



SRI LANKA INSTITUTE OF INFORMATION TECHNOLOGY

Enterprise Standards and Best Practices for IT Infrastructure

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Date of Evaluation : _____

Evaluators Signature : _____

Lab 01

Getting started with Amazon Windows instance

1. Login to Amazon Web Services.

The screenshot shows the AWS Free Tier landing page. At the top, there's a navigation bar with links for Menu, AWS re:Invent, Products, Solutions, Pricing, Software, English, My Account, and a yellow "Sign in to the Console" button. On the left, there's a sidebar with sections for "ABOUT AWS" (AWS Free Tier, AWS Free Tier Terms, FAQs) and "RELATED LINKS" (What is Cloud Computing?, Getting Started with AWS, AWS Products & Services, Run your Website on AWS). Below the sidebar, there's a "Manage Your Resources" button and a "Sign in to the Console" button. The main content area is titled "AWS Free Tier" and explains the service's purpose: enabling hands-on experience with AWS Cloud Services for 12 months. It lists free services like EC2, S3, and Lambda, and provides steps to start using them. A "Sort by: Featured Products" dropdown is shown. At the bottom, there's a banner for Amazon EC2 with the text "750 hours per month of Linux, RHEL, or SLES t2.micro instance usage". The taskbar at the bottom of the screen shows various application icons.

The screenshot shows the AWS sign-in page. The URL in the address bar is https://www.amazon.com/ap/signin?openid.assoc_handle=aws&openid.return_to=https%3A%2F%2Fsignin.aws.amazon.com%2Faauth%3Fresponse. The page features the Amazon logo and a "Sign In or Create an AWS Account" header. It asks for an email or phone number, with "dsreyhart@gmail.com" entered. There are two radio button options: "I am a new user." (selected) and "I am a returning user and my password is:". Below these are password fields (one showing "*****") and a "Sign in using our secure server" button. To the right, there's a green banner with the text "Build and Run Serverless Apps With No Servers to Manage and Scale Try AWS Lambda" and icons for a cloud, a Lambda function, and a database. At the bottom, there's a link to "Learn more about AWS Identity and Access Management and AWS Multi-Factor Authentication, features that provide additional security for your AWS Account. View full AWS Free Usage Tier offer terms." The taskbar at the bottom of the screen shows various application icons.

2. Create EC2 instance in Amazon Web Services.

The screenshot shows the AWS Management Console homepage. The top navigation bar includes links for Google Search, Free Cloud Services, and AWS Management Console. The main menu has options for AWS, Services, and Edit. On the right, there are links for siyumi, Singapore, and Support, along with Disabl, Star, and other browser controls. The main content area is titled "Amazon Web Services" and lists several service categories:

- Compute**: EC2 (Virtual Servers in the Cloud), EC2 Container Service (Run and Manage Docker Containers), Elastic Beanstalk (Run and Manage Web Apps), Lambda (Run Code in Response to Events).
- Storage & Content Delivery**: S3 (Scalable Storage in the Cloud), CloudFront (Global Content Delivery Network), Elastic File System (Fully Managed File System for EC2), Glacier (Archive Storage in the Cloud), Snowball (Large Scale Data Transport), Storage Gateway (Hybrid Storage Integration).
- Database**: RDS (Managed Relational Database Service), DynamoDB (Managed NoSQL Database), ElastiCache (In-Memory Cache), Redshift.
- Developer Tools**: CodeCommit (Store Code in Private Git Repositories), CodeDeploy (Automate Code Deployments), CodePipeline (Release Software using Continuous Delivery).
- Internet of Things**: AWS IoT (Connect Devices to the Cloud).
- Game Development**: GameLift (Deploy and Scale Session-based Multiplayer Games).
- Management Tools**: CloudWatch (Monitor Resources and Applications), CloudFormation (Create and Manage Resources with Templates), CloudTrail (Track User Activity and API Usage), Config (Track Resource Inventory and Changes), OpsWorks (Automate Operations with Chef), Service Catalog (Create and Use Standardized Products), Trusted Advisor (Optimize Performance and Security).
- Mobile Services**: Mobile Hub (Build, Test, and Monitor Mobile Apps), Cognito (User Identity and App Data Synchronization), Device Farm (Test Android, iOS, and Web Apps on Real Devices in the Cloud), Mobile Analytics (Collect, View and Export App Analytics), SNS (Push Notification Service).
- Application Services**: API Gateway (Build, Deploy and Manage APIs), AppStream (Low Latency Application Streaming), CloudSearch (Managed Search Service), Elastic Transcoder (Easy-to-Use Scalable Media Transcoding), SES (Email Sending and Receiving Service).
- Security & Identity**: Identity & Access Management (Manage User Access and Encryption Keys), Directory Service (Host and Manage Active Directory), Inspector (Analyze Application Security), WAF.
- Resource Groups**: A resource group is a collection of resources that share one or more tags. Create a group for each project, application, or environment in your account.
- Create a Group** and **Tag Editor** buttons.
- Additional Resources**: Getting Started, AWS Console Mobile App, AWS re:Invent Announcements, AWS Marketplace, Service Health.
- Service Health**: Shows status information for various AWS services.

3. Launch EC2 instance

The screenshot shows the EC2 Management Console. The top navigation bar includes links for Google Search, AWS Management Console, and EC2 Management Console. The main menu has options for AWS, Services, and Edit. On the right, there are links for siyumi, Singapore, and Support, along with Disabl, Star, and other browser controls. The main content area is titled "EC2 Dashboard" and includes the following sections:

- Resources**: You are using the following Amazon EC2 resources in the Asia Pacific (Singapore) region:
 - 0 Running Instances
 - 0 Dedicated Hosts
 - 0 Volumes
 - 2 Key Pairs
 - 0 Placement Groups
 - 0 Elastic IPs
 - 0 Snapshots
 - 0 Load Balancers
 - 3 Security GroupsA message box says: "Build and run distributed, fault-tolerant applications in the cloud with Amazon Simple Workflow Service."
- Create Instance**: A button labeled "Launch Instance". Note: Your instances will launch in the Asia Pacific (Singapore) region.
- Service Health**: Service Status: Asia Pacific (Singapore): This service is operating normally.
- Scheduled Events**: Asia Pacific (Singapore): No events.
- Account Attributes**: Supported Platforms (VPC), Default VPC (vpc-b7d5c8d2), Resource ID length management.
- Additional Information**: Getting Started Guide, Documentation, All EC2 Resources, Forums, Pricing, Contact Us.
- AWS Marketplace**: Find free software trial products in the AWS Marketplace from the EC2 Launch Wizard. Or try these popular AMIs: Tableau Server (10 users).

4. Select Microsoft Windows Server 2012 R2 Base

The screenshot shows the AWS Management Console with the EC2 Management Console tab selected. The URL is <https://ap-southeast-1.console.aws.amazon.com/ec2/v2/home?region=ap-southeast-1#LaunchInstanceWizard>. The page is titled "Step 1: Choose an Amazon Machine Image (AMI)". It lists several AMIs:

- Red Hat Enterprise Linux 7.2 (HVM), SSD Volume Type** - ami-3f03c55c (Free tier eligible)
- SUSE Linux Enterprise Server 12 SP 1 (HVM), SSD Volume Type** - ami-2a19da49 (Free tier eligible)
- Ubuntu Server 14.04 LTS (HVM), SSD Volume Type** - ami-25c00c46 (Free tier eligible)
- Microsoft Windows Server 2012 R2 Base** - ami-e113c082 (Free tier eligible)

The "Microsoft Windows Server 2012 R2 Base" AMI is highlighted with a blue border. To its right, there are "Select" buttons and a "Cancel and Exit" button. The status bar at the bottom shows "10:13 AM 7/18/2016".

5. Choose t2.micro as the instance type. Then click on configure instance details button.

The screenshot shows the AWS Management Console with the EC2 Management Console tab selected. The URL is <https://ap-southeast-1.console.aws.amazon.com/ec2/v2/home?region=ap-southeast-1#LaunchInstanceWizard>. The page is titled "Step 2: Choose an Instance Type". It lists various instance types:

	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	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
<input type="checkbox"/>	General purpose	m4.large	2	8	EBS only	Yes	Moderate

The "t2.micro" instance type is selected and highlighted with a green border. At the bottom, there are buttons for "Cancel", "Previous", "Review and Launch", and "Next: Configure Instance Details". The status bar at the bottom shows "10:14 AM 7/18/2016".

6. Configure instance details. Click next to add storage.

Number of instances: 1

Purchasing option: Request Spot Instances

Network: vpc-b7d5c8d2 (172.31.0.0/16) (default)

Subnet: No preference (default subnet in any Availability Zone)

Auto-assign Public IP: Use subnet setting (Enable)

Domain join directory: None

IAM role: None

Shutdown behavior: Stop

Enable termination protection: Protect against accidental termination

Monitoring: Enable CloudWatch detailed monitoring

Buttons: Cancel, Previous, Review and Launch (highlighted in blue), Next: Add Storage

7. Keep the storage size as 30 GiB. Then click Tag Instance button.

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)	Delete on Termination	Encrypted
Root	/dev/sda1	snap-562988a9	30	General Purpose SSD (GP2)	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypted

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.

Buttons: Cancel, Previous, Review and Launch (highlighted in blue), Next: Tag Instance

8. Tag instance. Click on Review and Launch button.

Step 5: Tag Instance

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver. [Learn more](#) about tagging your Amazon EC2 resources.

Key (127 characters maximum) **Value** (255 characters maximum)

Name

Create Tag (Up to 10 tags maximum)

Cancel Previous **Review and Launch** Next: Configure Security Group

9. Review instance launch. Click on launch button.

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](#)

Microsoft Windows Server 2012 R2 Base - ami-e113c082
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 [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**

10. Create a new key pair for security issues and download the key pair.

Step 7: Review Instance Launch

Please review your instance launch details. You can always change them later.

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.

Cancel Launch Instances

11. Status of the launch.

Your instances are now launching

The following instance launches have been initiated: i-05e67f7057bf88c2f [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

- Amazon EC2: User Guide
- Amazon EC2: Microsoft Windows Guide

Amazon EC2: Discussion Forum

Feedback English

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Show all downloads... 10:23 AM 7/18/2016

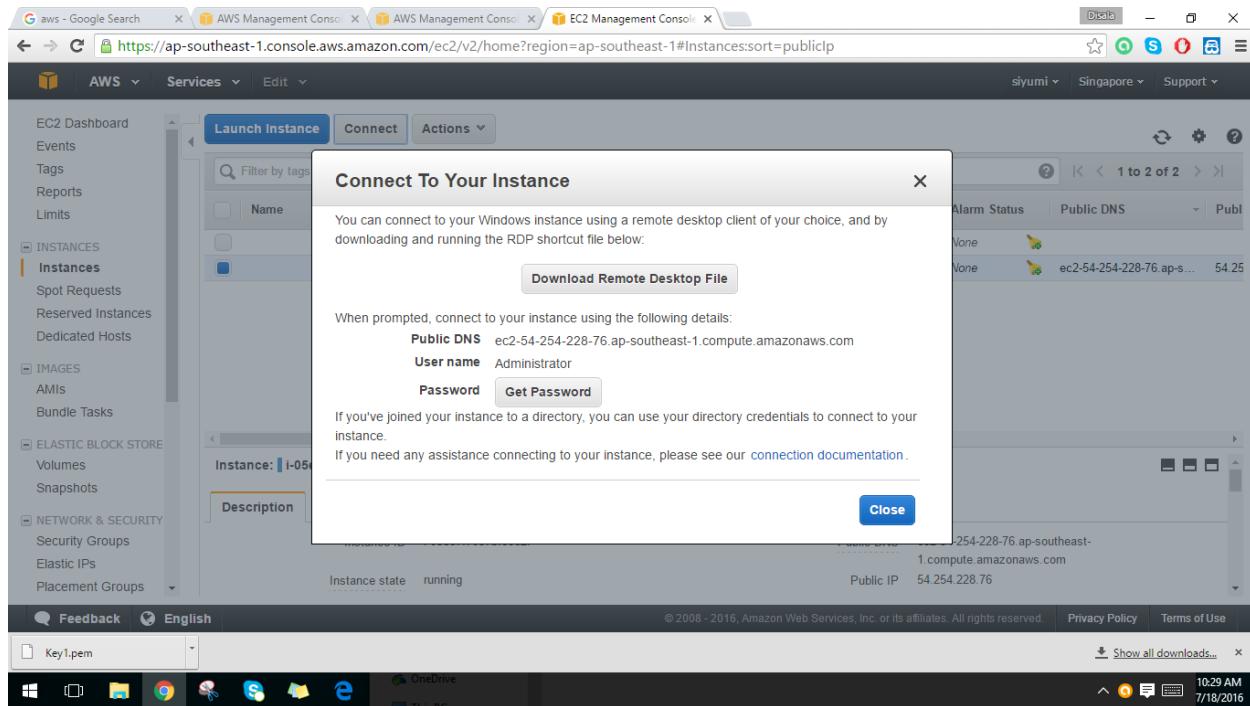
12. Click on view instance button.

The screenshot shows the AWS Management Console with the URL <https://ap-southeast-1.console.aws.amazon.com/ec2/v2/home?region=ap-southeast-1#LaunchInstanceWizard>. The page is titled "Launch Status". It contains sections for "How to connect to your instances", "Helpful resources", and "While your instances are launching you can also". A "View Instances" button is located at the bottom right. The browser status bar shows "siyumi Singapore Support".

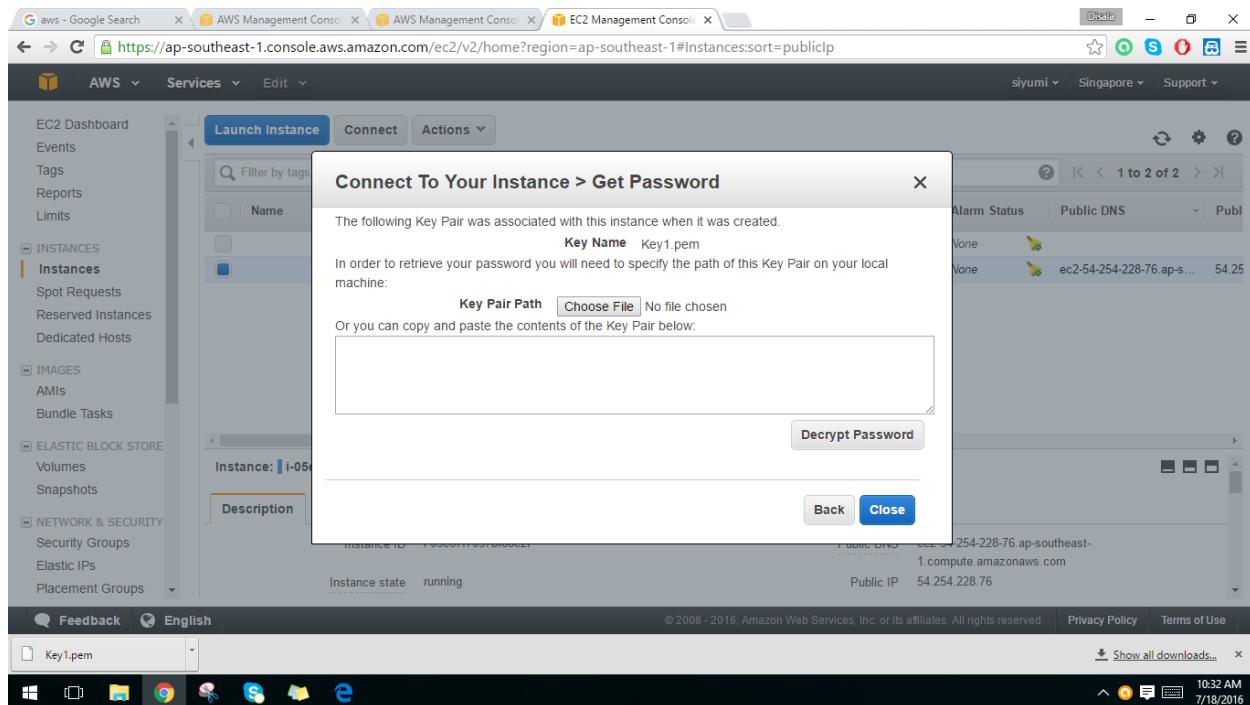
13 To connect to a Windows instance click the created instance and click connect.

The screenshot shows the AWS Management Console with the URL <https://ap-southeast-1.console.aws.amazon.com/ec2/v2/home?region=ap-southeast-1#Instances:sort=publicip>. The left sidebar shows navigation options like EC2 Dashboard, Events, Tags, Reports, Limits, Instances, Images, AMIs, and Network & Security. The main area displays a table of instances. One instance is selected, showing its details: Instance ID i-05e67f7057bf88c2f, Instance Type t2.micro, Availability Zone ap-southeast-1b, Status running, Public DNS ec2-54-254-228-76.ap-southeast-1.compute.amazonaws.com. Below the table, a detailed view for the selected instance shows fields like Instance ID, Instance state, Instance type, Private DNS, Private IPs, Public DNS, Public IP, Elastic IPs, Availability zone, and Security groups. The browser status bar shows "siyumi Singapore Support".

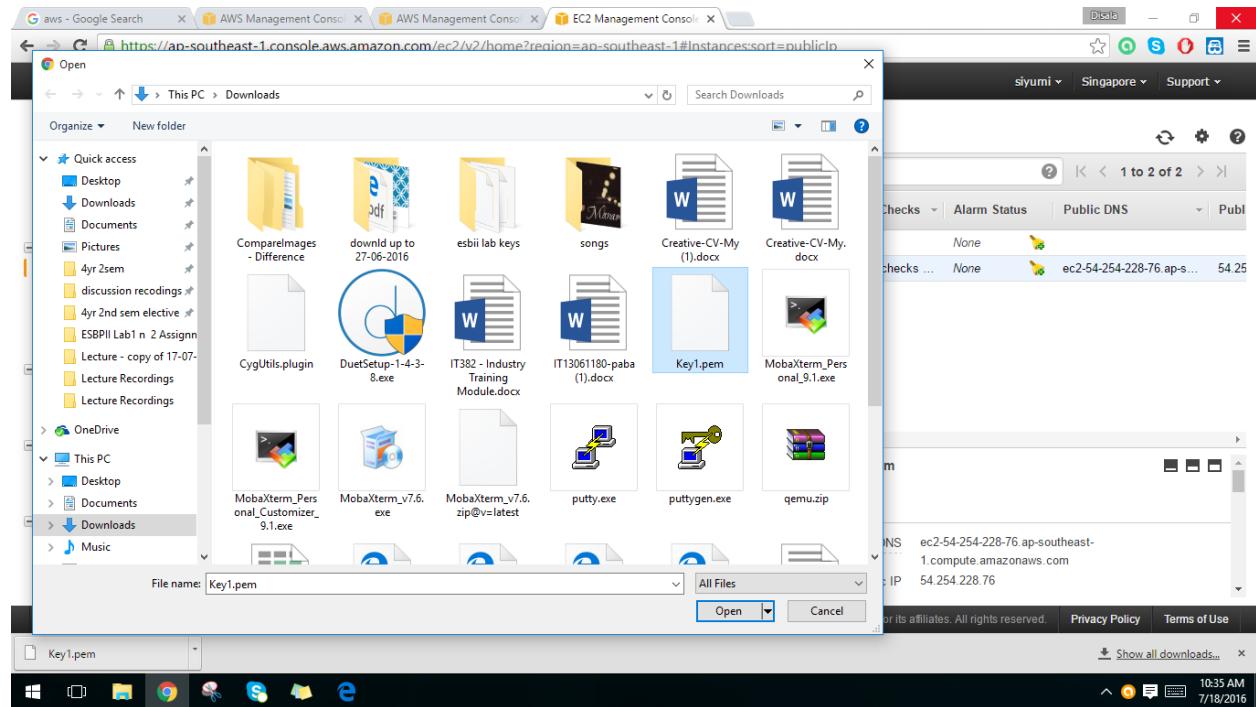
14. To connect should give the password. So click get password.



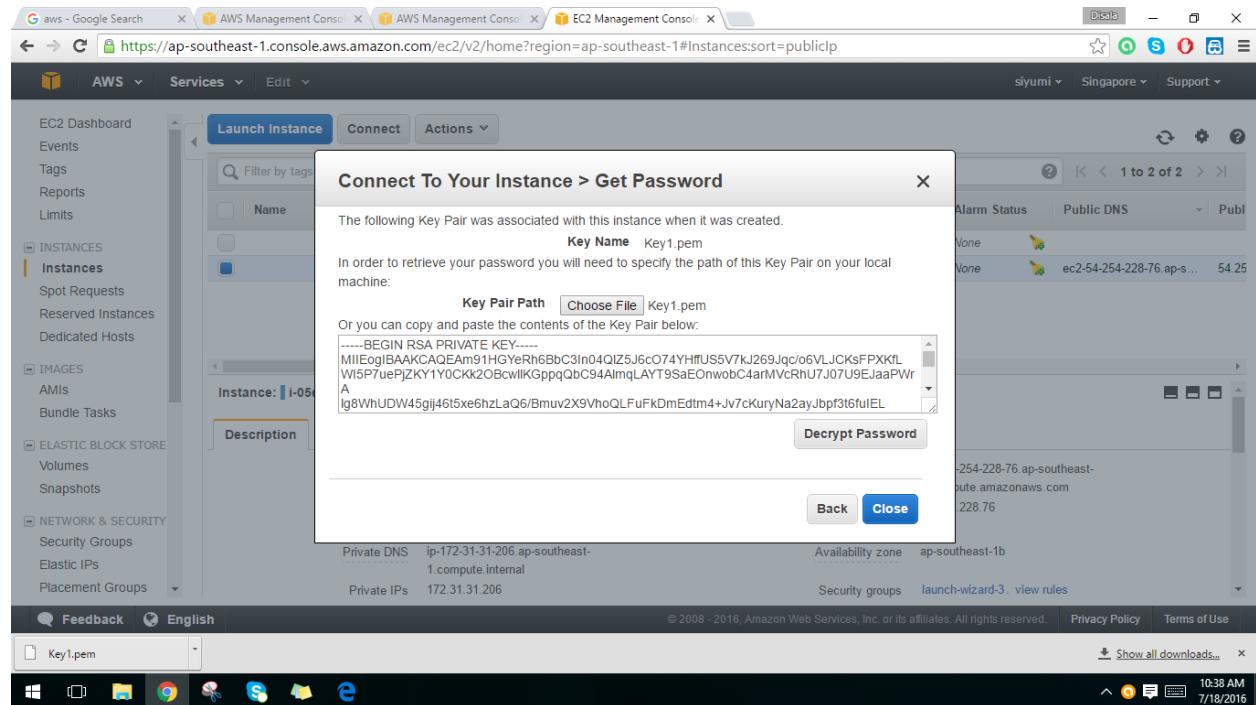
15. Then clicking choose file give the path to the earlier downloaded key pair. (.pem file)



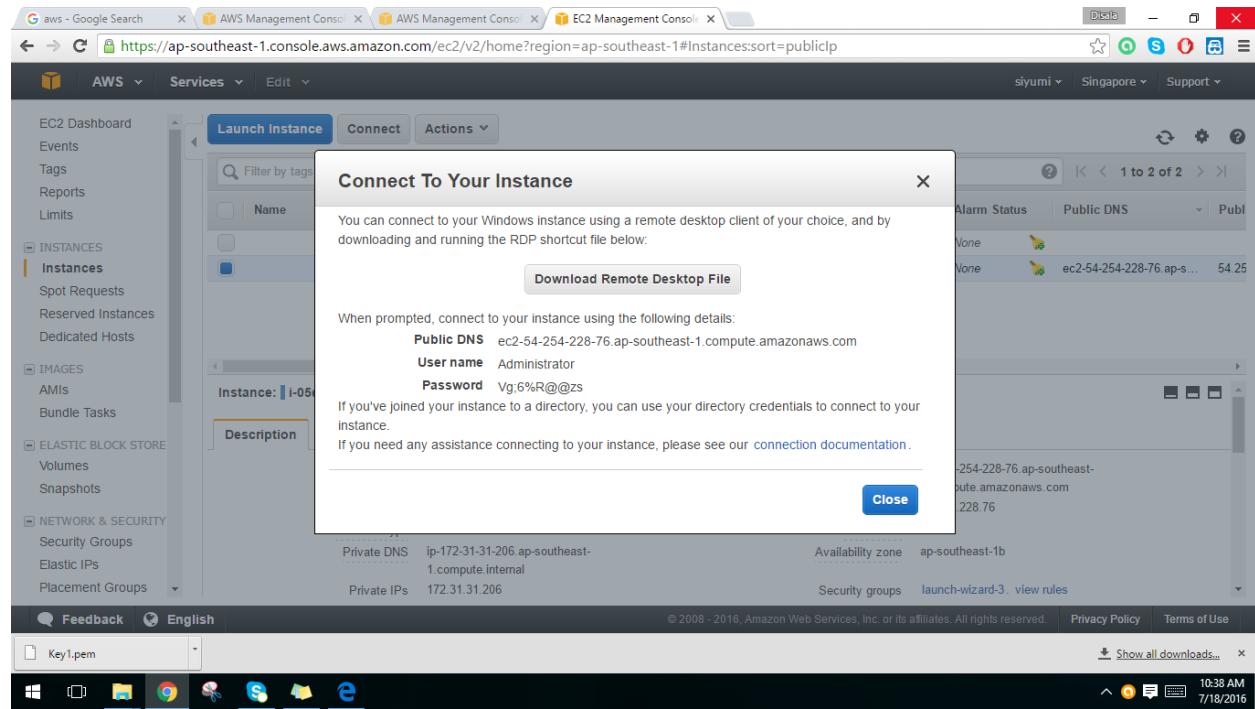
16. Choose the downloaded .pem file.



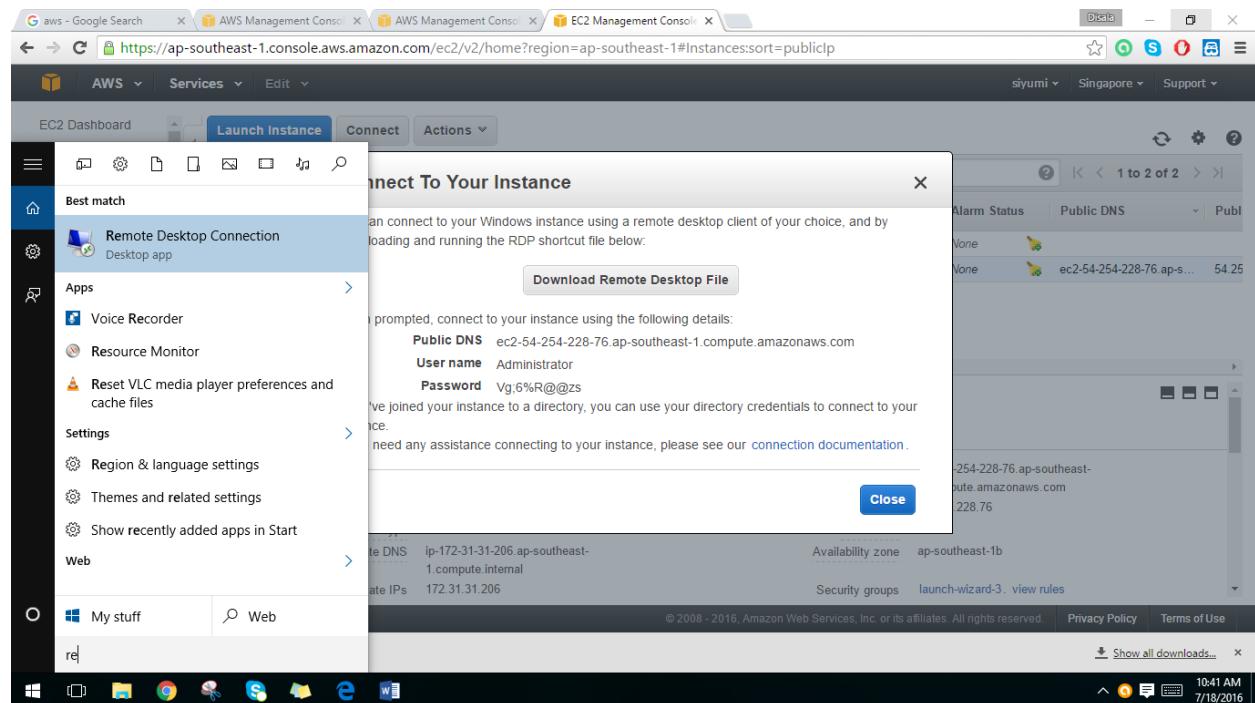
17. Then decrypt the password.



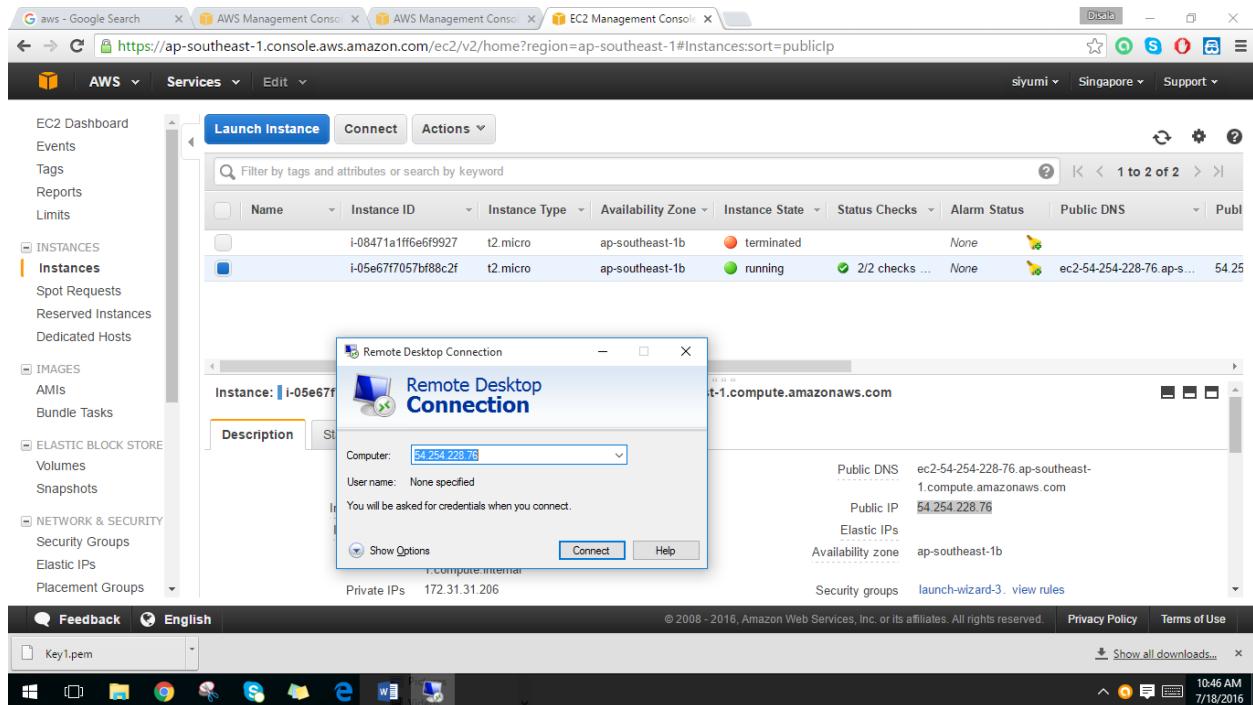
18. So the decrypted password will appear.



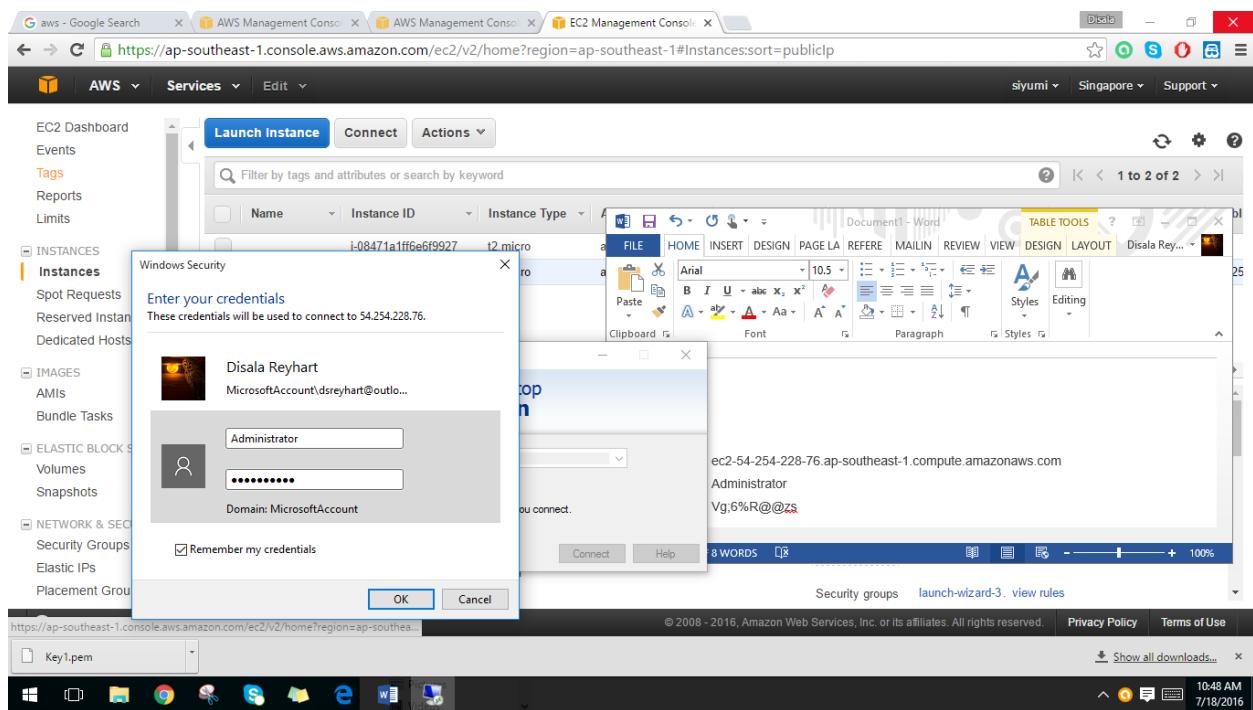
19. Search the Remote Desktop Connection.

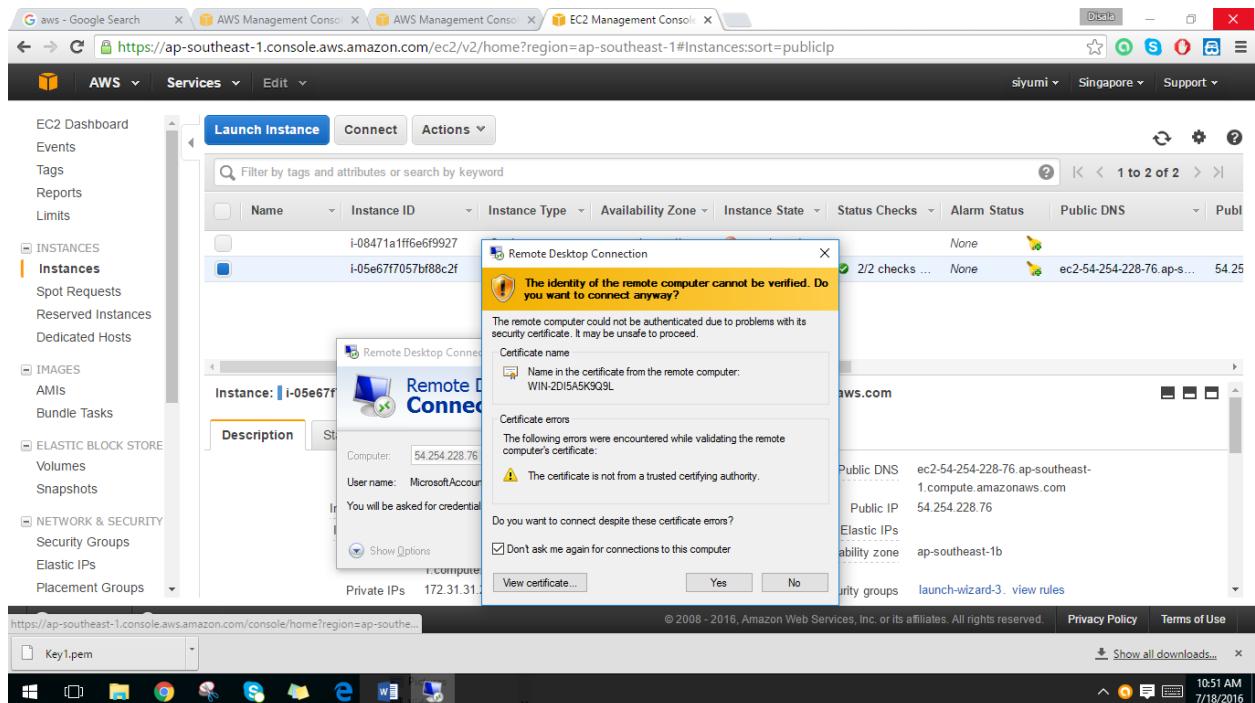


20. Give the public IP as the remote computer IP. And click the Connect button.

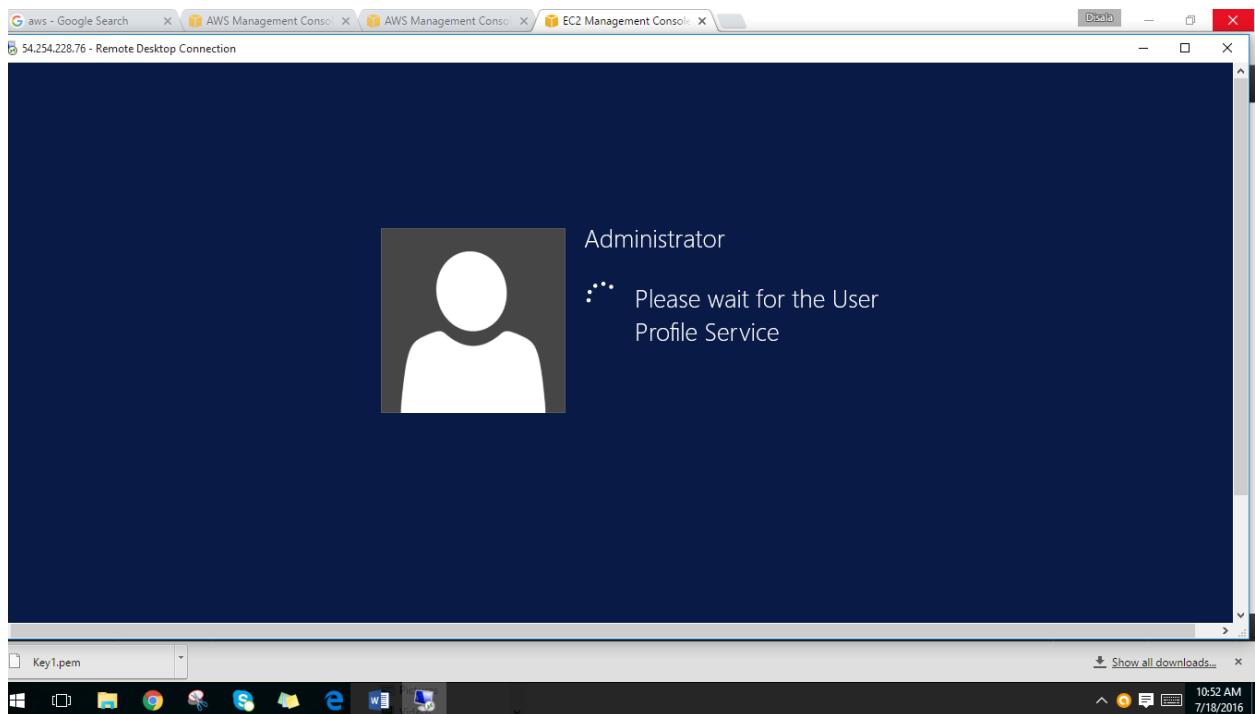


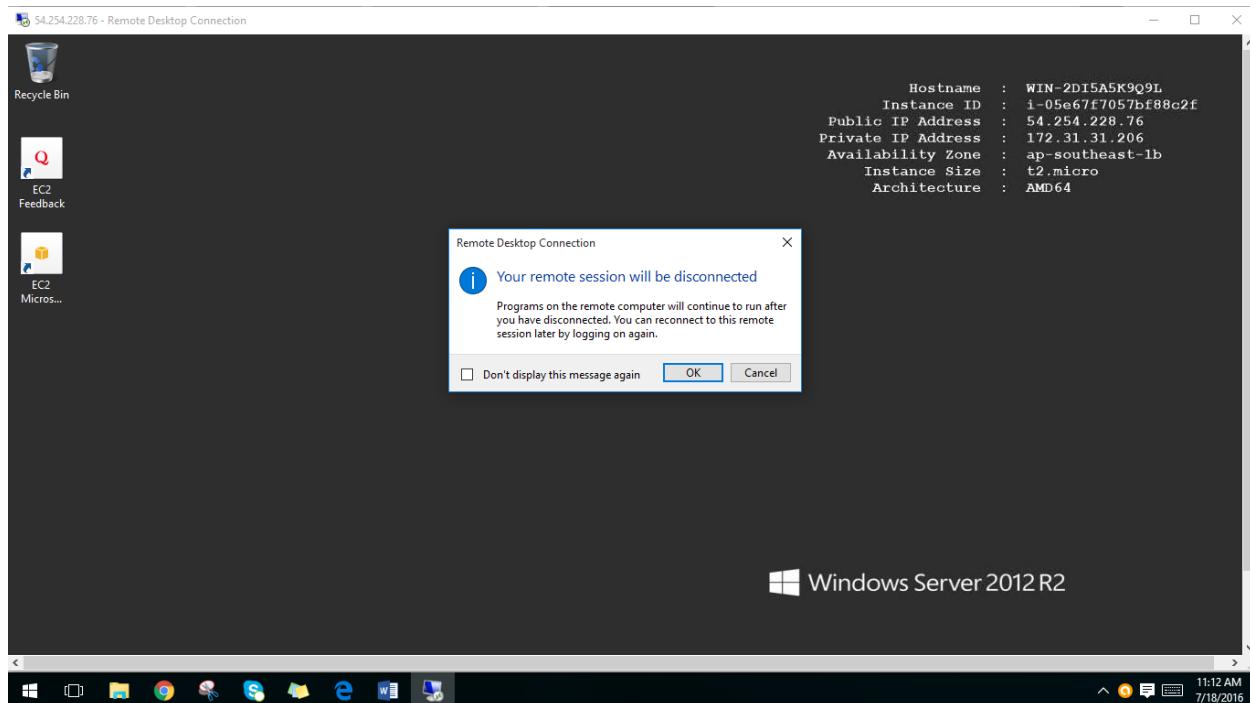
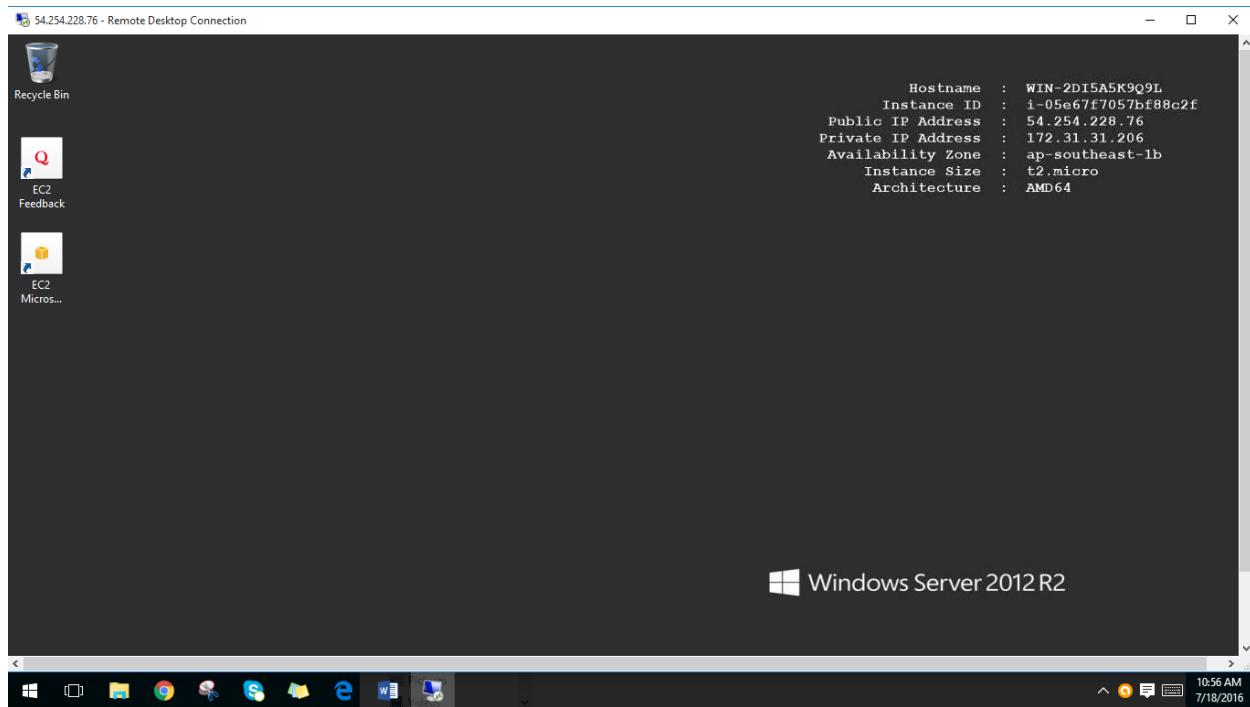
21. Enter the username and password and then press ok.





22. After click Yes, Windows instance will appear.





20. After the work have done terminate the created instance.

The screenshot shows the AWS Management Console with the EC2 Management Console tab selected. The left sidebar shows navigation options like EC2 Dashboard, Events, Tags, Reports, Limits, Instances, Images, Elastic Block Store, and Network & Security. Under Instances, 'Instances' is selected. The main pane displays a list of instances. One instance, with Instance ID i-05e67f7057bf88c2f, is selected. A context menu is open over this instance, with the 'Terminate' option highlighted. Below the instance list, detailed information is shown for the selected instance: Instance ID i-05e67f7057bf88c2f, Instance state running, Instance type t2.micro, Private DNS ip-172-31-31-206.ap-southeast-1.compute.internal, Private IP 172.31.31.206, Public DNS ec2-54-254-228-76.ap-southeast-1.compute.amazonaws.com, Public IP 54.254.228.76, Availability zone ap-southeast-1b, and Security groups launch-wizard-3, view rules. The status bar at the bottom shows the date and time as 7/18/2016 11:16 AM.

The screenshot shows the AWS Management Console with the EC2 Management Console tab selected. The left sidebar shows navigation options like EC2 Dashboard, Events, Tags, Reports, Limits, Instances, Images, Elastic Block Store, and Network & Security. Under Instances, 'Instances' is selected. A modal dialog box titled 'Terminate Instances' is open. It contains a warning message: "Warning: On an EBS-backed instance, the default action is for the root EBS volume to be deleted when the instance is terminated. Storage on any local drives will be lost." Below the warning, it asks, "Are you sure you want to terminate these instances?" followed by a list of instances: i-05e67f7057bf88c2f (ec2-54-254-228-76.ap-southeast-1.compute.amazonaws.com). At the bottom of the dialog are 'Cancel' and 'Yes, Terminate' buttons. The background shows the same instance details as the previous screenshot. The status bar at the bottom shows the date and time as 7/18/2016 11:17 AM.

Screenshot of the AWS Management Console EC2 Management Console interface.

The left sidebar shows navigation links for EC2 Dashboard, Events, Tags, Reports, Limits, Instances (selected), Spot Requests, Reserved Instances, Dedicated Hosts, Images, AMIs, Bundle Tasks, Elastic Block Store (Volumes, Snapshots), Network & Security (Security Groups, Elastic IPs, Placement Groups), and Feedback.

The main content area displays the EC2 Instances list:

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS
	i-08471a1ff6e6f9927	t2.micro	ap-southeast-1b	terminated		None	
	i-05e67f7057bf88c2f	t2.micro	ap-southeast-1b	shutting-down		None	

A modal window is open for the instance i-05e67f7057bf88c2f, showing the following details:

Description	Value
Instance ID	i-05e67f7057bf88c2f
Instance state	shutting-down
Instance type	t2.micro
Private DNS	-
Private IPs	-
Secondary private IPs	-
Public DNS	-
Public IP	-
Elastic IPs	-
Availability zone	ap-southeast-1b
Security groups	-
Scheduled events	-

At the bottom, there are links for Feedback, English, Privacy Policy, Terms of Use, and a download link for "Key1.pem". The status bar shows the date and time as 7/18/2016 11:18 AM.

Lab 02 - Getting started with Amazon Linux instance

1. Create EC2 instance in Amazon Web Services.

The screenshot shows the AWS Management Console dashboard. The left sidebar lists various services under 'Amazon Web Services' such as Compute (EC2, Lambda), Storage & Content Delivery (S3, CloudFront, Elastic File System, Glacier, Snowball, Storage Gateway), Database (RDS, DynamoDB), and others like Developer Tools, Internet of Things, Game Development, Mobile Services, Security & Identity, Application Services, and Resource Groups. The main content area displays a grid of service icons. On the right, there's a 'Resource Groups' section with a 'Create a Group' button, an 'Additional Resources' section with links to Getting Started, AWS Console Mobile App, AWS Marketplace, and AWS re:Invent Announcements, and a 'Show all downloads...' link at the bottom. The status bar at the bottom right shows the time as 11:34 AM on 7/18/2016.

2. Launch the instance.

The screenshot shows the EC2 Management Console dashboard. The left sidebar has a 'EC2 Dashboard' section with links to Events, Tags, Reports, Limits, Instances, AMIs, and other services like ELASTIC BLOCK STORE and NETWORK & SECURITY. The main content area includes sections for 'Resources' (listing 0 Running Instances, 0 Dedicated Hosts, etc.), 'Create Instance' (with a 'Launch Instance' button), 'Service Health' (showing Service Status: Asia Pacific (Singapore)), 'Scheduled Events' (showing Asia Pacific (Singapore): No events), and 'AWS Marketplace' (listing supported platforms like VPC, Default VPC, and resource ID length management). The status bar at the bottom right shows the time as 11:35 AM on 7/18/2016.

3. Select Amazon Linux AMI or Red Hat Enterprise Linux.

Step 1: Choose an Amazon Machine Image (AMI)

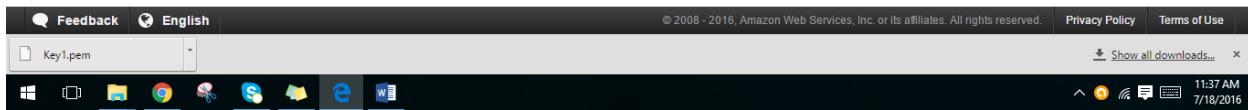
An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. You can select an AMI provided by AWS, our user community, or the AWS Marketplace; or you can select one of your own AMIs.

Quick Start
My AMIs
AWS Marketplace
Community AMIs
<input type="checkbox"/> Free tier only <small>(i)</small>

Amazon Linux AMI 2016.03.3 (HVM), SSD Volume Type - ami-a59b49c6
Amazon Linux 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

Red Hat Enterprise Linux 7.2 (HVM), SSD Volume Type - ami-3f03c55c
Red Hat Free tier eligible
Red Hat Enterprise Linux version 7.2 (HVM), EBS General Purpose (SSD) Volume Type
Root device type: ebs Virtualization type: hvm

SUSE Linux Enterprise Server 12 SP 1 (HVM), SSD Volume Type - ami-2a19da49
SUSE Linux Free tier eligible
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.



4. Choose t2.micro as the instance type. And click on the configure instance details button.

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 (i) Current generation (i) 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 <small>(i)</small>	Memory (GiB) <small>(i)</small>	Instance Storage (GB) <small>(i)</small>	EBS-Optimized Available <small>(i)</small>	Network Performance <small>(i)</small>
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

Review and Launch

Cancel Previous Review and Launch Next: Configure Instance Details

Feedback English © 2008 - 2016, Amazon Web Services, Inc. or its affiliates. All rights reserved. Privacy Policy Terms of Use Show all downloads... 11:38 AM 7/18/2016

5. Click Add Storage button.

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: 1

Purchasing option: Request Spot instances

Network: vpc-b7d5c8d2 (172.31.0.0/16) (default)

Subnet: No preference (default subnet in any Availability Zone)

Auto-assign Public IP: Use subnet setting (Enable)

IAM role: None

Shutdown behavior: Stop

Enable termination protection: Protect against accidental termination

Monitoring: Enable CloudWatch detailed monitoring

[Cancel](#) [Previous](#) [Review and Launch](#) [Next: Add Storage](#)

6. Add Storage. Then click Tag Instance button.

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/xvda	snap-eff61911	8	General Purpose SSD (GP2)	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.

[Cancel](#) [Previous](#) [Review and Launch](#) [Next: Tag Instance](#)

7. Tag Instance. Then click Configure Security Group.

The screenshot shows the AWS Management Console with the EC2 Management Console tab selected. The URL is <https://ap-southeast-1.console.aws.amazon.com/ec2/v2/home?region=ap-southeast-1#LaunchInstanceWizard>. The top navigation bar shows 'AWS Services Edit'. Below it, a progress bar indicates steps 1 through 7. Step 5, 'Tag Instance', is highlighted. A sub-section titled 'Step 5: Tag Instance' is shown, with a note explaining that a tag consists of a key-value pair. A 'Create Tag' button is visible. The main area shows a table with columns 'Key' and 'Value', both with input fields. The 'Key' field contains 'Name' and the 'Value' field is empty. A note below says '(Up to 10 tags maximum)'. At the bottom are 'Cancel', 'Previous', 'Review and Launch' (which is blue), and 'Next: Configure Security Group'.

8. Configure security group. Then click Review and Launch button.

The screenshot shows the AWS Management Console with the EC2 Management Console tab selected. The URL is <https://ap-southeast-1.console.aws.amazon.com/ec2/v2/home?region=ap-southeast-1#LaunchInstanceWizard>. The top navigation bar shows 'AWS Services Edit'. Below it, a progress bar indicates steps 1 through 7. Step 6, 'Configure Security Group', is highlighted. A sub-section titled 'Step 6: Configure Security Group' is shown, with a note explaining what a security group is. It asks to assign a security group, with two options: 'Create a new security group' (radio button selected) and 'Select an existing security group'. Below this, 'Security group name:' is set to 'launch-wizard-4' and 'Description:' is 'launch-wizard-4 created 2016-07-18T11:43:52.933+05:30'. A table for 'Add Rule' shows 'Type' as 'SSH', 'Protocol' as 'TCP', 'Port Range' as '22', and 'Source' as 'Anywhere'. An 'Add Rule' button is present. A warning message in a yellow box states: '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' (which is blue), and 'Next: Review'.

9. Review instance launch. Then click launch button.

The screenshot shows the AWS Management Console with the EC2 Management Console selected. The URL is <https://ap-southeast-1.console.aws.amazon.com/ec2/v2/home?region=ap-southeast-1#LaunchInstanceWizard>. The page is titled "Step 7: Review Instance Launch". The "7. Review" tab is active. The "Instance Type" section shows a t2.micro instance with 1 vCPU, 1 GiB Memory, and EBS only storage. The "Security Groups" section shows a security group named "launch-wizard-4" with an SSH rule allowing port 22 from 0.0.0.0/0. The "Instance Details" section shows a key pair named "Key1.pem" has been selected. At the bottom right are "Cancel", "Previous", and "Launch" buttons. The status bar at the bottom indicates the download of "key1.pem" and the time 11:53 AM on 7/18/2016.

10. Create a new key pair and download it. Then click launch instance.

The screenshot shows the same AWS Management Console setup as the previous step. A modal window titled "Select an existing key pair or create a new key pair" is open. It contains instructions about key pairs and a form to either "Create a new key pair" or select an existing one. A "Key pair name" field is populated with "key2". Below the form is a note: "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." At the bottom of the modal are "Cancel" and "Launch Instances" buttons. The status bar at the bottom indicates the download of "key2.pem" and the time 11:54 AM on 7/18/2016.

11. Status of the instance.

Your instances are now launching
The following instance launches have been initiated: i-09ac3b6104a48f739 [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
- Learn about AWS Free Usage Tier
- Amazon EC2: User Guide
- Amazon EC2: Discussion Forum

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12. Click the view instance button.

Your instances are now launching
The following instance launches have been initiated: i-09ac3b6104a48f739 [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
- Learn about AWS Free Usage Tier
- 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

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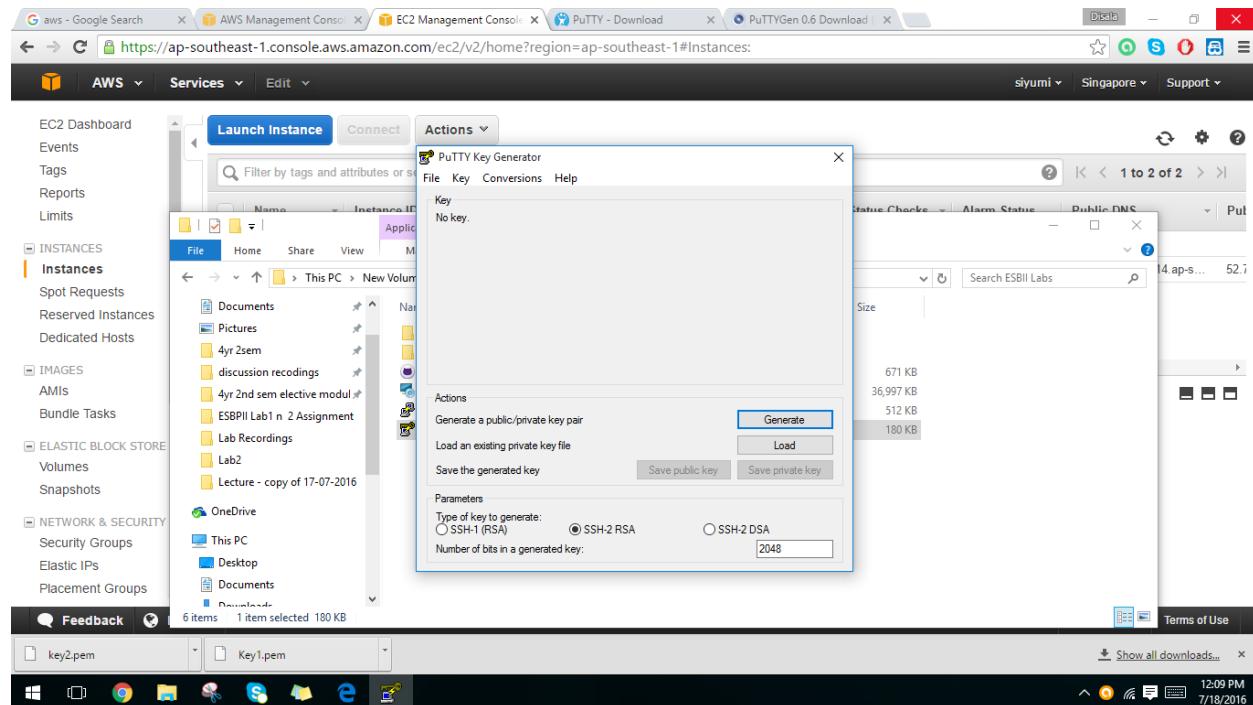
13. Now the instance details will appear. Instance is up and running.

The screenshot shows the AWS Management Console with the EC2 Instances page open. The left sidebar shows navigation links for EC2 Dashboard, Events, Tags, Reports, Limits, Instances, Images, AMIs, Bundle Tasks, Elastic Block Store, Volumes, Snapshots, Network & Security, Security Groups, Elastic IPs, and Placement Groups. The main content area displays a table of instances. The first instance, with ID i-05e67f7057bf88c2f, is listed as 'terminated'. The second instance, with ID i-09ac3b6104a48f739, is listed as 'running' in the 'Instance State' column. The table includes columns for Name, Instance ID, Instance Type, Availability Zone, Instance State, Status Checks, Alarm Status, and Public DNS. A message at the bottom of the table says 'Select an instance above'. The status bar at the bottom right shows the date and time as 7/18/2016 11:56 AM.

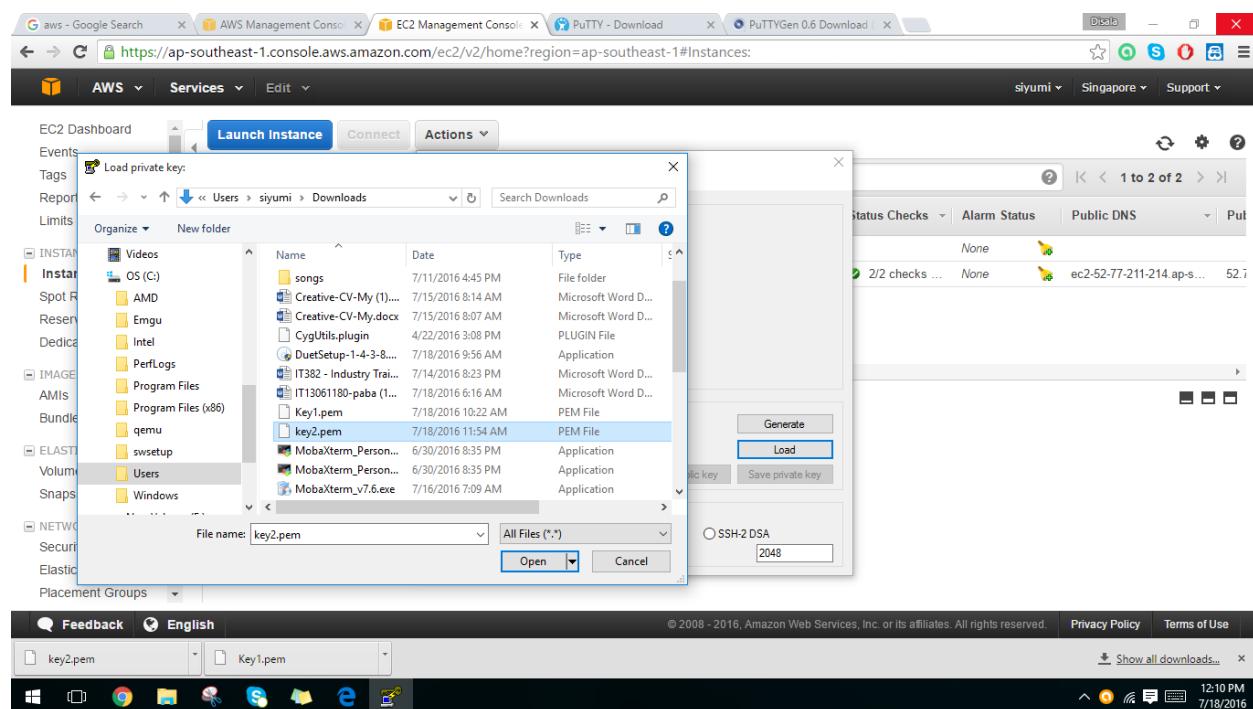
14. Download PuTTY and PuTTYgen.

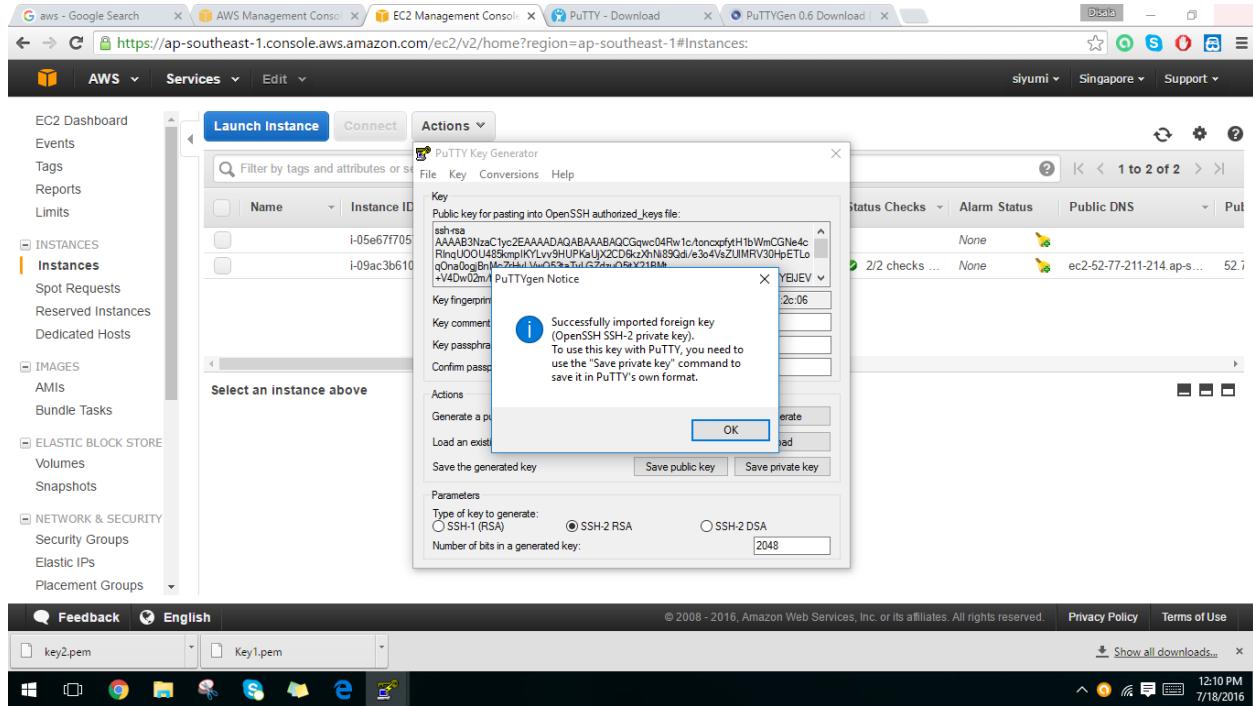
The screenshot shows the AWS Management Console with the EC2 Instances page open. The left sidebar is identical to the previous screenshot. A file explorer window is overlaid on the main content area, showing a directory structure on 'This PC'. The path shown is 'New Volume (E:) > 4yr 2sem > ESBII > ESBII Labs'. Inside this folder, several files are listed: 'creating github Account', 'esbii lab1', 'GitHubSetup.exe', 'markdownpad2-setup.exe', 'putty.exe', and 'puttygen.exe'. The status bar at the bottom right shows the date and time as 7/18/2016 12:08 PM.

15. Double click on puTTYgen. Then generate the private key.

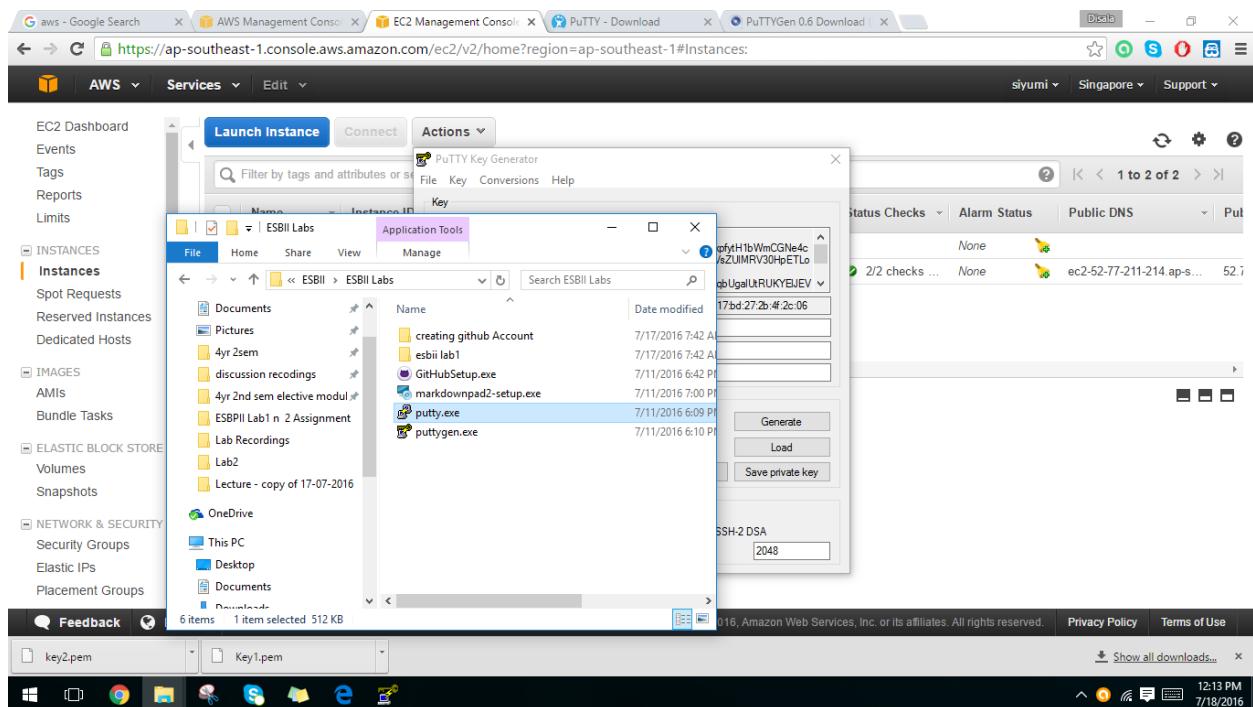


16. Load the private key. (.ppk)

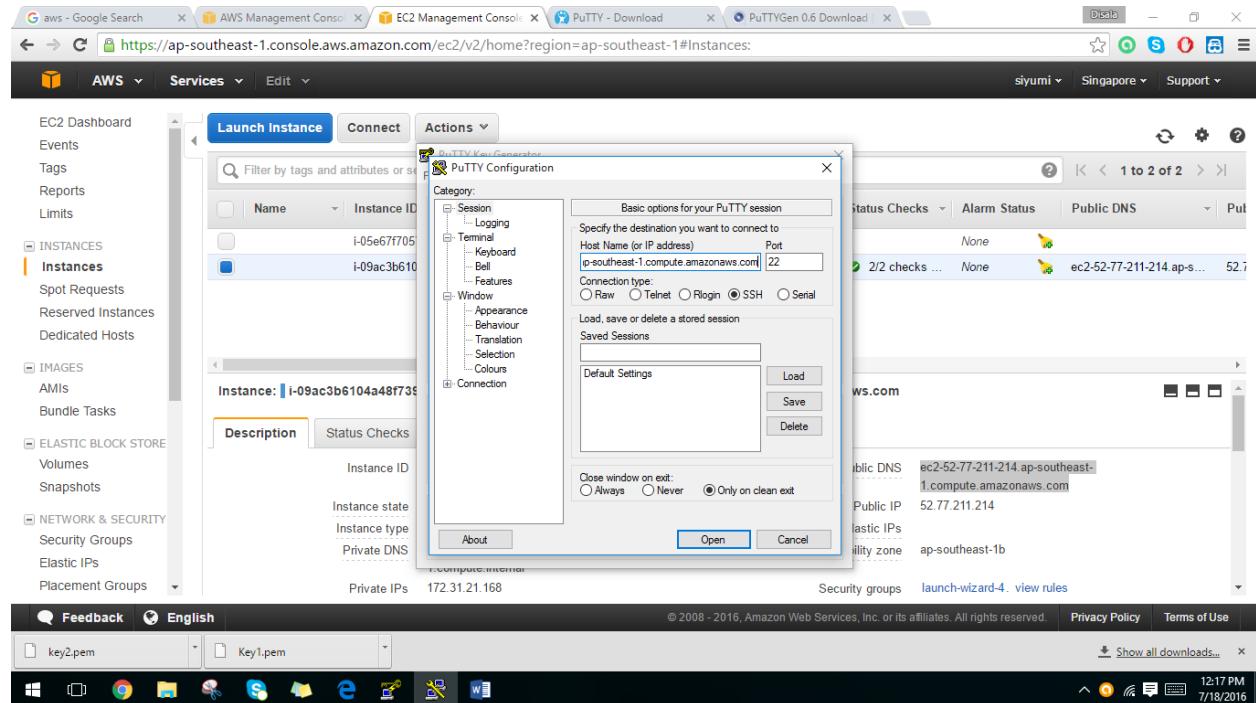




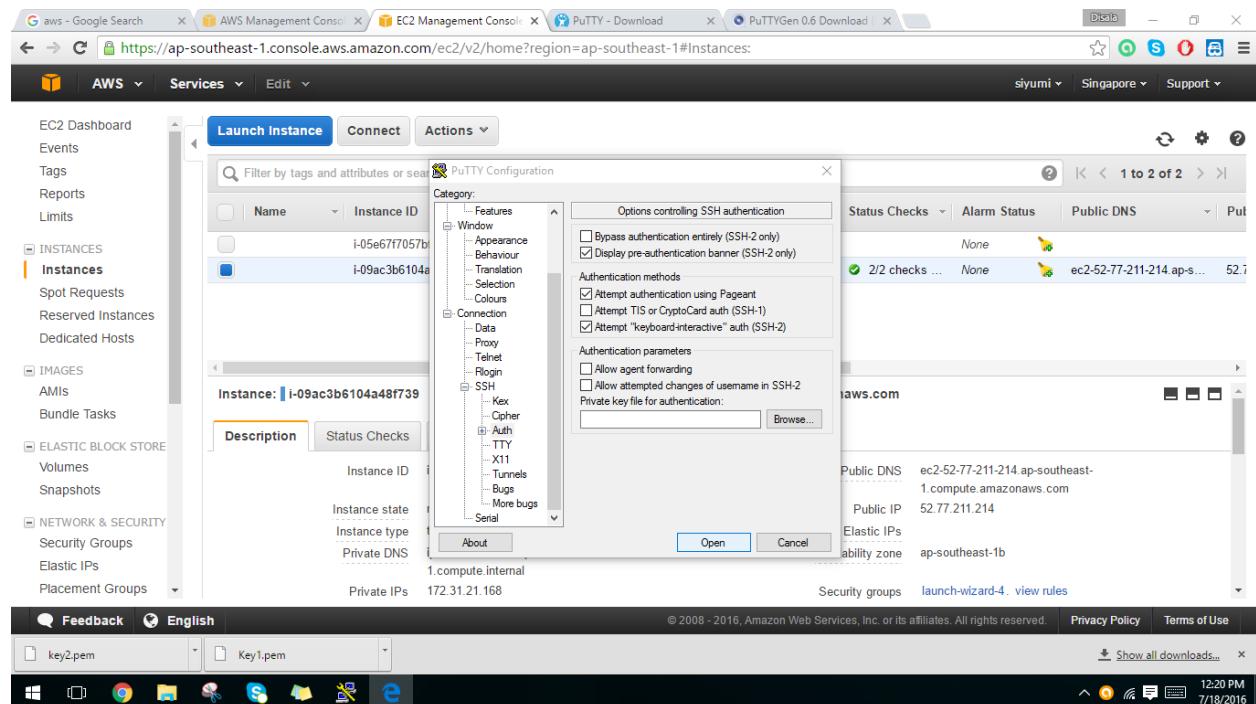
17. Double click on puTTY.



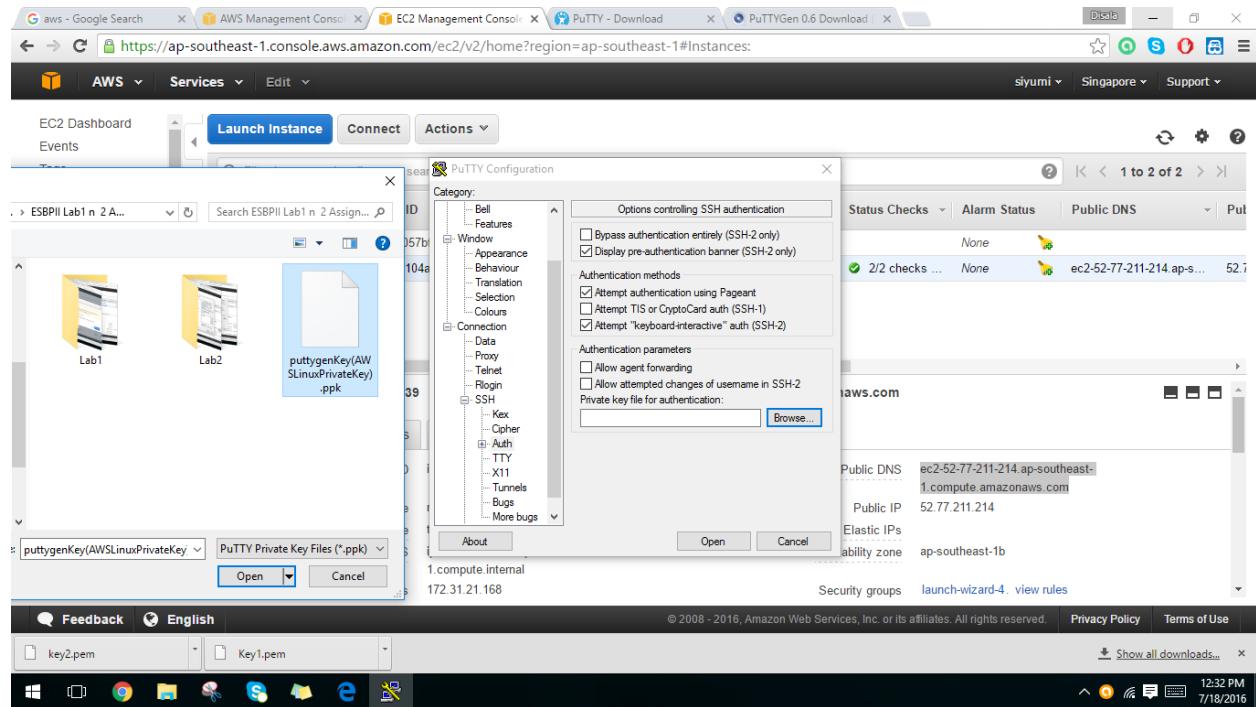
18. Give the public DNS as the host name. And create a session and save it. (Category → session)



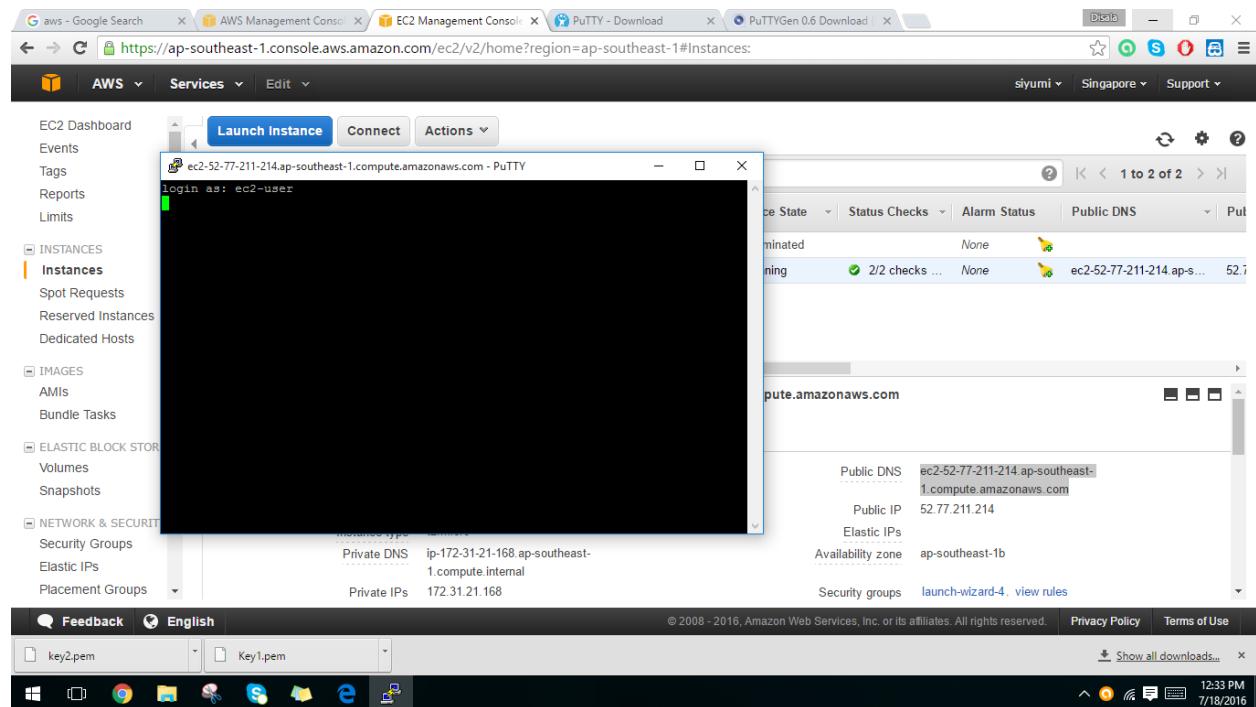
19. Go to category → connection → SSH → Auth



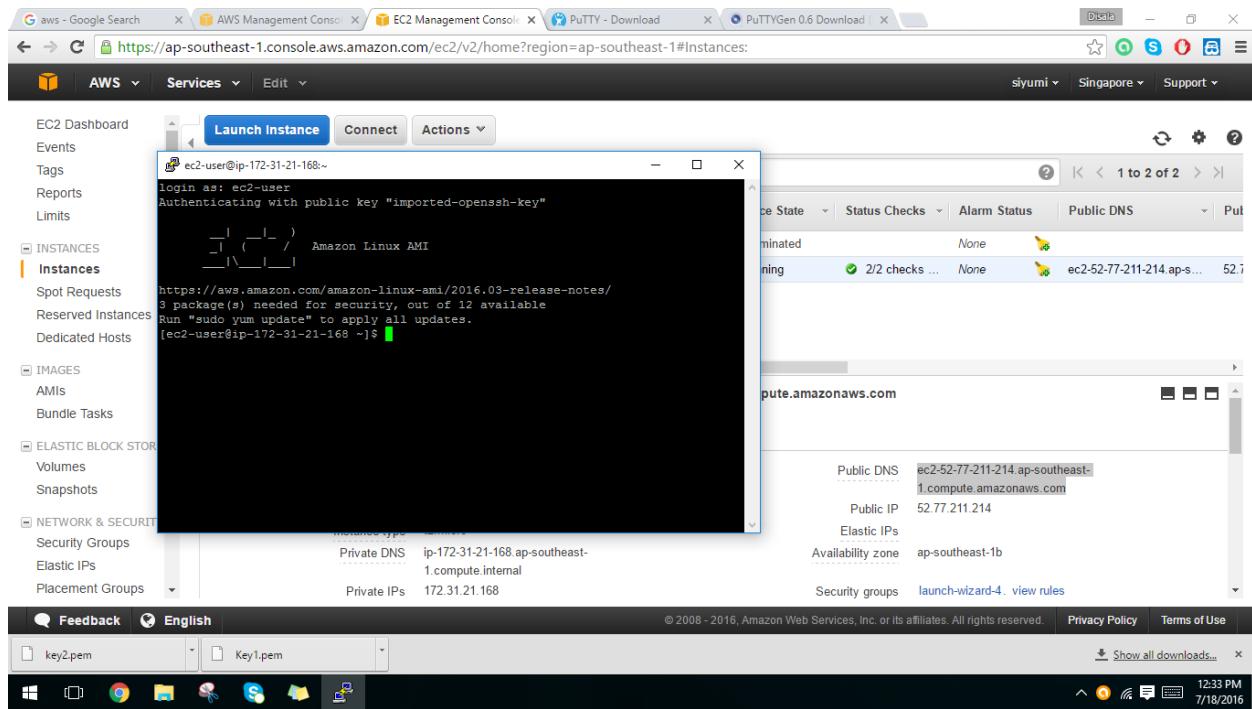
20. Then brown the key (.ppk) previously generated by puTTYgen.



21. Give ec2-user to login.

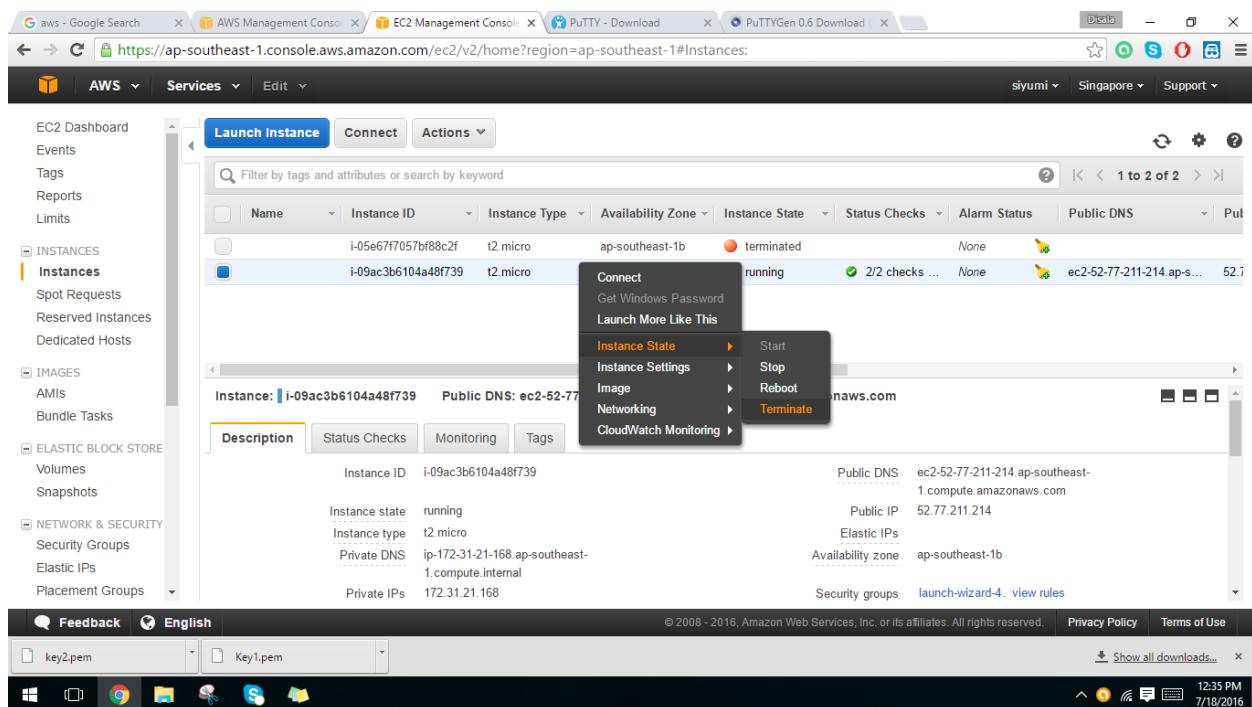


22. Then Amazon Linux instance will appear.



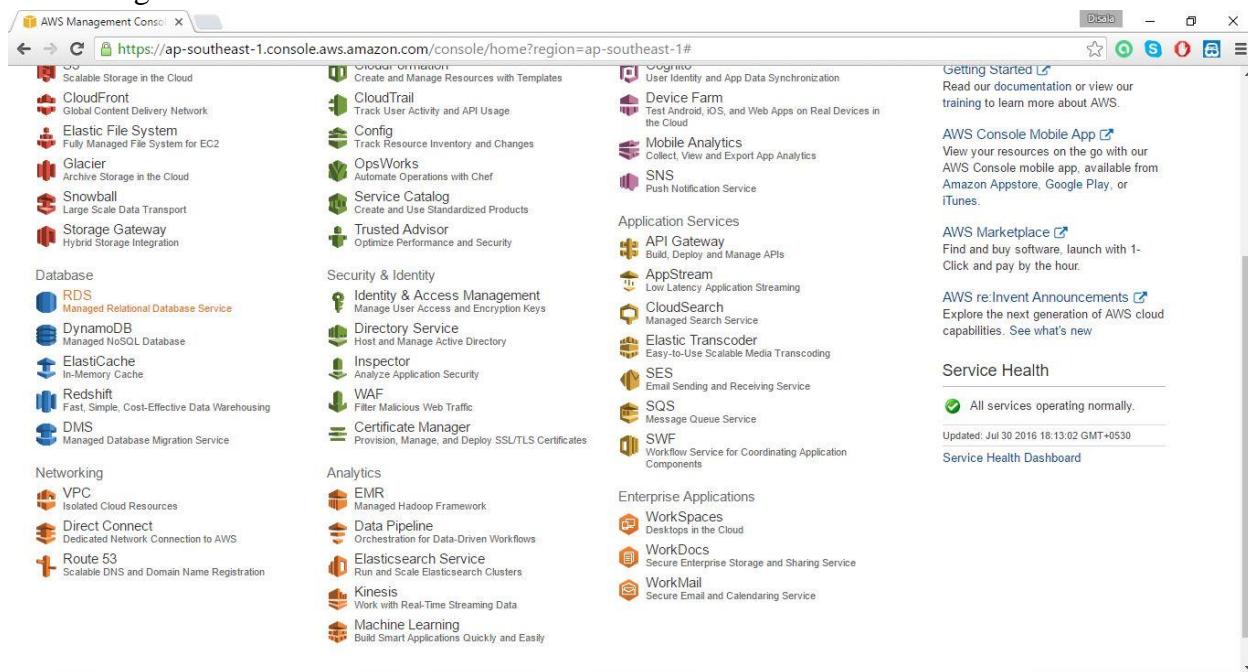
23. Terminate the Linux instance.

SS

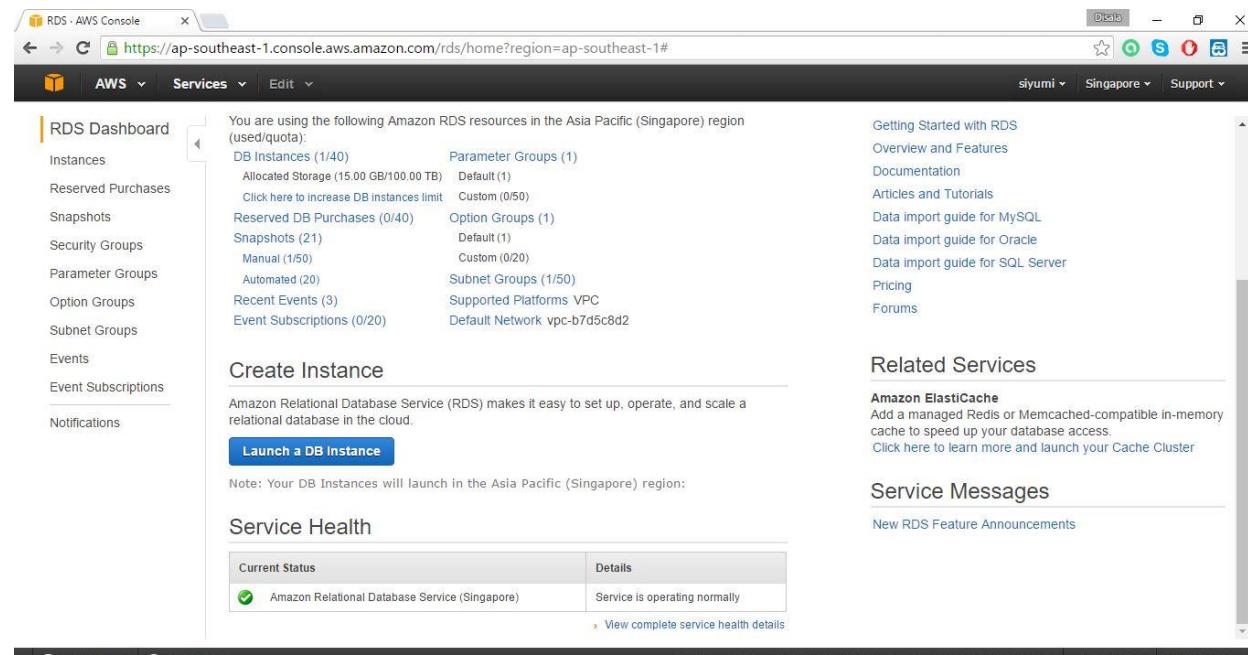


Lab 03 - Creating a MySQL DB Instance and Connecting to a Database on a MySQL DB Instance

1. Creating RDS instance.



2. Click on Launch instance button.



3. Select MySQL Community Edition.

The screenshot shows the AWS RDS console with the URL <https://ap-southeast-1.console.aws.amazon.com/rds/home?region=ap-southeast-1#launch-dbinstance:ct=dashboard>. The page title is "Step 1: Select Engine". It displays a list of database engines: MySQL, MariaDB, PostgreSQL, Oracle, and Microsoft SQL Server. The MySQL entry is selected, with its details shown on the right: "MySQL Community Edition". It is described as the most popular open source database in the world, supporting up to 6 TB, 32 vCPUs, and 244 GiB Memory. It also supports automated backup and point-in-time recovery, and cross-region read replicas. A "Select" button is present. Below the engine list, there is a "Cancel" link. At the bottom, there are links for Feedback, English, Privacy Policy, and Terms of Use.

The screenshot shows the AWS RDS console with the same URL as the previous step. The page title is "Step 1: Select Engine". The "Step 2: Production?" section is highlighted. It asks if the user plans to use the database for production purposes. Two options are shown: "Production" and "Dev/Test". Under "Production", there is a radio button labeled "MySQL" with the note: "Use Multi-AZ Deployment and Provisioned IOPS Storage as defaults for high availability and fast, consistent performance.". Under "Dev/Test", there is a radio button labeled "MySQL" with the note: "This instance is intended for use outside of production or under the RDS Free Usage Tier.". A note at the bottom states "Billing is based on RDS pricing". At the bottom, there are "Cancel", "Previous", and "Next Step" buttons. At the very bottom, there are links for Feedback, English, Privacy Policy, and Terms of Use.

4. Specify DB Details.

The screenshot shows the 'Specify DB Details' step of the AWS RDS instance creation wizard. The left sidebar lists steps: Step 1: Select Engine, Step 2: Production?, Step 3: Specify DB Details (highlighted in blue), and Step 4: Configure Advanced Settings. A note says 'Your current selection is eligible for the free tier.' Below it is a link to 'Learn More.' Another note says 'Estimate your monthly costs for the DB Instance using the RDS Instance Cost Calculator.' The main panel title is 'Specify DB Details'. It includes a 'Free Tier' section with a note about the Free Tier providing a db.t2.micro instance and up to 20 GB of storage. There is a checkbox to 'Only show options that are eligible for RDS Free Tier'. The 'Instance Specifications' section contains fields for 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)), and Allocated Storage (15 GB). A callout box points to the DB Instance Class field with information about General Purpose (SSD) and Provisioned IOPS (SSD) storage types. At the bottom are links for 'Feedback', 'English', 'Privacy Policy', and 'Terms of Use'.

5. Set DB instance

The screenshot shows the 'Set DB instance' step of the AWS RDS instance creation wizard. The left sidebar lists steps: Step 1: Select Engine, Step 2: Production?, Step 3: Specify DB Details, and Step 4: Configure Advanced Settings (highlighted in blue). A note says 'Estimate your monthly costs for the DB Instance using the RDS Instance Cost Calculator.' The main panel title is 'Set DB instance'. It includes fields for 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)), and Allocated Storage (15 GB). A callout box points to the DB Instance Class field with information about General Purpose (SSD) and Provisioned IOPS (SSD) storage types. Below these are 'Settings' fields for DB Instance Identifier (mydb), Master Username (dsreyhart), Master Password, and Confirm Password. A note says 'Retype the value you specified for Master Password.' At the bottom are links for 'Feedback', 'English', 'Privacy Policy', and 'Terms of Use'.

6. Configure advance settings.

RDS - AWS Console

https://ap-southeast-1.console.aws.amazon.com/rds/home?region=ap-southeast-1#launch-dbinstance:ct=dashboard;s3-import=false

AWS Services Edit siyumi Singapore Support

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

Configure Advanced Settings

Network & Security

VPC*: Default VPC (vpc-b7d5c8d2)
Subnet Group: default
Publicly Accessible: Yes
Availability Zone: No Preference
VPC Security Group(s): Create new Security Group
default (VPC)
launch-wizard-1 (VPC)
launch-wizard-2 (VPC)

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.

Database Options

Database Name: mydb
Note: If no database name is specified then no initial MySQL database will be created on the DB Instance.
Database Port: 3306
DB Parameter Group: default.mysql5.6
Option Group: default:mysql-5.6

Feedback English Privacy Policy Terms of Use

RDS - AWS Console

https://ap-southeast-1.console.aws.amazon.com/rds/home?region=ap-southeast-1#launch-dbinstance:ct=dashboard;s3-import=false

AWS Services Edit siyumi Singapore Support

Database Port: 3306
DB Parameter Group: default.mysql5.6
Option Group: default.mysql-5.6
Copy Tags To Snapshots:
Enable Encryption: No

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: 7 days
Backup Window: No Preference

Monitoring
Enable Enhanced Monitoring: No

Maintenance
Auto Minor Version Upgrade: Yes
Maintenance Window: No Preference

^ Required Cancel Previous Launch DB Instance

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

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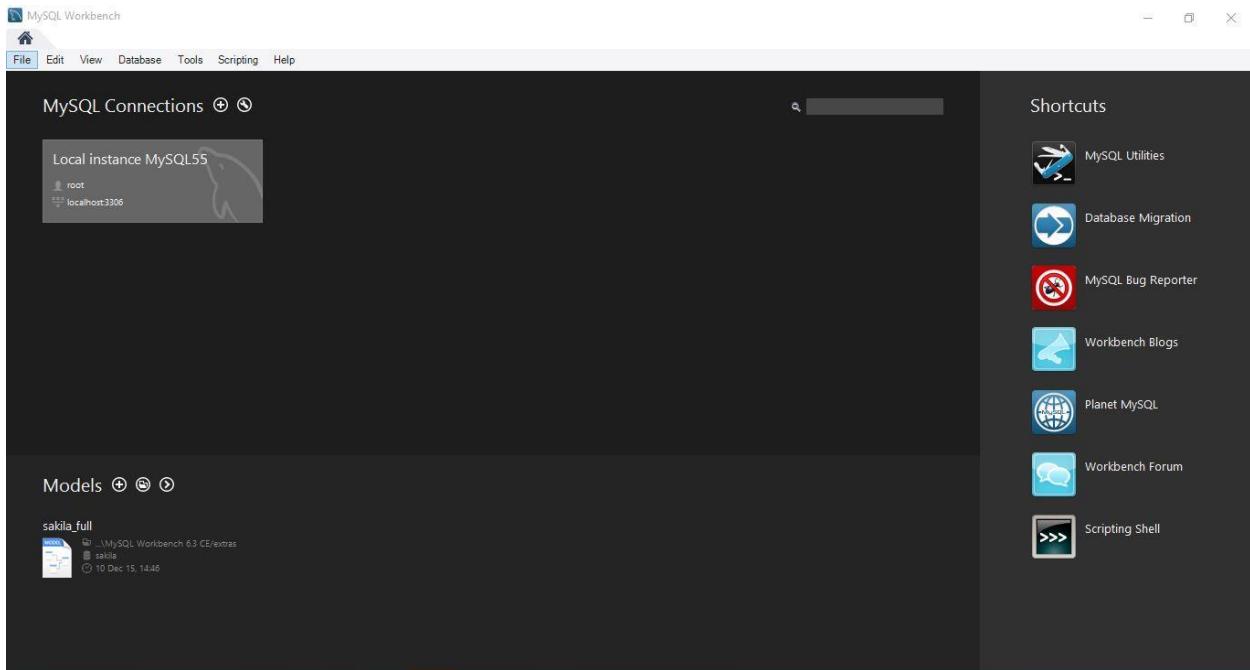
7. Click on view DB instances.

The screenshot shows the AWS RDS console with the URL <https://ap-southeast-1.console.aws.amazon.com/rds/home?region=ap-southeast-1#launch-dbinstance:ct=dashboard;s3-import=false>. The page displays a progress bar with four steps: Step 1: Select Engine, Step 2: Production?, Step 3: Specify DB Details, and Step 4: Configure Advanced Settings. A green box highlights the message "Your DB Instance is being created." Below it, a note says "Note: Your instance may take a few minutes to launch." Further down, there's a section titled "Connecting to your DB Instance" with a note about security group access and a link to the Security Groups Page. A "Related AWS Services" section includes "Amazon ElastiCache" with a link to learn more and launch a Cache Cluster. At the bottom right is a blue button labeled "View Your DB Instances".

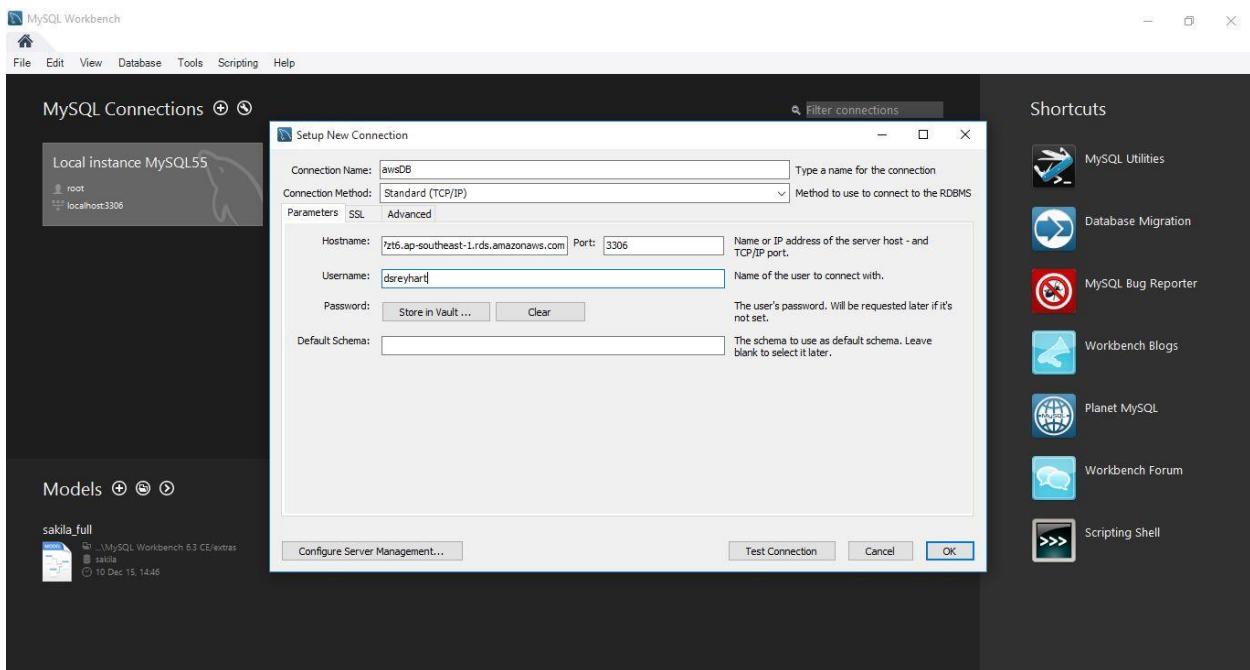
8. Wait until DB instance status is change to available.

The screenshot shows the AWS RDS Dashboard with the URL <https://ap-southeast-1.console.aws.amazon.com/rds/home?region=ap-southeast-1#dbinstances:id=mydb;sf=all>. The dashboard lists various RDS services like Instances, Reserved Purchases, Snapshots, etc. On the right, the main area shows a table for the "mydb" database. The table includes columns for Engine (MySQL), DB Instance (mydb), Status (available), Current Activity (1.17%), Maintenance (None), Class (db.t2.micro), VPC (vpc-b7d5c8d2), Multi-AZ (No), and Replicati. Below the table, the "Monitoring" section shows CPU usage at 0.85%, Read IOPS at 0/sec, Memory usage at 550 MB, Write IOPS at 0.2/sec, Storage usage at 14,500 MB, and Swap Usage at 0 MB. The "Awards and Recent Events" table shows a backup at 6:42 PM, a backup at 6:39 PM, the instance creation at 6:37 PM, and a restart at 6:37 PM. At the bottom, there are buttons for "Instance Actions", "Tags", and "Logs".

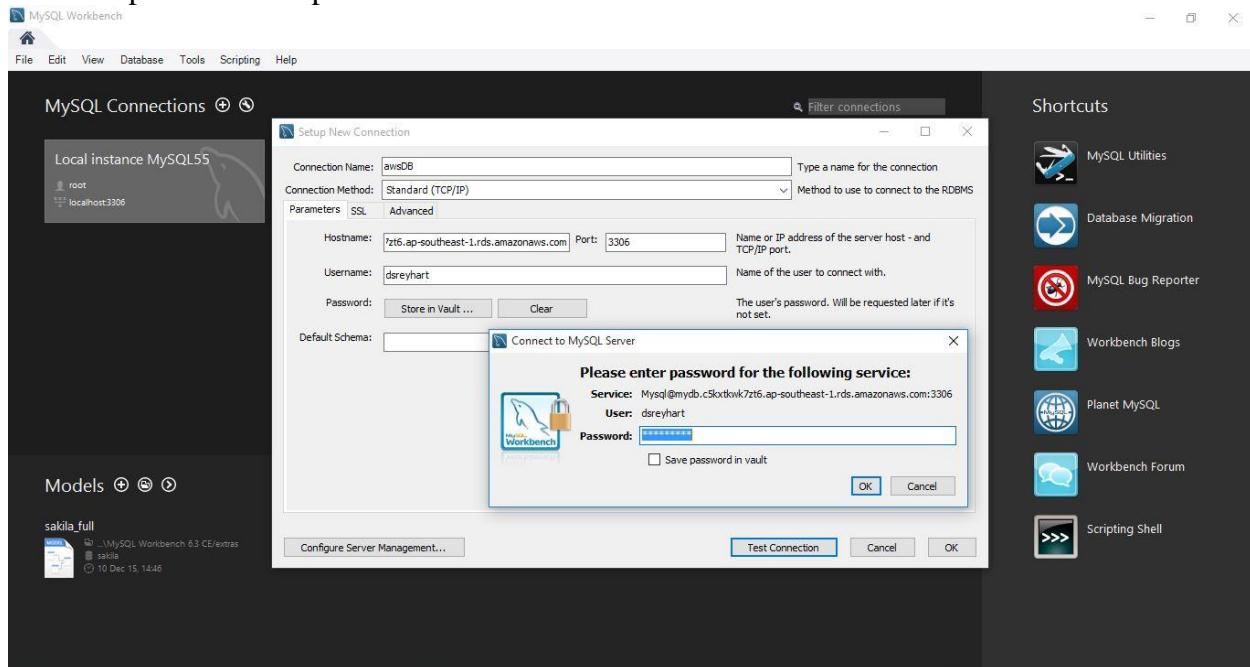
9. Open MySQL workbench.



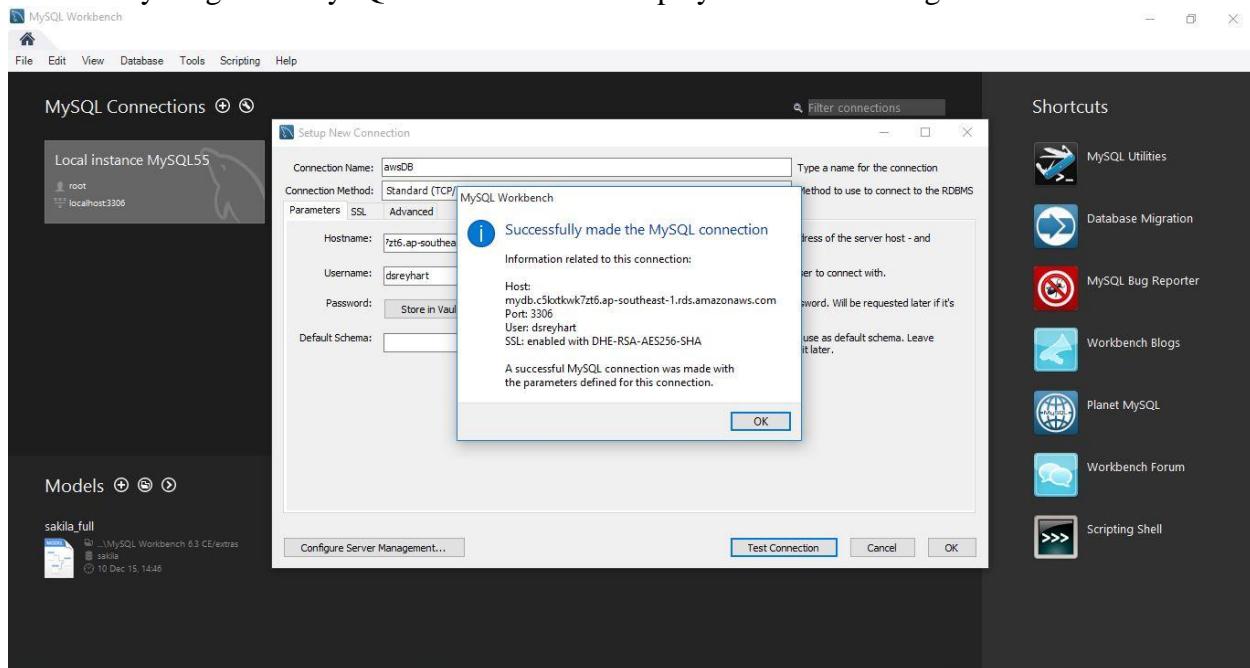
10. Create new connection and fill details from aws db instance. Then press test connection button.



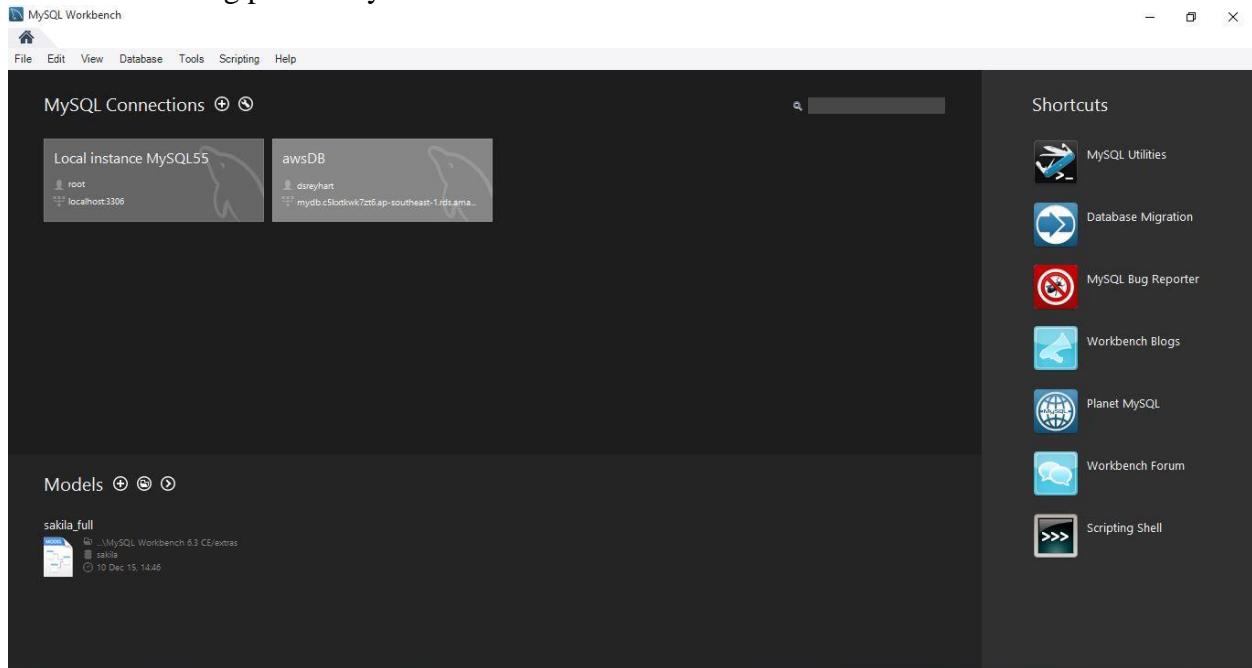
11. Insert password and press ok button.



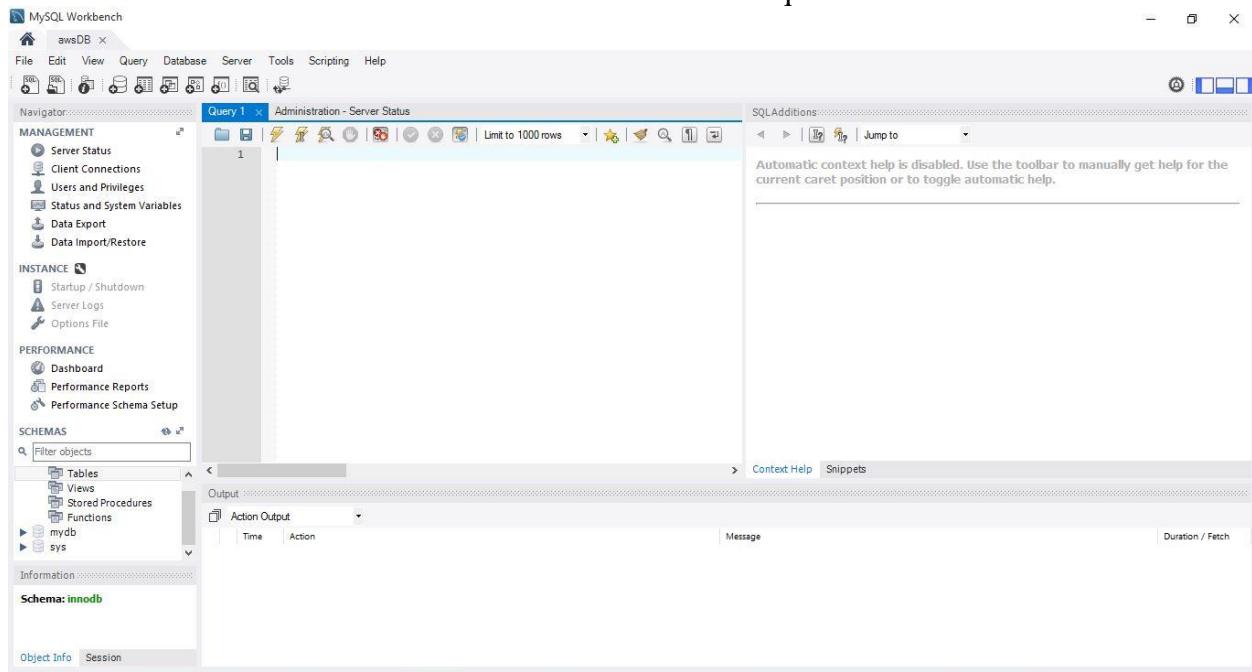
12. If everything is ok MySQL workbench will display a success message.



13. Connect using previously created connection.



14. Connected to the AWS DB Instance. Now we can write queries on remote DB.



15. Deleting previously created DB instance.

The screenshot shows the AWS RDS console interface. On the left, there's a sidebar with options like 'Instances', 'Reserved Purchases', 'Snapshots', etc. The main area displays a table of DB instances. One instance, 'mydb', is selected and highlighted. A context menu is open over this instance, with the 'Delete' option clearly visible and highlighted in orange. The table below shows details such as Engine (MySQL), Status (available), and various monitoring metrics like CPU, Memory, Storage, Read IOPS, Write IOPS, and Swap Usage.

This screenshot shows the 'Delete DB Instance' confirmation dialog. It asks the user if they are sure about deleting the 'mydb' DB Instance. There are two main options: 'Create final Snapshot?' with a dropdown menu set to 'No', and a checkbox for acknowledging that automated backups will no longer be available after deletion. A warning message in a yellow box at the bottom advises taking a final snapshot before deletion. At the bottom right, there are 'Cancel' and 'Delete' buttons.

RDS - AWS Console

https://ap-southeast-1.console.aws.amazon.com/rds/home?region=ap-southeast-1#dbinstancesid=mydb;sf=all

AWS Services Edit

siyumi Singapore Support

RDS Dashboard

Instances

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 DB Instance: mydb Status: deleting CPU: 0.66% Current Activity: 2 Connections Maintenance: None Class: db.t2.micro VPC: vpc-b7d5c8d2 Multi-AZ: No Replicat

Endpoint: mydb.c5kxtkw7zt6.ap-southeast-1.rds.amazonaws.com:3306 (authorized)

A Alarms and Recent Events

TIME (UTC-5:30)	EVENT
Jul 30 6:42 PM	Finished DB instance backup
Jul 30 6:39 PM	Backing up DB instance
Jul 30 6:37 PM	DB instance created
Jul 30 6:37 PM	DB instance restarted

B Monitoring

CURRENT VALUE	THRESHOLD	LAST HOUR	CURRENT VALUE	LAST HOUR
CPU 0.745%	0.66%	0.66%	Read IOPS 0/sec	0/sec
Memory 547 MB	512 MB	512 MB	Write IOPS 0.367/sec	0.367/sec
Storage 14,500 MB	14,000 MB	14,000 MB	Swap Usage 0 MB	0 MB

Instance Actions Tags Logs

Feedback English

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