

Enterprise Standards and Best Practices for IT Infrastructure

Lab Report

Lab 01 - Creating an Amazon EBS-Backed Windows AMI

Lab 02 - Creating an Amazon EBS-Backed Linux AMI

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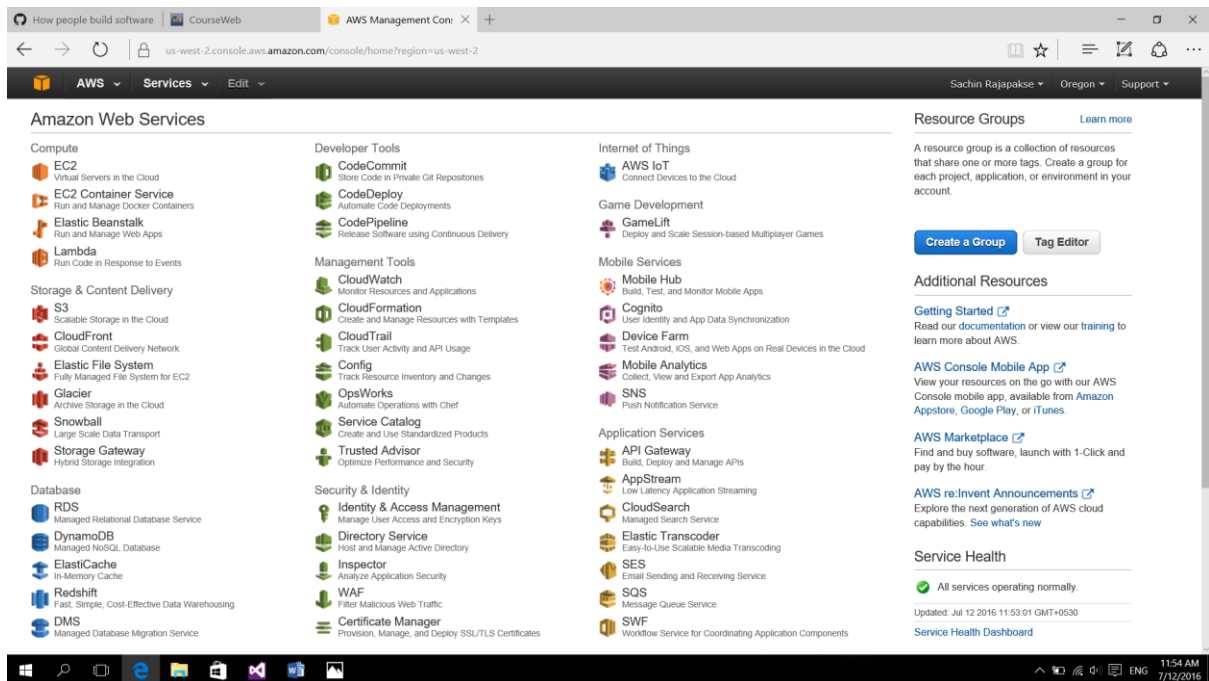
Sri Lanka Institute of Information Technology

B.Sc. Special (Honors) Degree in Information Technology

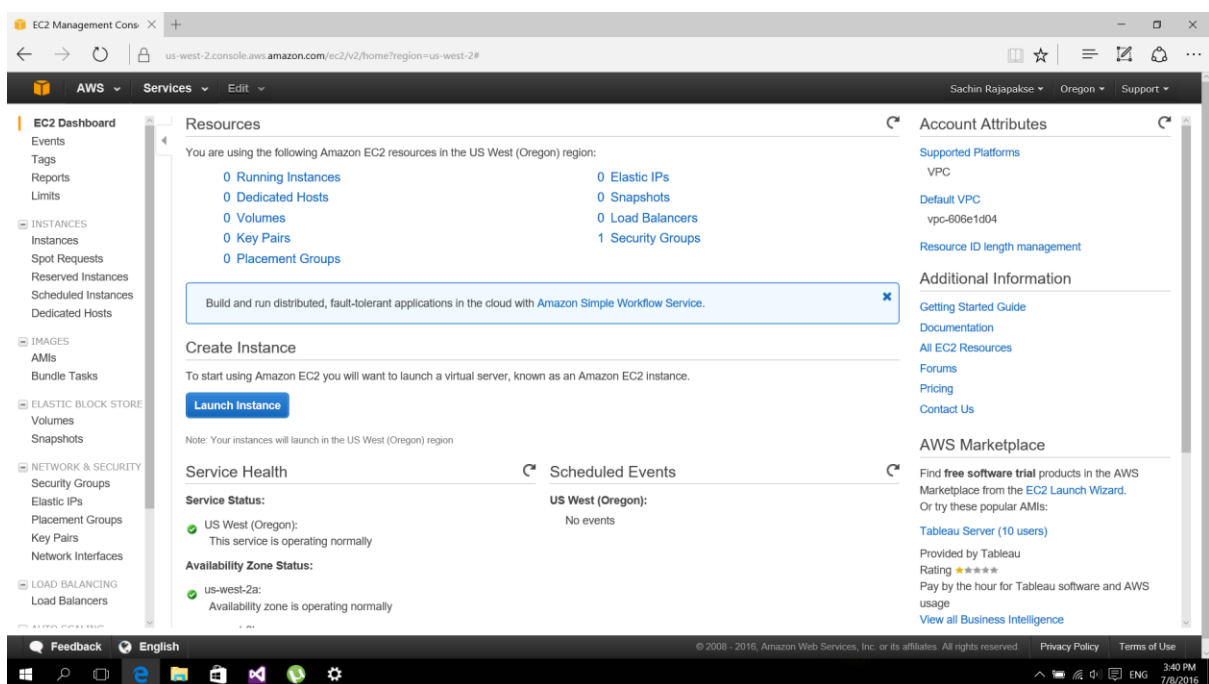
Specialized in Information Technology

01. Creating an Amazon EBS-Backed Windows AMI

Step 01: Select EC2 from Amazon Web Services. (Services -> EC2)

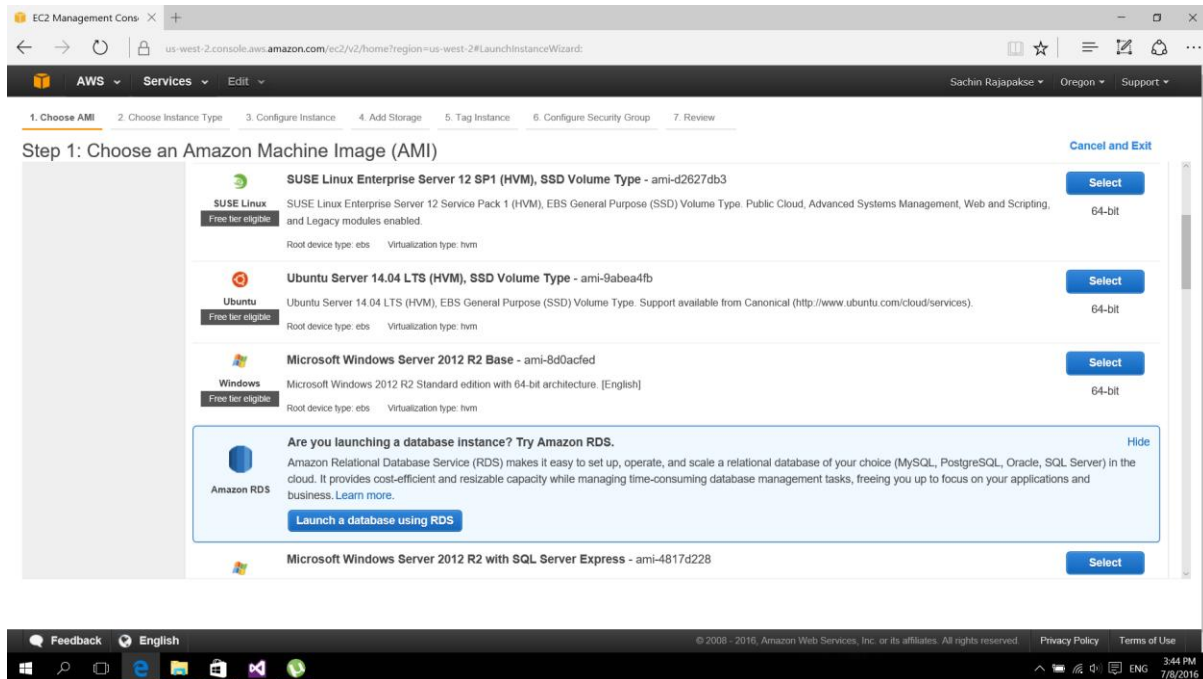


Step 02: Select Launch Instance under Create Instance from EC2 Dashboard.



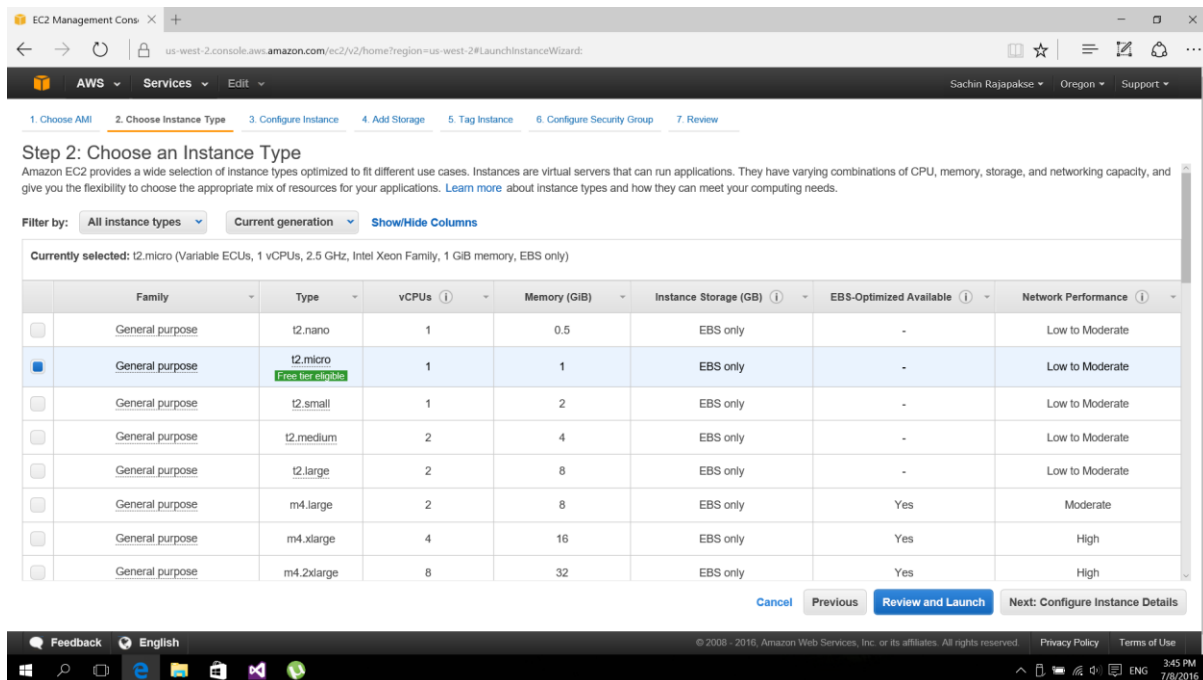
Step 03: Choose an Amazon Machine Image (AMI).

Select Microsoft Windows Server 2012 R2 Base.

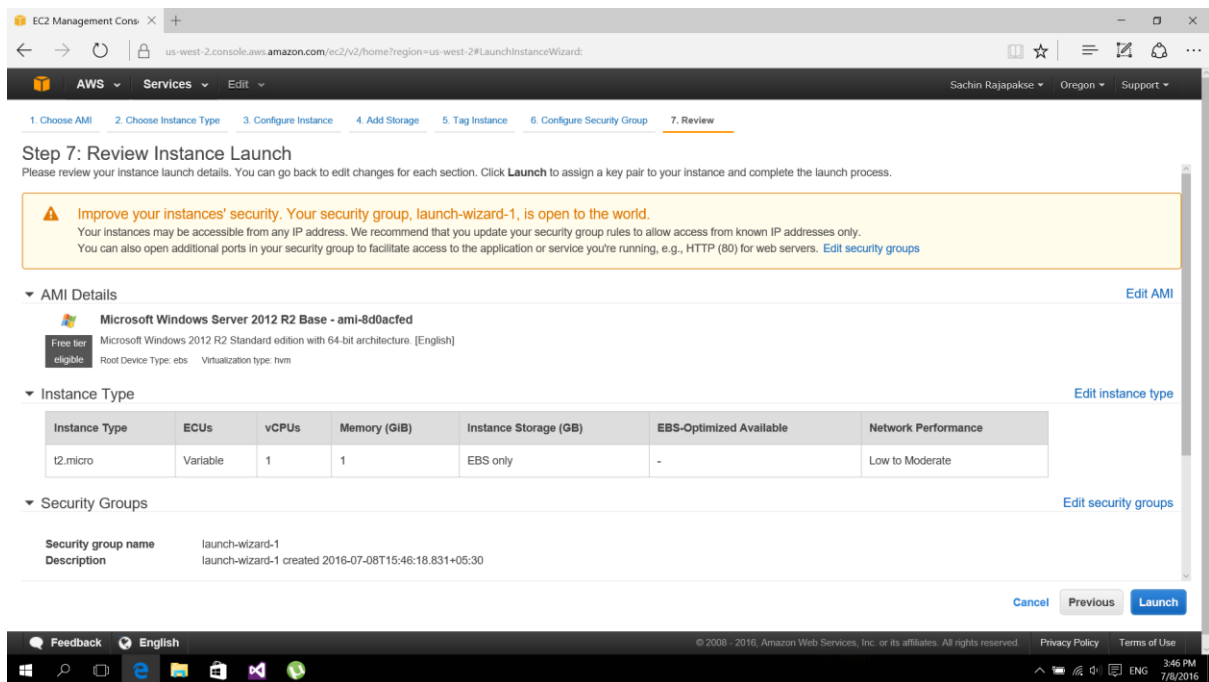


Step 04: Choose an Instance Type.

Then review and launch.



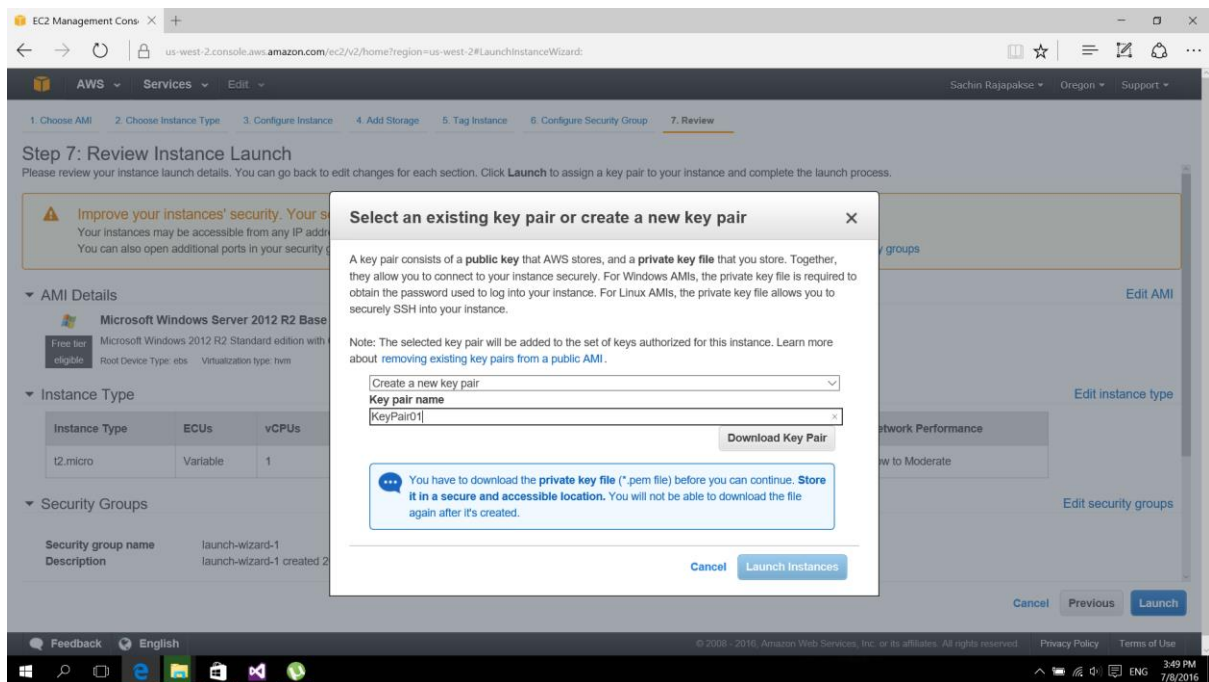
Step 05: Review Instance Launch.



Step 06: Choose create a new key pair to download a new key pair.

Then give a key pair name.

Then select Launch Instance.



Step 07: View Instances after launching.

The screenshot shows the 'Launch Status' page in the AWS Management Console. At the top, a green banner states: 'The following instance launches have been initiated: i-0889c5f023c923d42 View launch log'. Below this is a blue information box titled 'Get notified of estimated charges' with the text: '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)'. The main section is titled 'How to connect to your instances' and contains instructions on the 'running' state and how to connect. It lists helpful resources: 'Amazon EC2: User Guide', 'Amazon EC2: Microsoft Windows Guide', 'Amazon EC2: Discussion Forum', 'How to connect to your Windows instance', and 'Learn about AWS Free Usage Tier'. It also mentions 'Create status check alarms' and 'Create and attach additional EBS volumes'. A 'View Instances' button is at the bottom right.

Launch Status

The following instance launches have been initiated: i-0889c5f023c923d42 [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](#)
- [How to connect to your Windows instance](#)
- [Learn about AWS Free Usage Tier](#)

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](#)

Step 08: Select the created instance and then connect.

The screenshot shows the 'Instances' page in the AWS Management Console. The left sidebar contains navigation links for EC2 Dashboard, Events, Tags, Reports, Limits, INSTANCES, SPOT REQUESTS, RESERVED INSTANCES, SCHEDULED INSTANCES, DEDICATED HOSTS, IMAGES, AMIs, Bundle Tasks, ELASTIC BLOCK STORE, Volumes, Snapshots, NETWORK & SECURITY, Security Groups, Elastic IPs, Placement Groups, Key Pairs, and Network Interfaces. The main content area shows a table of instances. The first instance is selected, and its details are shown in a modal window below the table.

EC2 Dashboard
Events
Tags
Reports
Limits
INSTANCES
SPOT REQUESTS
RESERVED INSTANCES
SCHEDULED INSTANCES
DEDICATED HOSTS
IMAGES
AMIs
Bundle Tasks
ELASTIC BLOCK STORE
Volumes
Snapshots
NETWORK & SECURITY
Security Groups
Elastic IPs
Placement Groups
Key Pairs
Network Interfaces
LOAD BALANCING

[Launch Instance](#) [Connect](#) [Actions](#)

Filter by tags and attributes or search by keyword

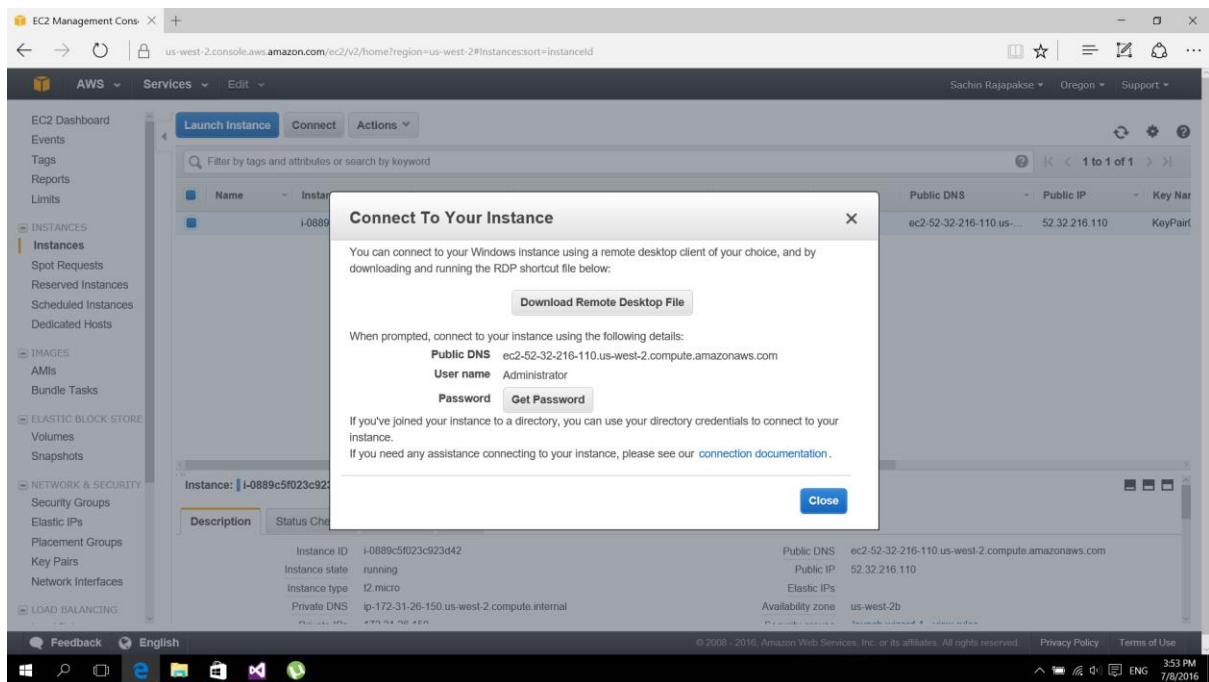
Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS	Public IP	Key Pair
	i-0889c5f023c923d42	t2.micro	us-west-2b	running	Initializing	None	ec2-52-32-216-110 us-west-2.compute.amazonaws.com	52.32.216.110	KeyPair

Instance: i-0889c5f023c923d42 Public DNS: ec2-52-32-216-110.us-west-2.compute.amazonaws.com

Description **Status Checks** **Monitoring** **Tags**

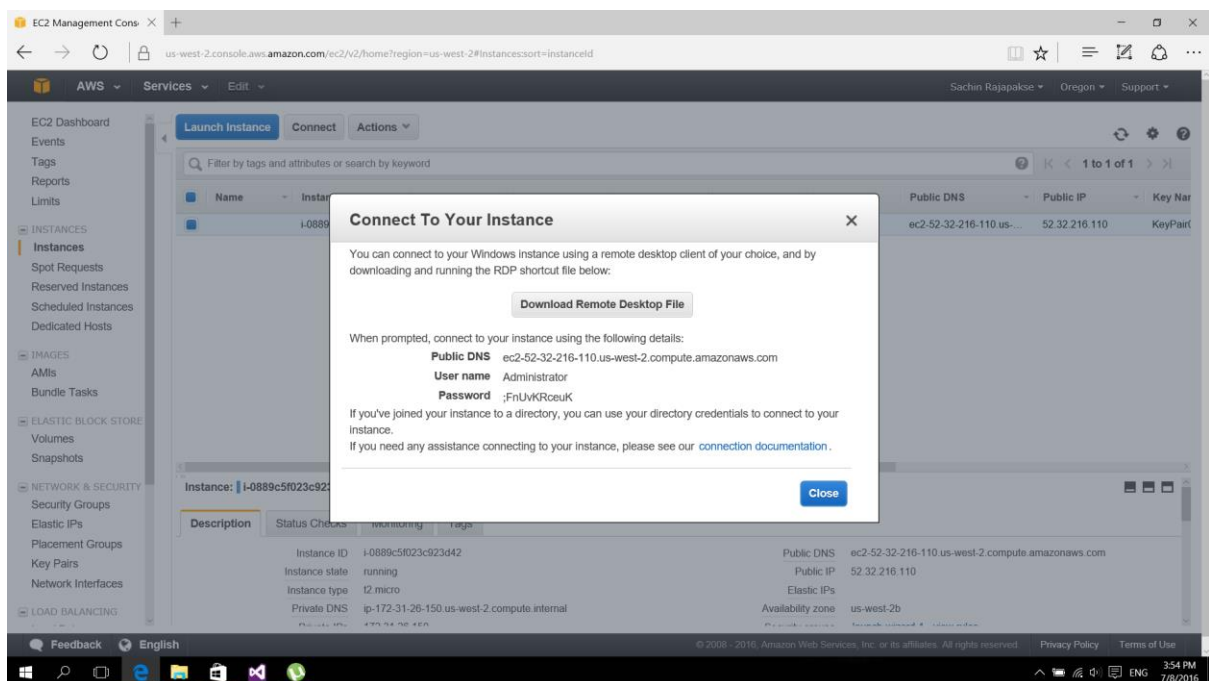
Property	Value
Instance ID	i-0889c5f023c923d42
Instance state	running
Instance type	t2.micro
Private DNS	ip-172-31-26-150.us-west-2.compute.internal
Public DNS	ec2-52-32-216-110.us-west-2.compute.amazonaws.com
Public IP	52.32.216.110
Elastic IPs	
Availability zone	us-west-2b

Step 09: Get a password from Connect To Your Instance window.



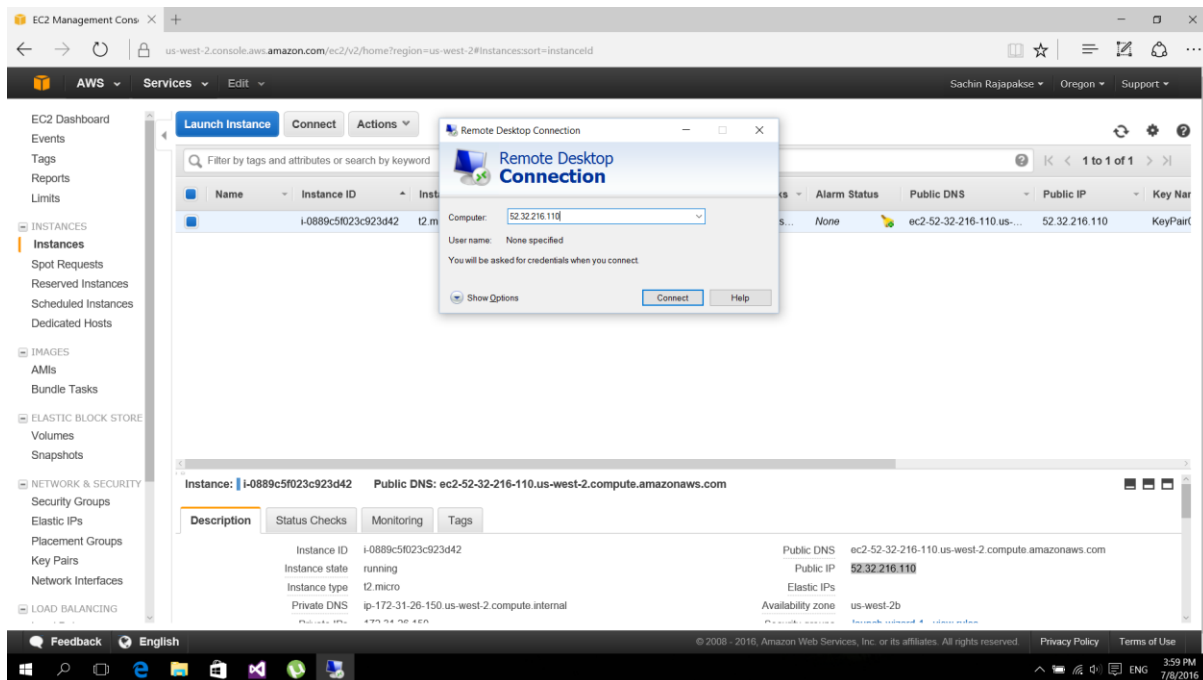
Step 10: Decrypt the password.

Note down the user name and the decrypted password.

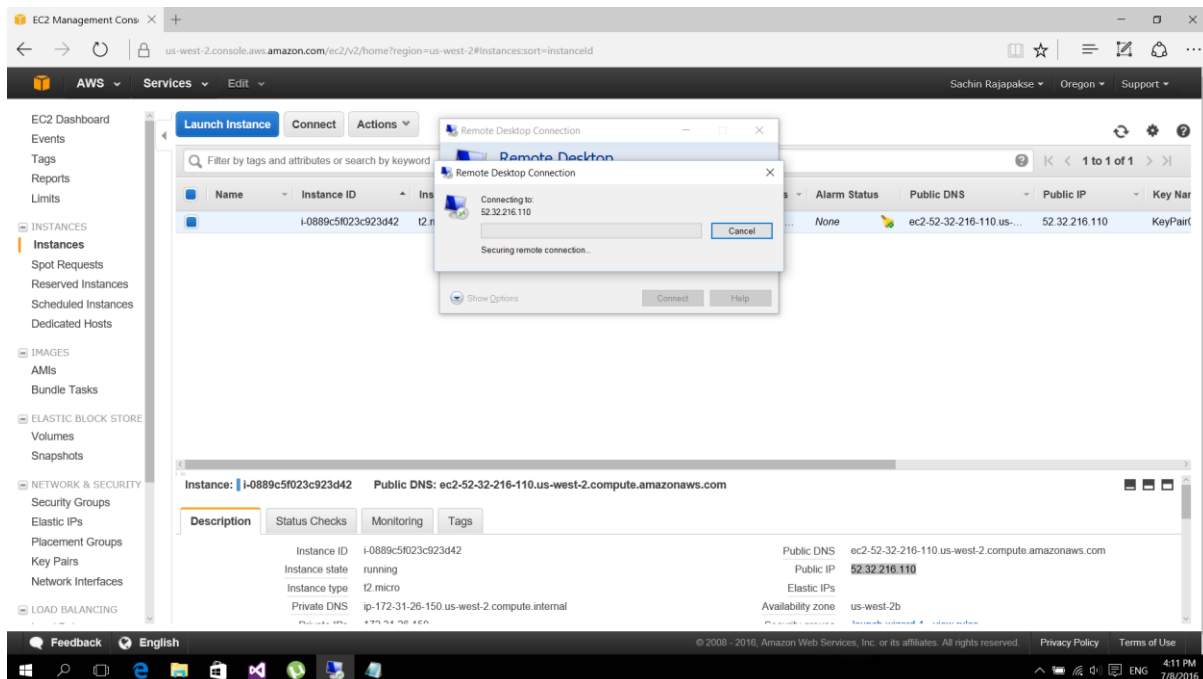


Step 11: Open Remote Desktop Connection.

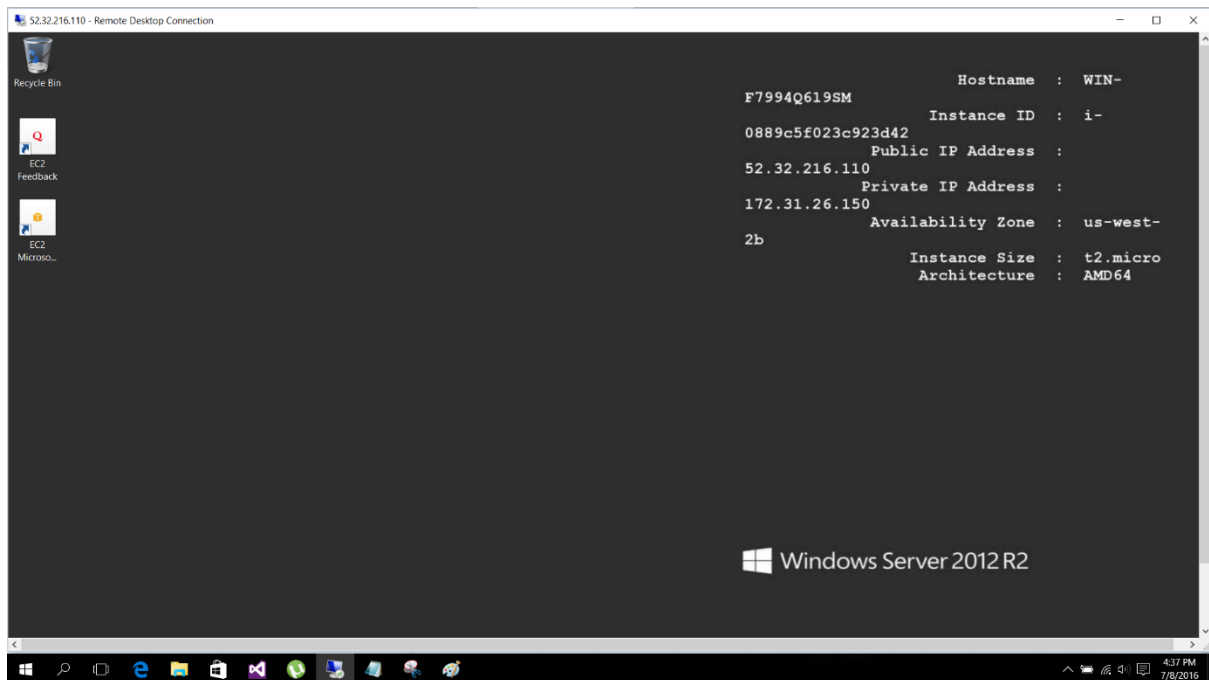
Provide the public IP of the launched instance.



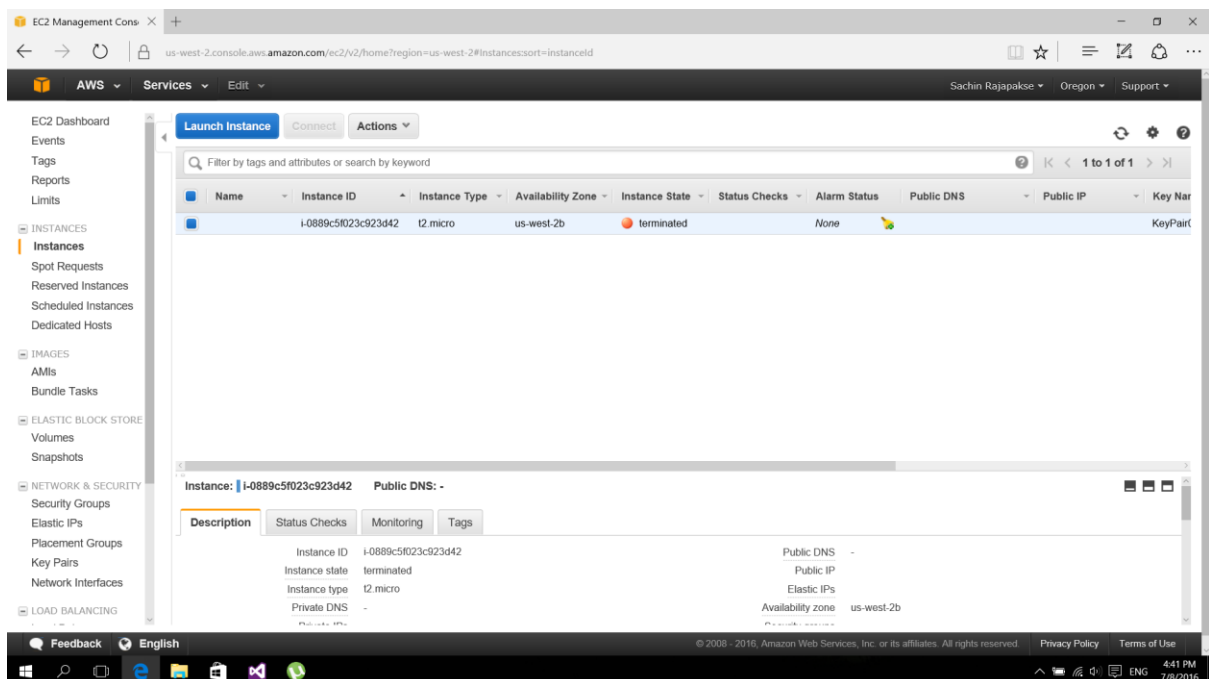
Step 12: Connect to the created instance.



Step 13: Log in to Windows Server 2012 R2 using the given user name and the decrypted password.

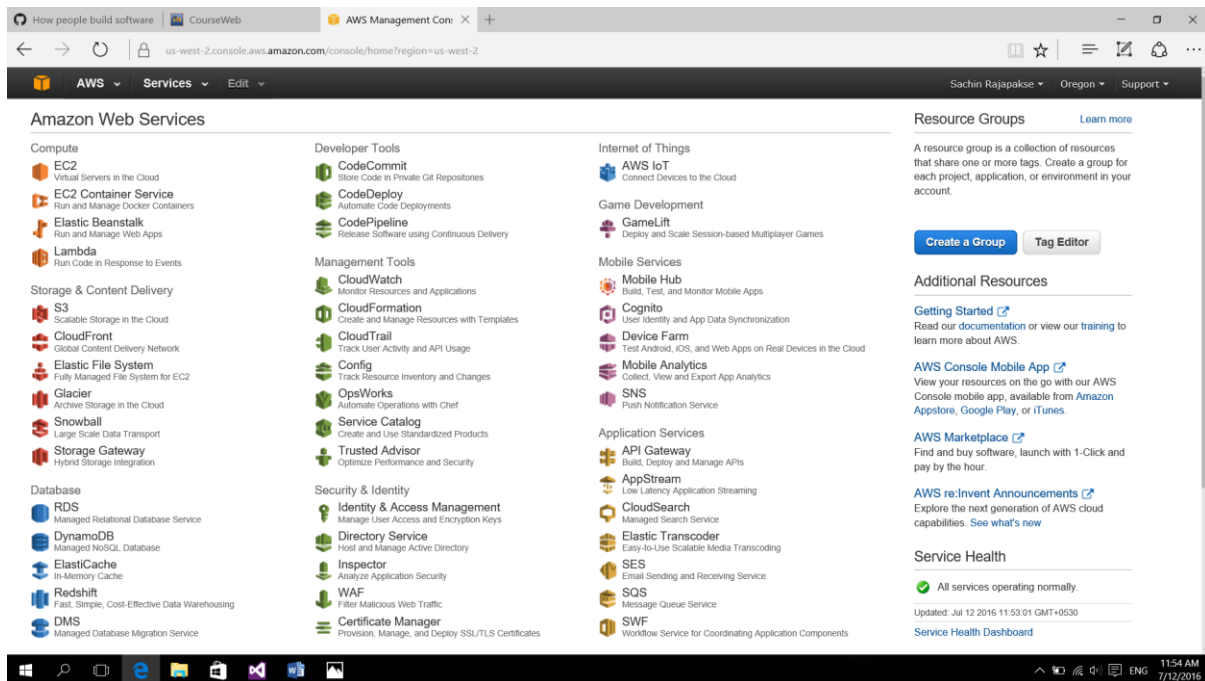


Step 14: Right click on the created server instance and terminate it from the instance state.
(Right click on instance -> Instance State -> Stop)

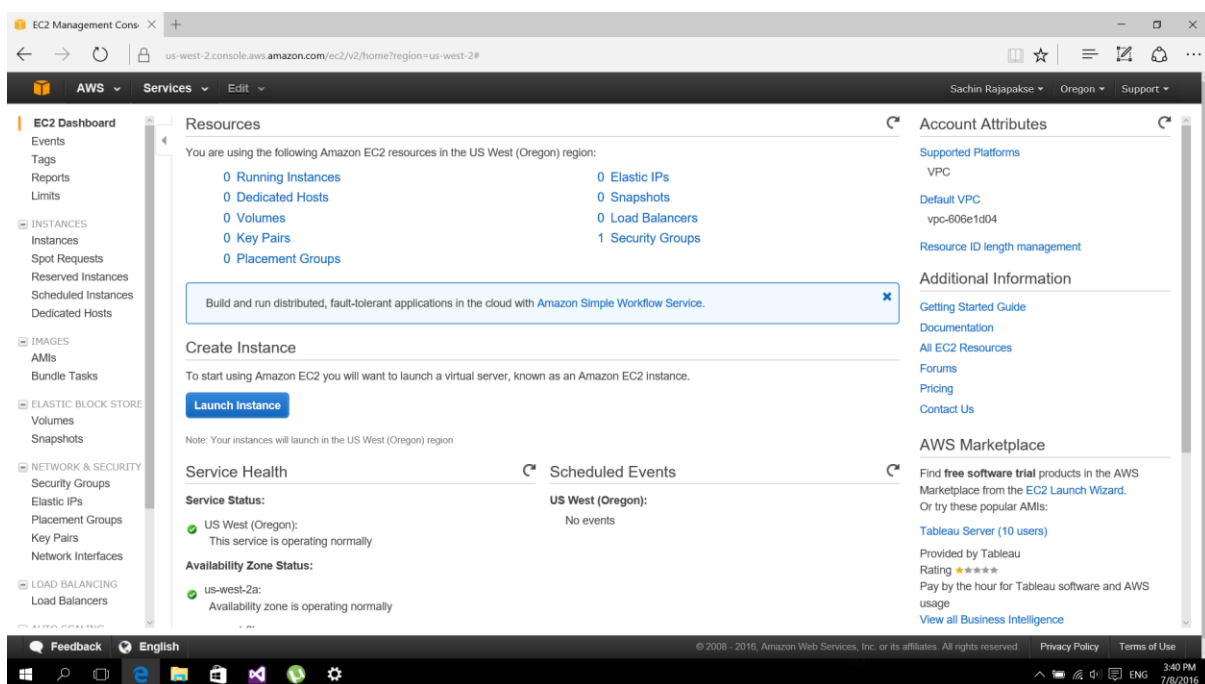


02. Creating an Amazon EBS-Backed Linux AMI

Step 01: Select EC2 from Amazon Web Services. (Services -> EC2)

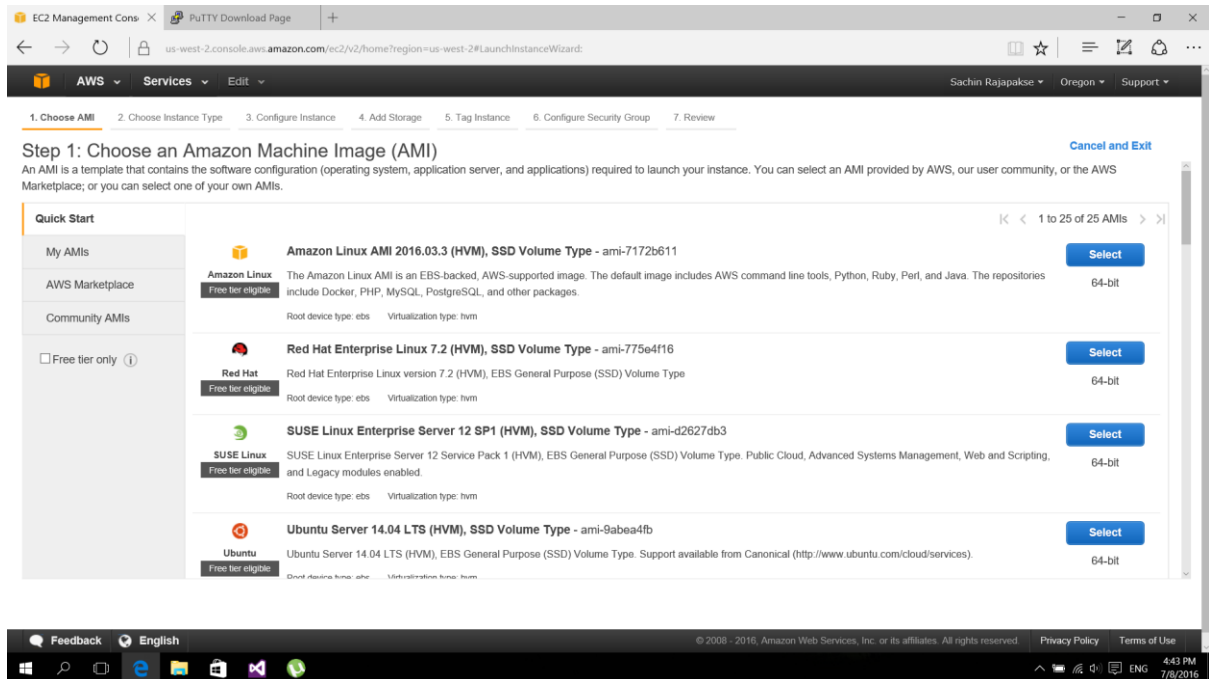


Step 02: Select Launch Instance under Create Instance from EC2 Dashboard.



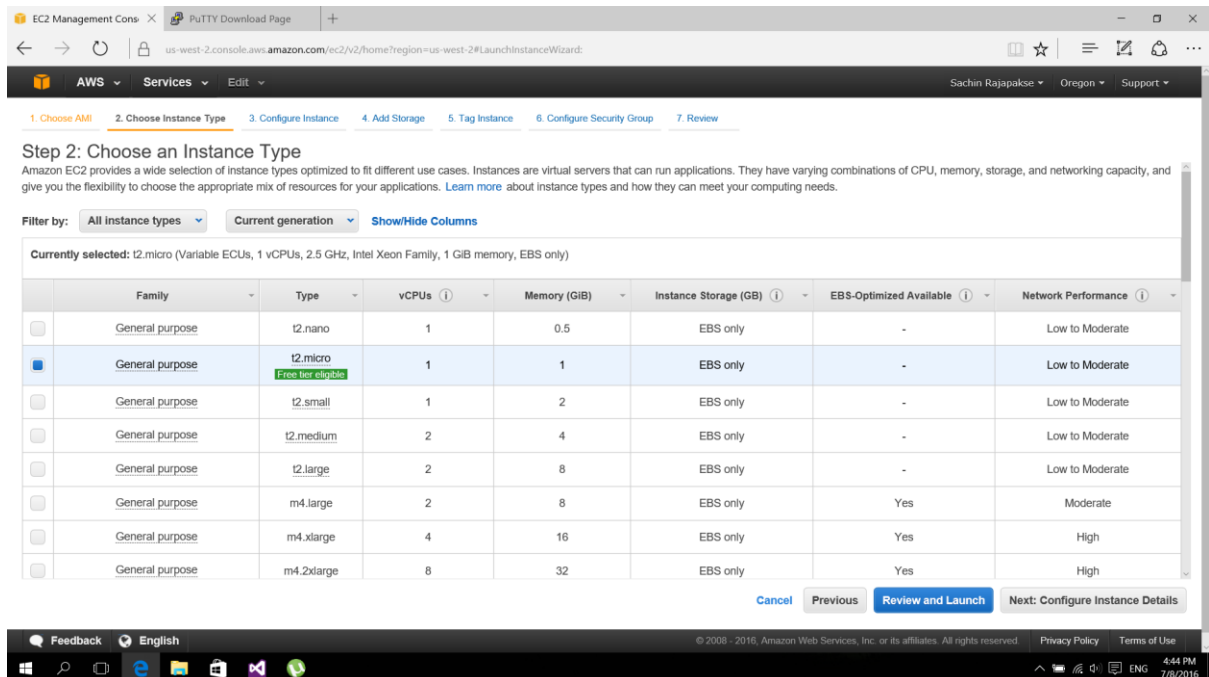
Step 03: Choose an Amazon Machine Image (AMI).

Select Amazon Linux AMI 2016.03.3 (HVM), SSD Volume Type.

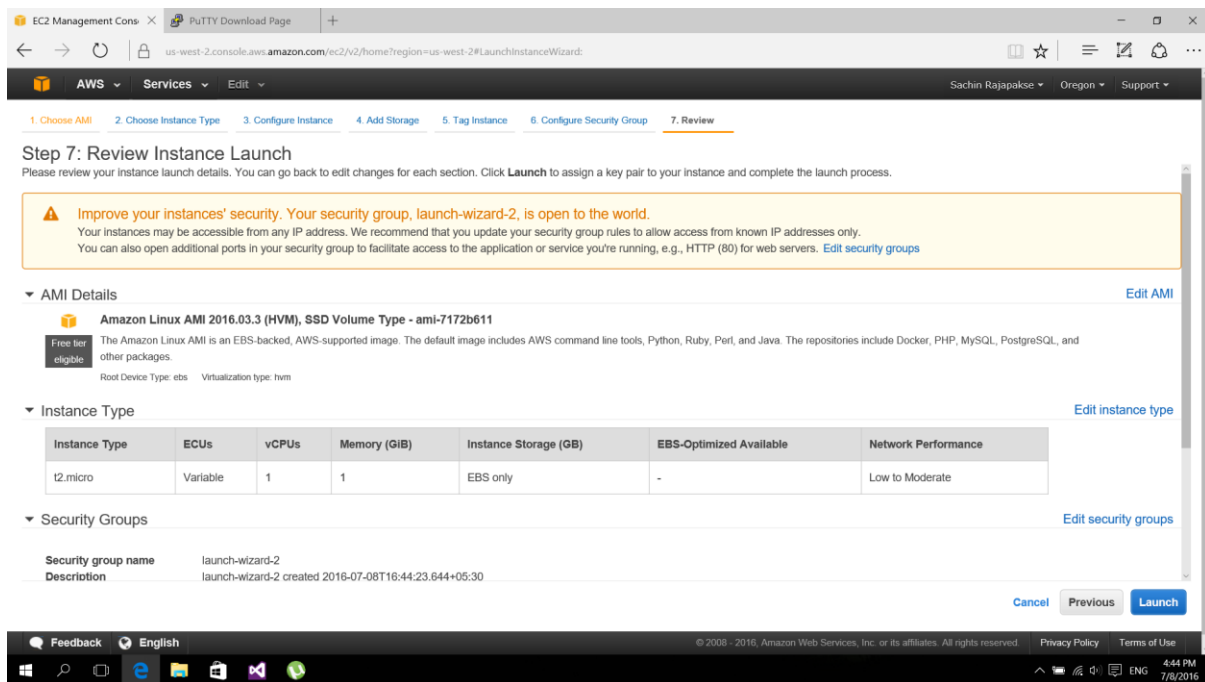


Step 04: Choose an Instance Type.

Then review and launch.



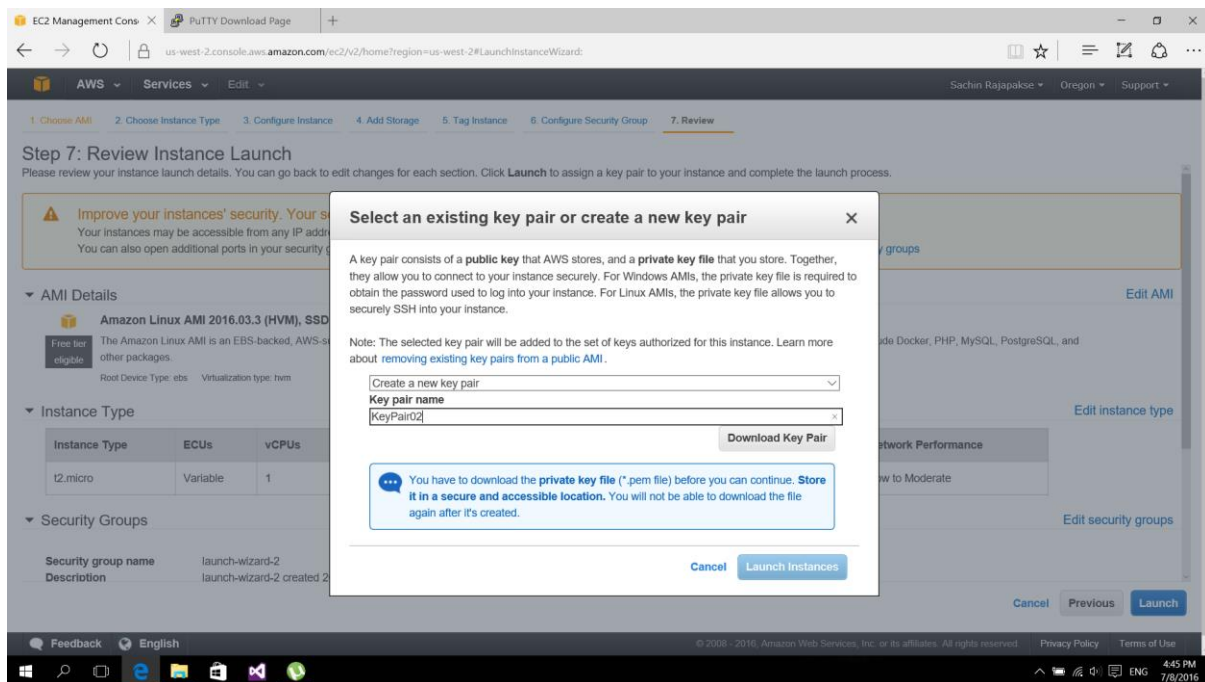
Step 05: Review Instance Launch.



Step 06: Choose create a new key pair to download a new key pair.

Then give a key pair name.

Then select Launch Instance.



EC2 Management Console

Putty Download Page

us-west-2.console.aws.amazon.com/ec2/v2/home?region=us-west-2#LaunchInstanceWizard:

AWS

Services

Edit

Sachin Rajapakse

Oregon

Support

Launch Status

Your instances are now launching

The following instance launches have been initiated: i-046801f60ea7e2dd5 [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

Feedback

English

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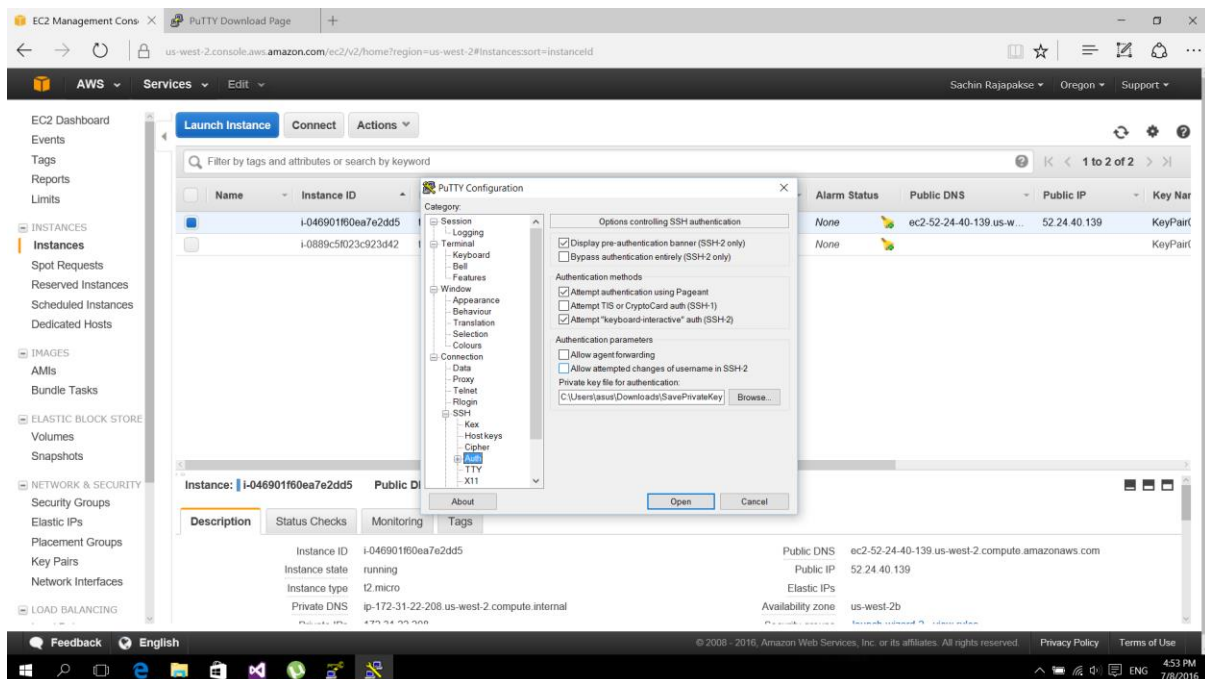
Then browse and load the downloaded key pair file and save it as a private key.

The screenshot displays the AWS Management Console interface. On the left, the navigation pane shows various services like EC2 Dashboard, INSTANCES, IMAGES, ELASTIC BLOCK STORE, NETWORK & SECURITY, and LOAD BALANCING. The main content area shows the details for an EC2 instance with ID i-0889c5f023c923442. The instance is in a 'terminated' state. A 'PuTTY Key Generator' dialog is open, showing the generation of a new RSA key pair. The dialog includes fields for Name, Key fingerprint, Key comment, Key passphrase, and Confirm passphrase. The 'Generate' button is highlighted. The background shows the EC2 instance details page with tabs for Description, Status Checks, and Monitoring.

Step 09: Open PuTTY Configuration.

Go to Connection category for SSH authentication. (Connection -> SSH -> Auth)

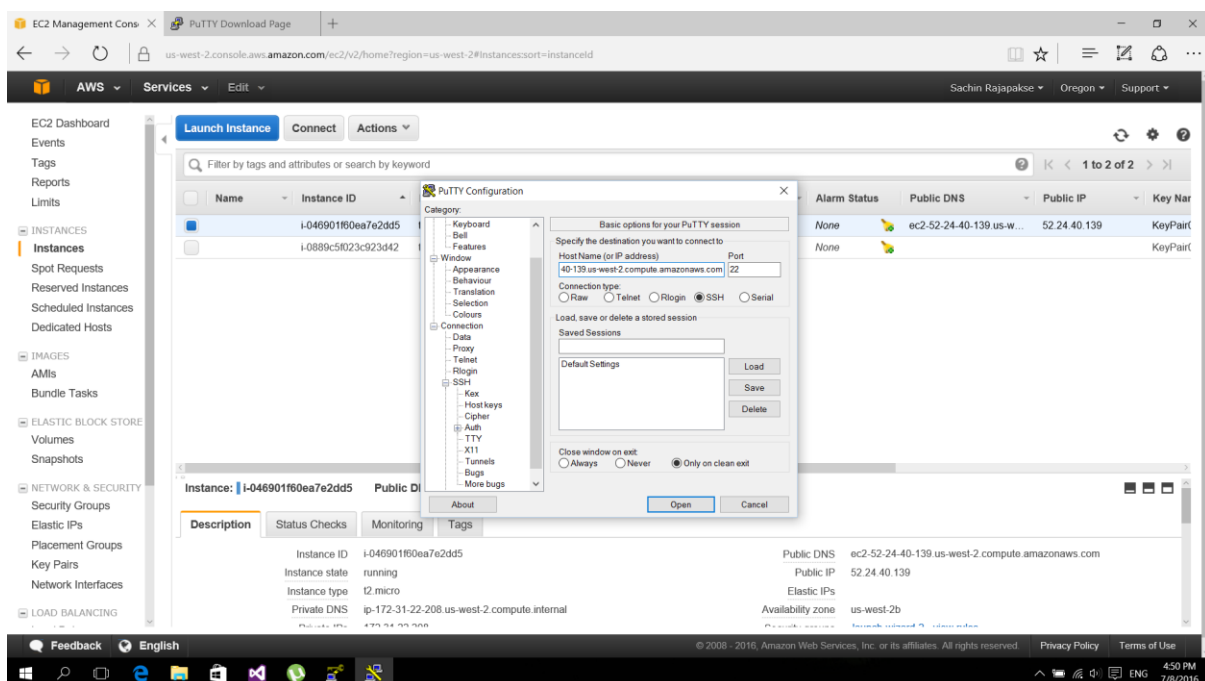
Then under authentication parameters browse saved private key and open.



Step 10: Go back to Session category in PuTTY Configuration.

Copy the Public DNS of created instance and paste it under Host Name.

Set Connection type to SSH and open.



Step 11: Log in to Linux by giving user name in the kernel. (ec2-user)

The screenshot shows the AWS Management Console interface with a PuTTY terminal window open. The terminal displays the login process for the 'ec2-user' on an Amazon Linux AMI. The user is prompted to enter a password, and the terminal shows the login successful message. The AWS console shows the instance details for 'i-046901f60ea7e2dd5', which is in the 'running' state. The public IP address is 52.24.40.139, and the public DNS is ec2-52-24-40-139.us-west-2.compute.amazonaws.com.

Terminal Output:

```
ec2-user@ip-172-31-22-208 ~$ ssh -i /home/ec2-user/.ssh/important-openssh-key ec2-user@ec2-52-24-40-139.us-west-2.compute.amazonaws.com
login as: ec2-user
Authenticating with public key "important-openssh-key"
ec2-user@ec2-52-24-40-139.us-west-2.compute.amazonaws.com:~$
ec2-user@ec2-52-24-40-139.us-west-2.compute.amazonaws.com:~$ sudo yum update -y
https://aws.amazon.com/amazon-linux-ami/2016.03-release-notes/
Repl package(s) needed for security, out of 1 available
Run "sudo yum update" to apply all updates.
[ec2-user@ip-172-31-22-208 ~]$
```

AWS Console Instance Details:

Instance ID	Instance state	Instance type	Private DNS	Public DNS	Public IP	Availability zone
i-046901f60ea7e2dd5	running	t2.micro	ip-172-31-22-208.us-west-2.compute.internal	ec2-52-24-40-139.us-west-2.compute.amazonaws.com	52.24.40.139	us-west-2b

Step 12: Type some Linux commands to check. (ls -al)

The screenshot shows the AWS Management Console interface with a PuTTY terminal window open. The terminal displays the execution of the 'ls -al' command, showing the directory listing for the user's home directory. The AWS console shows the instance details for 'i-046901f60ea7e2dd5', which is in the 'running' state. The public IP address is 52.24.40.139, and the public DNS is ec2-52-24-40-139.us-west-2.compute.amazonaws.com.

Terminal Output:

```
ec2-user@ip-172-31-22-208 ~$ ssh -i /home/ec2-user/.ssh/important-openssh-key ec2-user@ec2-52-24-40-139.us-west-2.compute.amazonaws.com
login as: ec2-user
Authenticating with public key "important-openssh-key"
ec2-user@ec2-52-24-40-139.us-west-2.compute.amazonaws.com:~$ ls -al
total 24
drwxr-xr-x 3 ec2-user ec2-user 4096 Jul  8 11:16 .
drwxr-xr-x 3 root root 4096 Jul  8 11:16 ..
-rw-r--r-- 1 ec2-user ec2-user 19 Feb 19 20:05 .bash_logout
-rw-r--r-- 1 ec2-user ec2-user 193 Feb 19 20:05 .bash_profile
-rw-r--r-- 1 ec2-user ec2-user 124 Feb 19 20:05 .bashrc
drwxr-xr-x 2 ec2-user ec2-user 4096 Jul  8 11:16 .ssh
[ec2-user@ip-172-31-22-208 ~]$
```

AWS Console Instance Details:

Instance ID	Instance state	Instance type	Private DNS	Public DNS	Public IP	Availability zone
i-046901f60ea7e2dd5	running	t2.micro	ip-172-31-22-208.us-west-2.compute.internal	ec2-52-24-40-139.us-west-2.compute.amazonaws.com	52.24.40.139	us-west-2b

Step 13: Terminate or stop the instance from instance state.

(Right click on instance -> Instance State -> Terminate/ Stop)

The screenshot displays the AWS Management Console interface for the EC2 service. The left-hand navigation pane shows various AWS services, with 'INSTANCES' selected. The main content area shows a list of EC2 instances. The instance 'i-046901f60ea7e2dd5' is highlighted, and its details are shown in the 'Description' tab. The instance is in the 'stopped' state, and its private IP address is 172.31.22.208. The console also shows the 'Status Checks' and 'Monitoring' tabs for the instance.

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS	Public IP	Key Pair
	i-046901f60ea7e2dd5	t2.micro	us-west-2b	stopped	None	None			KeyPair
	i-0889c5f023c923d42	t2.micro	us-west-2b	terminated	None	None			KeyPair

Instance: i-046901f60ea7e2dd5 Private IP: 172.31.22.208

Description	Status Checks	Monitoring	Tags
Instance ID	i-046901f60ea7e2dd5		
Instance state	stopped		
Instance type	t2.micro		
Private DNS	ip-172-31-22-208.us-west-2.compute.internal		
Public DNS			
Public IP			
Elastic IPs			
Availability zone	us-west-2b		