

# IERG4210 Tutorial 03

Intro to Amason Web Server

Shizhan Zhu

# About me

- Shizhan Zhu, from Mainlain China.
- Email: [zs014@ie.cuhk.edu.hk](mailto:zs014@ie.cuhk.edu.hk), [zhshzhutah2@gmail.com](mailto:zhshzhutah2@gmail.com)
- Mphil student 1<sup>st</sup> year.
- For tutoring:
  - You can put your questions on the facebook group (I will check it every night), or alternatively email to my mailbox;
  - You can also ask me during the course / tutoring period;
  - If needed, we can make an appointment to meet if the problem cannot be solved via the Internet.

# Why to study web programming?

- Direct purposes:
  - Ensure you can find an IT job;
  - Earn extra money! (Off campus time, though costs your efforts).
  - ↑not recommended though, it is just tedious...
- Indirect purposes: (supposed to be more important)
  - A glimpse on web security;
  - Put up your own dynamic project page (if you do research in the future~)
  - Learn to do googling – a standard skill of programmers!

# Summary of previous tutorials

- Texting environment

- Strongly recommend vim. Professional, compulsory, elegant, GUI independent
- Recommended study method: use vim-advanture game!
- Plugin is important:

<https://github.com/ma6174/vim>

User friendly. One command line installation.

DO NOT USE windows notepad!

----- Try to input '联通' in notepad, save it and re-open it. You will find wow~

# Summary of previous tutorials

- Version management
    - Git is compulsory for everybody.
    - It is widely used in team developing.
    - Your assignment submission is based on that.
    - Nice tutorial of git
    - English version: (thanks Dr. Fung)
    - <https://www.atlassian.com/git/tutorials/setting-up-a-repository/>
    - A Chinese simplified version:  
<http://www.liaoxuefeng.com/wiki/0013739516305929606dd18361248578c67b8067c8c017b000>
- OS
- Recommend use unix type OS (better in Linux), unless you are debugging with IE web explorer on Windows.

# Task this week as a prerequisite before phase 2

- Launch a remote instance via AWS EC2 service, and connect to it!
- What you need before the task:
  - A credit card that can perform online payment.
  - An education grant code (100 HKD for each student) to be distributed this Thursday.

This material is based on

<http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/get-set-up-for-amazon-ec2.html>

This page provides almost everything needed for the task.

# Task outline

- Setting up: sign up / choose server region / redeem your grant code
- Launch instance: Launch an instance / connect to your instance
- That's all for this week (before the issue of phase 2)
- Several reminder: (These 4 things are problems occurred when I do the task)
- Choosing Singapore or Tokyo as your server region;
- Redeem your 100 HKD grant before launch instance;
- You cannot connect to launched instance? May be you haven't open the relative port (22) of your remote server. (This issue is also covered in the given wiki.)
- Your private keys are too open? Try `chmod 600 your_key_pem`.

You should see this when the task is finished

```
zhu@ip-172-31-20-60 ~$ ssh -i tutor3.pem ec2-user@ec2-54-169-245-26.ap-southeast-1.compute.amazonaws.com
Last login: Tue Jan 27 07:46:58 2015 from fw-9808.ie.cuhk.edu.hk

  _ | _ | _ )
  _ | ( _ | /   Amazon Linux AMI
  __| \__|__|

https://aws.amazon.com/amazon-linux-ami/2014.09-release-notes/
20 package(s) needed for security, out of 44 available
Run "sudo yum update" to apply all updates.
[ec2-user@ip-172-31-20-60 ~]$ █
```

# Before the task

- Please try to finish the task in Slide 7 on your own first. (Do googling if problems occur!!!)
- Please only refer to following (from 11 to end) slides after
  - You cannot figure out how to process on your own;
  - You have then googled for 15 minutes on one step with no progress;
- Please contact TA only after
  - Referring to the following slides, you still cannot solve your problem;
  - You google for another 10 minutes;
  - Your classmates even cannot solve your problem.

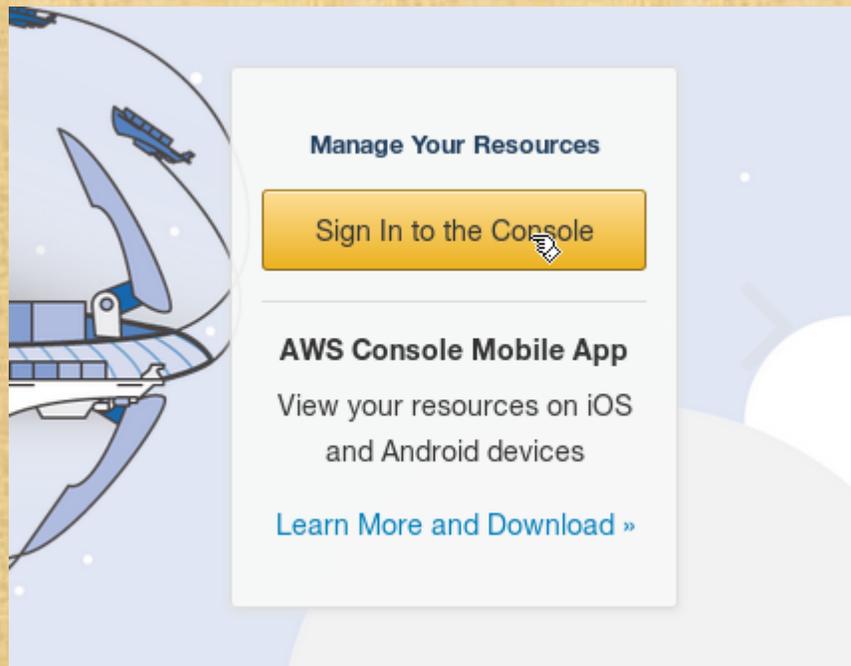
Actually under this circumstance, the chance TA helps you figure out is also low...

# Avoid these types of questions

- How to log in into the console?
  - Where can I find to do the account registration?
  - How to use git to push the repository?
  - How to know the ip address of my local machine?
- 
- Their answers are all in the first 5 items of googling, or in the given wiki. Asking these questions indicates that you have skipped googling before asking for help.
  - Remember google is your first choice for help!

# Step 1: Setting up

- <http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/get-set-up-for-amazon-ec2.html>
- Step 1.1 sign up. in <http://aws.amazon.com/>, click sign in to console, after that you are required to register for an account using your credit card.



can create a new account by selecting "I am a new user."

My e-mail address is:

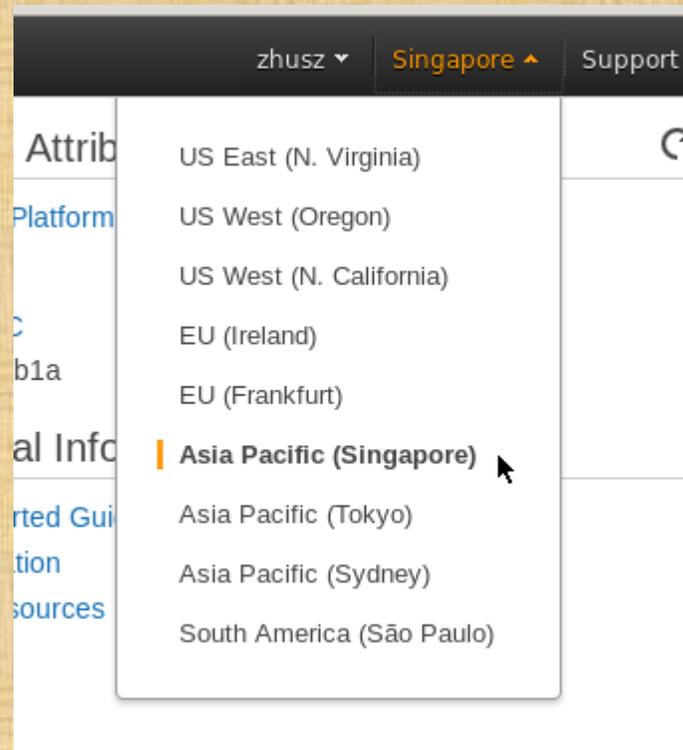
I am a new user.

I am a returning user  
and my password is:

[Forgot your password?](#)

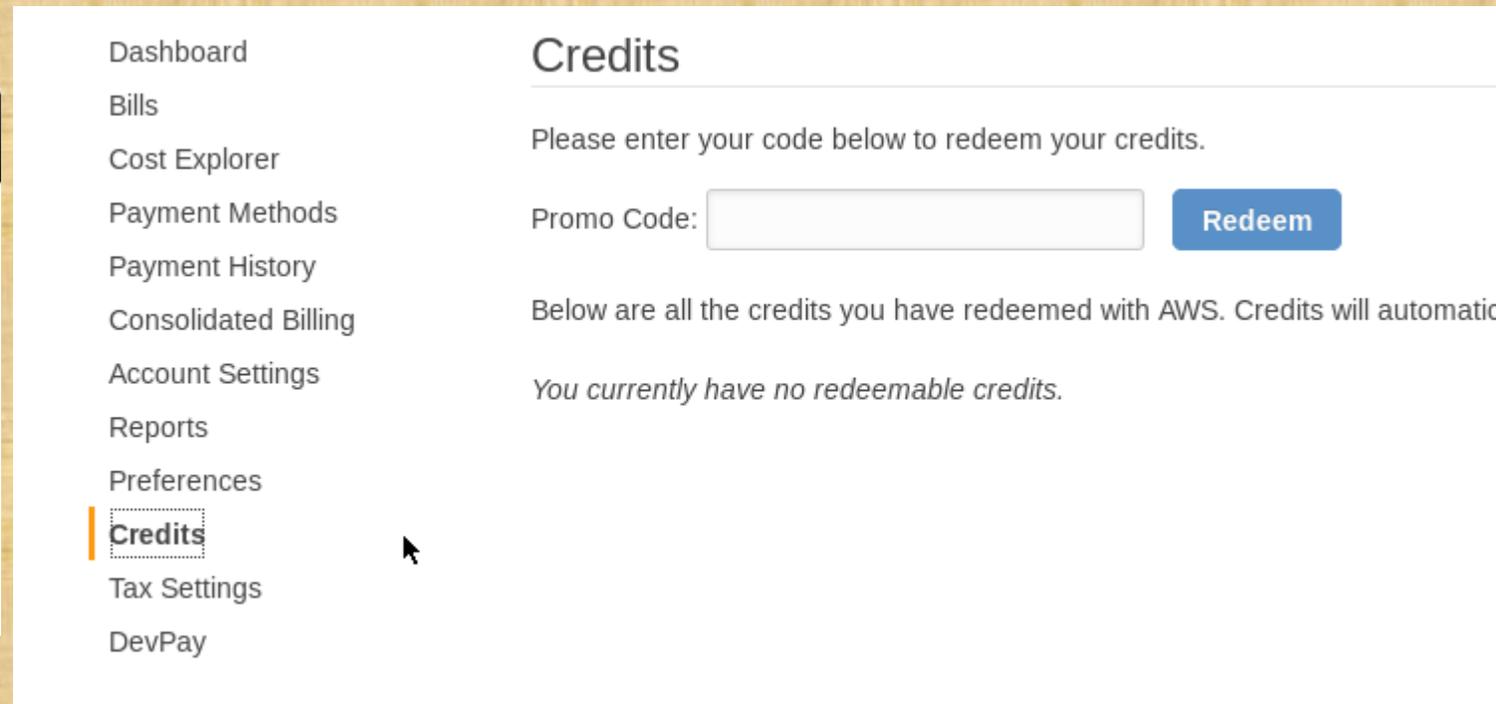
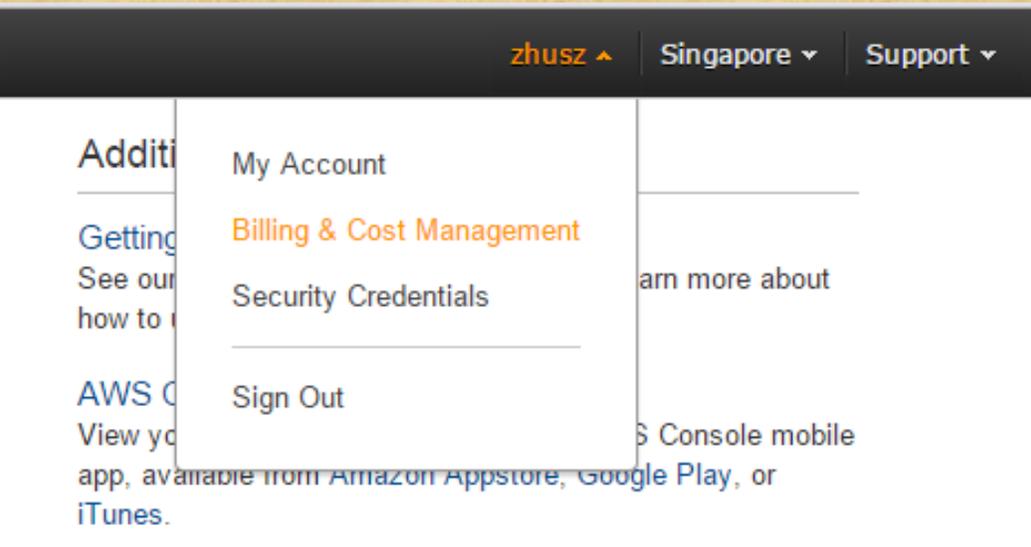
# Step 1: Setting up

- Step 1.2 After logging in, choose EC2 service and choose your server region (either Singapore or Tokyo, since they are nearest to Hong Kong).



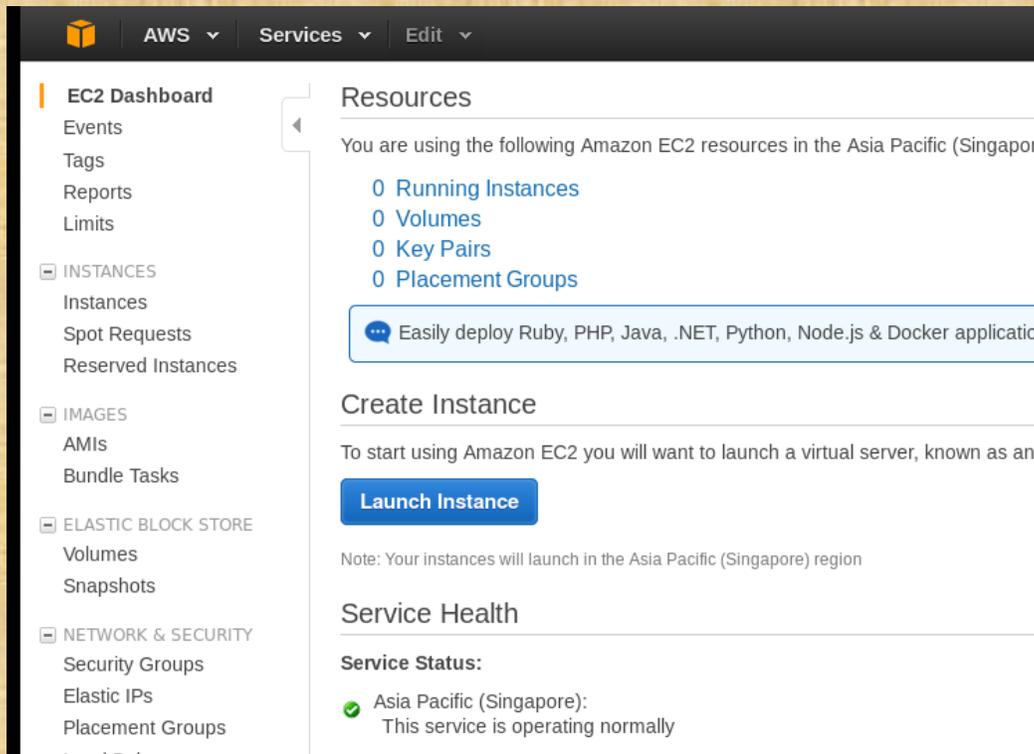
# Step 1: Setting up

- Step 1.3 Redeem your grant codes.
- Click Billing & Cost Management -> Credits -> input code and redeem

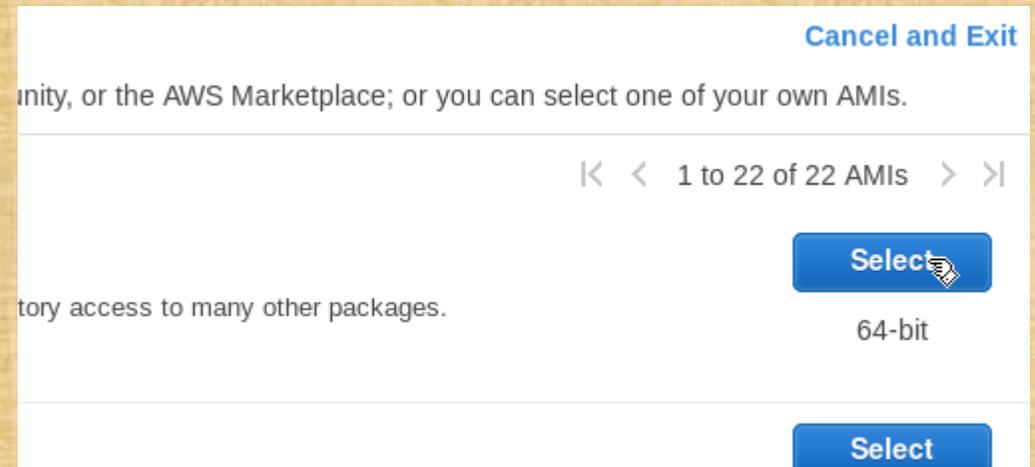


# Step 2: Launch and connect to your instance

- Step 2.1: return to the EC2 dashboard to launch instance (click the big blue botton), and choose the first item (Amazon Linux AMI)



The screenshot shows the AWS Management Console EC2 Dashboard. The left sidebar contains navigation links for EC2 Dashboard, INSTANCES, IMAGES, ELASTIC BLOCK STORE, and NETWORK & SECURITY. The main content area is titled 'Resources' and shows '0 Running Instances', '0 Volumes', '0 Key Pairs', and '0 Placement Groups'. Below this is the 'Create Instance' section, which includes a 'Launch Instance' button and a note that instances will launch in the Asia Pacific (Singapore) region. The 'Service Health' section shows that the service is operating normally.



The screenshot shows the Amazon Linux AMI selection screen. It features a 'Cancel and Exit' button at the top right. The main content area displays the text '...nity, or the AWS Marketplace; or you can select one of your own AMIs.' Below this is a pagination control showing '1 to 22 of 22 AMIs'. A 'Select' button is visible, along with the text '64-bit' and another 'Select' button at the bottom right.

# Step 2: Launch and connect to your instance

- Step 2.2: Choose an instance type: just choose the first (free tier eligible) , and click next (right bottom).
- Step 2.3: Choose the 6-th step: configure security group.
- If there exists one then click select an existing ... (as below), otherwise create a new one.

1. Choose AMI   2. Choose Instance Type   3. Configure Instance   4. Add Storage   5. Tag Instance   **6. Configure Security Group**   7. Review

## Step 6: Configure Security Group

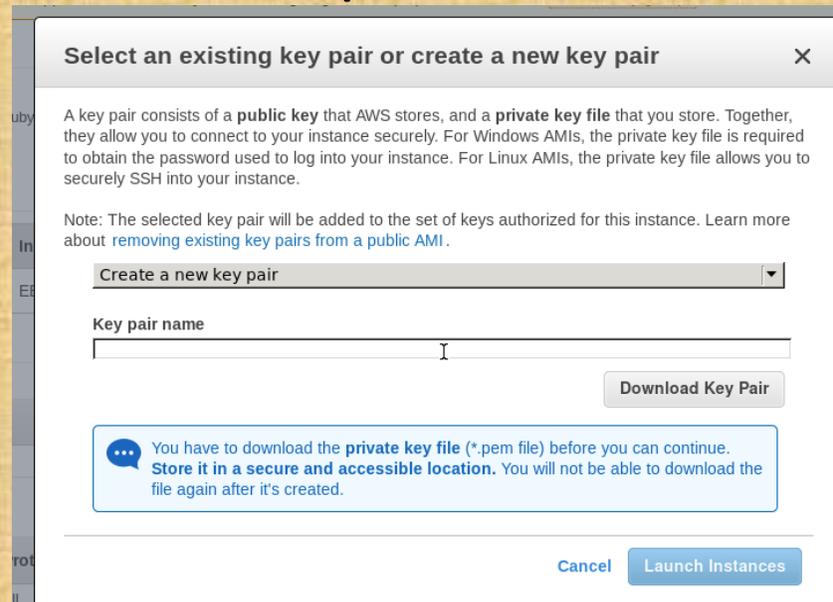
A security group is a set of firewall rules that control the traffic for your instance. On this page, you can add rules to allow specific traffic to reach your instance. For example, if you want to set up a web server and allow Internet traffic to reach your instance, add rules to the HTTP and HTTPS ports. You can create a new security group or select from an existing one below. [Learn more](#) about Amazon EC2 security groups.

Assign a security group:  Create a new security group  
 Select an existing security group

Security Group ID	Name	Description
<input checked="" type="checkbox"/> sg-339c4556	default	default VPC security group

# Step 2: Launch and connect to your instance

- Step 2.4: click review and launch, then click launch. You will be asked to select a key pair (for later logging). If there is none then create a new one. Type in the key pair name (file name) and click download. Save the key pair to a safe place (later logging need this file).
- Please note only you have read permission to the key pair file. (google chmod).



The screenshot shows a dialog box titled "Select an existing key pair or create a new key pair". It contains the following text and elements:

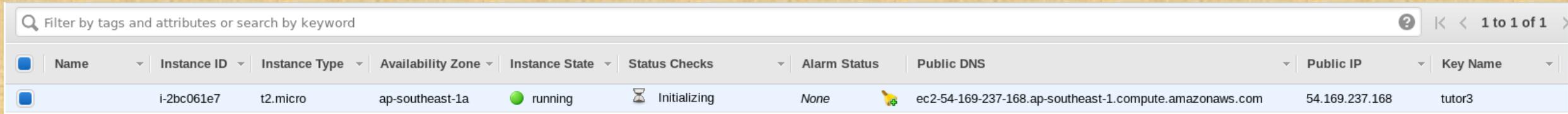
A key pair consists of a **public key** that AWS stores, and a **private key file** that you store. Together, they allow you to connect to your instance securely. For Windows AMIs, the private key file is required to obtain the password used to log into your instance. For Linux AMIs, the private key file allows you to securely SSH into your instance.

Note: The selected key pair will be added to the set of keys authorized for this instance. Learn more about [removing existing key pairs from a public AMI](#).

Below the text is a dropdown menu with "Create a new key pair" selected. Underneath is a text input field labeled "Key pair name" with a cursor. To the right of the input field is a "Download Key Pair" button. At the bottom of the dialog, there is a "Cancel" button and a "Launch Instances" button. A blue information box at the bottom left contains the following text: "You have to download the **private key file** (\*.pem file) before you can continue. Store it in a **secure and accessible location**. You will not be able to download the file again after it's created."

# Step 2: Launch and connect to your instance

- Step 2.5, then click launch instance, and click view instance. You will see:

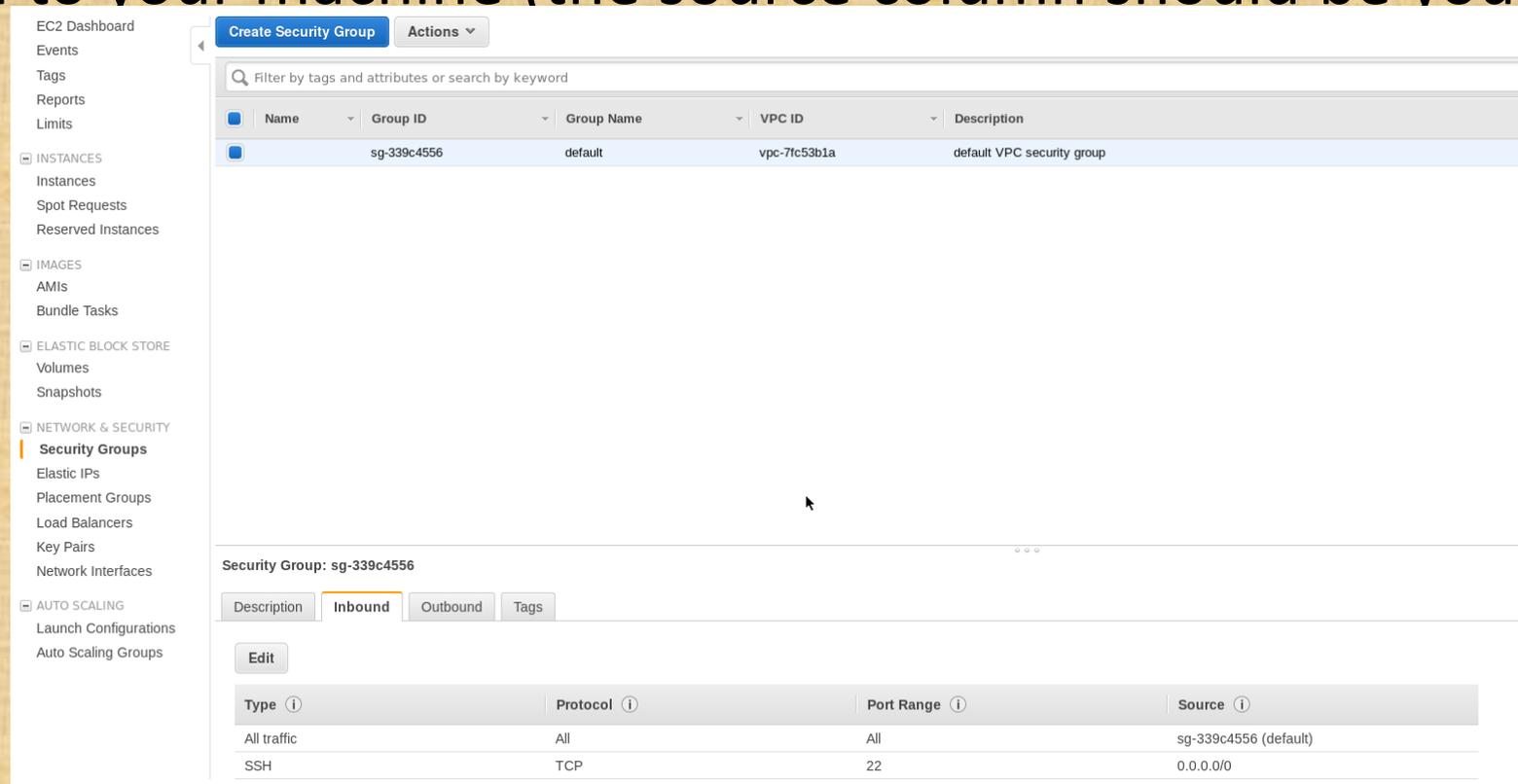


<input type="checkbox"/>	Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS	Public IP	Key Name
<input type="checkbox"/>		i-2bc061e7	t2.micro	ap-southeast-1a	running	Initializing	None	ec2-54-169-237-168.ap-southeast-1.compute.amazonaws.com	54.169.237.168	tutor3

- Notice the public DNS, it would be used when you connect to your instance.
- Now let's open up the 22 port of the server so that you can connect (described in the next slide.)

# Step 2: Launch and connect to your instance

- Step 2.6: add rules to the security group. Click security group, select your security group, and in Inbound tab, click edit. You need to add ssh open to your machine (the source column should be your ip)



The screenshot displays the AWS Management Console interface for the Security Groups page. The left-hand navigation pane shows the 'Security Groups' link under the 'NETWORK & SECURITY' category. The main content area shows a table of security groups, with one group selected: sg-339c4556, named 'default', associated with VPC vpc-7fc53b1a. Below the table, the 'Inbound' tab is active, and the 'Edit' button is visible. A table shows the current rules for the security group:

Type	Protocol	Port Range	Source
All traffic	All	All	sg-339c4556 (default)
SSH	TCP	22	0.0.0.0/0

## Step 2: Launch and connect to your instance

- Step 2.7 connect to your launched instance.
- On Linux system, just input the command:
- `ssh -i pem_file_name ec2-user@your_public_dns_in_slide_17`
- E.g. in my case, it is
- `ssh -i tutor3.pem ec2-user@ec2-54-169-237-168.ap-southeast-1.compute.amazonaws.com`
- Windows is not recommended, though you can follow guide from <http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/ec2-connect-to-instance-linux.html>
- It cannot be more detailed.

# What to do next should be clear...

- Well done!
- Install whatever you want.
- Please wait the issue of phase 2.

# Importance of googling

- Capable of googling: The whole world studying recourse is mine!
- Not capable of googling: Why Professor and TAs do not teach us?!
- Google is a good teacher, with more knowledge than your classmates, your TAs, and maybe Adon??...
- Can you do a self-motivated project fully on your own or with your friends even in an unfamiliar domain?
- Do learn to self study! Do googling before contact a TA! Otherwise your mentor is always your master!
- Because if you come to me I also do the googling...
- Thank you!