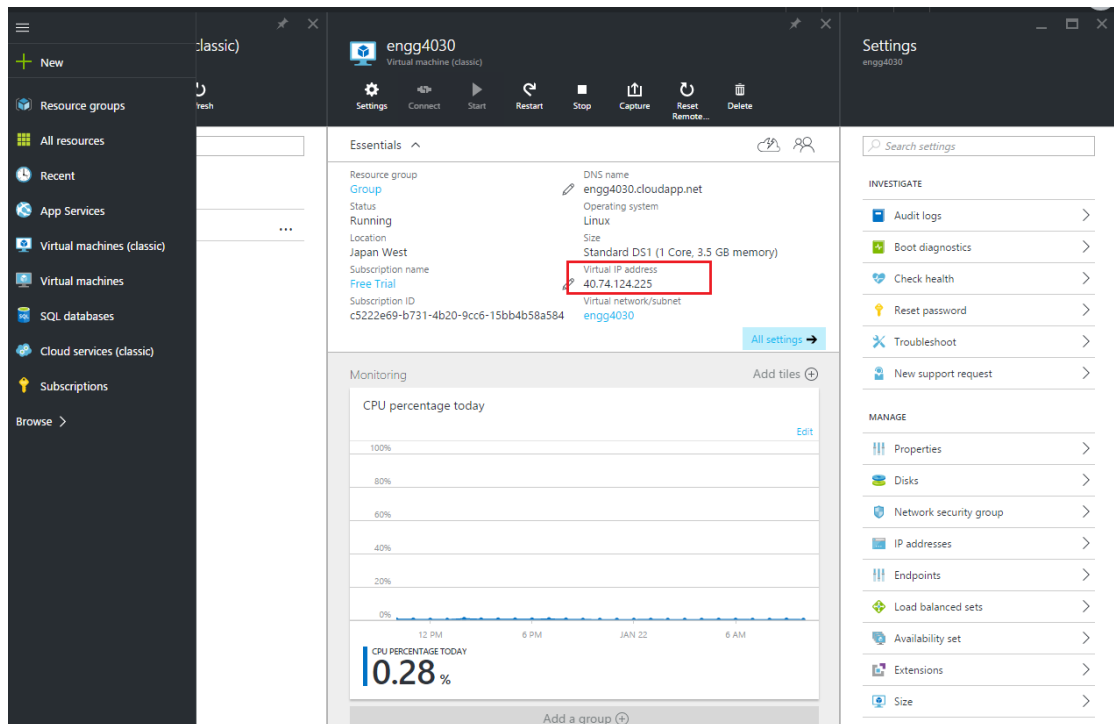
Subscription
Free Trial

Location
Japan West

☒ Pin to dashboard

Create

5. Click the instance you created, check the "Virtual IP address".

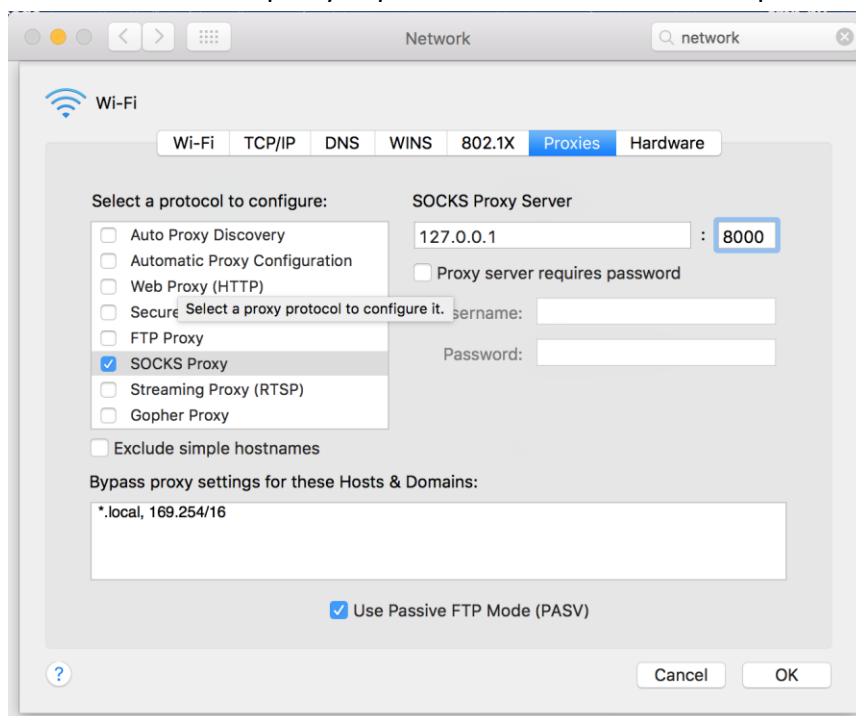


Launch instances with OpenStack:

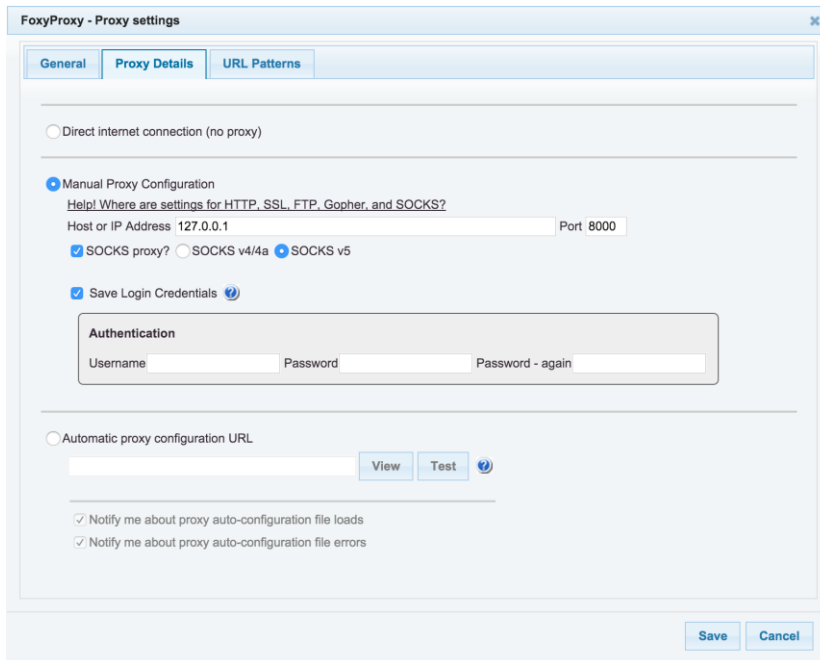
1. Use the following command to create a tunnel at the localhost. Password is the same as that of the course website.

`ssh engg4030@dic-gw.ie.cuhk.edu.hk -D 8000`

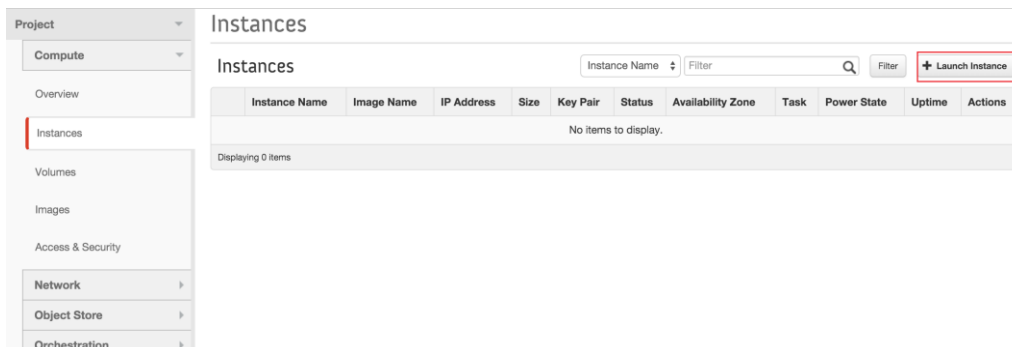
2. If you are using Mac, go to “System Preferences” -> “Network” -> “Advanced” -> “Proxies” to set the proxy. Input the information as in the picture.



3. If you are using Windows, install extension FoxyProxy for Chrome. Input the information as in the picture.



4. Open <http://172.16.0.2>. Login with your username and password. Please find your username and password at Elearning -> My Grades.
5. Click “Launch Instance”.



6. Fill in the “Instance Name” and “Flavor”. Set “Instance Boot Source” to be “Boot From Image” and choose Ubuntu 14.04 as the Image Name.

Launch Instance

Details * Access & Security * Networking * Post-Creation Advanced Options

Availability Zone
nova

Instance Name *

Flavor *
m1.small

Instance Count *
1

Instance Boot Source *
Boot from image

Image Name
Ubuntu 14.04 (247.0 MB)

Specify the details for launching an instance.
The chart below shows the resources used by this project in relation to the project's quotas.

Flavor Details

Name	m1.small
VCPUs	1
Root Disk	20 GB
Ephemeral Disk	0 GB
Total Disk	20 GB
RAM	2,048 MB

Project Limits

Number of Instances 0 of 100 Used

Number of VCPUs 0 of 100 Used

Total RAM 0 of 51,200 MB Used

Cancel Launch

7. Select Access & Security tab, input the key pair.

Launch Instance

Details * Access & Security * Networking * Post-Creation Advanced Options

Key Pair
No key pairs available

Security Groups *
☒ default

Control access to your instance via key pairs, security groups, and other mechanisms.

Cancel Launch

8. Select Networking tab, drag "net04" into the upper box.

Launch Instance

Details * Access & Security * Networking * Post-Creation Advanced Options

Selected Networks
nic:1 net04 (73e02b5e-d1a2-44b5-b149-3ca07772de4b)

Available networks
net04_ext (05d11927-37c0-48b0-becd-e8b548c1ce3d)

Choose network from Available networks to Selected Networks by push button or drag and drop, you may change nic order by drag and drop as well.

Cancel Launch

9. After launching the instance, the IP address is internal. If you want an external IP

address, click “More” -> “Associate Floating IP”.

<input type="checkbox"/>	test	Ubuntu 14.04	192.168.111.6	m1.small 2GB RAM 1 VCPU 20.0GB Disk	cloud_key	Active	nova	None	Running	0 minutes	Create Snapshot More ▾ Associate Floating IP
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10. You can see it have a 172.16.0.xxx, which is an external IP. You can login using this IP address.

<input type="checkbox"/>	test	Ubuntu 14.04	192.168.111.6 172.16.0.142	m1.small 2GB RAM 1 VCPU 20.0GB Disk	cloud_key	Active	nova	None	Running	3 minutes	Create Snapshot More ▾
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11. If you want to login to the virtual machine, first using the following command to login to the gateway.

`ssh engq4030@dic-gw.ie.cuhk.edu.hk`

12. Then in the gateway, ssh to your VM.