

# **Sri Lanka Institute of Information Technology**



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

## **Assignment – AWS Instances**

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June Intake

Note that before you move on with this tutorial you should have an account with Amazon Web Services and have signed up for Amazon EC2.

If you are using a basic free tier account always select options which are free tier eligible. Otherwise you will be charged.

# 1. Amazon EC2 Windows Instance

## Create a Windows Instance

Amazon Elastic Compute Cloud (Amazon EC2) is a web service which lets you to launch and configure the Operating Systems (Linux/UNIX and Windows instances) and applications in Amazon data centers. An instance is a virtual server in AWS cloud.

First go to the AWS Management Console and click EC2 under Compute category.

<https://ap-south-1.console.aws.amazon.com/console/home?region=ap-south-1#>

The screenshot shows the AWS Management Console homepage. At the top, there are several quick start links: 'Build a web app', 'Launch a Virtual Machine (EC2 Instance)', 'Back up your files', 'Build a backend for your mobile app', 'Host a static website', and 'Analyze big data'. To the right, there are sections for 'GETTING STARTED', 'AWS CONSOLE MOBILE APP', 'AWS MARKETPLACE', and 'FEEDBACK'. Below these are 'Shortcuts and Recently Viewed Services' (with 'EC2' highlighted) and 'AWS Services' (with 'COMPUTE' expanded, showing 'EC2' circled in red). The 'Service Health' section indicates that all services are operating normally. The URL in the browser is https://us-west-2.console.aws.amazon.com/console/home?region=us-west-2.

From EC2 dashboard click Launch Instance.

The screenshot shows the AWS EC2 Management Console dashboard. On the left, there's a sidebar with navigation links for EC2 Dashboard, Events, Tags, Reports, Limits, Instances (with sub-links for Instances, Spot Requests, Reserved Instances, Scheduled Instances, and Dedicated Hosts), Images (AMIs, Bundle Tasks), Elastic Block Store (Volumes, Snapshots), and Network & Security (Security Groups, Elastic IPs, Placement Groups, Key Pairs). The main content area has a heading 'Resources' and a summary of resources: 0 Running Instances, 0 Dedicated Hosts, 0 Volumes, 3 Key Pairs, 0 Placement Groups, 0 Elastic IPs, 0 Snapshots, 0 Load Balancers, and 3 Security Groups. Below this is a callout box for Amazon Simple Workflow Service. A large blue button labeled 'Launch Instance' is highlighted with a red circle. To the right, there are sections for Account Attributes (Supported Platforms: VPC, Default VPC: vpc-5f463e3b, Resource ID length management) and Additional Information (Getting Started Guide, Documentation, All EC2 Resources, Forums, Pricing, Contact Us). At the bottom, there are links for Feedback, English, and footer information including copyright, Privacy Policy, and Terms of Use.

This will open the request instance wizard.

First tab of the wizard shows the basic Amazon Machine Image (AMI). AMI contain all the information needs to create new instance server. Select Microsoft Server 2012 R2 Base which is free eligible to create Windows instance.

The screenshot shows the 'Create Amazon Cloud EC2' wizard on the AWS Management Console. The current step is 'Step 1: Choose an Amazon Machine Image (AMI)'. There are three AMI options listed:

- SUSE Linux Enterprise Server 12 SP1 (HVM), SSD Volume Type - ami-d2627db3**  
SUSE Linux Enterprise Server 12 Service Pack 1 (HVM), EBS General Purpose (SSD) Volume Type. Public Cloud, Advanced Systems Management, Web and Scripting, and Legacy modules enabled.  
Root device type: ebs Virtualization type: hvm  
**Select** button (disabled)  
64-bit
- Ubuntu Server 14.04 LTS (HVM), SSD Volume Type - ami-9abea4fb**  
Ubuntu Server 14.04 LTS (HVM), EBS General Purpose (SSD) Volume Type. Support available from Canonical (<http://www.ubuntu.com/cloud/services>).  
Root device type: ebs Virtualization type: hvm  
**Select** button (disabled)  
64-bit
- Microsoft Windows Server 2012 R2 Base - ami-8d0acfed**  
Microsoft Windows 2012 R2 Standard edition with 64-bit architecture. [English]  
Root device type: ebs Virtualization type: hvm  
**Select** button (disabled)  
64-bit

A red oval highlights the Microsoft Windows Server 2012 R2 Base entry. A tooltip at the bottom of the page says: 'Are you launching a database instance? Try Amazon RDS.' with a 'Hide' link.

After you select the instance from the list, instance detail page will be displayed.

2<sup>nd</sup> tab of the wizard is to choose instance type. This will let you to select the number and size of the instance you are choosing. For this tutorial we will select **t2.micro** since it is free tier eligible and click **Configure Instance Detail** button.

The screenshot shows the AWS EC2 Management Console interface. The URL in the browser is <https://us-west-2.console.aws.amazon.com/ec2/v2/home?region=us-west-2#LaunchInstanceWizard>. The top navigation bar includes links for 'Create Amazon Cloud EC...', 'Getting Started with Amazon EC2', and 'EC2 Management Console'. The user's name 'Pavithra Sankalpani' is visible in the top right corner.

The main content area displays the 'Step 2: Choose an Instance Type' page. The title 'Step 2: Choose an Instance Type' is at the top. Below it, a descriptive text states: '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.'

Below the text, there is a table for filtering instance types. The filter dropdown shows 'All instance types' and 'Current generation'. A 'Show/Hide Columns' link is also present.

The table lists the currently selected instance type: 't2.micro (Variable ECUs, 1 vCPUs, 2.5 GHz, Intel Xeon Family, 1 GiB memory, EBS only)'. The table columns are: Family, Type, vCPUs, Memory (GiB), Instance Storage (GB), EBS-Optimized Available, and Network Performance.

	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

At the bottom of the page, there are buttons for 'Cancel', 'Previous', 'Review and Launch' (which is highlighted in blue), and 'Next: Configure Instance Details'.

Now configure instance tab will be appeared. But leave it as it is. Then click Add Storage Button.

Leave this as it is. Click **Tag Instance** button.

You can also give your instance a name. This will make it easy to identify your instance when there are long list of instances. I will name this instance as ***WindowsInstance***. Click ***Configure Security Group***.

The screenshot shows a browser window for the AWS EC2 Management Console. The URL is <https://us-west-2.console.aws.amazon.com/ec2/v2/home?region=us-west-2#LaunchInstanceWizard>. The page is titled "Step 5: Tag Instance". It displays a table for creating tags:

Key	(127 characters maximum)	Value	(255 characters maximum)
Demo1		WindowsInstance	X

Below the table is a "Create Tag" button. At the bottom of the page are navigation buttons: "Cancel", "Previous", "Review and Launch" (which is highlighted in blue), and "Next: Configure Security Group".

Now you can configure a security group for your instance. A security group creates a firewall rules for your instances. These rules define which traffic is allowed to reach to your instance. By default basic rules have already defined. Since you do not have any security group yet select ***create a new security group*** and give name to your security group. In our tutorial we have allowed to any traffic to access the instance. But it's unsafe if you use the instance for production purposes. Then click ***Review and Launch*** button.

**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 that allow unrestricted access 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 name:** WindowsDemo

**Description:** Windows Instance Security

Type	Protocol	Port Range	Source
RDP	TCP	3389	Anywhere ▾ 0.0.0.0/0
SSH	TCP	22	Custom ▾ 0.0.0.0/0

**Add Rule**

**Warning**  
Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

**Cancel** **Previous** **Review and Launch**

On the review tab you can see a summary of the instance which you are going to create.

**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-8d0acfcd**  
**Free tier eligible** Microsoft Windows 2012 R2 Standard edition with 64-bit architecture. [English]  
Root Device Type: ebs Virtualization type: hvm

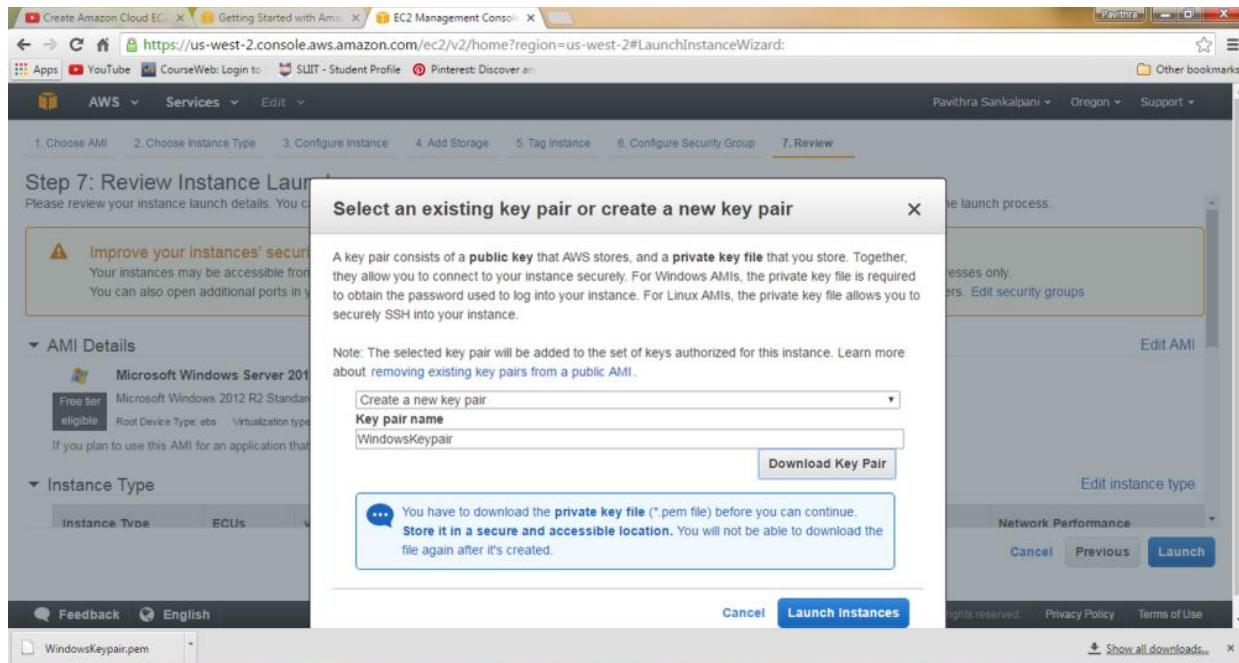
If you plan to use this AMI for an application that benefits from Microsoft License Mobility, fill out the [License Mobility Form](#). Don't show me this again

**Instance Type**

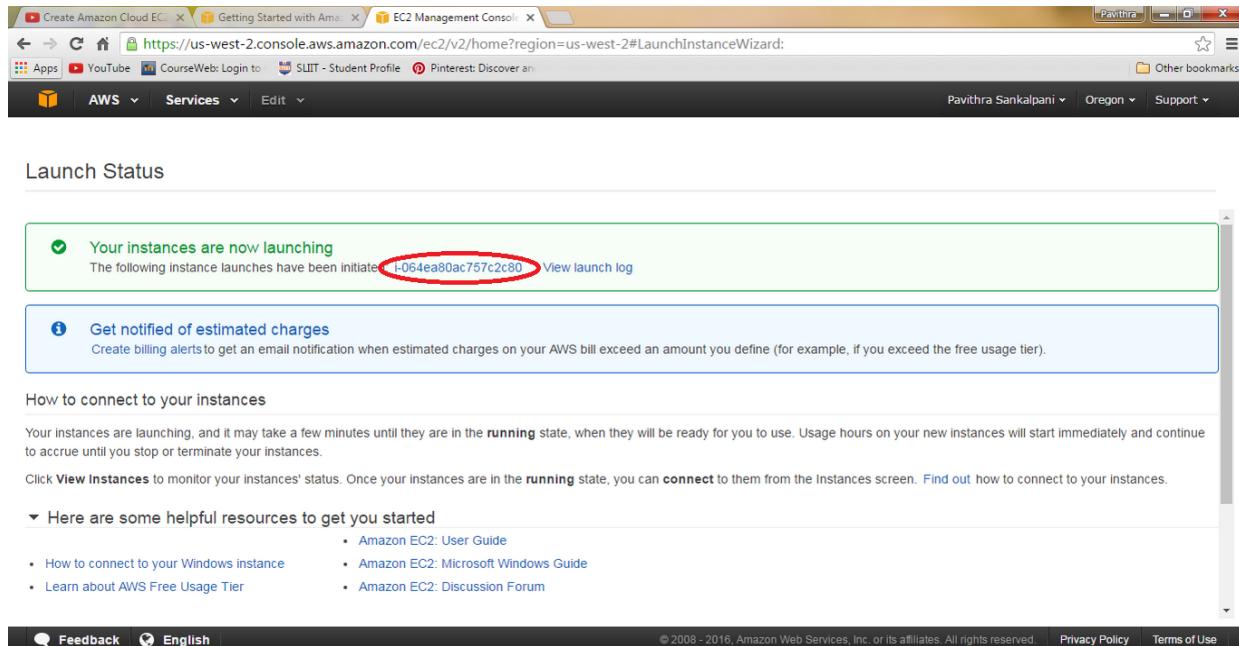
Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
t2.micro	Variable	1	1	EBS only	-	Low to Moderate

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

Click **Launch** button on the review tab and you'll get a window as follows. Since you do not have a key pair, select key pair and give a name to the key pair. Key pair is securities credential which similar to a password. This allows a secure connection to connect to your instance. Now download your key pair to your machine. Then click **Launch Instance** button.

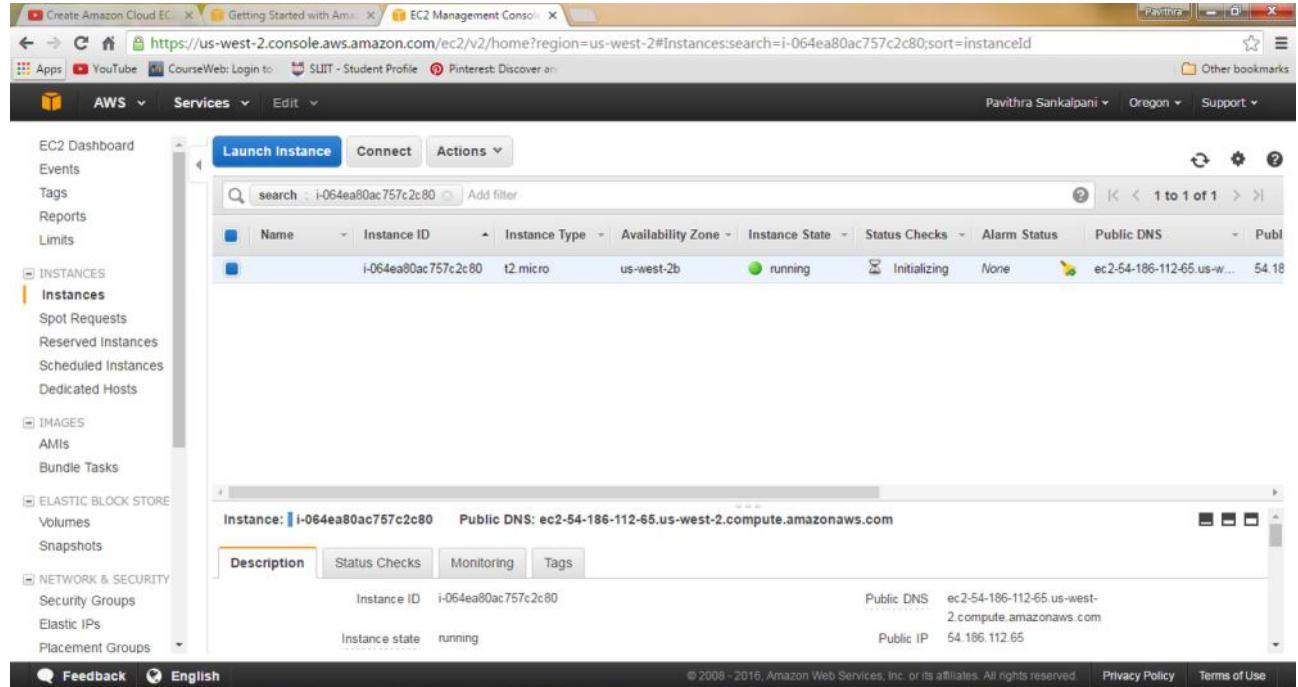


Then you'll get Launch Status page which will shows that your instance created successfully. You can view your instance by clicking the link inside the red circle.



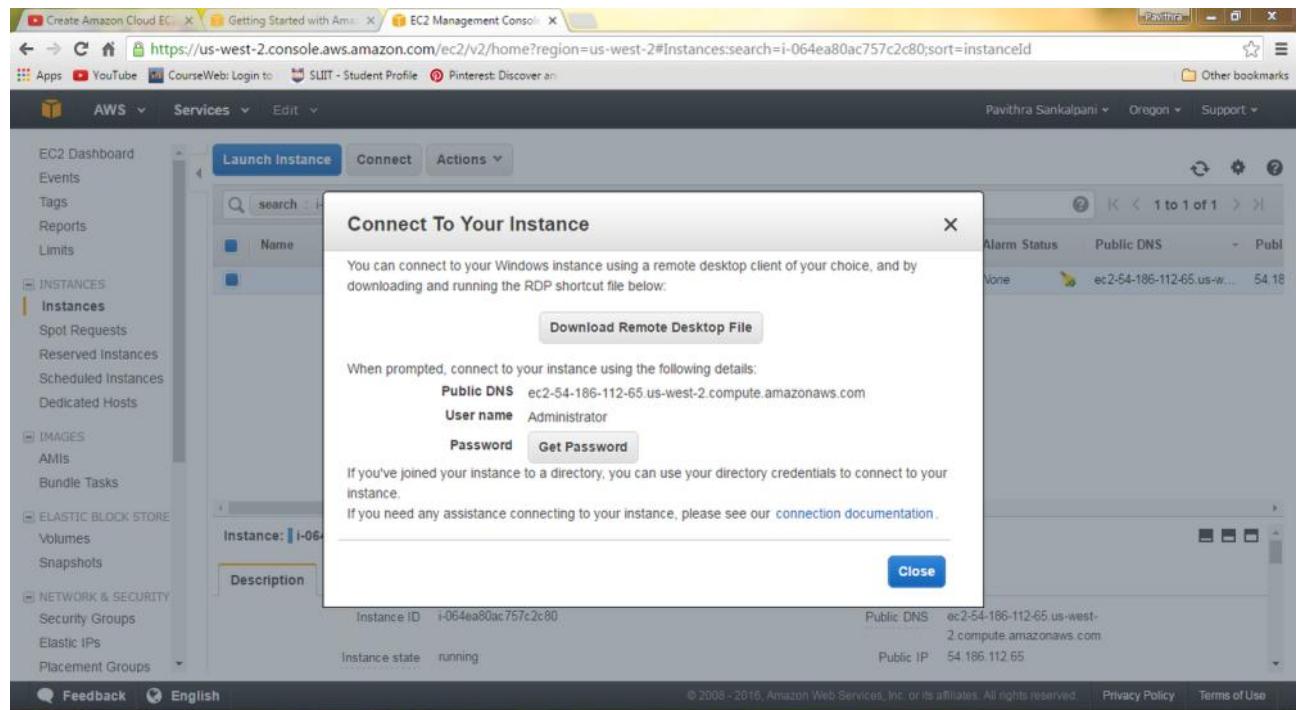
## Connect to a Windows Instance

In the instance page you can see the instance you have created and its status is in **running** mode. Select your instance and click **Connect** button on the top.



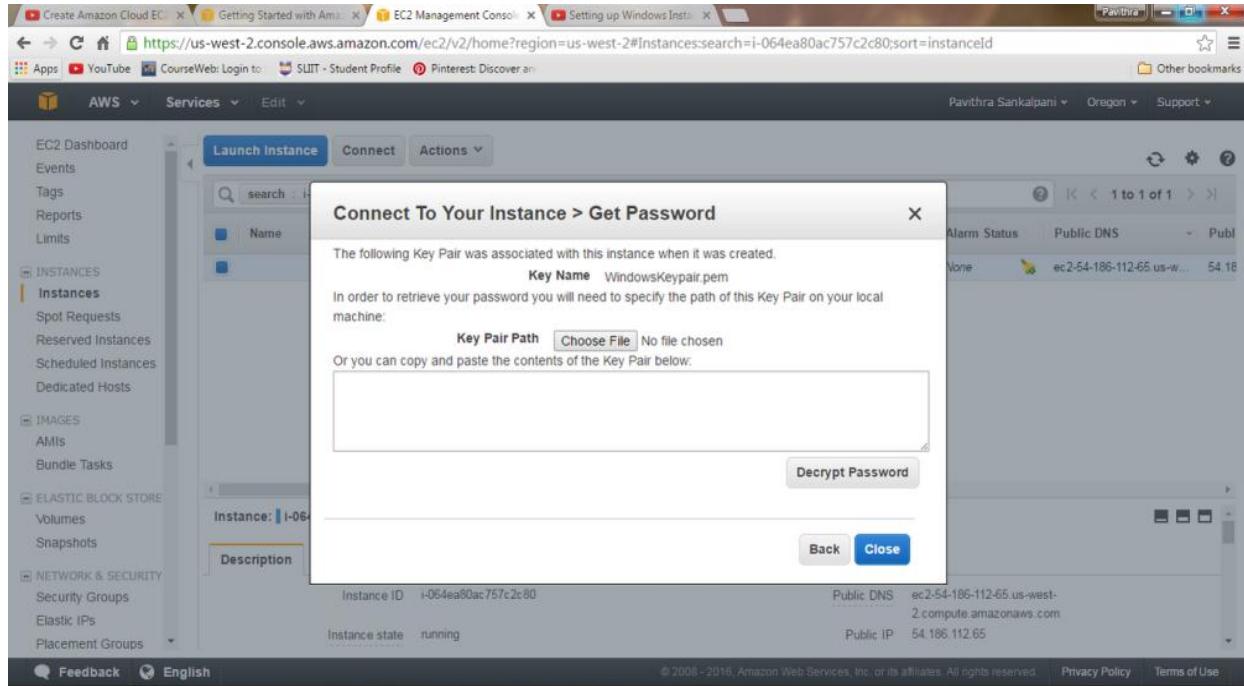
The screenshot shows the AWS EC2 Management Console interface. On the left, there's a navigation sidebar with options like EC2 Dashboard, Events, Tags, Reports, Limits, INSTANCES (selected), Instances, Spot Requests, Reserved Instances, Scheduled Instances, Dedicated Hosts, IMAGES (AMIs, Bundle Tasks), ELASTIC BLOCK STORE (Volumes, Snapshots), and NETWORK & SECURITY (Security Groups, Elastic IPs, Placement Groups). The main content area has tabs for Launch Instance, Connect (which is highlighted in blue), and Actions. A search bar at the top of the content area contains the instance ID "i-064ea80ac757c2c80". Below the search bar is a table with columns: Name, Instance ID, Instance Type, Availability Zone, Instance State, Status Checks, Alarm Status, Public DNS, and Publ. One row is selected, showing "i-064ea80ac757c2c80" as the Instance ID, "t2.micro" as the Instance Type, "us-west-2b" as the Availability Zone, "running" as the Instance State, "Initializing" as the Status Checks, "None" as the Alarm Status, "ec2-54-186-112-65.us-west-2.compute.amazonaws.com" as the Public DNS, and "54.186.112.65" as the Public IP. Below the table, there are tabs for Description, Status Checks, Monitoring, and Tags. The "Description" tab is selected, showing the Instance ID, Public DNS, and Instance state again. At the bottom of the screenshot, there are links for Feedback, English, Privacy Policy, and Terms of Use.

You'll get a window as follows. Click **Get Password** button.

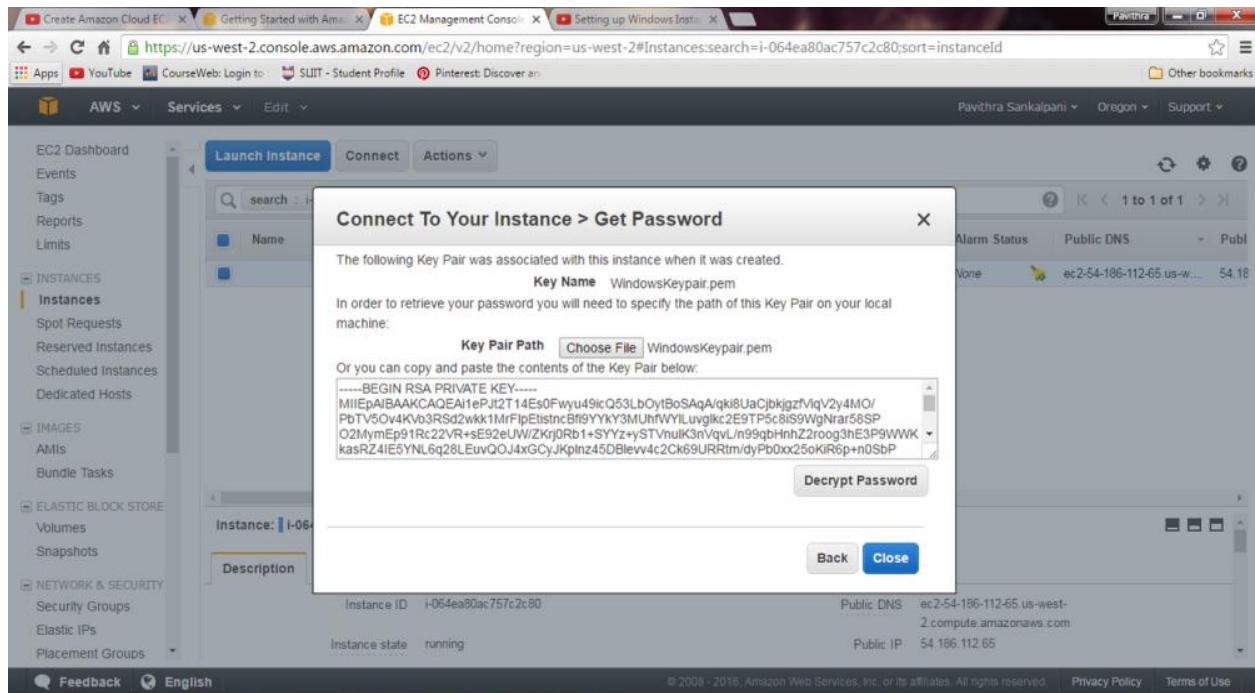


The screenshot shows a modal dialog box titled "Connect To Your Instance". Inside the dialog, it says: "You can connect to your Windows instance using a remote desktop client of your choice, and by downloading and running the RDP shortcut file below." There is a "Download Remote Desktop File" button. Below this, it says: "When prompted, connect to your instance using the following details:" followed by "Public DNS ec2-54-186-112-65.us-west-2.compute.amazonaws.com", "User name Administrator", and a "Password" field with a "Get Password" button. Below the password field, it says: "If you've joined your instance to a directory, you can use your directory credentials to connect to your instance." and "If you need any assistance connecting to your instance, please see our connection documentation." At the bottom right of the dialog is a "Close" button. In the background, the AWS EC2 Management Console interface is visible, showing the same instance details as the previous screenshot.

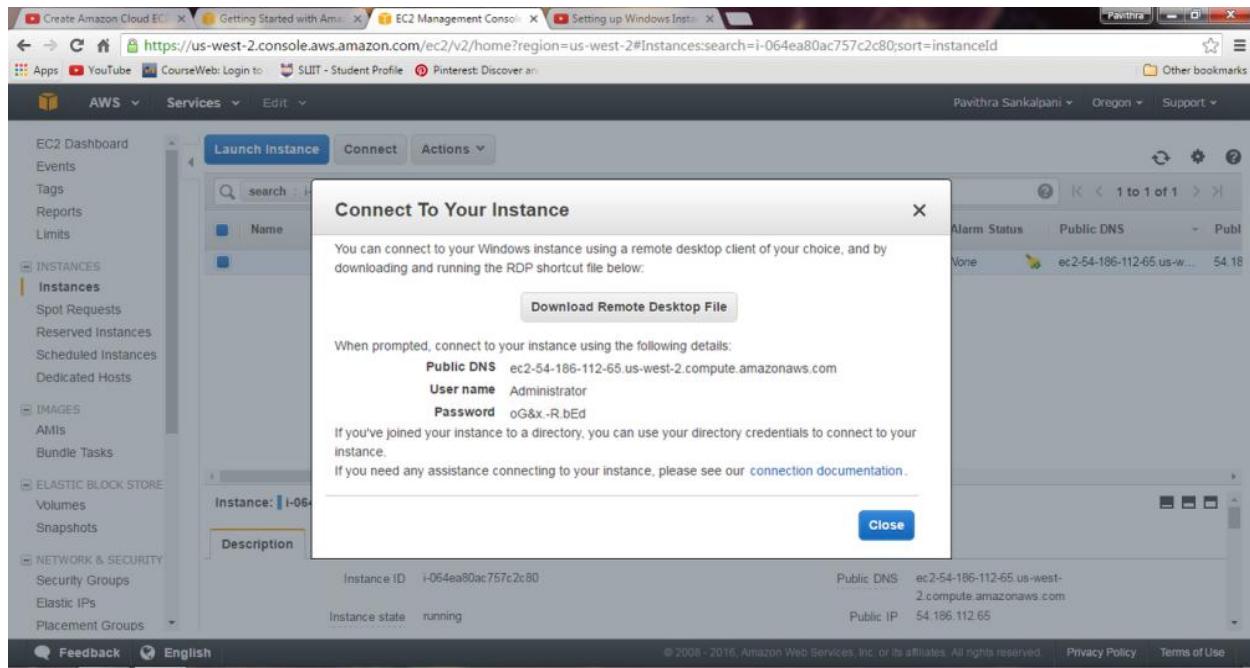
When you get following window click **Choose File** and select the key pair you have downloaded before.



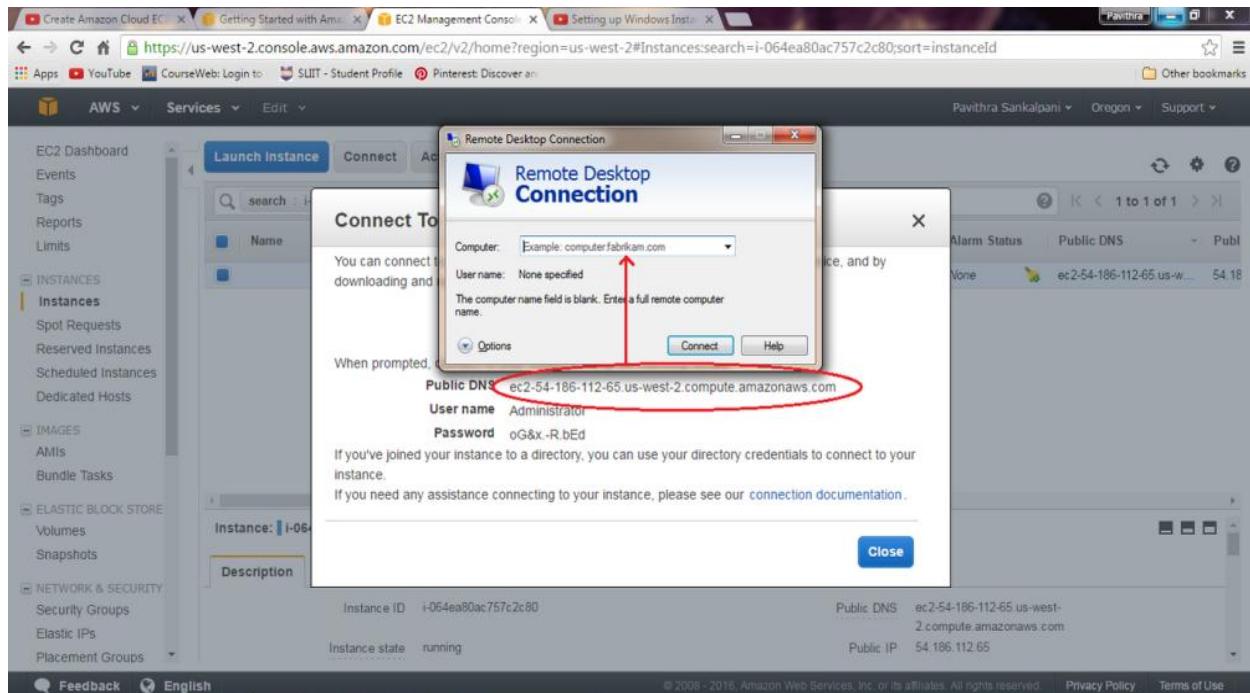
They click **Decrypt Password**.



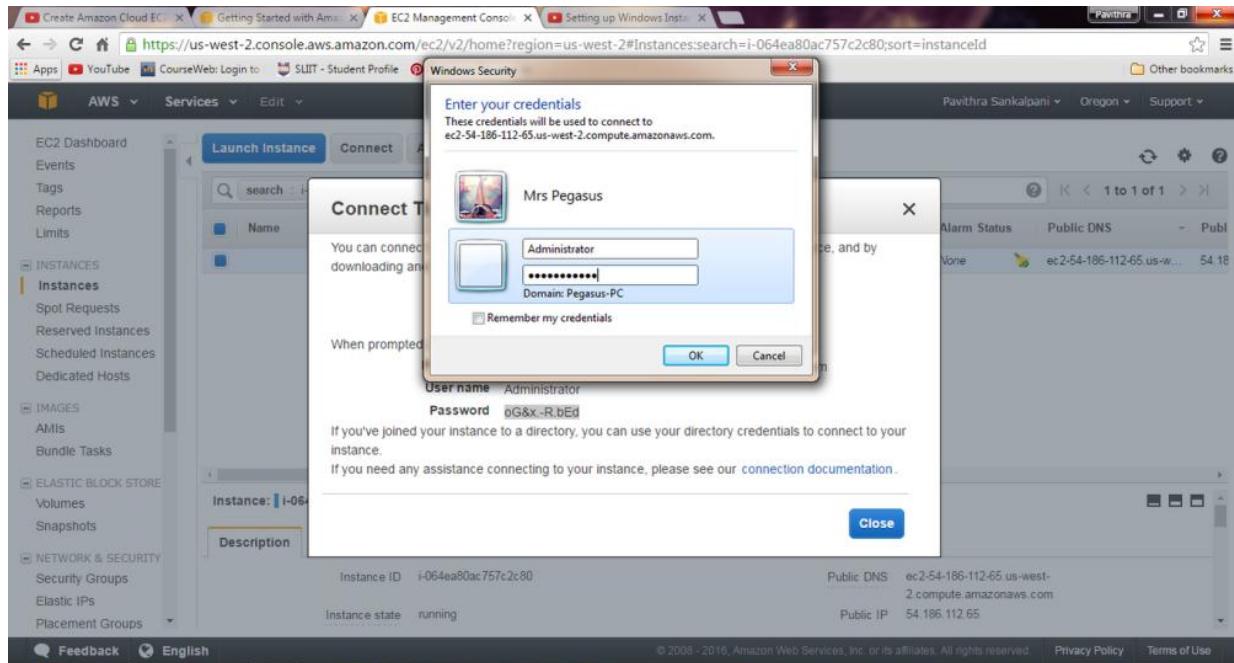
Then you'll get a username and password as follows.



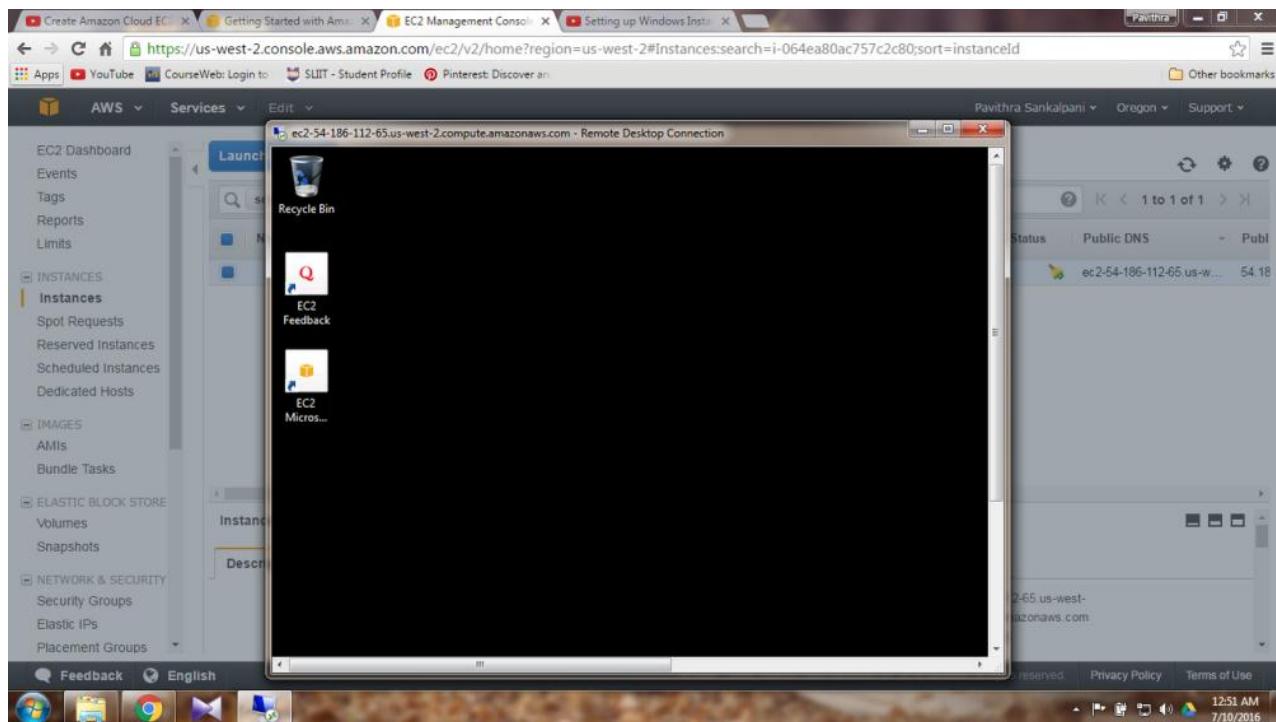
Open **Remote Desktop Application** on your machine. Type the Public DNS you get on the computer text field. And then click **Connect**.



You'll get following window. Type the user name and the password you have decrypted and click **Ok**.

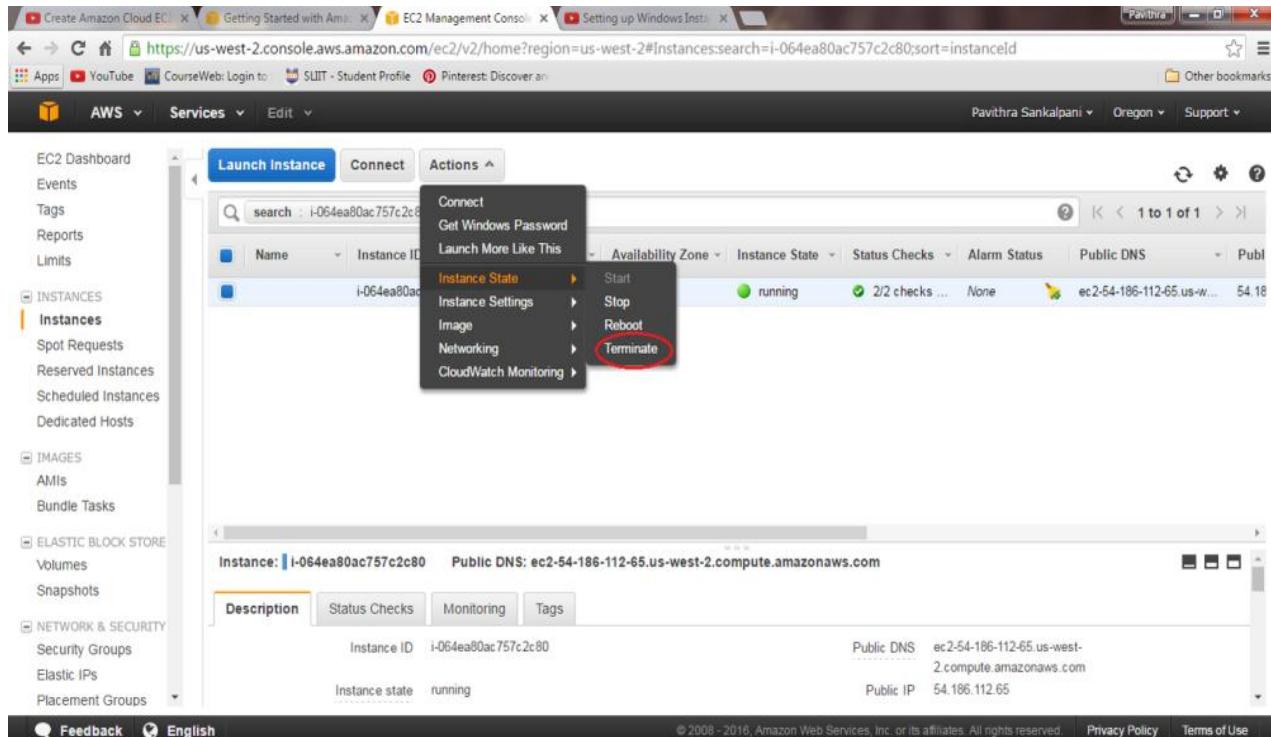


Now you'll get connected to your Windows instance.

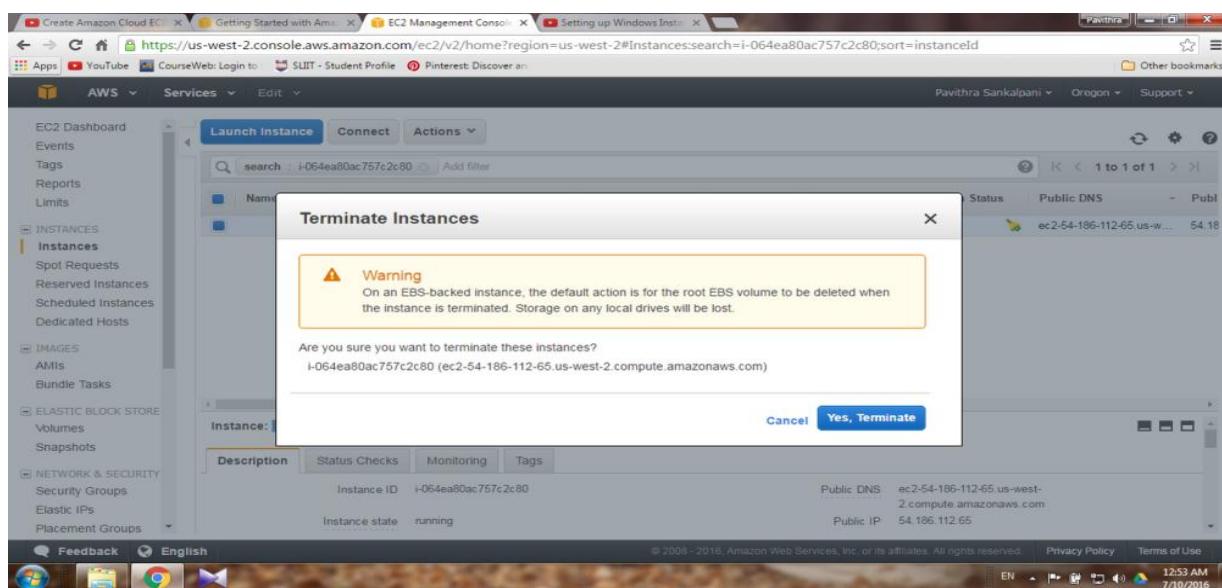


## Delete a Windows Instance

Once you have finished your work with your instance you can terminate it. Close the instance window first. To terminate an instance select the instance you want to terminate from the instance list. Click **Action** button and select **Instance State** from the dropdown menu. Now select Terminate option to terminate the instance.



You'll get following window. Click **Yes, Terminate** button to terminate your instance.



Once the instance terminated, you can see the status of the instance has changed to **terminated** from **running**.

The screenshot shows the AWS EC2 Management Console interface. On the left, there's a navigation sidebar with options like EC2 Dashboard, Events, Tags, Reports, Limits, Instances, Images, Elastic Block Store, Network & Security, and more. The 'Instances' section is currently selected. In the main content area, there's a search bar at the top with the value 'i-064ea80ac757c2c80'. Below it is a table with columns: Name, Instance ID, Instance Type, Availability Zone, Instance State, Status Checks, Alarm Status, Public DNS, and Publish. A single row is visible, showing 'i-064ea80ac757c2c80' as the Instance ID, 't2.micro' as the Instance Type, 'us-west-2b' as the Availability Zone, and 'terminated' as the Instance State. At the bottom of the main content area, there's a detailed view for the selected instance, showing its ID, state, type, and public DNS information.

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS	Publish
	i-064ea80ac757c2c80	t2.micro	us-west-2b	terminated	None			

Instance: i-064ea80ac757c2c80    Public DNS: -

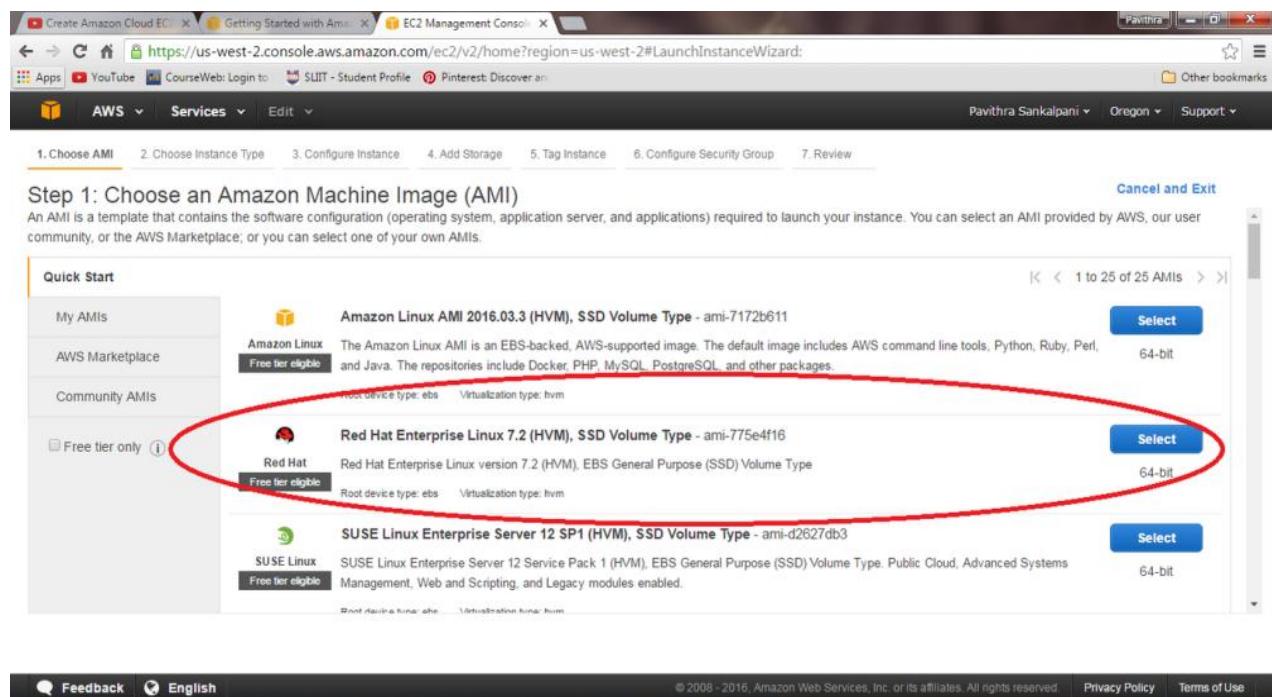
Description    Status Checks    Monitoring    Tags

Instance ID: i-064ea80ac757c2c80	Instance state: terminated	Public DNS: -
Instance type: t2.micro		Public IP:
		Elastic IPs:

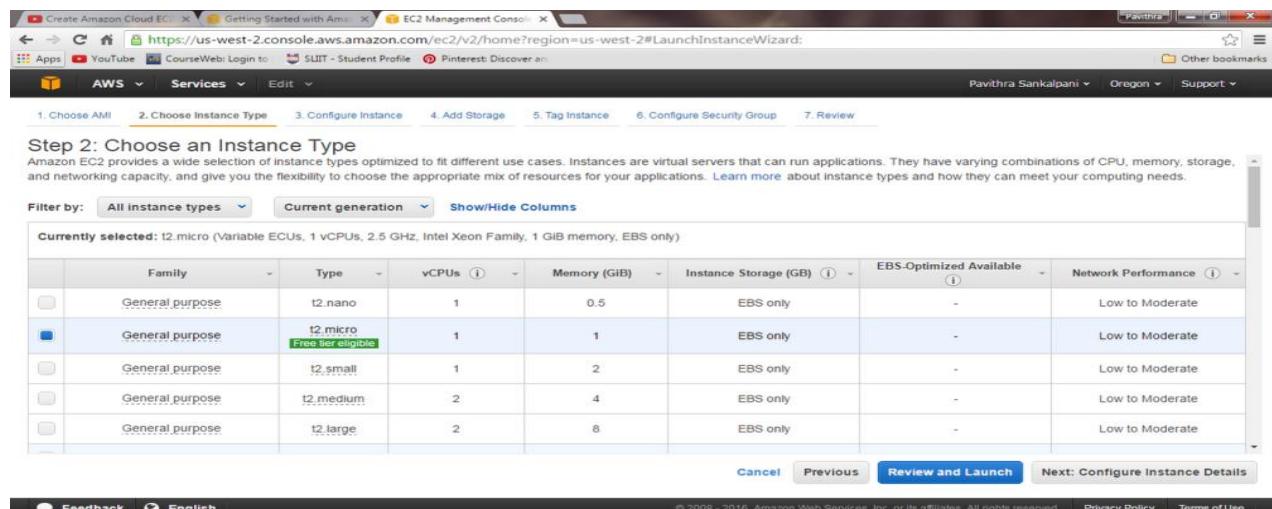
## 2. Amazon EC2 Linux Instance

### Create a Linux Instance

As mentioned on launching Windows instance, go to the AWS Management and click EC2 under Compute category. On the EC2 Management Console page click Launch Instance. This time select Red Hat Enterprise Linux 7.2 (HVM).



Do the above steps as before we did in Windows instance.



**Step 3: Configure Instance Details**

Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of the lower pricing, assign an access management role to the instance, and more.

Number of instances	<input type="text" value="1"/>	Launch into Auto Scaling Group
Purchasing option	<input type="checkbox"/> Request Spot instances	
Network	<input type="text" value="vpc-5f463e3b (172.31.0.0/16) (default)"/>	<input type="button" value="Create new VPC"/>
Subnet	<input type="text" value="No preference (default subnet in any Availability Zone)"/>	<input type="button" value="Create new subnet"/>
Auto-assign Public IP	<input type="checkbox"/> Use subnet setting (Enable)	
IAM role	<input type="text" value="None"/>	<input type="button" value="Create new IAM role"/>
Shutdown behavior	<input type="checkbox"/> Stop	
Enable termination protection	<input type="checkbox"/> Protect against accidental termination	
Monitoring	<input type="checkbox"/> Enable CloudWatch detailed monitoring Additional charges apply.	

**Review and Launch**

**Step 4: Add Storage**

Your instance will be launched with the following storage device settings. You can attach additional EBS volumes and instance store volumes to your instance, or edit the settings of the root volume. You can also attach additional EBS volumes after launching an instance, but not instance store volumes. Learn more about storage options in Amazon EC2.

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)	Delete on Termination	Encrypted
Root	/dev/sda1	snap-5bc5771e	<input type="text" value="10"/>	General Purpose SSD (GP2)	<input type="text" value="100 / 3000"/>	N/A	<input checked="" type="checkbox"/>	Not Encrypted

**Add New Volume**

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.

**Review and Launch**

The screenshot shows the AWS EC2 Management Console interface. The top navigation bar includes links for 'Create Amazon Cloud EC2', 'Getting Started with Amazon EC2', and 'EC2 Management Console'. The main title is 'Create Amazon Cloud EC2' with the sub-section 'Getting Started with Amazon EC2'. The URL is <https://us-west-2.console.aws.amazon.com/ec2/v2/home?region=us-west-2#LaunchInstanceWizard>. The top right corner shows the user's name 'Pavithra Sankalpani', location 'Oregon', and support link.

The page is titled 'Step 5: Tag Instance'. It displays a form for creating a tag:

Key (127 characters maximum)	Value (255 characters maximum)
Demo2	LinuxInstance

Below the form is a 'Create Tag' button and a note '(Up to 10 tags maximum)'. At the bottom of the page are 'Cancel', 'Previous', 'Review and Launch' (highlighted in blue), and 'Next: Configure Security Group' buttons.

In security group, we'll define a rule for SSH. You can define rules as you wish.

The screenshot shows the AWS EC2 Management Console interface. The top navigation bar includes links for 'Create Amazon Cloud EC2', 'Getting Started with Amazon EC2', and 'EC2 Management Console'. The main title is 'Create Amazon Cloud EC2' with the sub-section 'Getting Started with Amazon EC2'. The URL is <https://us-west-2.console.aws.amazon.com/ec2/v2/home?region=us-west-2#LaunchInstanceWizard>. The top right corner shows the user's name 'Pavithra Sankalpani', location 'Oregon', and support link.

The page is titled 'Step 6: Configure Security Group'. It displays a form for creating a new security group:

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

Security group name: Linux Demo  
Description: Linux Instance Security

Type	Protocol	Port Range	Source
SSH	TCP	22	Anywhere 0.0.0.0/0

Add Rule

**Warning**  
Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

At the bottom are 'Cancel', 'Previous', 'Review and Launch' (highlighted in blue), and 'Next: Review and Launch' buttons.

**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**

Red Hat Enterprise Linux 7.2 (HVM), SSD Volume Type - ami-775e4f16  
 Free tier eligible Red Hat Enterprise Linux version 7.2 (HVM), EBS General Purpose (SSD) Volume Type  
 Root Device Type: ebs Virtualization type: hvm

**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**

**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**  
 KeyPair-Linux

**Download Key Pair**

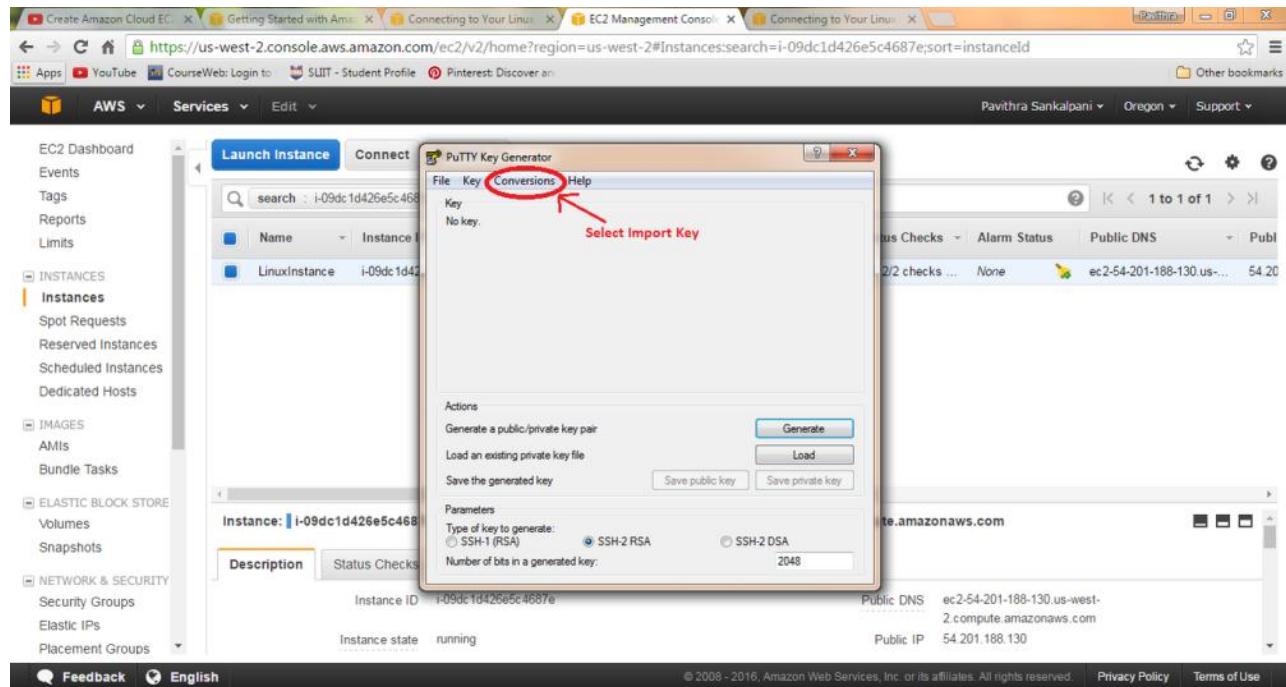
You have to download the **private key file** (\*.pem file) before you can continue. **Store it in a secure and accessible location.** You will not be able to download the file again after it's created.

**Launch Instances**

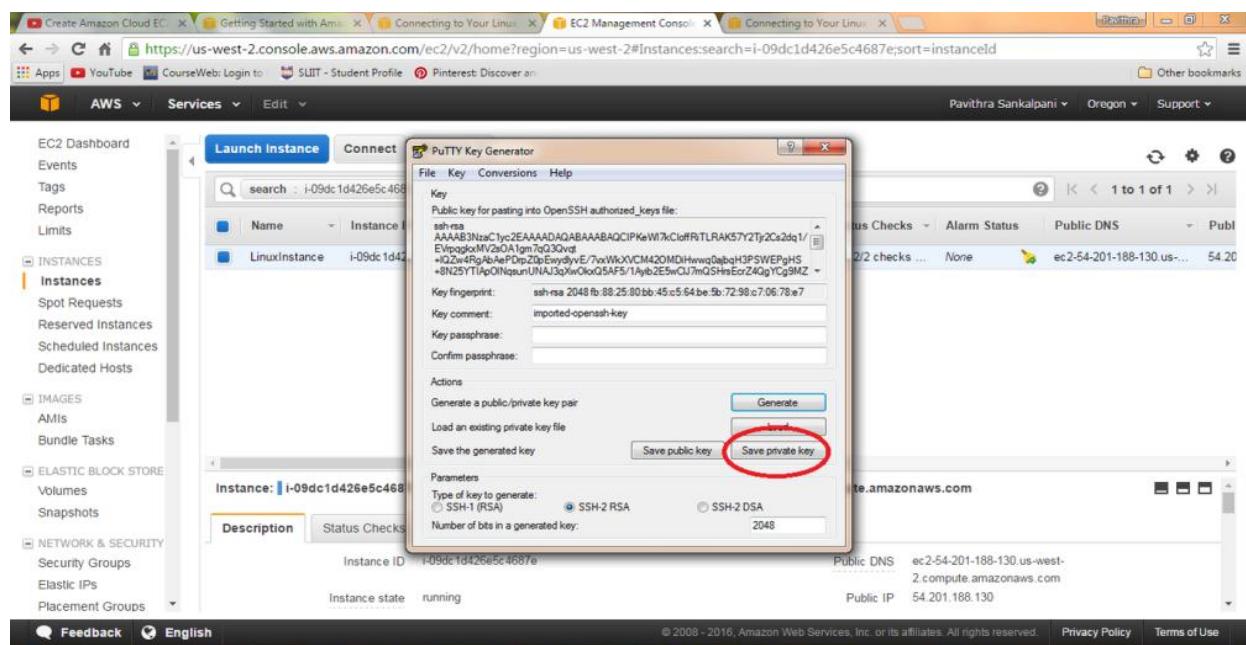
The screenshot shows the AWS EC2 Management Console with the URL <https://us-west-2.console.aws.amazon.com/ec2/v2/home?region=us-west-2#LaunchInstanceWizard>. The browser tab is titled "Getting Started with Amazon Cloud Compute". The main content area is titled "Launch Status". A green box contains the message "Your instances are now launching" with a checkmark icon. Below it, a link says "The following instance launches have been initiated: i-09dc1d426e5c4687e" and "View launch log". Another blue box contains the message "Get notified of estimated charges" with an info icon. Below it, a link says "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)". A section titled "How to connect to your instances" follows, with a note about instances launching and reaching the running state. It also links to "View Instances" and provides helpful resources like the User Guide and Discussion Forum. At the bottom, there are links for "Feedback", "English", "Privacy Policy", and "Terms of Use".

## Connect to the Linux Instance

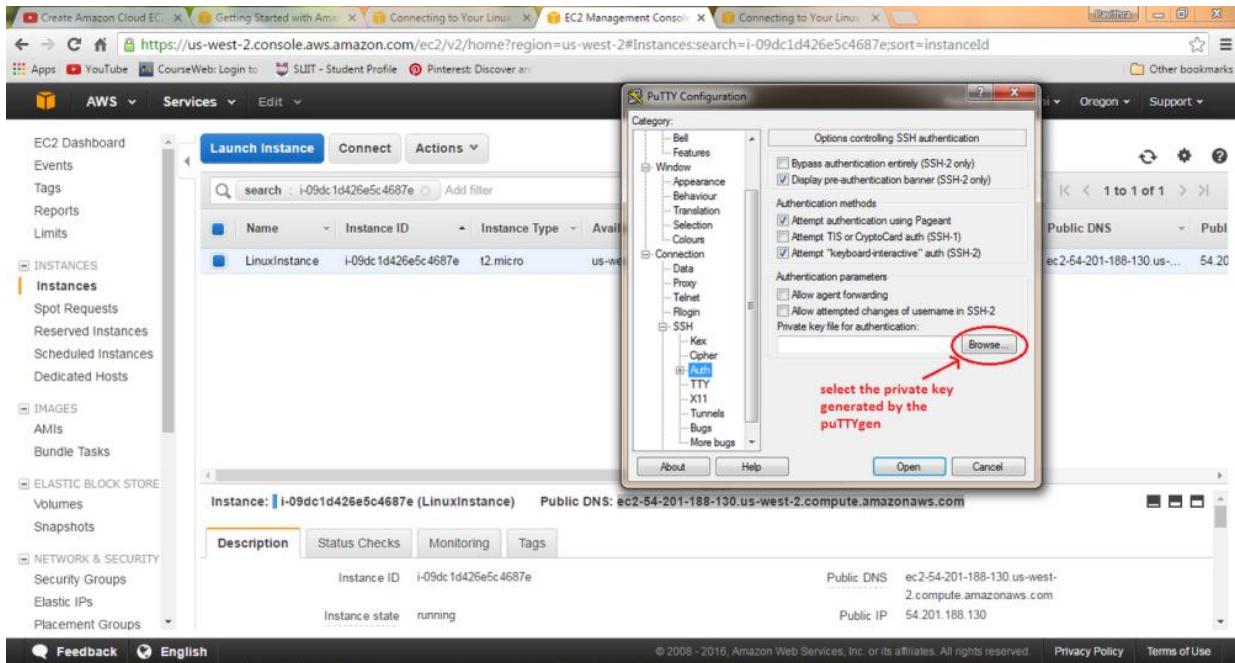
PuTTY is a tool which uses for remote access another computer. Open the PuTTY Key Generator. Click on the Conversions tab. From dropdown list select import key and open the key pair you have downloaded before.



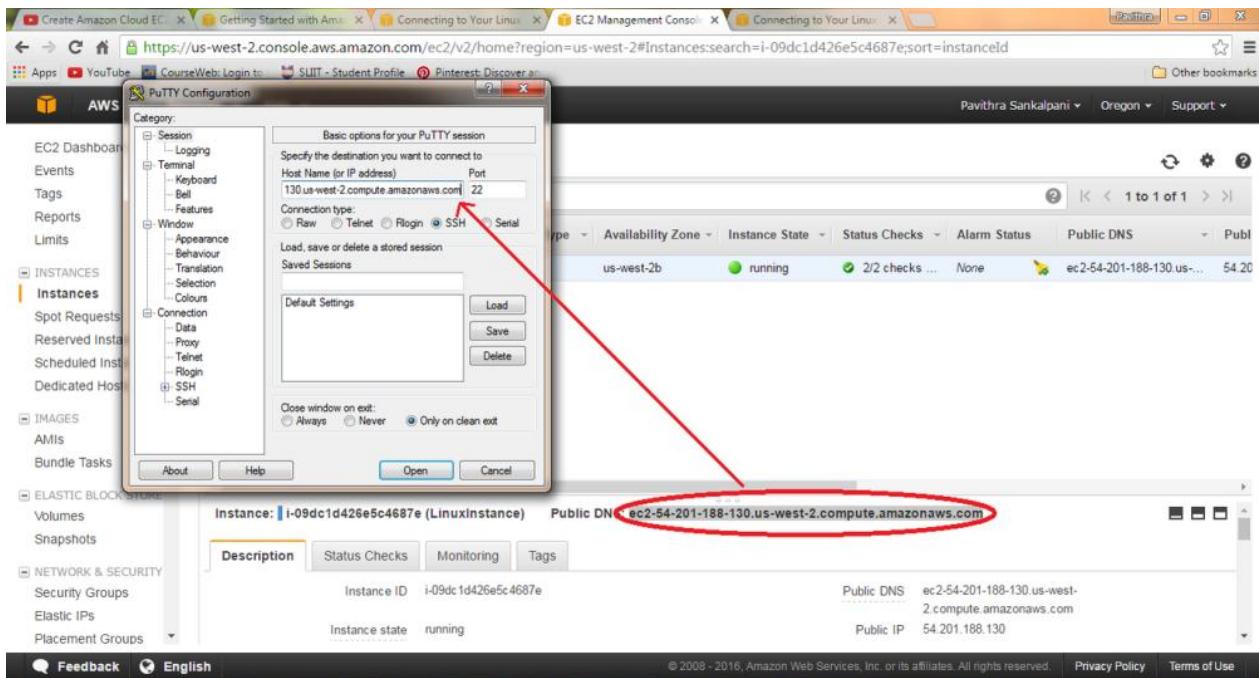
Once you select the key pair file save private key button will be enabled. Click that button and save it on your machine.



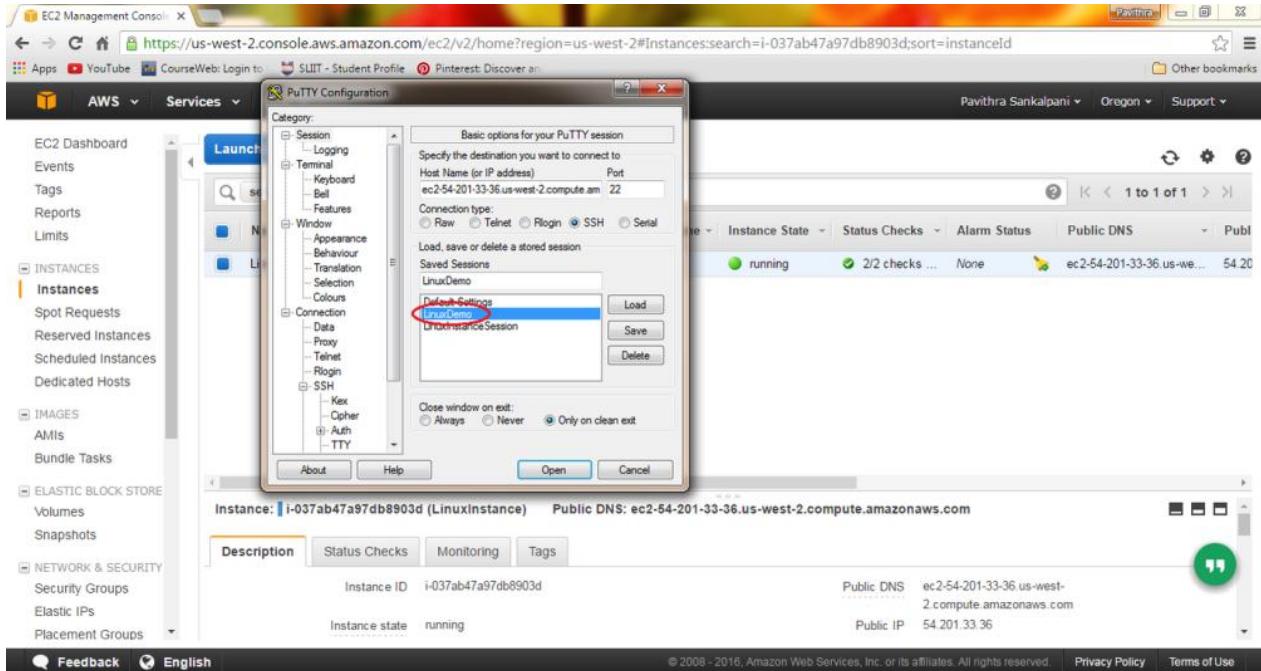
Now open the PuTTY configuration software. Select the Auth category under SSH category from the navigation pane on left-hand side. Brows the private key generated using PuTTYgen.



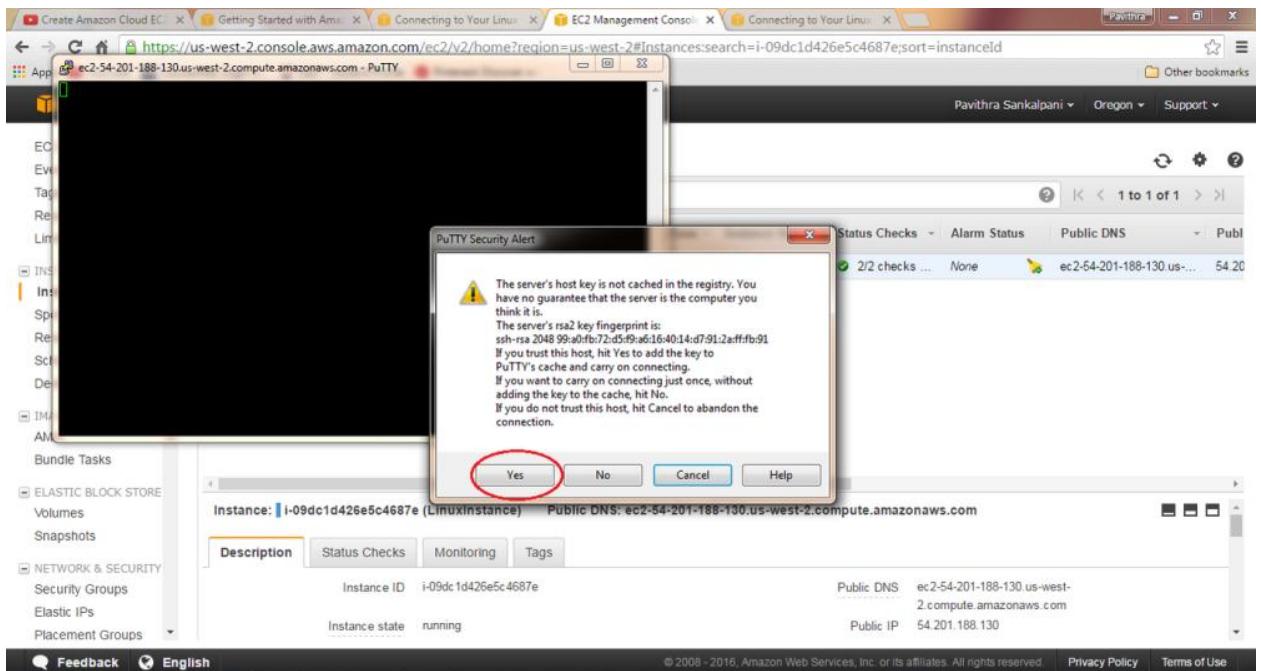
Select the Session category from navigation pane. On the Host Name types the Public DNS you got when you create the Linux instance.



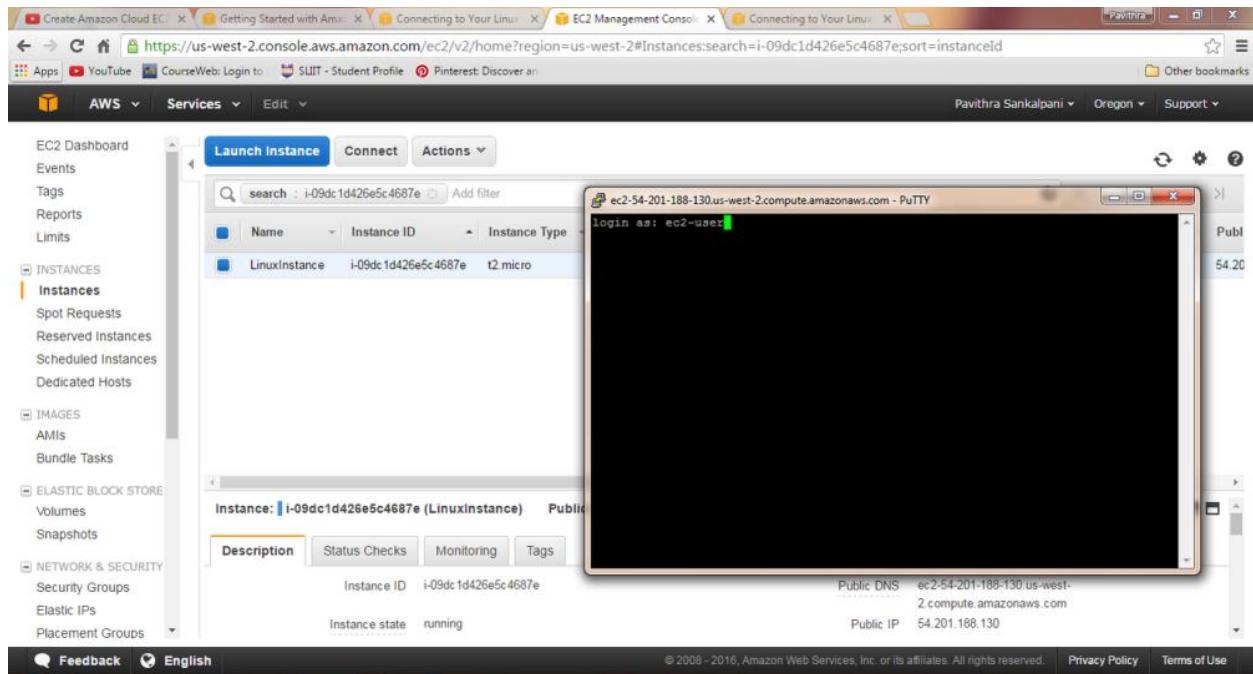
Type a name to give Saved Session and click save. Then double click on the name you just saved.



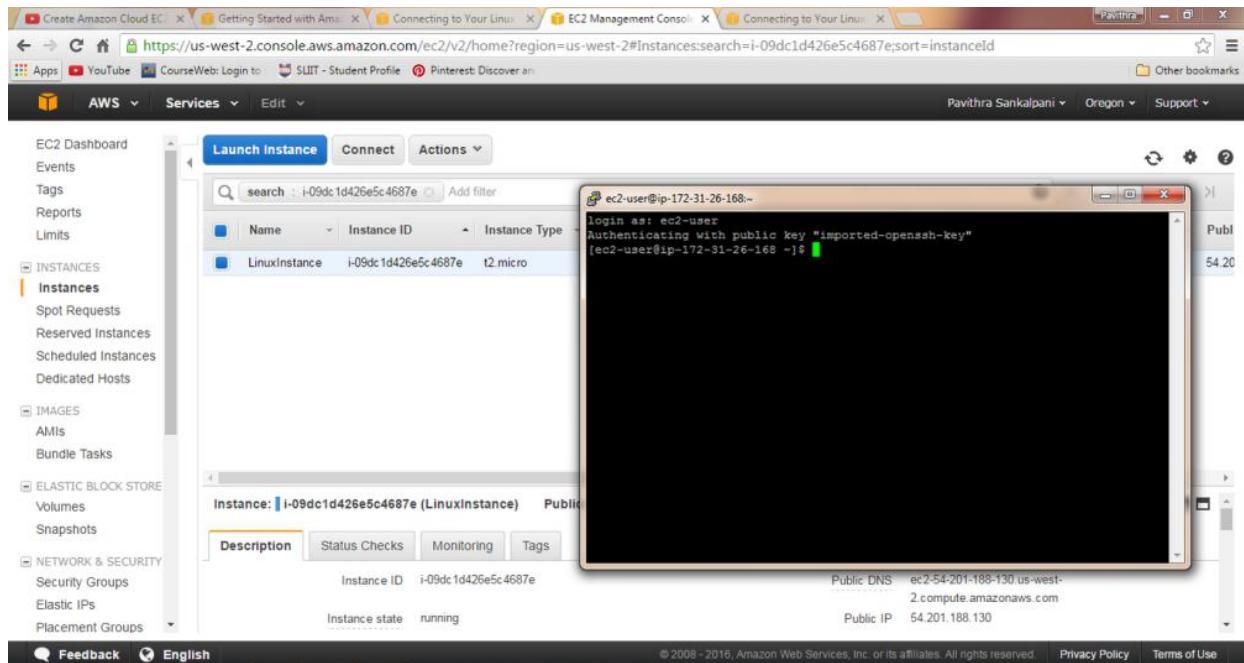
You'll get a security alert from PuTTY. Click yes.



PuTTY will give you a terminal as follows. On the terminal, type *ec2-user*.

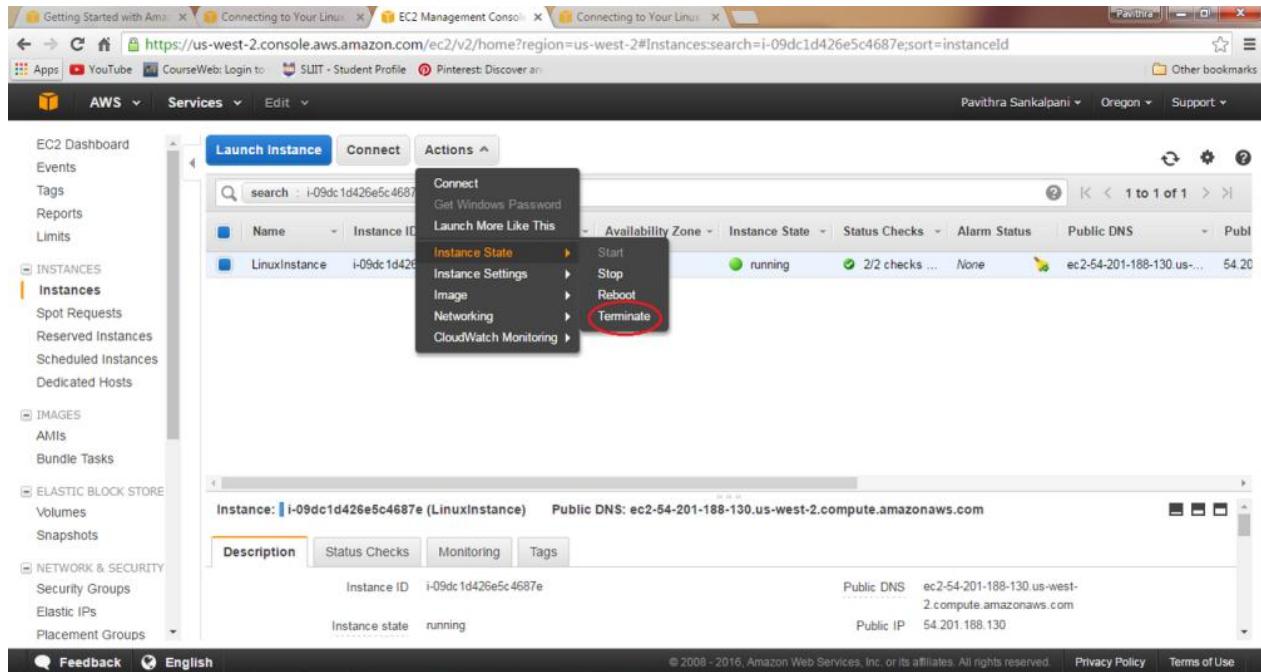


Now you'll be connected to your Linux instance.

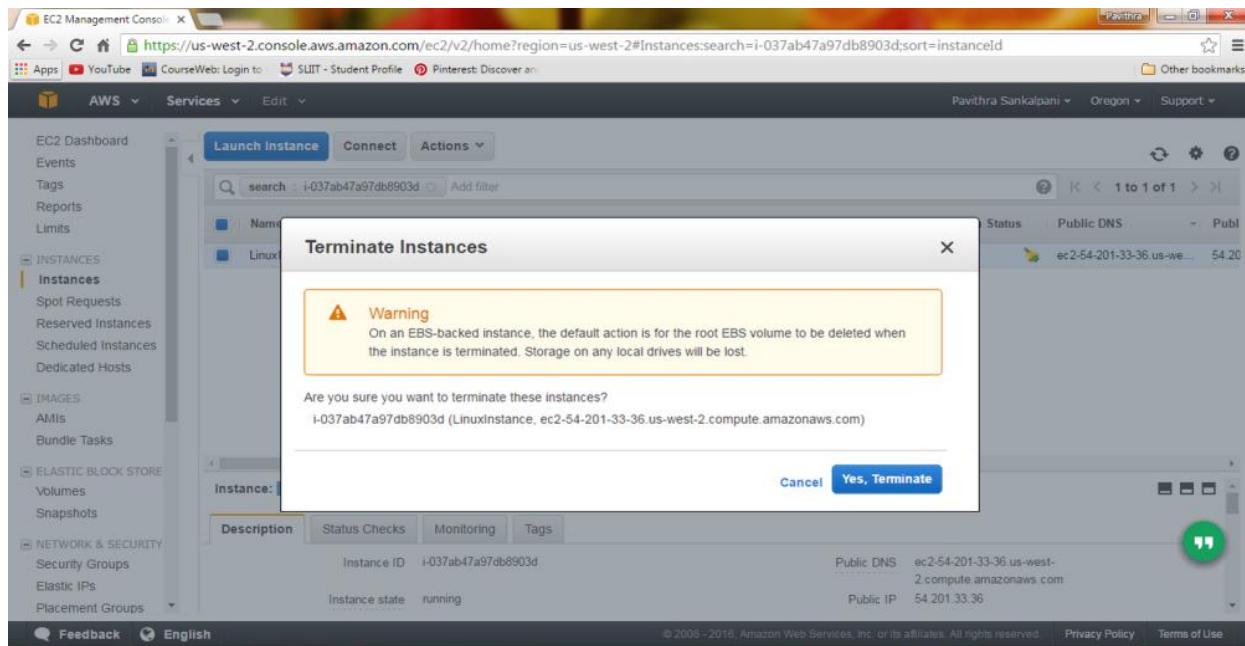


## Deleting a Linux Instance

Deleting a Linux instance is same as the deleting Windows instance. Close the terminal once you finished your work. Then select the Linux instance you want to terminate from the instance list. Then click **Action** button. From Instance State on the dropdown menu, select **terminate**.



Click **Yes, Terminate**.



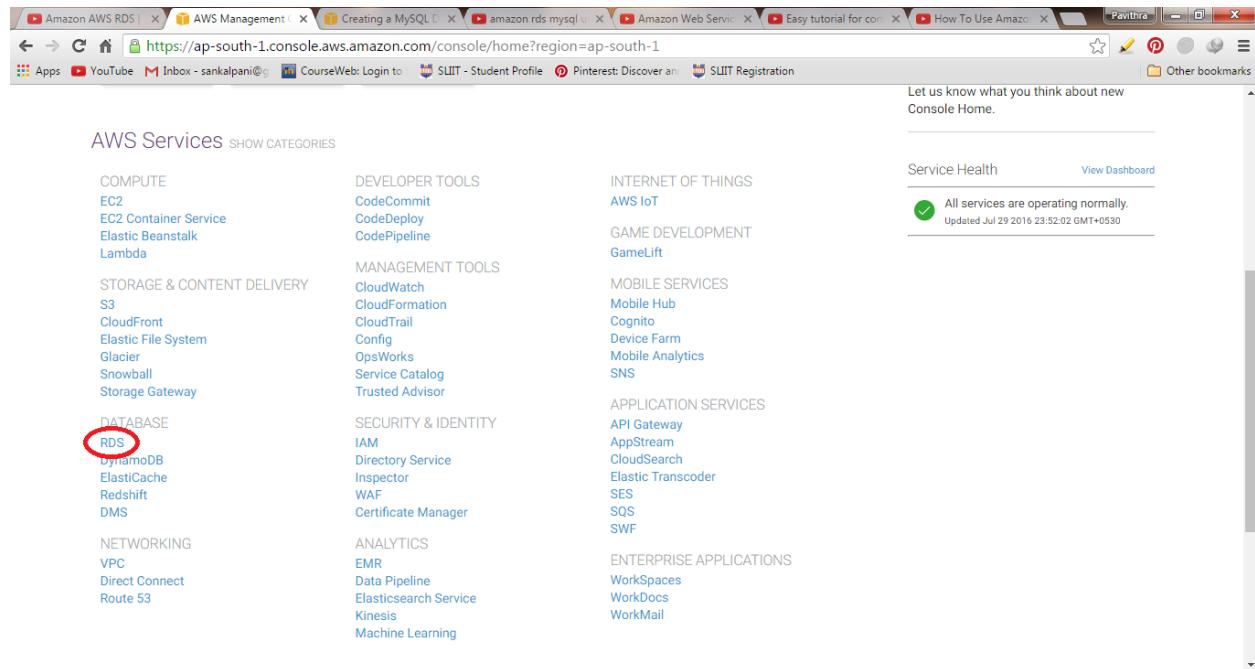
After terminating the instance the status will be changed to **terminated**.

The screenshot shows the AWS EC2 Management Console interface. The left sidebar menu is visible with options like EC2 Dashboard, Events, Tags, Reports, Limits, Instances, Images, AMIs, Bundle Tasks, Elastic Block Store, Volumes, Snapshots, Network & Security, Security Groups, Elastic IPs, Placement Groups, Feedback, and English language selection. The main content area displays a search bar with the query "i-037ab47a97db8903d". Below it is a table titled "Instances" with columns: Name, Instance ID, Instance Type, Availability Zone, Instance State, Status Checks, Alarm Status, Public DNS, and Publish. A single row is shown for "LinuxInstance" with the instance ID "i-037ab47a97db8903d", type "t2.micro", zone "us-west-2a", state "terminated", and no status checks or alarms. At the bottom of the main window, there's a summary card for the instance with details: Instance ID (i-037ab47a97db8903d), Instance state (terminated), Instance type (t2.micro), and Public DNS, Public IP, and Elastic IPs sections.

### **3. Amazon RDS MySQL Instance**

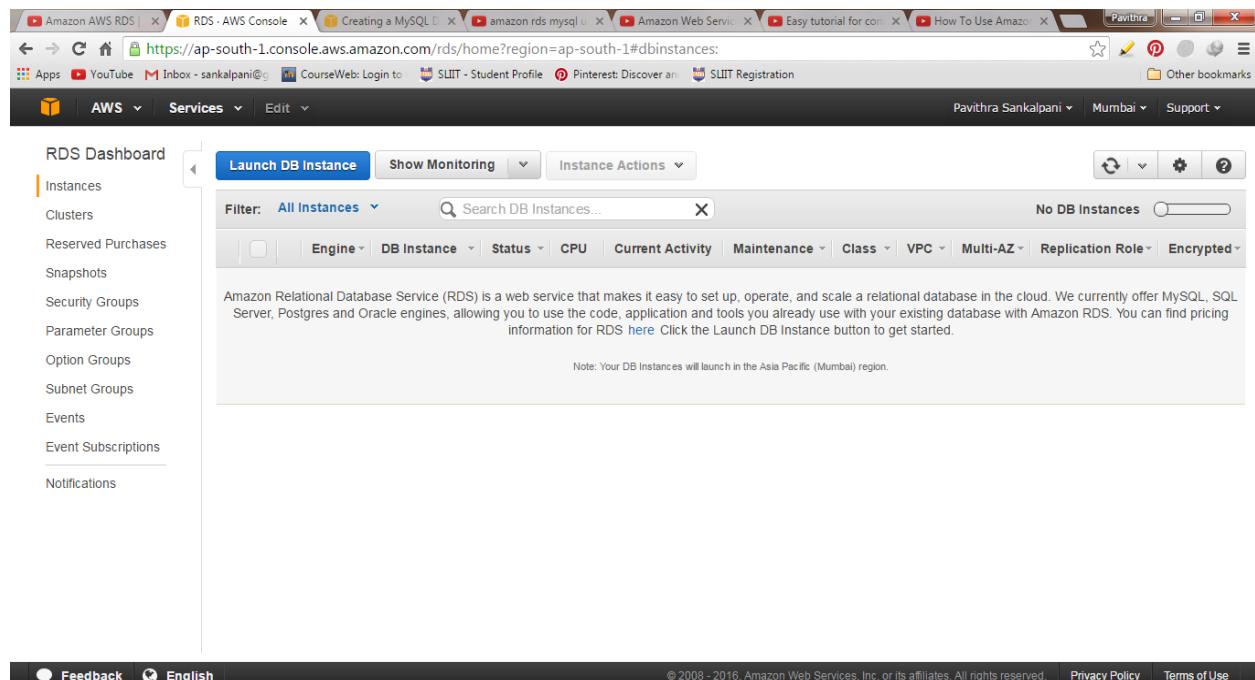
#### **Create RDS Instance**

Go to AWS Management Console and select **RDS** under Database category.



The screenshot shows the AWS Management Console with the URL <https://ap-south-1.console.aws.amazon.com/console/home?region=ap-south-1>. The Services menu is open, and the RDS icon is highlighted with a red circle. Other services listed include Compute, Storage & Content Delivery, Database, Networking, Developer Tools, Management Tools, Security & Identity, Analytics, Internet of Things, Game Development, Mobile Services, Application Services, and Enterprise Applications. The Service Health section indicates all services are operating normally.

On RDS Dashboard select **Instances** and click **Launch DB Instance** button.



The screenshot shows the RDS - AWS Console with the URL <https://ap-south-1.console.aws.amazon.com/rds/home?region=ap-south-1#dbinstances>. The Instances tab is selected in the sidebar. The main area displays a message about the Amazon Relational Database Service (RDS) and a note that DB Instances will launch in the Asia Pacific (Mumbai) region. At the top, there is a 'Launch DB Instance' button, which is highlighted in blue.

On following tab you may want to select a database type you want. For this tutorial I'll select MySQL.

To get started, choose a DB Engine below and click Select.

**Amazon Aurora**

**MySQL** **Select**

MySQL Community Edition

MySQL is the most popular open source database in the world. MySQL on RDS offers the rich features of the MySQL community edition with the flexibility to easily scale compute resources or storage capacity for your database.

- Supports database size up to 6 TB.
- Instances offer up to 32 vCPUs and 244 GiB Memory.
- Supports automated backup and point-in-time recovery.
- Supports cross-region read replicas.

**MariaDB**

**PostgreSQL**

**ORACLE**

**Microsoft SQL Server**

On next window you have to specify for what purpose you are creating this database instance. Select Dev/Test and click **Next Step** button.

Do you plan to use this database for production purposes?

**Production**

Amazon Aurora **Recommended**

MySQL-compatible, enterprise-class database at 1/10th the cost of commercial databases.

**Dev/Test**

MySQL

This instance is intended for use outside of production or under the RDS Free Usage Tier.

Billing is based on [RDS pricing](#)

**Cancel** **Previous** **Next Step**

Now you have to specify database details. Tick the option which is highlighted if your AWS account is free tier. Otherwise keep the default values as it is.

**Step 1:** Select Engine  
**Step 2:** Production?  
**Step 3: Specify DB Details**  
**Step 4:** Configure Advanced Settings

**Free Tier**

The Amazon RDS Free Tier provides a single db.t2.micro instance as well as up to 20 GB of storage, allowing new AWS customers to gain hands-on experience with Amazon RDS. Learn more about the RDS Free Tier and the instance restrictions [here](#).

Only show options that are eligible for RDS Free Tier

**Instance Specifications**

DB Engine	mysql
License Model	general-public-license
DB Engine Version	5.6.27
DB Instance Class	db.t2.micro — 1 vCPU, 1 GiB RAM
Multi-AZ Deployment	No
Storage Type	General Purpose (SSD)
Allocated Storage*	5 GB

(Minimum: 5 GB, Maximum: 6144 GB) Higher allocated storage may improve IOPS performance.

Review the [Known Issues/Limitations](#) to learn about potential compatibility issues with specific database versions.

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Give an identifier name as you like. Master username is the username you use to connect the database. Then give a password. Then click **Next Step**.

**DB Engine Version** db.5.6.27

Review the [Known Issues/Limitations](#) to learn about potential compatibility issues with specific database versions.

DB Instance Class	db.t2.micro — 1 vCPU, 1 GiB RAM
Multi-AZ Deployment	No
Storage Type	General Purpose (SSD)
Allocated Storage*	5 GB

**Settings**

DB Instance Identifier*	testDBinstance
Master Username*	mydbdemo
Master Password*	.....
Confirm Password*	.....

Retype the value you specified for Master Password.

\* Required Cancel Previous **Next Step**

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On the advance setting page keep the default values.

Step 1: Select Engine

Step 2: Production?

Step 3: Specify DB Details

**Step 4: Configure Advanced Settings**

### Configure Advanced Settings

#### Network & Security

VPC\*

Subnet Group

Publicly Accessible

Availability Zone

VPC Security Group(s)

#### Database Options

Database Name

Note: If no database name is specified then no initial MySQL database will be created on the DB Instance.

Database Port

DB Parameter Group

Specify a string of up to 64 alpha-numeric characters that define the name given to a database that Amazon RDS creates when it creates the DB instance, as in "mydb". If you do not specify a database name, Amazon RDS does not create a database when it creates the DB instance.

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Click **Launch DB Instance**.

Step 1: Select Engine

Step 2: Production?

Step 3: Specify DB Details

**Step 4: Configure Advanced Settings**

**Step 5: Launch DB Instance**

#### Copy Tags To Snapshots

Enable Encryption

#### Backup

Please note that automated backups are currently supported for InnoDB storage engine only. If you are using MyISAM, refer to detail [here](#).

Backup Retention Period  days

Backup Window

Start Time  :  UTC

Duration  hours

#### Monitoring

Enable Enhanced Monitoring

#### Maintenance

Auto Minor Version Upgrade

Maintenance Window

\* Required

The daily time range (in UTC) during which automated backups are created if automated backups are enabled.

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Now you can see you have created your database instance successfully. Click ***View Your DB Instances***.

Step 1: Select Engine  
Step 2: Production?  
Step 3: Specify DB Details  
Step 4: Configure Advanced Settings

**Your DB Instance is being created.**  
Note: Your instance may take a few minutes to launch.

Connecting to your DB Instance  
You will be unable to connect to your database instance unless you have previously authorized access on your chosen security group.  
[Go to the Security Groups Page](#)

Related AWS Services  
**Amazon ElastiCache**  
Add a managed Memcached or Redis-compatible in-memory cache to speed up your database access.  
[Click here to learn more and launch your Cache Cluster](#)

[View Your DB Instances](#)

You may see the changes in status (creating, backing-up and available). Click on the security group.

RDS Dashboard

- Instances
- Clusters
- Reserved Purchases
- Snapshots
- Security Groups
- Parameter Groups
- Option Groups
- Subnet Groups
- Events
- Event Subscriptions
- Notifications

**Launch DB Instance** Show Monitoring Instance Actions

Filter:	All Instances	Search DB Instances...	Viewing 1 of 1 DB Instances
Engine:	MySQL	testdbinstance	MySQL 5.6.27
DB Instance:			Backing-up
Status:			11.83%
CPU:			0 Connections
Current Activity:			Maintenance: None
Maintenance:			Class: db.t2.micro
Class:			VPC: vpc-0345ad6a
VPC:			Multi-AZ: No

Endpoint: testdbinstance.cssrrnmdm2rsp.ap-south-1.rds.amazonaws.com:3306 (authorized)

Configuration Details		Security and Network	
Engine	MySQL 5.6.27	Availability Zone	ap-south-1a
License Model	General Public License	VPC	vpc-0345ad6a
Created Time	July 30, 2016 at 6:02:50 PM UTC+5:30	Subnet Group	default (Complete)
DB Name	mydb	Subnets	subnet-3050b859 subnet-695f6c22
Username	mydbdemo	Security Group	rds-launch-wizard-2 (sg-3eb57057) (active)
Option Group	default:mysql-5.6 (in-sync)	Publicly Accessible	Yes
Parameter Group	default.mysql5.6 (in-sync)	Endpoint	testdbinstance.cssrrnmdm2rsp.ap-south-1.rds.amazonaws.com
Copy Tags To Snapshots	No	Port	3306
Resource ID	db-CB45CQIATVEGSYORGOF4OYLR V4	Certificate Authority	rds-ca-2015 (Mar 5, 2020)

Instance and IOPS  
Instance Class: db.t2.micro

There is only one rule defined. We need to access this database using MySQL workbench on our computer. So we have to add a rule which allows TCP traffic. To add new rules click on the **Inbound** tab and click **Edit**.

The screenshot shows the AWS EC2 Management Console. On the left, there's a sidebar with various services like EC2 Dashboard, Instances, AMIs, and Network & Security. Under Network & Security, 'Security Groups' is selected. The main area shows a table of security groups, with one row selected: 'sg-3eb57057' (Group Name: 'rds-launch-wizard-2', VPC ID: 'vpc-0345ad6a', Description: 'Created from the RDS Management Console'). Below this, a modal window titled 'Edit inbound rules' is open. It has tabs for 'Description', 'Inbound' (which is selected), 'Outbound', and 'Tags'. Under 'Inbound', there are fields for 'Type' (set to 'All TCP'), 'Protocol' (set to 'TCP'), 'Port Range' (set to '0 - 65535'), and 'Source' (set to 'Custom 175.157.16.45/32'). At the bottom of the modal are 'Cancel' and 'Save' buttons.

Select **All TCP** and save it.

The screenshot shows the 'Edit inbound rules' dialog box. The 'Inbound' tab is active. The configuration is as follows: Type is 'All TCP', Protocol is 'TCP', Port Range is '0 - 65535', and Source is 'Custom 175.157.16.45/32'. At the bottom right of the dialog are 'Cancel' and 'Save' buttons, with 'Save' being the active button.

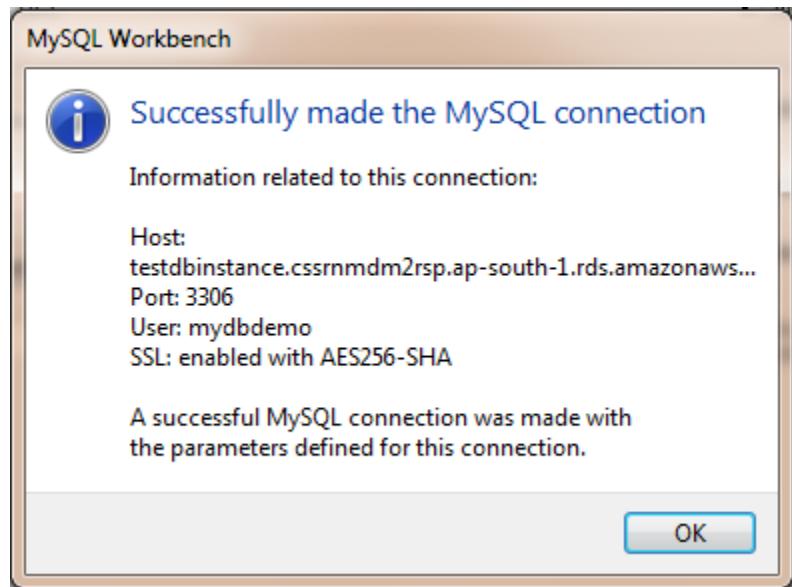
Now you can see it has been added.

The screenshot shows the AWS EC2 Management Console. On the left, the navigation pane includes options like EC2 Dashboard, Events, Tags, Reports, Limits, Instances, AMIs, and ELASTIC BLOCK STORE. Under NETWORK & SECURITY, the 'Security Groups' option is selected. In the main area, a search bar at the top finds 'sg-3eb57057'. Below it, a table lists a single security group: 'sg-3eb57057' (Group ID), 'rds-launch-wizard-2' (VPC ID), and 'Created from the RDS Management Console' (Description). A red box highlights the 'Inbound' tab of the 'sg-3eb57057' configuration panel. This panel shows a table with one rule: 'All TCP' (Type), 'TCP' (Protocol), '0 - 65535' (Port Range), and '175.157.16.45/32' (Source).

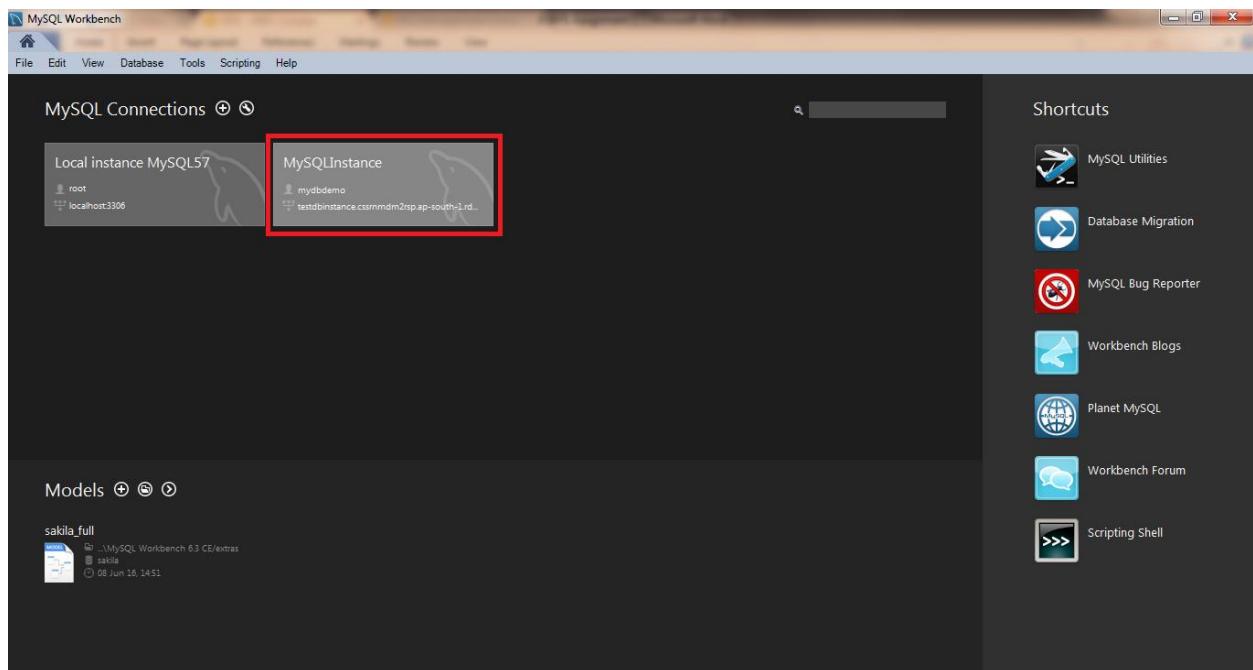
Open the MySQL Workbench and add new connection. As the host name give the endpoint of your database instance. Give username and password which you define earlier. Then test connection.

The screenshot shows the MySQL Workbench interface. On the left, there's a sidebar with 'MySQL Connections' (containing 'Local instance MySQL57' with a connection to 'root' on 'localhost:3306'), 'Models' (containing a 'sakila\_full' schema), and a 'Configure Server Management...' button. The main area is titled 'Setup New Connection'. It shows a 'Parameters' tab where the 'Connection Name' is 'MySQLInstance', 'Connection Method' is 'Standard (TCP/IP)', 'Hostname' is 'testdbinstance.csrrnmdm2sp.ap-south-1', 'Port' is '3306', 'Username' is 'mydbdemo', and 'Password' is 'mydbdemo'. To the right of the connection setup is a 'Shortcuts' sidebar with links to MySQL Utilities, Database Migration, MySQL Bug Reporter, Workbench Blogs, Planet MySQL, Workbench Forum, and Scripting Shell.

You'll get a succeed message as follows.



You can see your database instance on the workbench. Double click on it to access the instance.



Now create tables, insert data and query tables.

