

# **Enterprise Standards and Best Practices for IT Infrastructure**

## **Lab 01 and 02 - Lab Report**

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## Creating an Amazon EMS-Backed Windows AMI

- Step 01: Select Microsoft Windows Server 2012 R2 Base and launch the instance.

The screenshot shows the AWS EC2 Management Console interface. The user is on Step 1: Choose an Amazon Machine Image (AMI). A list of Windows AMIs is displayed:

AMI Name	Description	Root device type	Virtualization type	Action
Microsoft Windows Server 2012 R2 Base - ami-8d0acfcd	Microsoft Windows 2012 R2 Standard edition with 64-bit architecture. [English]	ebs	hvm	Select
Microsoft Windows Server 2012 R2 with SQL Server Express - ami-4817d228	Microsoft Windows Server 2012 R2 Standard edition, 64-bit architecture, Microsoft SQL Server 2016 Express edition. [English]	ebs	hvm	Select
Microsoft Windows Server 2012 R2 with SQL Server Web - ami-f208cd92	Microsoft Windows Server 2012 R2 Standard edition, 64-bit architecture, Microsoft SQL Server 2016 Web edition. [English]	ebs	hvm	Select
Microsoft Windows Server 2012 R2 with SQL Server Standard - ami-3b0bce5b	Microsoft Windows Server 2012 R2 Standard edition, 64-bit architecture, Microsoft SQL Server 2016 Standard edition. [English]	ebs	hvm	Select

The first item, "Microsoft Windows Server 2012 R2 Base - ami-8d0acfcd", is highlighted with a blue border and has a "Select" button next to it. The status "Free tier eligible" is also visible.

- Step 02: Choose an Instance Type. Default one is ‘t2.micro’ and Review and Launch it.

The screenshot shows the AWS EC2 Management Console interface. The user is on Step 2: Choose an Instance Type. A table lists available 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	<b>t2.micro</b> <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

The "t2.micro" instance type is selected and highlighted with a green background. The status "Free tier eligible" is also visible. At the bottom, there are "Cancel", "Previous", "Review and Launch", and "Next: Configure Instance Details" buttons.

- Step 03: Review Instance Launch.

**Step 7: Review Instance Launch**

Please review your instance launch details. You can go back to edit changes for each section. Click **Launch** to assign a key pair to your instance and complete the launch process.

**AMI Details**

**Microsoft Windows Server 2012 R2 Base - ami-8d0acf6**

**Free tier eligible** Microsoft Windows 2012 R2 Standard edition with 64-bit architecture. [English]  
Root Device Type: ebs Virtualization type: hvm

If you plan to use this AMI for an application that benefits from Microsoft License Mobility, fill out the License Mobility Form. Don't show me this again

**Instance Type**

Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
t2.micro	Variable	1	1	EBS only	-	Low to Moderate

**Launch**

- Step 04: Create a new key pair. After that download the key pair and launch the instance.

**Step 7: Review Instance Launch**

You can also open additional ports in your security group.

**AMI Details**

**Microsoft Windows Server 2012 R2 Base - ami-8d0acf6**

**Free tier eligible** Microsoft Windows 2012 R2 Standard edition with 64-bit architecture. [English]  
Root Device Type: ebs Virtualization type: hvm

If you plan to use this AMI for an application that benefits from Microsoft License Mobility, fill out the License Mobility Form. Don't show me this again

**Instance Type**

Instance Type	ECUs
t2.micro	Variable

**Select an existing key pair or create a new key pair**

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.

Create a new key pair  
Key pair name: **key1**  
**Download Key Pair**

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.

**Launch Instances**

- Step 05: View the launch status and connect to the created instance.

Your instances are now launching  
The following instance launches have been initiated: i-0a5fa300009572d3e [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 Windows instance
- Learn about AWS Free Usage Tier
- Amazon EC2: User Guide
- Amazon EC2: Microsoft Windows Guide
- Amazon EC2: Discussion Forum

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**Connect To Your Instance**

You can connect to your Windows instance using a remote desktop client of your choice, and by downloading and running the RDP shortcut file below:

[Download Remote Desktop File](#)

When prompted, connect to your instance using the following details:

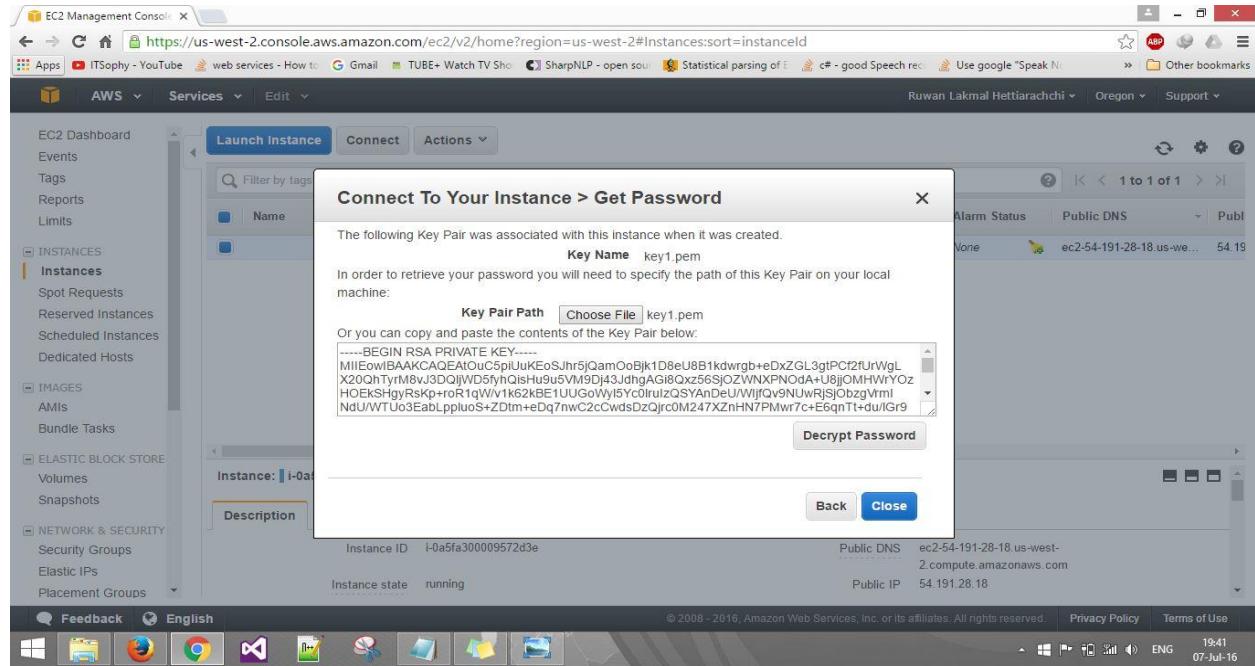
**Public DNS** ec2-54-191-28-18.us-west-2.compute.amazonaws.com  
**User name** Administrator  
**Password** [Get Password](#)

If you've joined your instance to a directory, you can use your directory credentials to connect to your instance.  
If you need any assistance connecting to your instance, please see our [connection documentation](#).

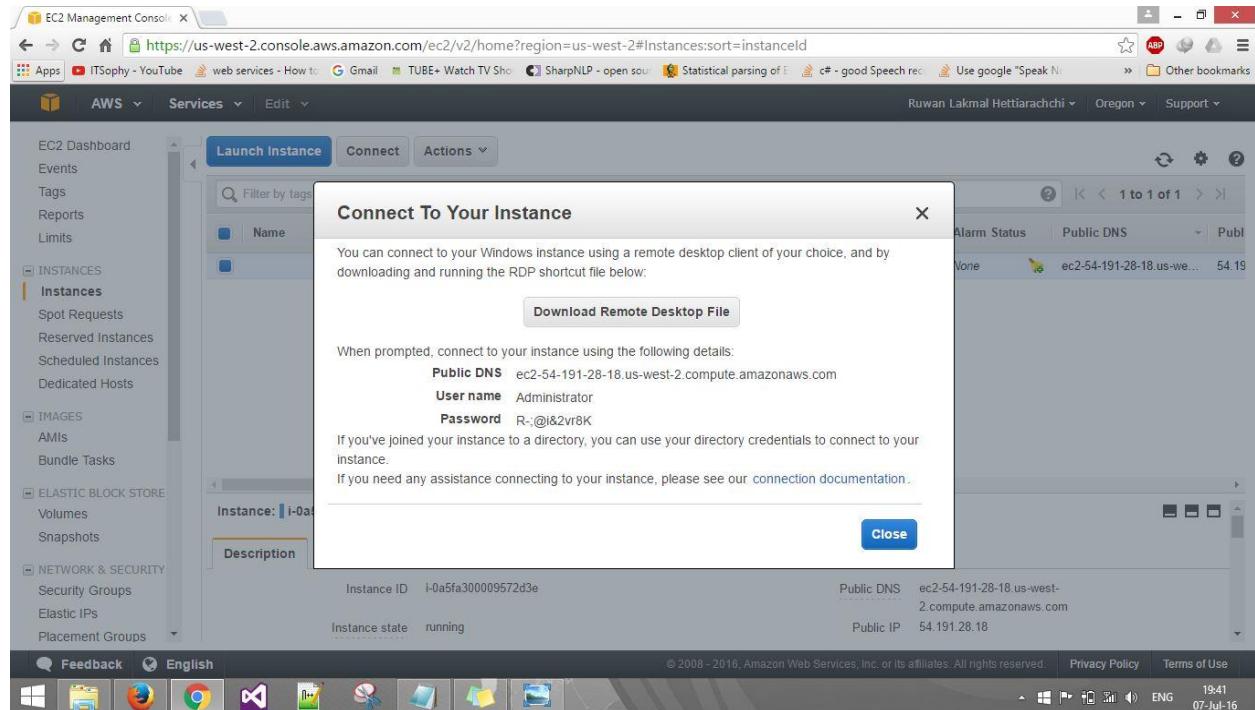
Instance ID: i-0a5fa300009572d3e  
Instance state: running  
Public DNS: ec2-54-191-28-18.us-west-2.compute.amazonaws.com  
Public IP: 54.191.28.18

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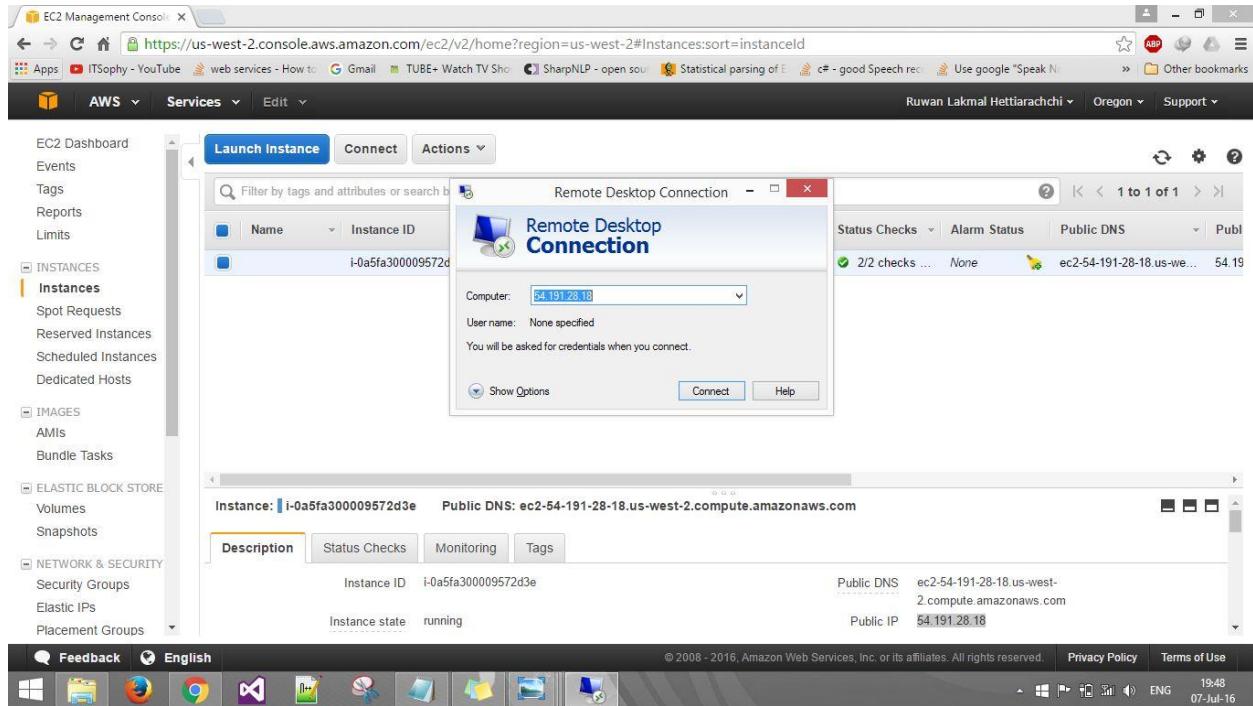
- Step 06: Click ‘Get Password’ and give a location to save the ‘.pem’ file. Then decrypt the password



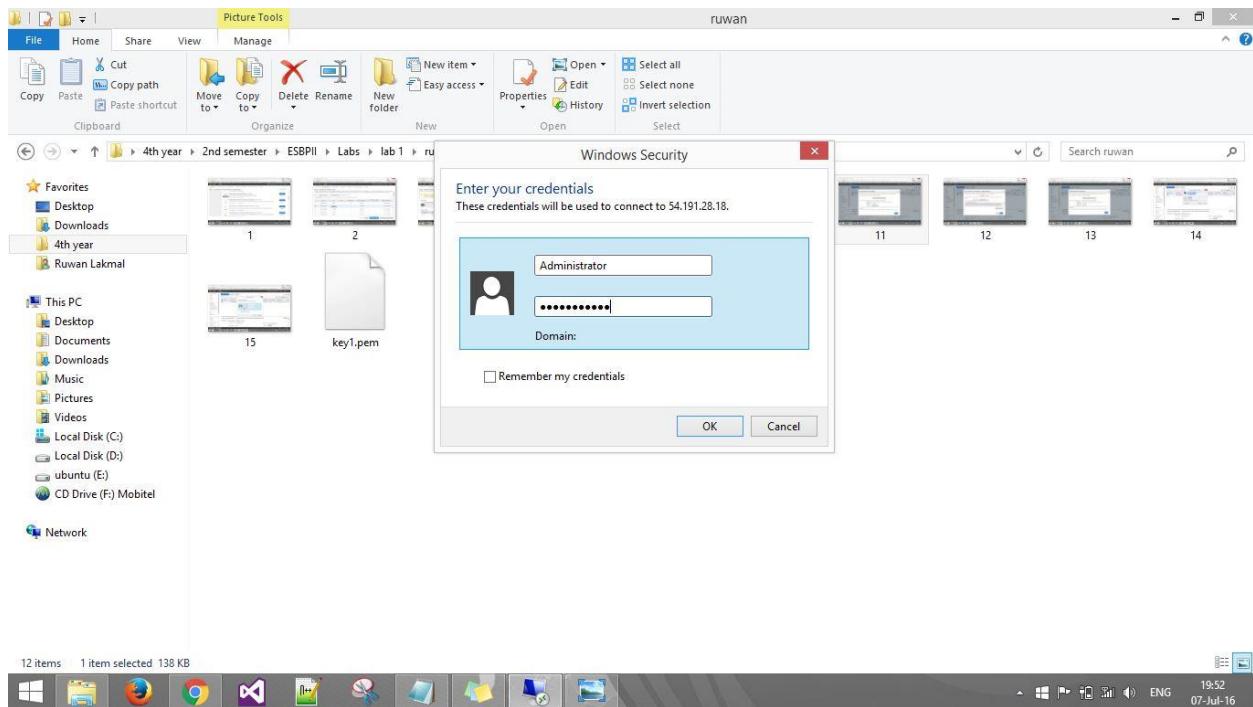
- Step 07: Copy username and password of the Windows Server 2012 to a notepad.



- Step 08: Open Remote Desktop Connection and connect using public IP



- Step 09: Then enter the username and password of the Windows Server 2012



- Step 10: Windows Server 2012 R2 is running



- Step 11: Terminate the instance.

The screenshot shows the AWS EC2 Management Console interface. On the left, there is a navigation sidebar with options like EC2 Dashboard, Events, Tags, Reports, Limits, Instances, Images, AMIs, and Elastic Block Store. The Instances section is currently selected, showing a list of instances. One instance is highlighted, and a context menu is open over it. The menu items include Connect, Get Windows Password, Launch More Like This, Instance State (with sub-options Start, Stop, Reboot, and Terminate), Instance Settings, Image, Networking, and CloudWatch Monitoring. The "Terminate" option is highlighted. Below the menu, detailed information about the instance is shown, including its instance ID (i-0a5fa300009572d3e), Public DNS (ec2-54-191-28-18.us-west-2.compute.amazonaws.com), and Public IP (54.191.28.18). At the bottom of the page, there are links for Feedback, English, Privacy Policy, Terms of Use, and a footer with copyright information and a timestamp (© 2008 - 2016, Amazon Web Services, Inc. or its affiliates. All rights reserved. 20:00 ENG 07-Jul-16).

## Creating an Amazon Linux AMI

- Step 01: Logging to the Amazon web service account and click ‘Launch Instance’.

The screenshot shows the AWS EC2 Management Console interface. The left sidebar contains navigation links for EC2 Dashboard, Events, Tags, Reports, Limits, Instances, AMIs, and Network & Security. The main content area displays resource statistics: 0 Running Instances, 0 Dedicated Hosts, 0 Volumes, 1 Key Pairs, 0 Placement Groups, 0 Elastic IPs, 0 Snapshots, 0 Load Balancers, and 2 Security Groups. Below this is a section titled 'Create Instance' with a 'Launch Instance' button. To the right, there's an 'Account Attributes' panel listing Supported Platforms (VPC), Default VPC (vpc-7b6e1d1f), and Resource ID length management. An 'Additional Information' panel includes links to Getting Started Guide, Documentation, All EC2 Resources, Forums, Pricing, and Contact Us. A 'AWS Marketplace' panel shows a search bar for free software trial products and a list of popular AMIs. The bottom of the screen shows standard Windows taskbar icons and system status.

- Step 02: Select Amazon Linux AMI.

The screenshot shows the 'Step 1: Choose an Amazon Machine Image (AMI)' page of the EC2 Launch Instance Wizard. The top navigation bar shows steps 1 through 7. The main content area is titled 'Quick Start' and lists three AMI options: 'Amazon Linux AMI 2016.03.3 (HVM), SSD Volume Type - ami-7172b611', 'Red Hat Enterprise Linux 7.2 (HVM), SSD Volume Type - ami-775e4f16', and 'SUSE Linux Enterprise Server 12 SP1 (HVM), SSD Volume Type - ami-d2627db3'. Each item has a 'Select' button and a note indicating it is 'Free tier eligible'. The bottom of the screen shows the standard Windows taskbar and system status.

This screenshot is identical to the previous one, but the 'Select' button for the 'Amazon Linux AMI 2016.03.3 (HVM), SSD Volume Type - ami-7172b611' option is highlighted in blue, indicating it is the selected choice.

- Step 03: Review and launch the selected instance type.

**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 <small>Free tier eligible</small>	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

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

**Step 7: Review Instance Launch**

Please review your instance launch details. You can go back to edit changes for each section. Click **Launch** to assign a key pair to your instance and complete the launch process.

**AMI Details** [Edit AMI](#)

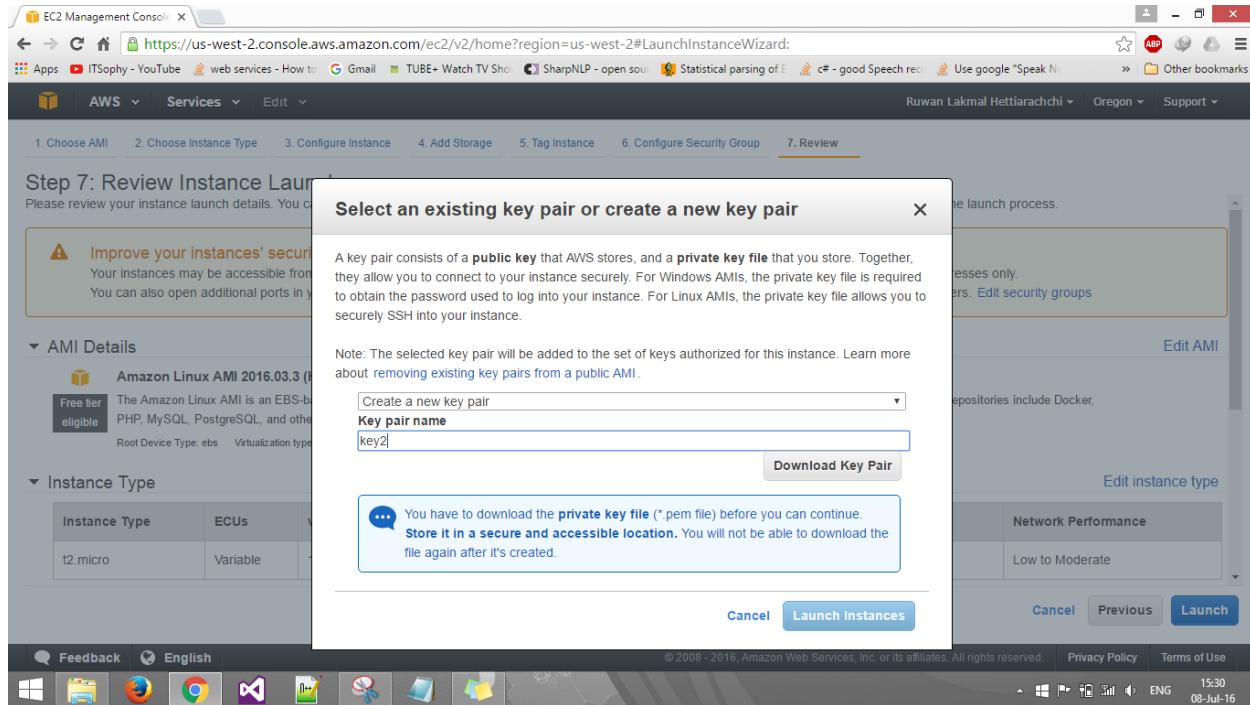
**Amazon Linux AMI 2016.03.3 (HVM), SSD Volume Type - ami-7172b611**  
**Free tier eligible**  
The Amazon Linux AMI is an EBS-backed, AWS-supported image. The default image includes AWS command line tools, Python, Ruby, Perl, and Java. The repositories include Docker, PHP, MySQL, PostgreSQL, and other packages.  
Root Device Type: ebs Virtualization type: hvm

**Instance Type** [Edit instance type](#)

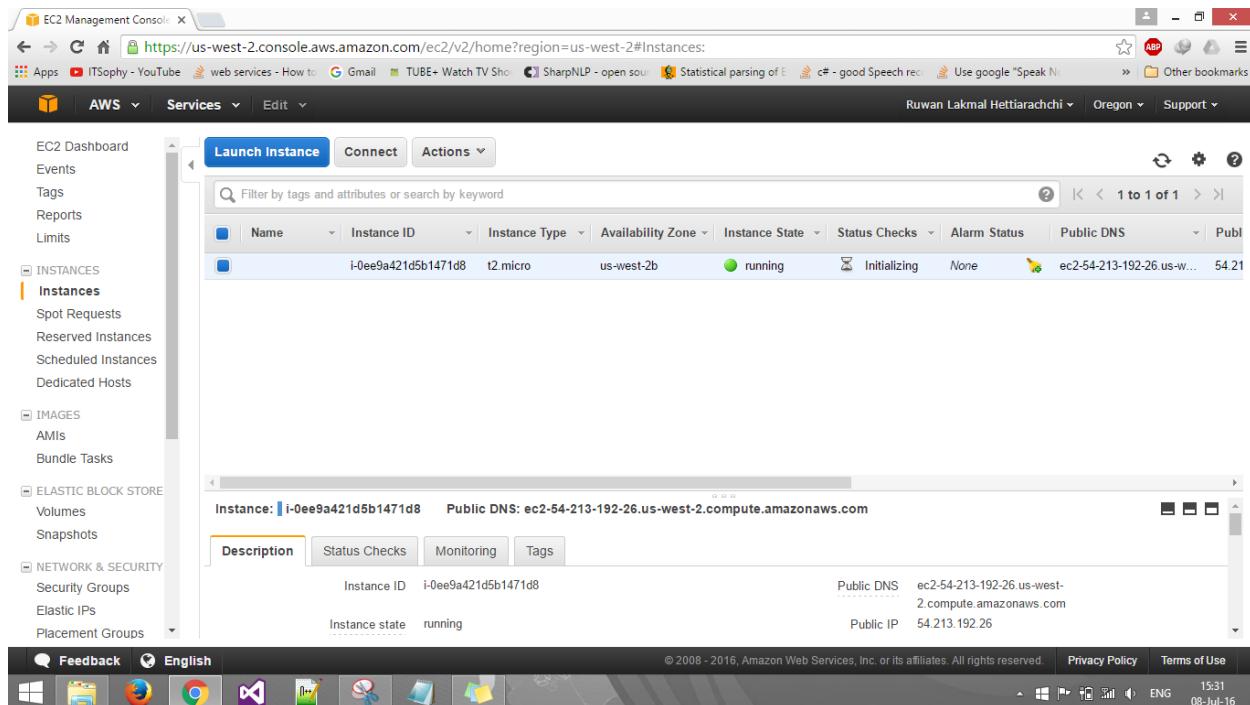
Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
t2.micro	Variable	1	1	EBS only	-	Low to Moderate

**Cancel** **Previous** **Launch**

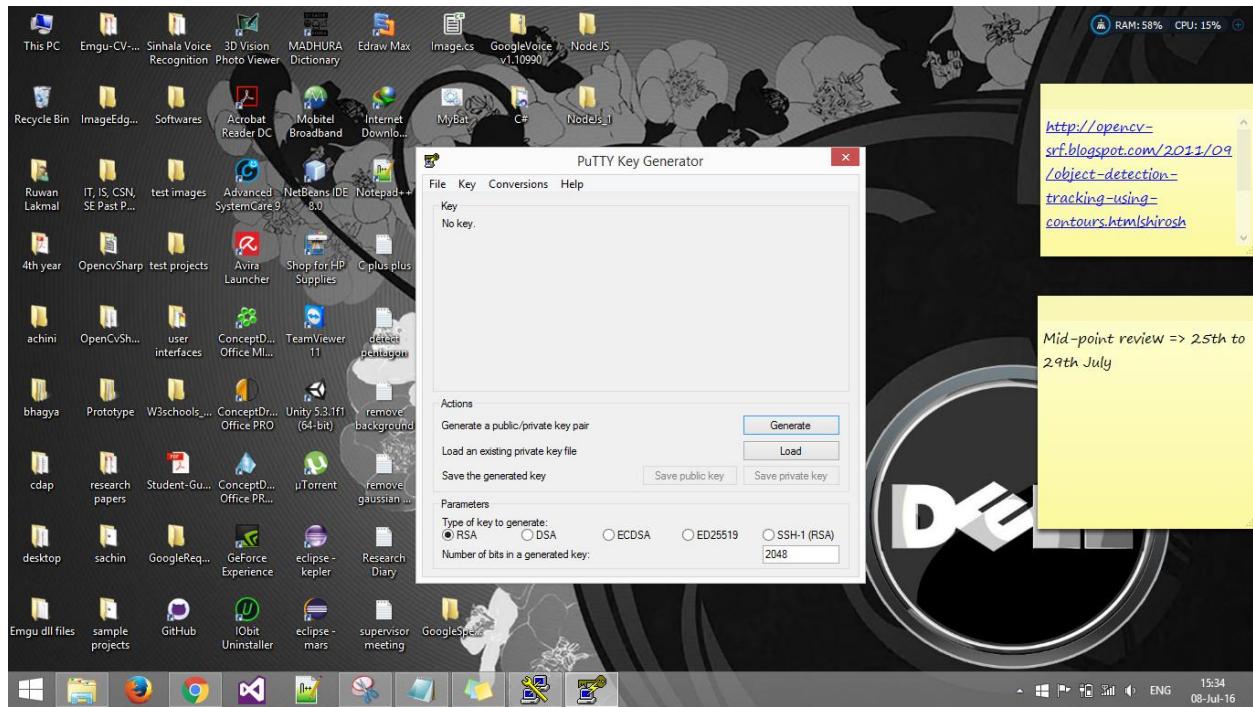
- Step 04: Create a new key pair and download it. Then press ‘Launch Instances’.



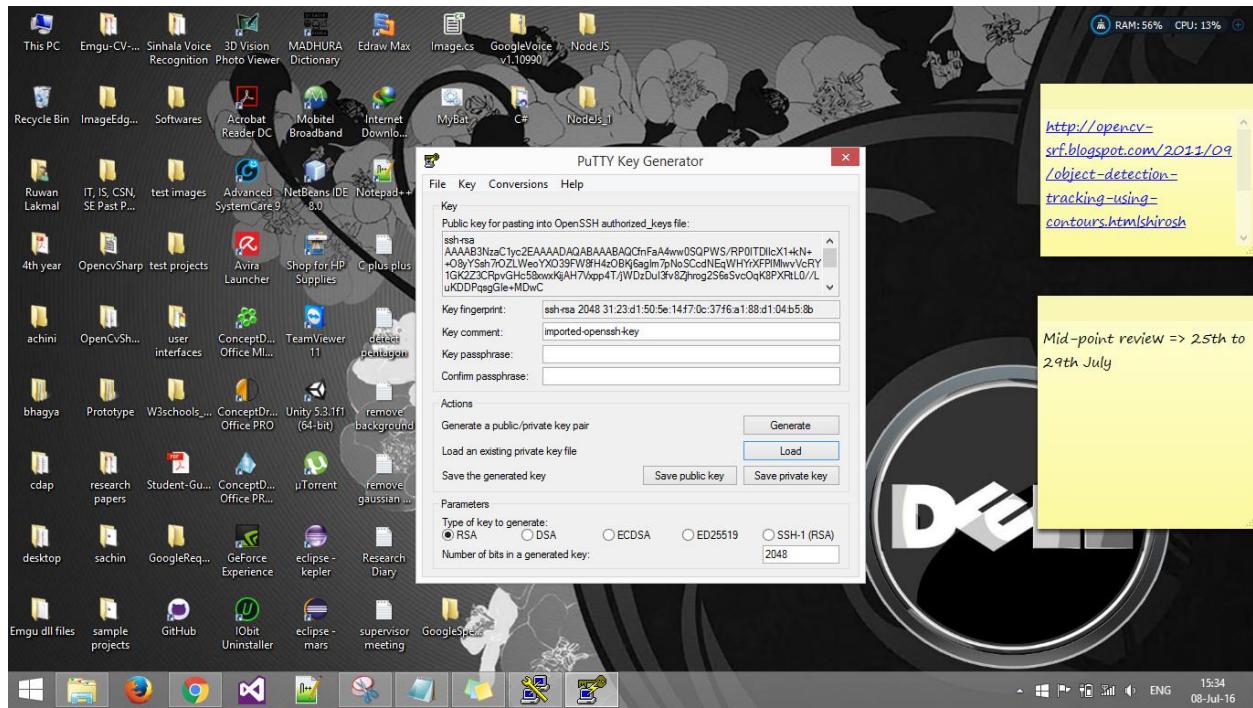
- Step 05: Instance is successfully running.



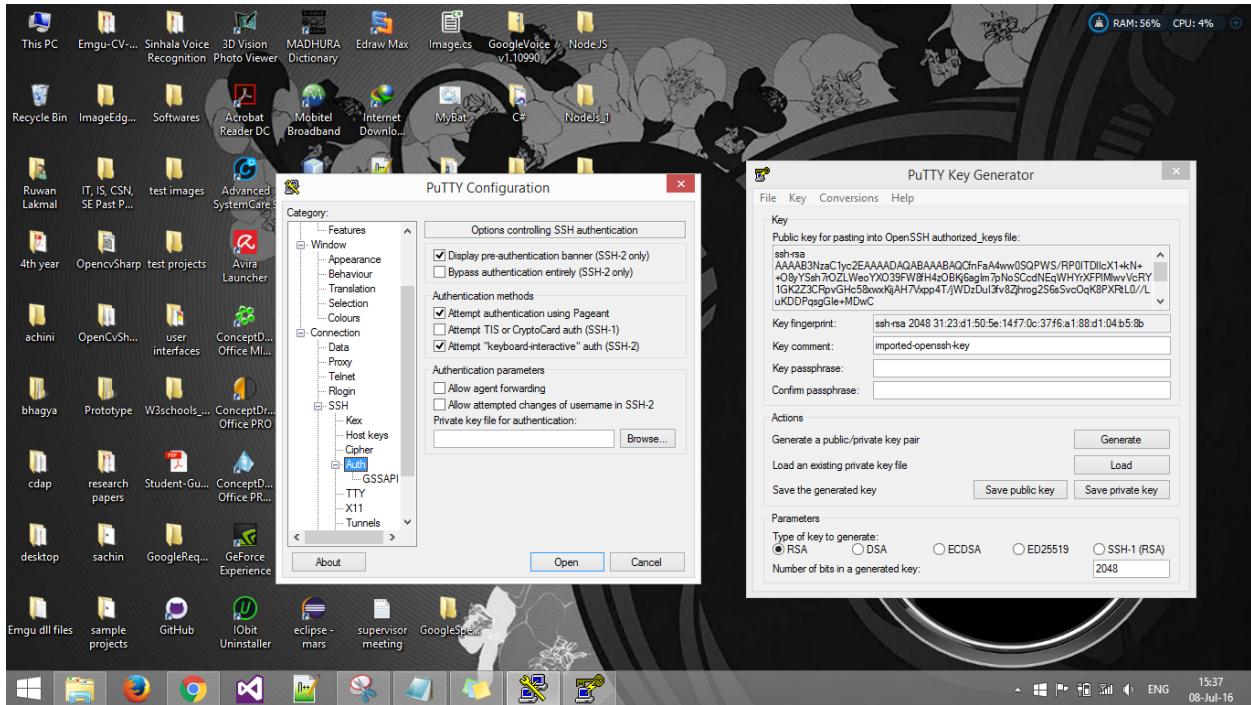
- Step 06: Open PuTTY key generator and load the .pem file which was downloaded in Step 04.



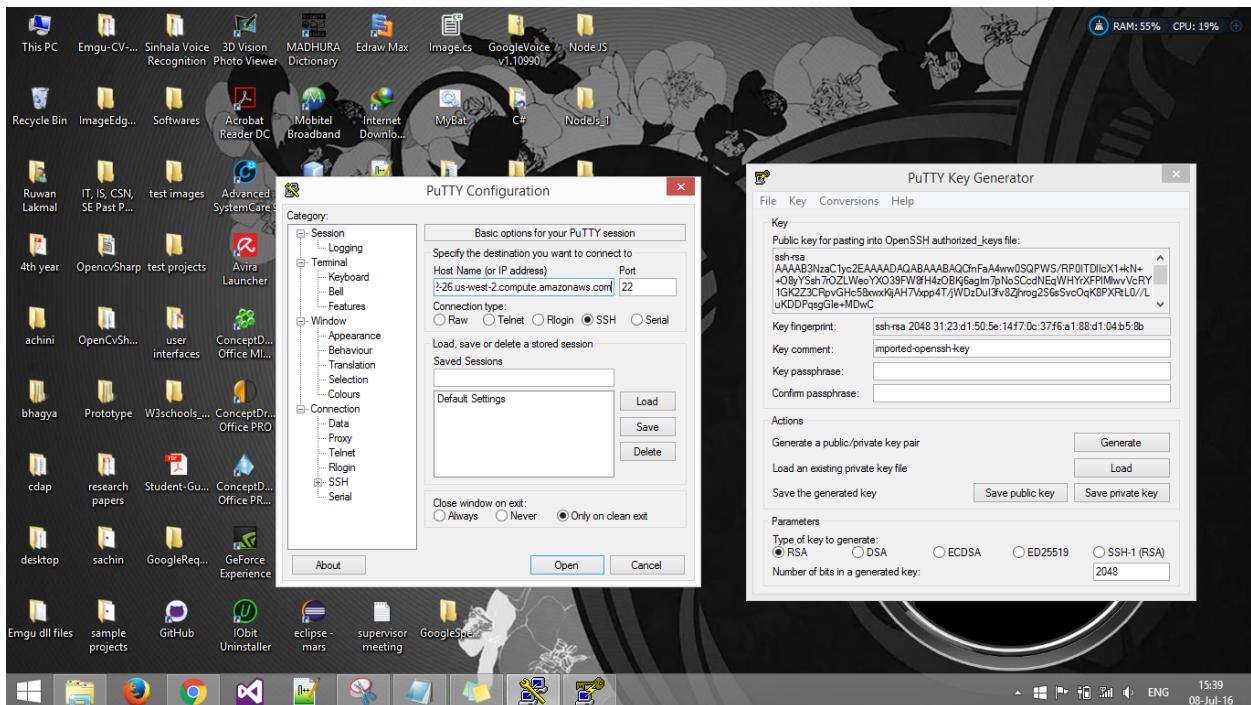
- Step 07: Save private key



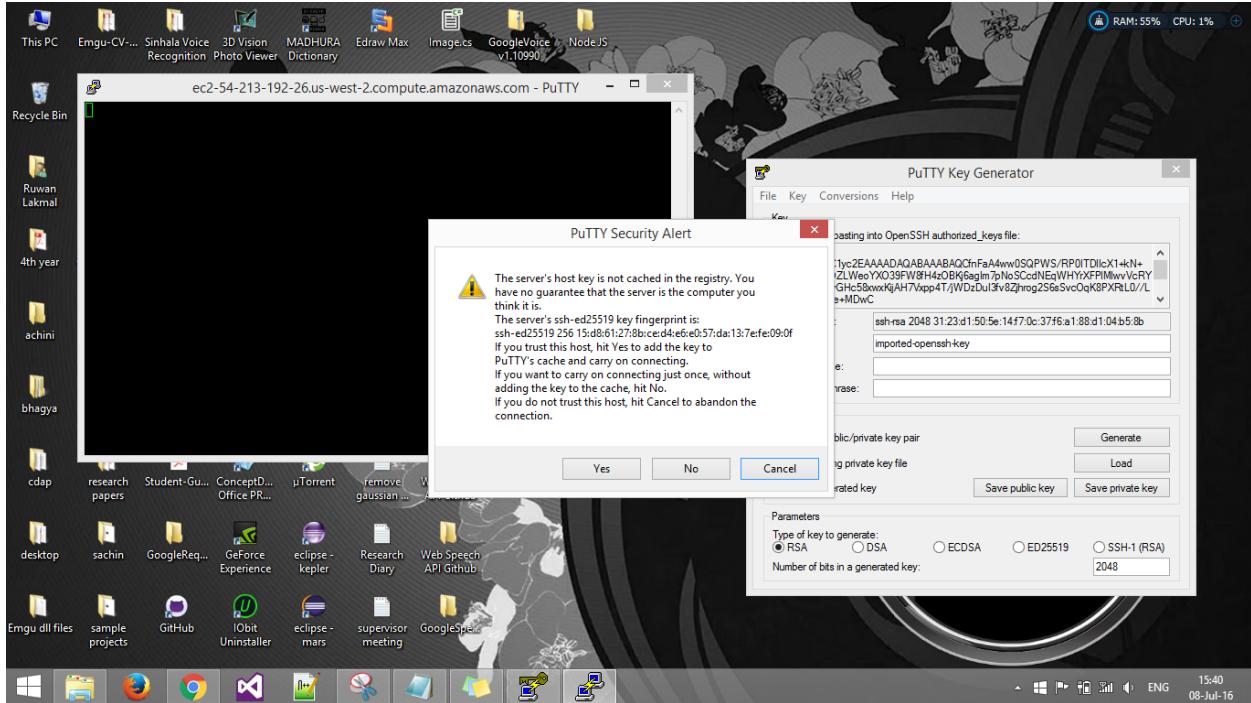
- Step 08: Open PuTTY configuration file and go to the Auth. Then browse the private key (.ppk) which was downloaded in the step 06.



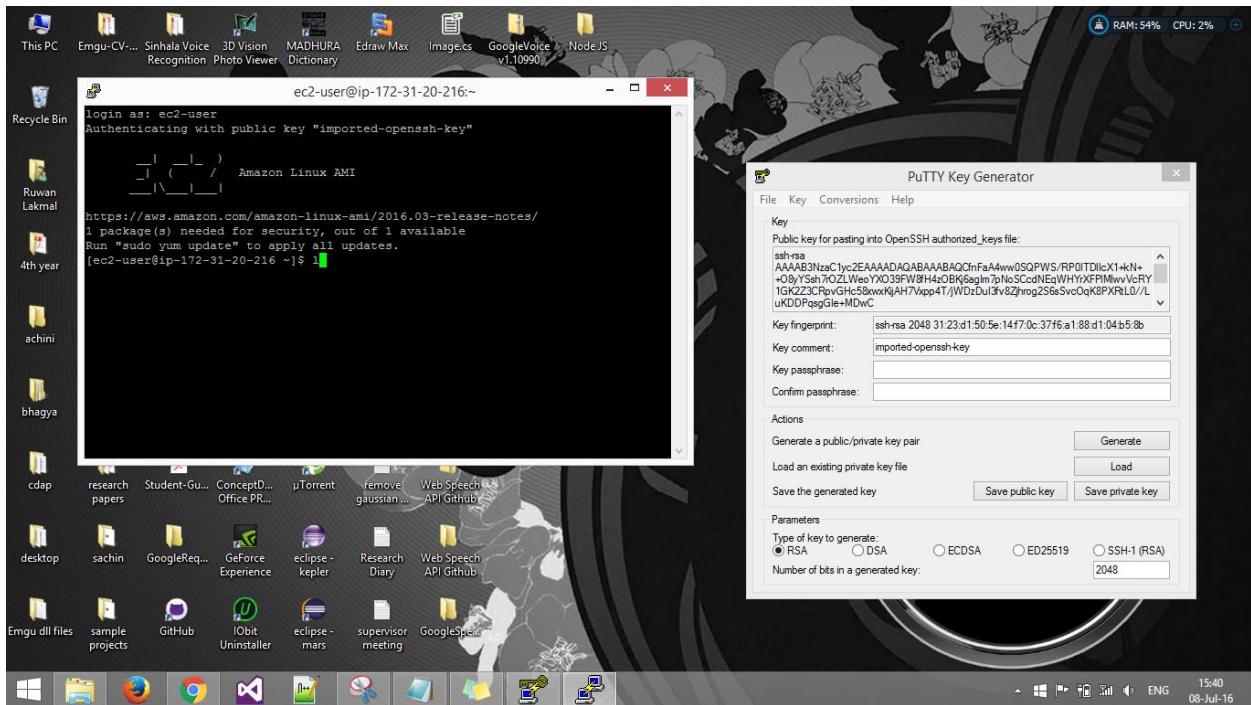
- Step 09: Go to the Session and give the Host Name and press Open

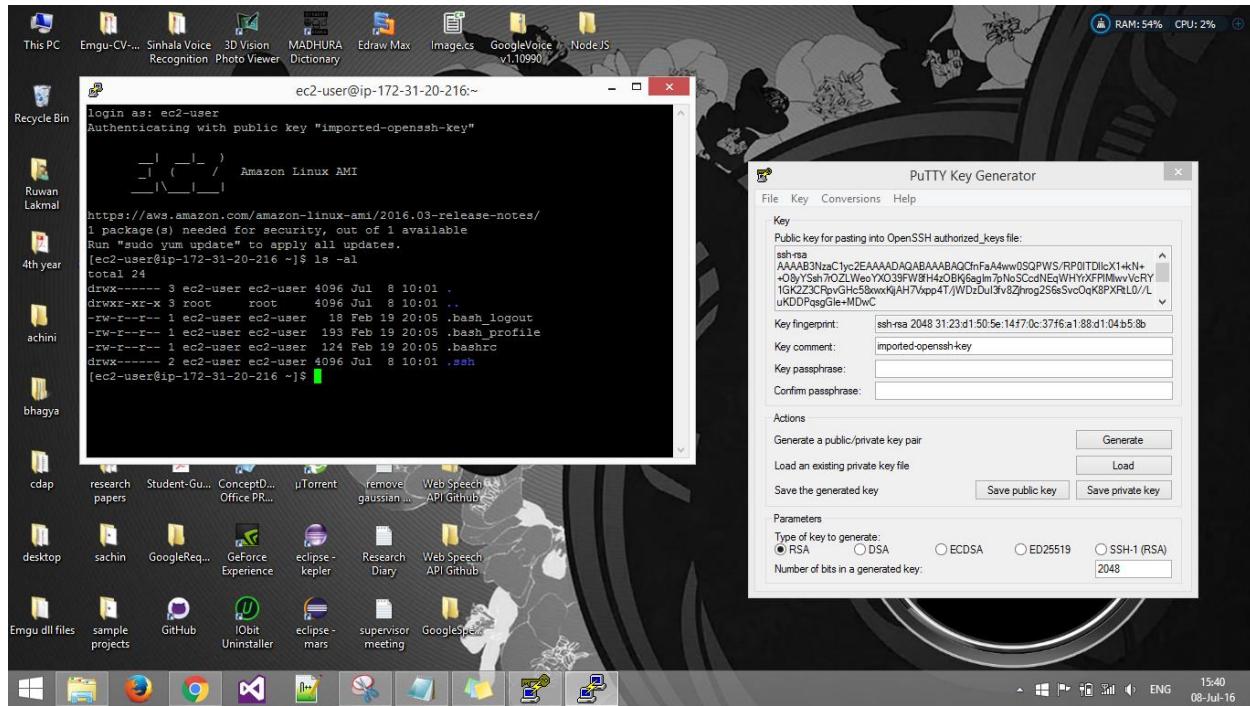


- Step 10: PuTTY security alert will be appeared and click ‘Yes’. Then it will display Linux terminal.



- Step 11: For login as field enter ‘ec2-user’ and then check whether Linus terminal is working properly by using ‘ls -al’ command.





- Stop the instance after using it.

