



SRI LANKA INSTITUTE OF INFORMATION TECHNOLOGY

Enterprise Standards and Best Practices for IT Infrastructure

4th Year 2nd Semester 2016

Name: Madanayake P.S.

SLIIT ID: IT13122492

Group Number:

Practical Session: WD

Practical Number: Lab 2

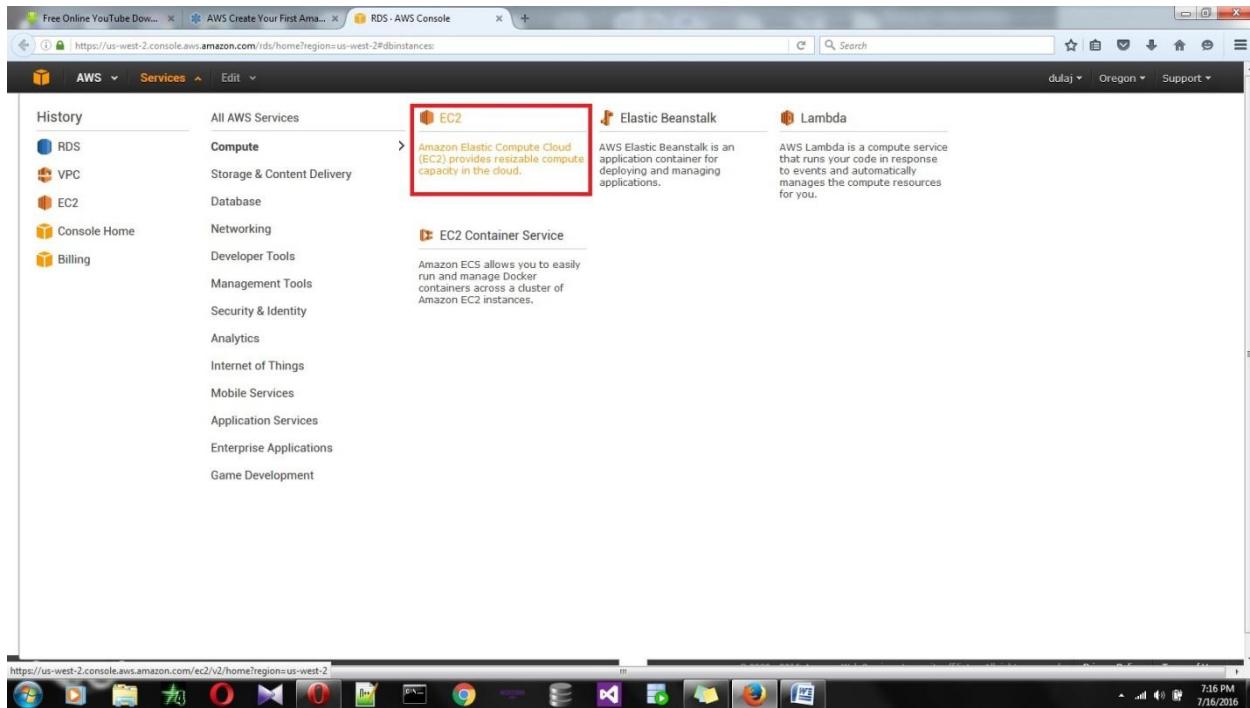
Date of Submission: 28-07-2016

Date of Evaluation : _____

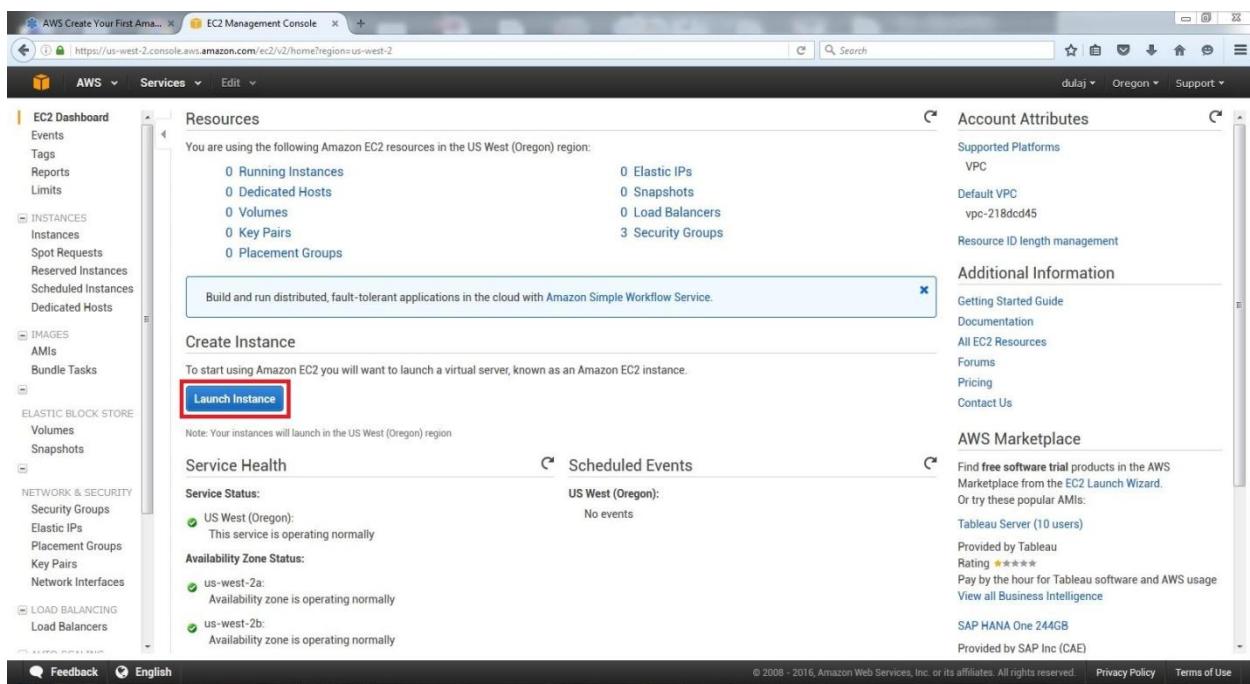
Evaluators Signature : _____

Step 1

To create an EC2 instance, click “EC2” under Compute section in services.



From the EC2 Dashboard, click “Launch Instance”.



Click “Select” for “Ubuntu Server 14.04 LTS....”.

The screenshot shows the 'Step 1: Choose an Amazon Machine Image (AMI)' page. On the left, there's a sidebar with 'Quick Start' sections for 'My AMIs', 'AWS Marketplace', and 'Community AMIs'. Below that is a checkbox for 'Free tier only'. The main area lists several AMIs:

- Amazon Linux AMI 2016.03.3 (HVM), SSD Volume Type - ami-7172b611**: Free tier eligible. Root device type: ebs. Virtualization type: hvm. Select button.
- Red Hat Enterprise Linux 7.2 (HVM), SSD Volume Type - ami-775e4f16**: Free tier eligible. Root device type: ebs. Virtualization type: hvm. Select button.
- SUSE Linux Enterprise Server 12 SP1 (HVM), SSD Volume Type - ami-d2627db3**: Free tier eligible. Root device type: ebs. Virtualization type: hvm. Select button.
- Ubuntu Server 14.04 LTS (HVM), SSD Volume Type - ami-9abaea4fb**: Free tier eligible. Root device type: ebs. Virtualization type: hvm. **Select button** (highlighted with a red box).
- Microsoft Windows Server 2012 R2 Base - ami-8d0acfcd**: Windows. Microsoft Windows 2012 R2 Standard edition with 64-bit architecture. [English]. Select button.

At the bottom, there are links for 'Feedback', 'English', 'Privacy Policy', and 'Terms of Use'.

Step 2

Select the appropriate type. Here I select “t2.micro” sine it is eligible for free tier.

The screenshot shows the 'Step 2: Choose an Instance Type' page. At the top, it says 'Currently selected: t2.micro (Variable ECUs, 1 vCPUs, 2.5 GHz, Intel Xeon Family, 1 GiB memory, EBS only)'. The table lists instance types:

Family	Type	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
General purpose	t2.nano	1	0.5	EBS only	-	Low to Moderate
General purpose	t2.micro <small>Free tier eligible</small>	1	1	EBS only	-	Low to Moderate
General purpose	t2.small	1	2	EBS only	-	Low to Moderate
General purpose	t2.medium	2	4	EBS only	-	Low to Moderate
General purpose	t2.large	2	8	EBS only	-	Low to Moderate
General purpose	m4.large	2	8	EBS only	Yes	Moderate
General purpose	m4.xlarge	4	16	EBS only	Yes	High
General purpose	m4.2xlarge	8	32	EBS only	Yes	High
General purpose	m4.4xlarge	16	64	EBS only	Yes	High

At the bottom, there are buttons for 'Cancel', 'Previous', 'Review and Launch' (highlighted with a red box), and 'Next: Configure Instance Details'.

Click “Next: Configure Instance Details”.

Step 3

Under “Configure Instance Details” select “Network” and “Subnet”. Click “Next: Add Storage”.

The screenshot shows the AWS EC2 Launch Instance Wizard at Step 3: Configure Instance Details. The 'Network' and 'Subnet' sections are expanded, showing settings like VPC (vpc-218dc045), Subnet (subnet-43b7c627), and Auto-assign Public IP (Use subnet setting). Other sections include Purchasing option (Request Spot Instances), IAM role (None), Shutdown behavior (Stop), and Monitoring (CloudWatch detailed monitoring). At the bottom, the 'Network interfaces' section is expanded, showing a table with columns: Device, Network Interface, Subnet, Primary IP, and Secondary IP addresses. The 'Review and Launch' button is visible, and the 'Next: Add Storage' button is highlighted with a red box.

Step 4

Under “Add Storage” page, click “Review and Launch” without doing any modification.

The screenshot shows the AWS EC2 Launch Instance Wizard at Step 4: Add Storage. It displays storage device settings for a root volume: Volume Type (General Purpose SSD (GP2)), Device (/dev/sda1), Snapshot (snap-306df873), Size (8 GiB), IOPS (100 / 3000), Throughput (N/A), Delete on Termination (unchecked), and Encrypted (Not Encrypted). A note below states: "Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage. Learn more about free usage tier eligibility and usage restrictions." The 'Review and Launch' button is highlighted with a red box.

Step 5

On “Review Instance Launch” page, click “Launch”.

The screenshot shows the 'Review Instance Launch' step of the AWS EC2 wizard. The 'Launch' button at the bottom right is highlighted with a red box. Other buttons like 'Cancel' and 'Previous' are also visible.

A popup page will be displayed asking for select a key pair or to create a key pair. Select “Create a new key pair” and enter a key name. Then click “Download Key Pair”.

The screenshot shows a modal dialog titled 'Select an existing key pair or create a new key pair'. It contains fields for 'Key pair name' (set to 'TestKey') and a 'Download Key Pair' button, which is highlighted with a red box. Below the dialog, the 'Launch Instances' button on the main page is also highlighted with a red box.

Now click “Launch Instances”.

At the resulting page, we are notified that the instances are launching.

Your instances are now launching
The following instance launches have been initiated: i-05d18c21613e0d381 View launch log

Get notified of estimated charges
Create billing alerts to get an email notification when estimated charges on your AWS bill exceed an amount you define (for example, if you exceed the free usage tier).

How to connect to your instances

Your instances are launching, and it may take a few minutes until they are in the **running** state, when they will be ready for you to use. Usage hours on your new instances will start immediately and continue to accrue until you stop or terminate your instances.

Click [View Instances](#) to monitor your instances' status. Once your instances are in the **running** state, you can connect to them from the Instances screen. [Find out](#) how to connect to your instances.

Here are some helpful resources to get you started

- How to connect to your Linux instance
 - [Amazon EC2: User Guide](#)
 - [Amazon EC2: Discussion Forum](#)

While your instances are launching you can also

Create status check alarms to be notified when these instances fail status checks. (Additional charges may apply)
Create and attach additional EBS volumes (Additional charges may apply)
Manage security groups

[View Instances](#)

On the “Instances” tab, we can see the instances we created.

Instances

Instance: i-05d18c21613e0d381 Public DNS: ec2-52-34-196-245.us-west-2.compute.amazonaws.com

Description	Status Checks	Monitoring	Tags
Instance ID	i-05d18c21613e0d381		
Instance state	running		
Instance type	t2.micro		
Private DNS	ip-172-31-31-162.us-west-2.compute.internal		
Private IPs	172.31.31.162		
Secondary private IPs			
VPC ID	vpc-218cd45		
Subnet ID	subnet-43b7c627		
Network interfaces	eth0		
Source/dest. check	True		
EBS-optimized	False		
Root device type	ebs		
Root device	/dev/sda1		
Block devices	/dev/sda1		

Step 6

Now we have to convert the PEM we downloaded to a PPK key. To convert that, we have to download PuTTYgen executable. The .exe can be downloaded from the following URL.

<http://the.earth.li/~sgtatham/putty/latest/x86/puttygen.exe>

Step 7

Run the downloaded exe.



Click “Load” to open an existing private key. Load the key file which we downloaded earlier.

The following message box will be appeared.



When we click “OK”, PuTTYgen displays a dialog box with information about the key we loaded.



Now click “Save private key”. Do not select a passphrase.

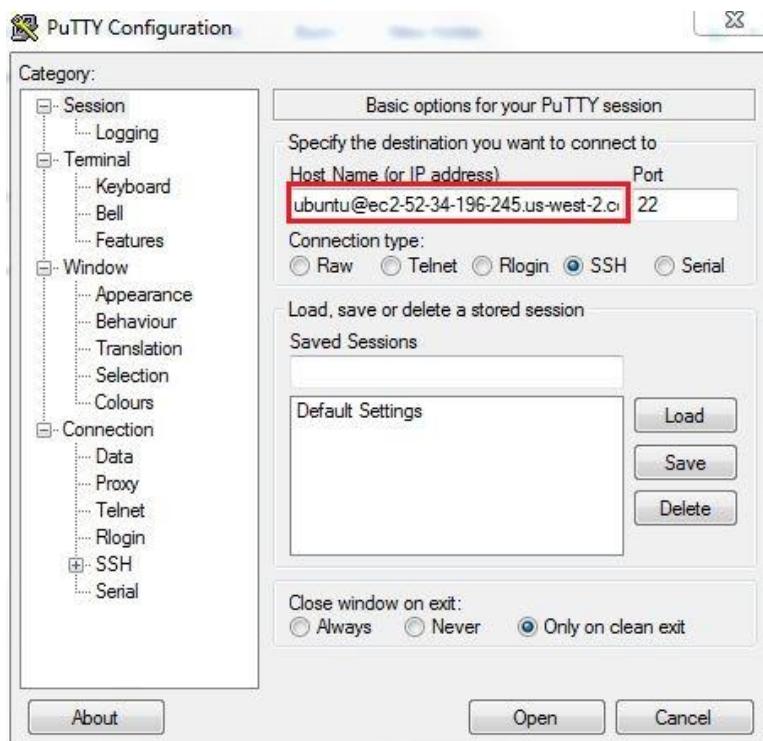
Now we are ready to use PuTTY for connecting to the instance we created.

Step 8

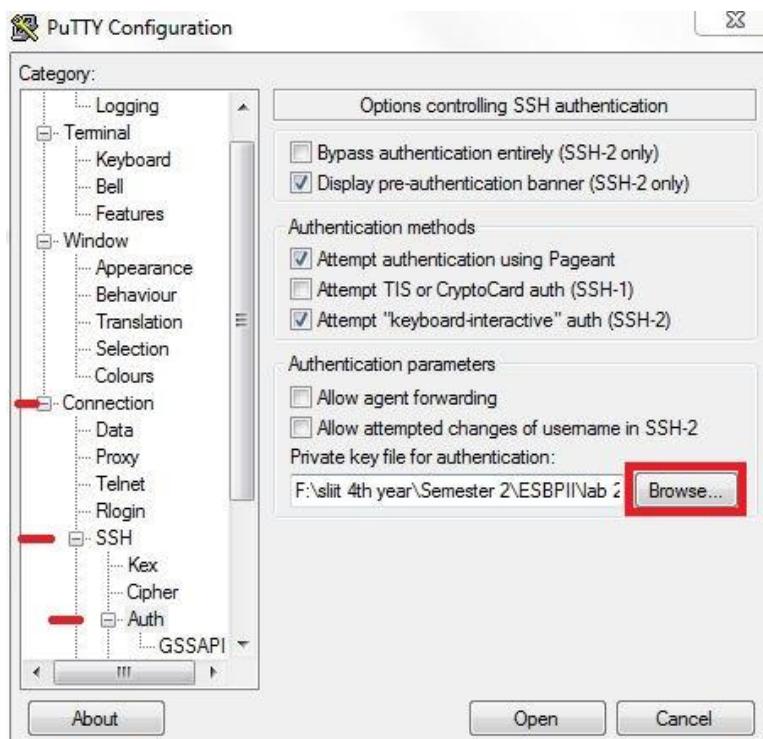
To download PuTTY, go to the URL and download putty.exe

<http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html>

Now open the putty.exe and enter the public DNS of the created EC2 instance as the “Host Name”. Make sure to prefix the DNS address with “ubuntu@” (as the username as in my case).



Then under Connection-> SSH-> Auth, select the converted Key for the “Private Key file for authentication”.



Click “Open”.

A dialog box will be showed asking whether to cache the key.



Click "Yes".

After the successful authentication following can be seen.

```
ubuntu@ip-172-31-31-162: ~
Using username "ubuntu".
Authenticating with public key "imported-openssh-key"
Welcome to Ubuntu 14.04.3 LTS (GNU/Linux 3.13.0-74-generic x86_64)

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

 System information as of Sat Jul 16 14:50:23 UTC 2016

 System load:  0.0          Processes:      96
 Usage of /:   10.0% of 7.74GB  Users logged in:  0
 Memory usage: 5%
 Swap usage:   0%

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

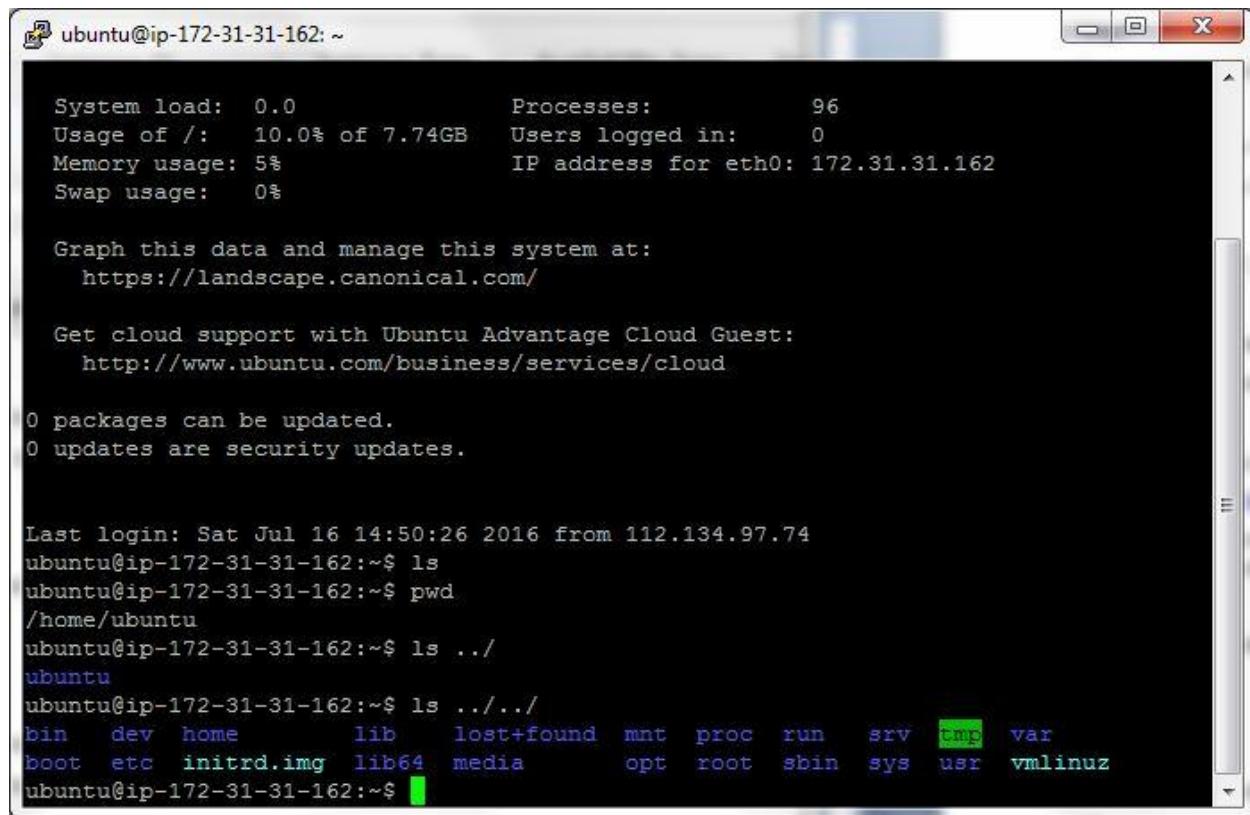
 Get cloud support with Ubuntu Advantage Cloud Guest:
  http://www.ubuntu.com/business/services/cloud

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

Last login: Sat Jul 16 14:50:26 2016 from 112.134.97.74
ubuntu@ip-172-31-31-162:~$
```

Step 9

By issuing few Linux commands we can verify the server is working properly.



ubuntu@ip-172-31-31-162: ~

```
System load: 0.0          Processes: 96
Usage of /: 10.0% of 7.74GB  Users logged in: 0
Memory usage: 5%          IP address for eth0: 172.31.31.162
Swap usage: 0%          

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

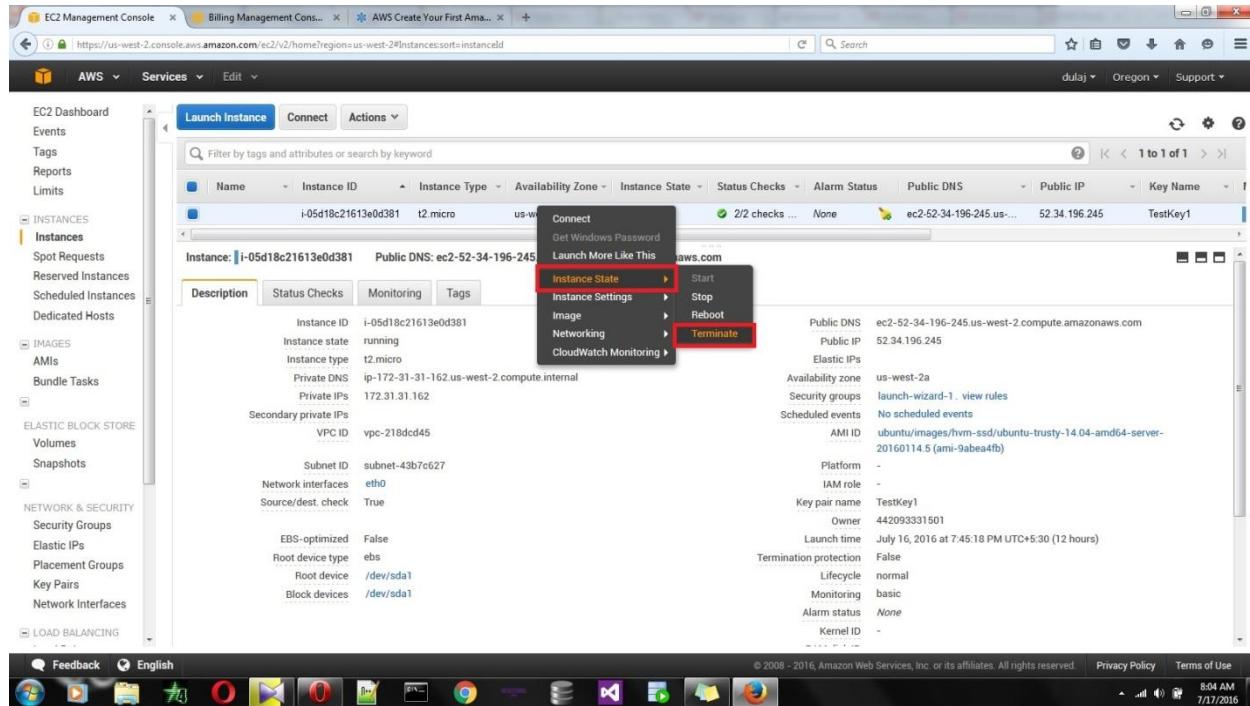
Get cloud support with Ubuntu Advantage Cloud Guest:
http://www.ubuntu.com/business/services/cloud

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

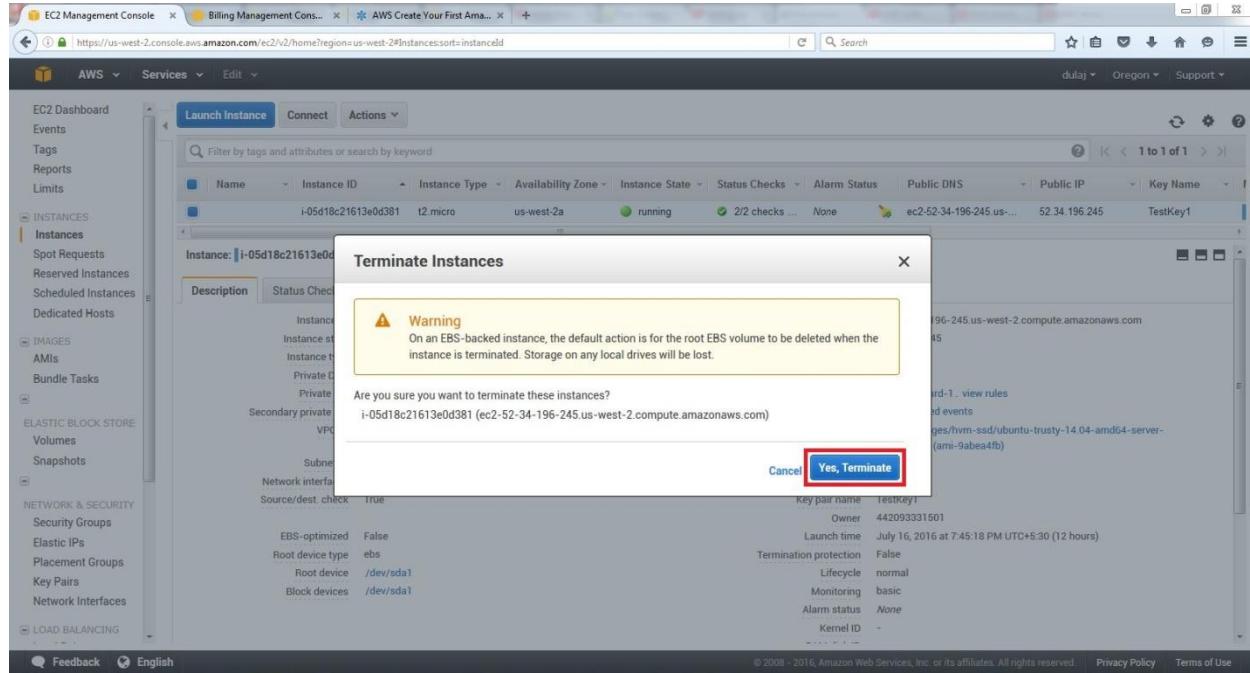
Last login: Sat Jul 16 14:50:26 2016 from 112.134.97.74
ubuntu@ip-172-31-31-162:~$ ls
ubuntu@ip-172-31-31-162:~$ pwd
/home/ubuntu
ubuntu@ip-172-31-31-162:~$ ls ../
ubuntu
ubuntu@ip-172-31-31-162:~$ ls ../../
bin  dev  home     lib   lost+found  mnt  proc  run    srv  tmp  var
boot etc  initrd.img lib64 media      opt  root  sbin  sys  usr  vmlinuz
ubuntu@ip-172-31-31-162:~$
```

Step 10

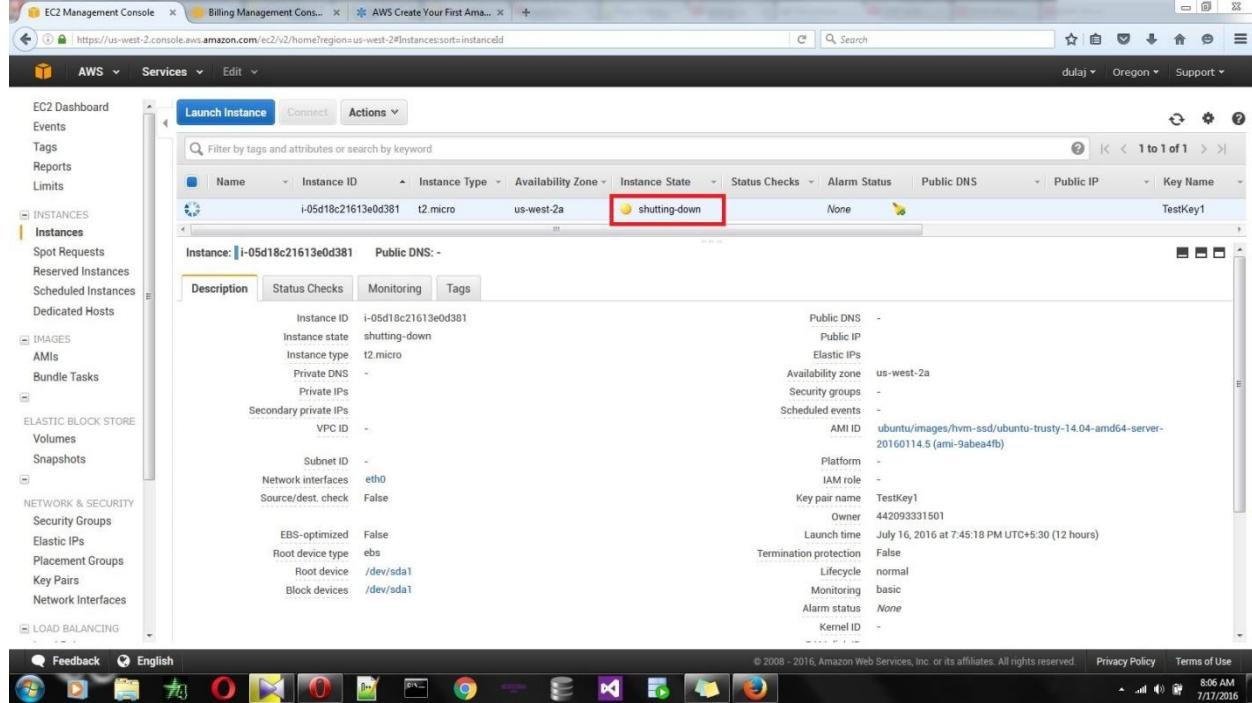
To terminate/remove the instance right click on the “Actions” or right click on the instance and go to “Instance State”. Then click “Terminate”.



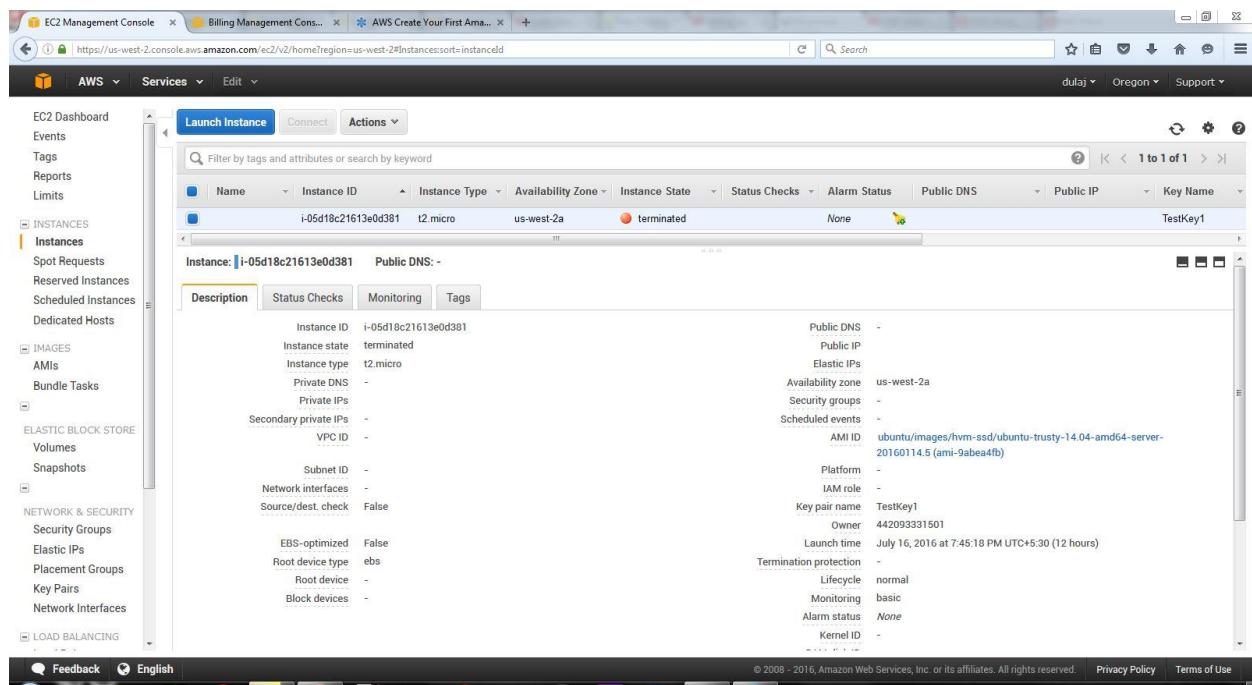
A warning will be displayed whether confirming that we need to terminate the server instance. Click “Yes, Terminate”.



After that we can observe the server is being shut down from the “Instance State” column. It will take a couple of minutes to the server instance to shut down.



The screenshot shows the AWS EC2 Management Console interface. On the left, there's a sidebar with navigation links like EC2 Dashboard, Events, Tags, Reports, Limits, Instances, Images, AMIs, and more. The main area has tabs for Launch Instance, Connect, and Actions. A search bar at the top right says "Search". Below it, a table lists instances. One instance is highlighted with a red box around its "Instance State" column, which shows "shutting-down". The instance details panel below shows the instance ID as i-05d18c21613e0d381, type t2.micro, and state us-west-2a. The status bar at the bottom right shows the date and time as July 16, 2016, at 7:45:18 PM UTC+5:30 (12 hours).



This screenshot is from the same session, showing the instance after it has been terminated. The "Instance State" column in the table now shows "terminated" with a red circle icon. The instance details panel shows the same information as before, but the status bar at the bottom right now shows the date and time as July 16, 2016, at 7:45:18 PM UTC+5:30 (12 hours).

*** End of assignment 2 ***