EE3801 Lab 3 Brief

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Edited based on Ng Kian Wei’s slides (kianwei@u.nus.edu)

For All Students

- Windows Users: Follow the instructions here to install Windows Subsystem for Linux (WSL) on Windows 10 or Windows 11, choosing Ubuntu 18 for the distribution
- https://www.windowscentral.com/install-windows-subsystem-linux-windows-10

- Install miniconda on WSL using the following steps (this will be **on top** of the miniconda that you've installed on windows/Mac); All should install this miniconda.

```
wget https://repo.continuum.io/miniconda/Miniconda3-latest-Linux-x86_64.sh

bash Miniconda3-latest-Linux-x86_64.sh

source ~/.bashrc
```

Conda Environment

- For the ease of managing the python packages and their versions, we are going to create a virtual environment to work with.
- create an environment with the name ‘aws’

```
      conda create -n aws python=3.9 –y
```

- Activate the environment and work with the packages installed under it

```
      conda activate aws
```

- Install packages

```
      conda install pandas
```

AWS CLI Installation

- Make sure you are in your home directory before proceeding to the following steps
- Uninstall AWS CLI version 1 if you have installed it previously, as it was using python 2.7, 3.4, 3.5, which have been depreciated in January 2020
  - Linux: Install, Update, and Uninstall the AWS CLI version 1 on Linux - AWS Command Line Interface (amazon.com)
  - Mac: Install, Update, and Uninstall the AWS CLI version 1 on macOS - AWS Command Line Interface (amazon.com)
- Install AWS CLI version 2 in the shell, following the instructions here(Please specifically install version **2.0.35**): https://docs.aws.amazon.com/cli/latest/userguide/getting-started-version.html
- It would be simple to install with command line
- Check if the version of aws-cli is 2.0.35 with the command:

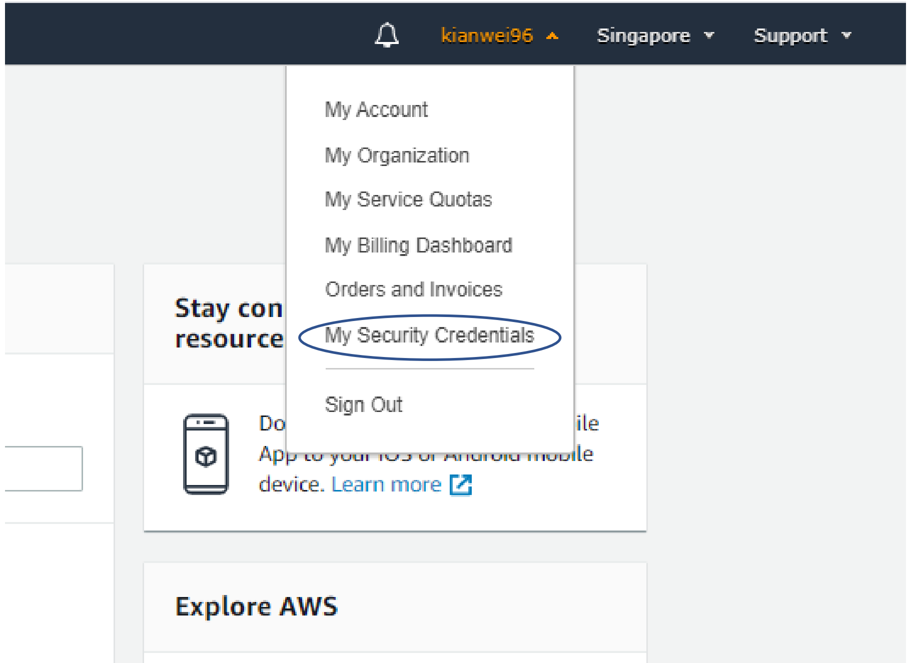
```
aws --version
```

AWS CLI Setup

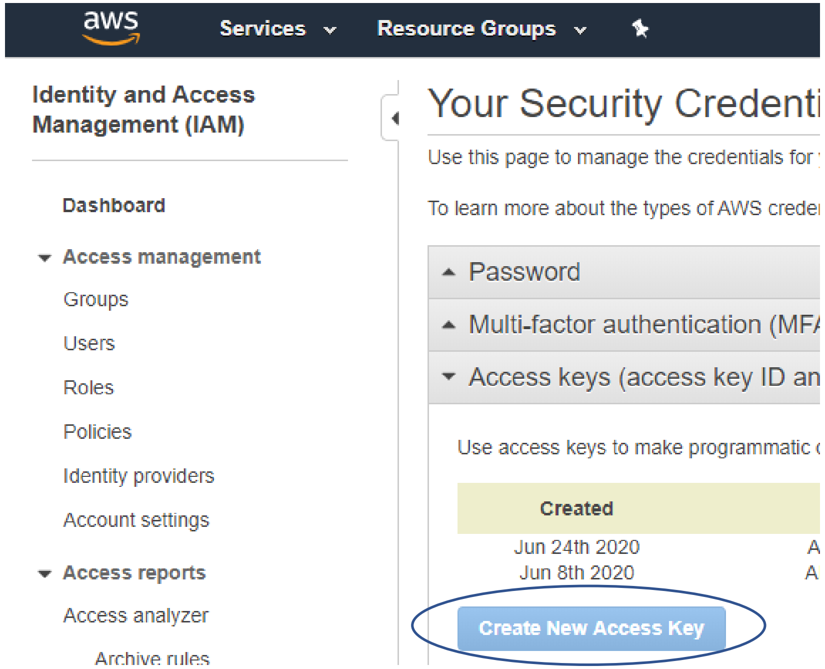
- After installation, configure the aws-cli with the command:

```
aws configure
```

- Use "`ap-southeast-1`" for region, blank for other fields
- After signing into your AWS Management Console, get your AWS Access Key ID here:



Do ile App to your iOS or Android mobile device. Learn more



Use this page to manage the credentials for

To learn more about the types of AWS crede

Use access keys to make programmatic

Created	
Jun 24th 2020	A
Jun 8th 2020	A

Creating an EC2 Instance

- Run the following to set up a Key Pair:

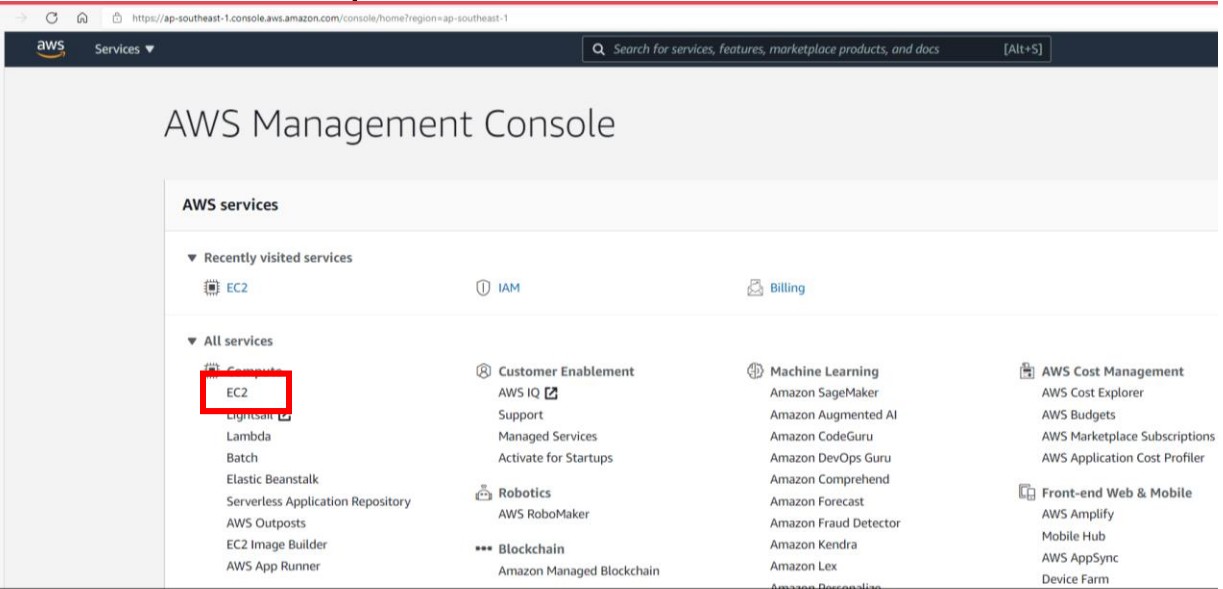
```
aws ec2 create-key-pair --key-name MyKeyPair --query 'KeyMaterial' --output text > MyKeyPair.pem
chmod 400 ~/MyKeyPair.pem
```

- Run the following to start up an EC2 instance:

```
aws ec2 run-instances --image-id resolve:ssm:/aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2 --instance-type t2.micro --key-name MyKeyPair
```

  - Details might show up after entering this command, you may press Enter till the end and press ‘q’ to quit

- Verify from CLI or Web Console



https://ap-southeast-1.console.aws.amazon.com/console/home?region=ap-southeast-1

aws
Services ▼
Search for services, features, marketplace products, and docs [Alt+S]

AWS Management Console

AWS services

▼ Recently visited services

EC2 IAM Billing

▼ All services

Compute: EC2, Lightsail, Lambda, Batch, Elastic Beanstalk, Serverless Application Repository, AWS Outposts, EC2 Image Builder, AWS App Runner

Customer Enablement: AWS IQ, Support, Managed Services, Activate for Startups

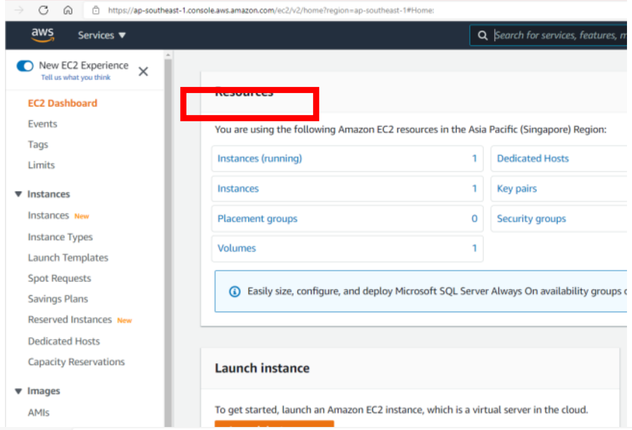
Robotics: AWS RoboMaker

Blockchain: Amazon Managed Blockchain

Machine Learning: Amazon SageMaker, Amazon Augmented AI, Amazon CodeGuru, Amazon DevOps Guru, Amazon Comprehend, Amazon Forecast, Amazon Fraud Detector, Amazon Kendra, Amazon Lex, Amazon Personalize

AWS Cost Management: AWS Cost Explorer, AWS Budgets, AWS Marketplace Subscriptions, AWS Application Cost Profiler

Front-end Web & Mobile: AWS Amplify, Mobile Hub, AWS AppSync, Device Farm



https://ap-southeast-1.console.aws.amazon.com/ec2/v2/home?region=ap-southeast-1#Home:

Resources

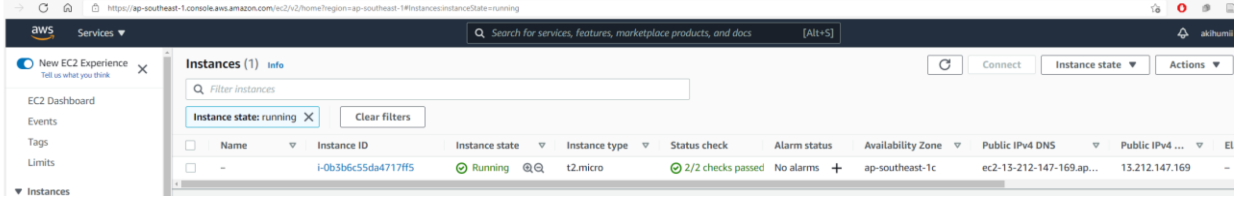
You are using the following Amazon EC2 resources in the Asia Pacific (Singapore) Region:

Instances (running)	1	Dedicated Hosts
Instances	1	Key pairs
Placement groups	0	Security groups
Volumes	1	

Easily size, configure, and deploy Microsoft SQL Server Always On availability groups

Launch instance

To get started, launch an Amazon EC2 instance, which is a virtual server in the cloud.



https://ap-southeast-1.console.aws.amazon.com/ec2/v2/home?region=ap-southeast-1#Instances:instanceState=running

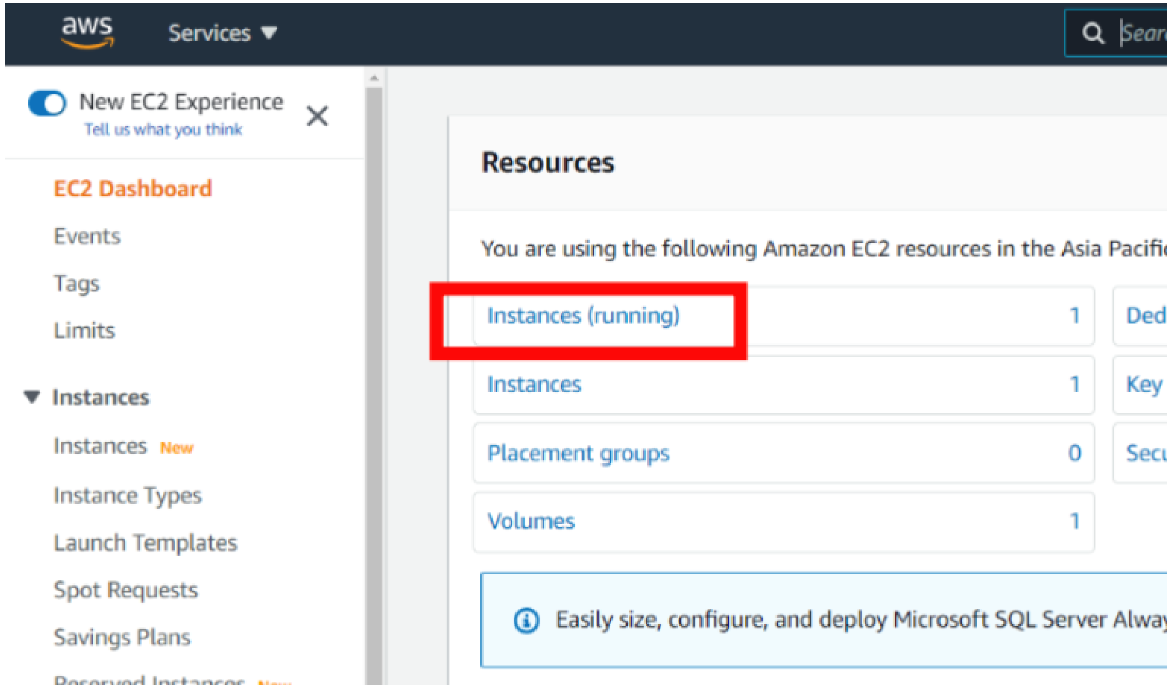
Instances (1) Info

Instance state: running

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 ...	El
–	i-0b3b6c55da4717ff5	Running	t2.micro	2/2 checks passed	No alarms	ap-southeast-1c	ec2-13-212-147-169.ap...	13.212.147.169	–

Enable SSH

- AWS appears to have disabled ssh access by default, so you will have to use the browser to enable ssh access to your EC2 instance. Click on “Instances (running)” in your EC2 Dashboard:



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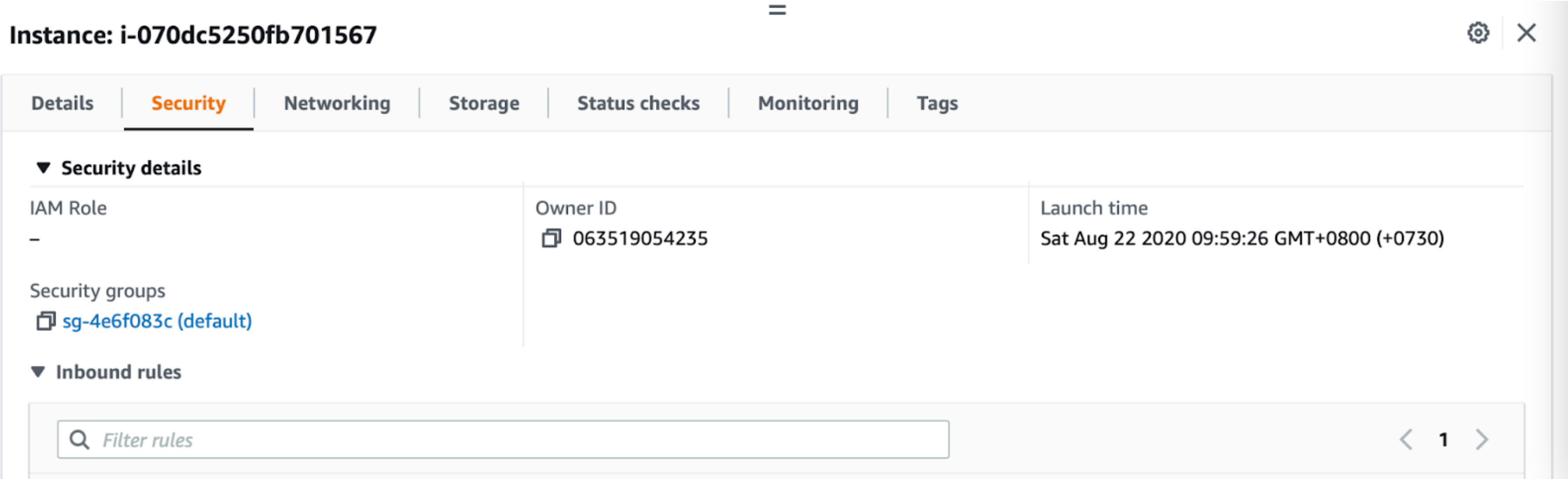
ⓘ Easily size, configure, and deploy Microsoft SQL Server Alwa

Enable SSH

- Select the checkbox for your instance. Click on the "Security" tab, and select the default Security groups:



Instance: i-070dc5250fb701567

▼ Security details

IAM Role
–

Owner ID
063519054235

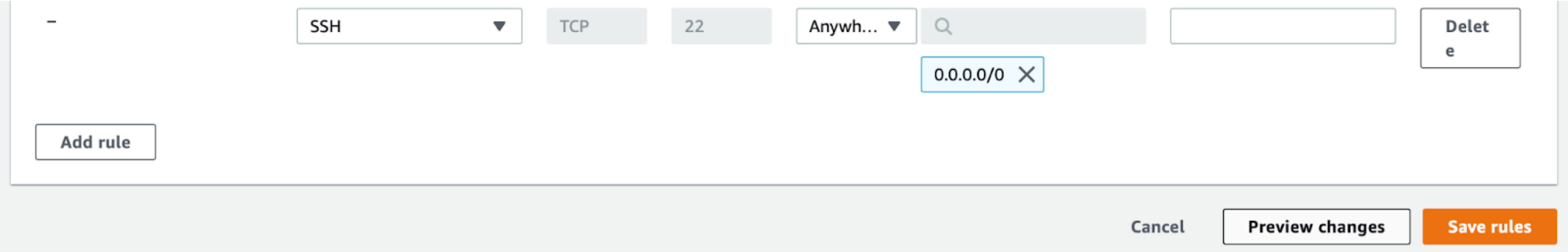
Launch time
Sat Aug 22 2020 09:59:26 GMT+0800 (+0730)

Security groups
sg-4e6f083c (default)

▼ Inbound rules

Enable SSH

- Click on “Edit inbound rules”. Click on “Add rule”.
- Select “SSH” under “Type” and “Anywhere IPv4” under “Source”, and then click the “Save rules” button. (If it doesn’t work, select “All traffic” under “Type” and “Anywher” under “Source”,)



SSH TCP 22 Anywh... 0.0.0.0/0

Interfacing with EC2 Instance

- SSH
  - Security Group Ingress settings
  - show public ip address

    ```
    aws ec2 describe-instances --filter "Name=instance-type,Values=t2.micro" --query
    "Reservations[].Instances[].PublicIpAddress"
    ```

  - ssh to created ec2 instance

    ```
    ssh -i MyKeyPair.pem ec2-user@<ip_address>
    ```

- SCP

    ```
    scp -i MyKeyPair.pem <file_name> ec2-user@<ip_address>:~/
    ```

- Others
  - `cd, mv, rm, find, grep …`

Terminating EC2 Instance

- Search for ec2 instances

```
aws ec2 describe-instances --filter "Name=instance-type,Values=t2.micro" --query
"Reservations[].Instances[].InstanceId"
```

- Terminate ec2 instances

```
aws ec2 terminate-instances --instance-ids <ids-here>
```

- **MUST** remember to terminate the instances after you have finish everything to avoid extra charges.

Additional Notes

- Cost management
- Lab tasks