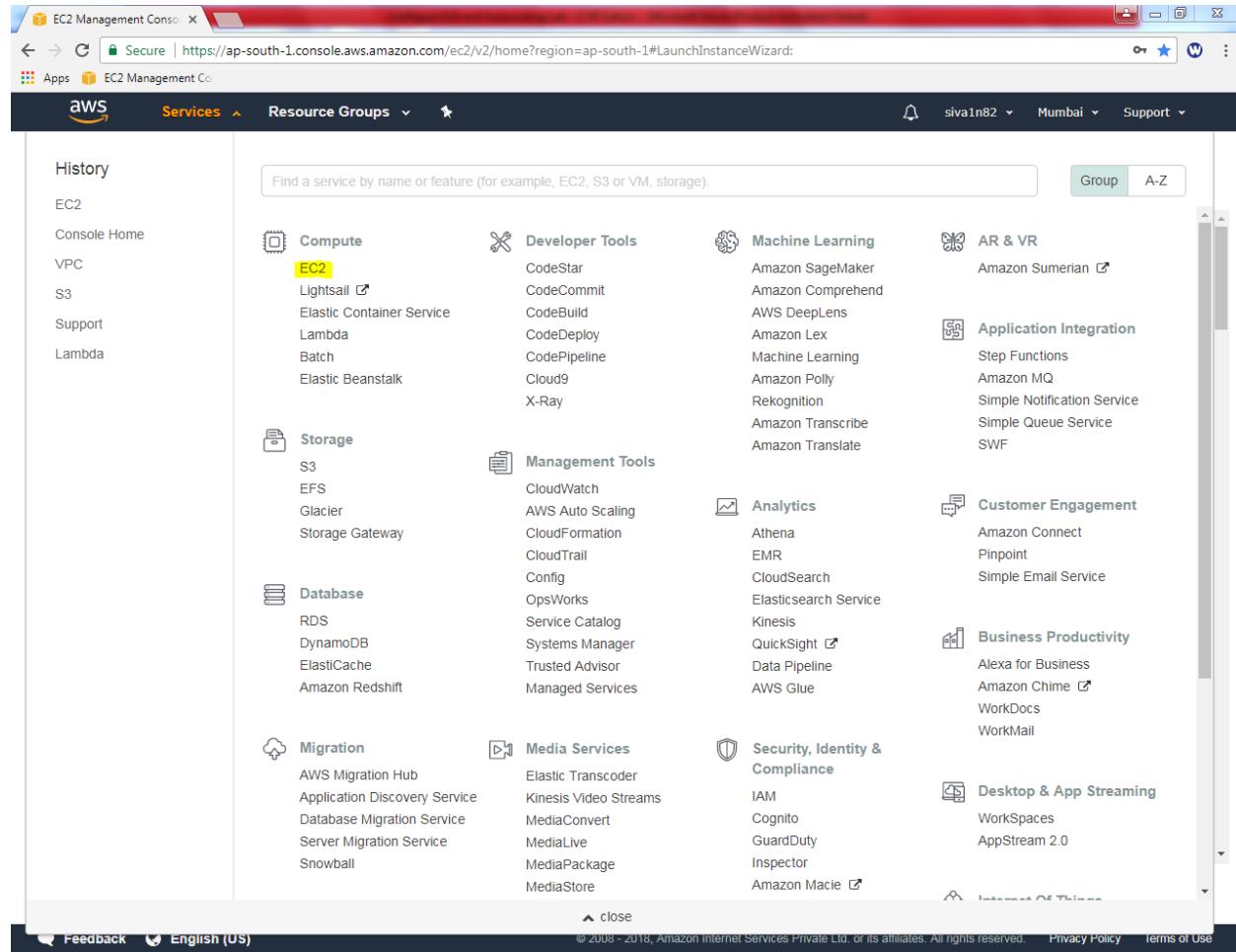


Configure ELB and Auto Scaling Lab - 2 of 3

While logged into to AWS management console, we can able to see “Ec2” service.



Click “launch instance”.

The screenshot shows the AWS EC2 Management Console interface. On the left, there's a navigation sidebar with categories like EC2 Dashboard, Instances, Images, Elastic Block Store, Network & Security, Load Balancing, and Auto Scaling. The main content area has several sections: 'Resources' (listing 0 Running Instances, 0 Dedicated Hosts, 0 Volumes, 9 Key Pairs, 0 Placement Groups, 0 Elastic IPs, 0 Snapshots, 0 Load Balancers, and 6 Security Groups), 'Account Attributes' (listing Supported Platforms as VPC, Default VPC as vpc-a655a2ce, and Resource ID length management), 'Additional Information' (links to Getting Started Guide, Documentation, All EC2 Resources, Forums, Pricing, and Contact Us), 'AWS Marketplace' (listing Barracuda NextGen Firewall F-Series - PAYG with a rating of ★★★★☆), and 'Service Health' (showing Service Status for Asia Pacific (Mumbai) and Availability Zone Status for ap-south-1a and ap-south-1b). A prominent green button labeled 'Launch Instance' is highlighted with a yellow box. At the bottom, there are links for Feedback, Language (English (US)), and legal notices (© 2008 - 2018, Privacy Policy, Terms of Use).

Select “Amazon 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.

AMI Name	Description	Action
Amazon Linux AMI 2017.09.1 (HVM), SSD Volume Type - ami-531a4c3c	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	Select
Amazon Linux 2 LTS Candidate AMI 2017.12.0 (HVM), SSD Volume Type - ami-3b2f7954	Amazon Linux 2 is the next generation of Amazon Linux. It includes the latest LTS kernel (4.9) tuned for enhanced performance on Amazon EC2, systemd support, newer versions of glibc, gcc and binutils, and an additional set of core packages for performance and security improvements. Root device type: ebs Virtualization type: hvm	Select
SUSE Linux Enterprise Server 12 SP3 (HVM), SSD Volume Type - ami-f7267298	SUSE Linux Enterprise Server 12 Service Pack 3 (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
Red Hat Enterprise Linux 7.4 (HVM), SSD Volume Type - ami-e60e5a89	Red Hat Enterprise Linux version 7.4 (HVM), EBS General Purpose (SSD) Volume Type Root device type: ebs Virtualization type: hvm	Select
Ubuntu Server 16.04 LTS (HVM), SSD Volume Type - ami-5d055232	Ubuntu Server 16.04 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

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Select “t2.micro”.

The screenshot shows the AWS EC2 Management Console interface. The title bar says "EC2 Management Console". The URL is https://ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#LaunchInstanceWizard. The top navigation bar includes "Services", "Resource Groups", and "Support". Below the navigation is a progress bar with steps 1. Choose AMI, 2. Choose Instance Type (which is highlighted in blue), 3. Configure Instance, 4. Add Storage, 5. Add Tags, 6. Configure Security Group, and 7. Review.

Step 2: Choose an Instance Type

Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. Instances are virtual servers that can run applications. They have varying combinations of CPU, memory, storage, and networking capacity, and give you the flexibility to choose the appropriate mix of resources for your applications. [Learn more](#) about instance types and how they can meet your computing needs.

Filter by: All instance types ▾ Current generation ▾ Show/Hide Columns

Currently selected: t2.micro (Variable ECUs, 1 vCPUs, 2.5 GHz, Intel Xeon Family, 1 GiB memory, EBS only)

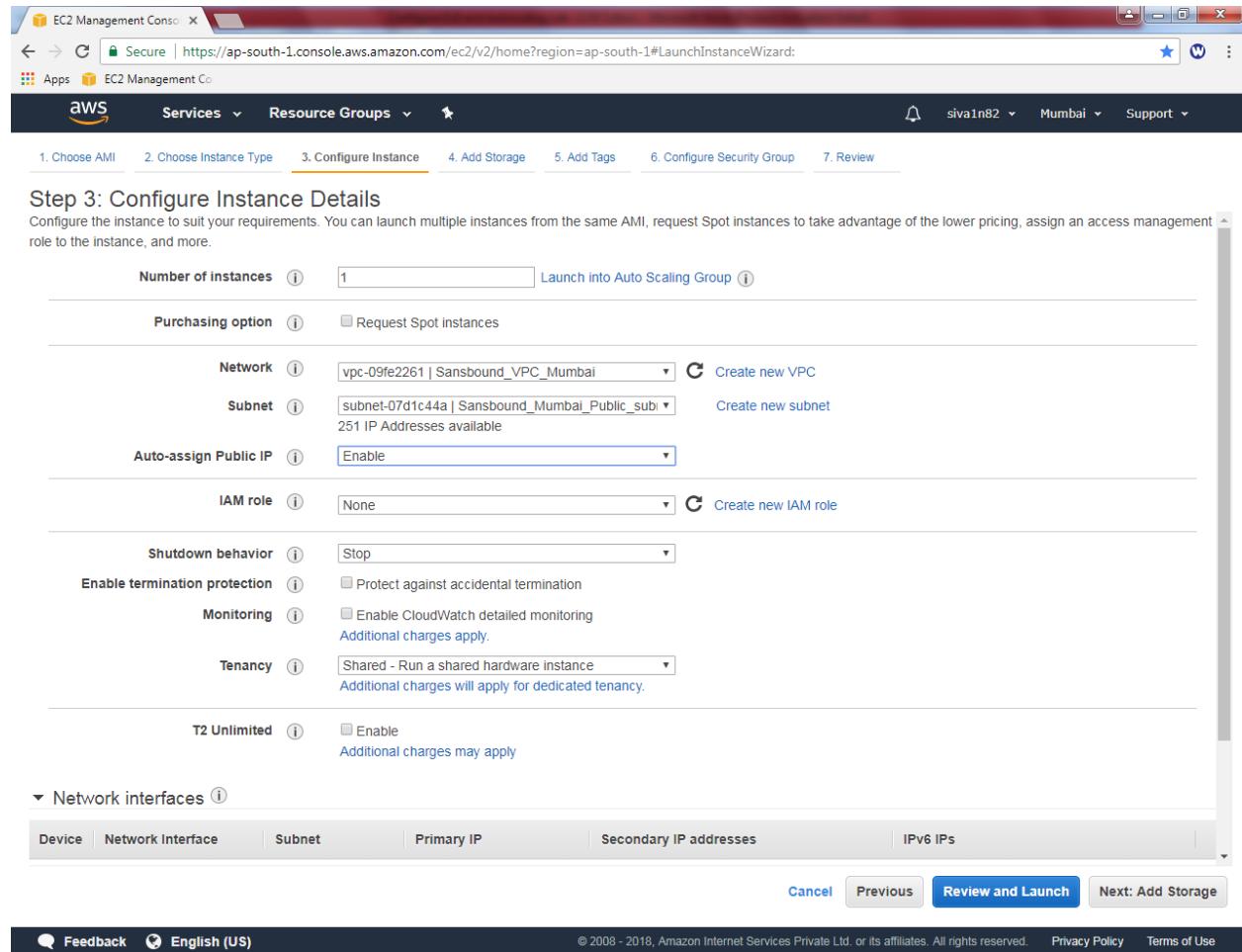
	Family	Type	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance	IPv6 Support
<input type="checkbox"/>	General purpose	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
<input checked="" type="checkbox"/>	General purpose	t2.micro Free tier eligible	1	1	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.small	1	2	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.medium	2	4	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.large	2	8	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.xlarge	4	16	EBS only	-	Moderate	Yes
<input type="checkbox"/>	General purpose	t2.2xlarge	8	32	EBS only	-	Moderate	Yes
<input type="checkbox"/>	General purpose	m4.large	2	8	EBS only	Yes	Moderate	Yes
<input type="checkbox"/>	General purpose	m4.xlarge	4	16	EBS only	Yes	High	Yes
<input type="checkbox"/>	General purpose	m4.2xlarge	8	32	EBS only	Yes	High	Yes

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

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Click “Next”.

Select Network as “Sansbound_VPC_Mumbai”, subnet as “sansbound_mumbai_public_subnet” and Auto-assign Public IP as Enable.



Click "Next"

Leave default settings and click "Next".

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-0fbaf6369a5a7ca56	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: Add Tags

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In Add tags, key as Name and value as “webserver”.

The screenshot shows the AWS EC2 Management Console interface for launching a new instance. The top navigation bar includes 'EC2 Management Console', 'Secure | https://ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#LaunchInstanceWizard:', and the user 'siva1n82'. The main menu has 'Services' and 'Resource Groups' dropdowns. Below the menu, a progress bar shows steps 1 through 7: '1. Choose AMI', '2. Choose Instance Type', '3. Configure Instance', '4. Add Storage', '5. Add Tags' (which is highlighted in orange), '6. Configure Security Group', and '7. Review'. The current step is 'Step 5: Add Tags'. A note explains that a tag consists of a case-sensitive key-value pair, such as 'Name = Webserver'. It also mentions that a tag can be applied to volumes, instances or both, and that tags will be applied to all instances and volumes. A link to 'Learn more' about tagging is provided. The main form contains fields for 'Key' (Name) and 'Value' (Webserver!). There are checkboxes for 'Instances' and 'Volumes', both of which are checked. Below the form is a button 'Add another tag' with the note '(Up to 50 tags maximum)'. At the bottom of the page are buttons for 'Cancel', 'Previous', 'Review and Launch' (which is highlighted in blue), and 'Next: Configure Security Group'. The footer includes links for 'Feedback', 'English (US)', and copyright information: '© 2008 - 2018, Amazon Internet Services Private Ltd. or its affiliates. All rights reserved.' and links to 'Privacy Policy' and 'Terms of Use'.

In Security group, create a new security group as “ELB-Sec-Group” and allow SSH and HTTP ports.

The screenshot shows the AWS EC2 Management Console interface. The user is on the 'Configure Security Group' step of a launch instance wizard. The security group name is 'ELB-Sec-Group'. Two rules are defined:

Type	Protocol	Port Range	Source	Description
SSH	TCP	22	Custom 0.0.0.0/0	e.g. SSH for Admin Desktop
HTTP	TCP	80	Custom 0.0.0.0/0	e.g. SSH for Admin Desktop

A warning message is present: "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, there are 'Cancel', 'Previous', and 'Review and Launch' buttons. The 'Review and Launch' button is highlighted in blue.

Click “Review and Launch”.

Step 7: Review Instance Launch

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

AMI Details

Amazon Linux AMI 2017.09.1 (HVM), SSD Volume Type - ami-531a4c3c
 Free tier eligible
 The Amazon Linux AMI is an EBS-backed, AWS-supported image. The default image includes AWS command line tools, Python, Ruby, Perl, and Java. The repositories include Docker, PHP, MySQL, PostgreSQL, and other packages.
 Root Device Type: ebs Virtualization type: hvm

Instance Type

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

Security Groups

ELB-Sec-Group
 ELB-Sec-Group

Type	Protocol	Port Range	Source	Description
SSH	TCP	22	0.0.0.0/0	
HTTP	TCP	80	0.0.0.0/0	
HTTP	TCP	80	::/0	

Launch

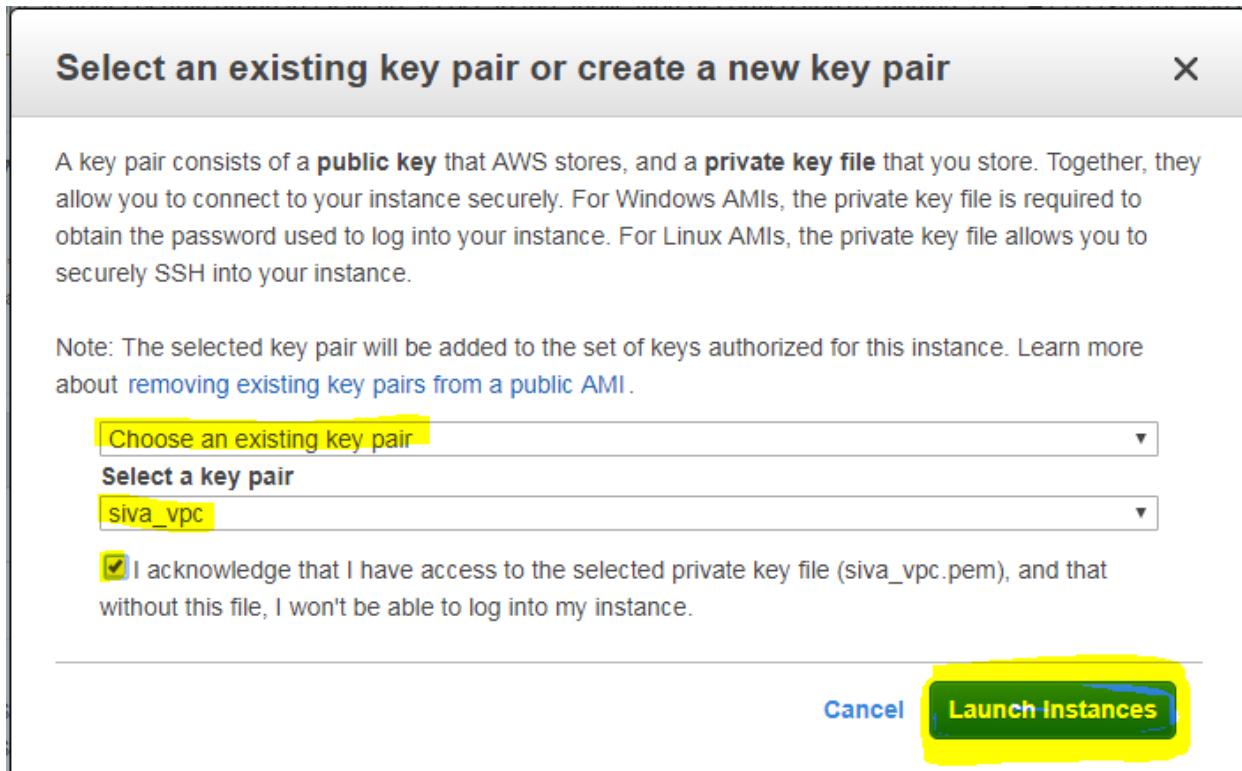
Click “Launch”.

While launch instance, it asked to select an existing key pair or create a new key pair.

Choose an existing key pair.

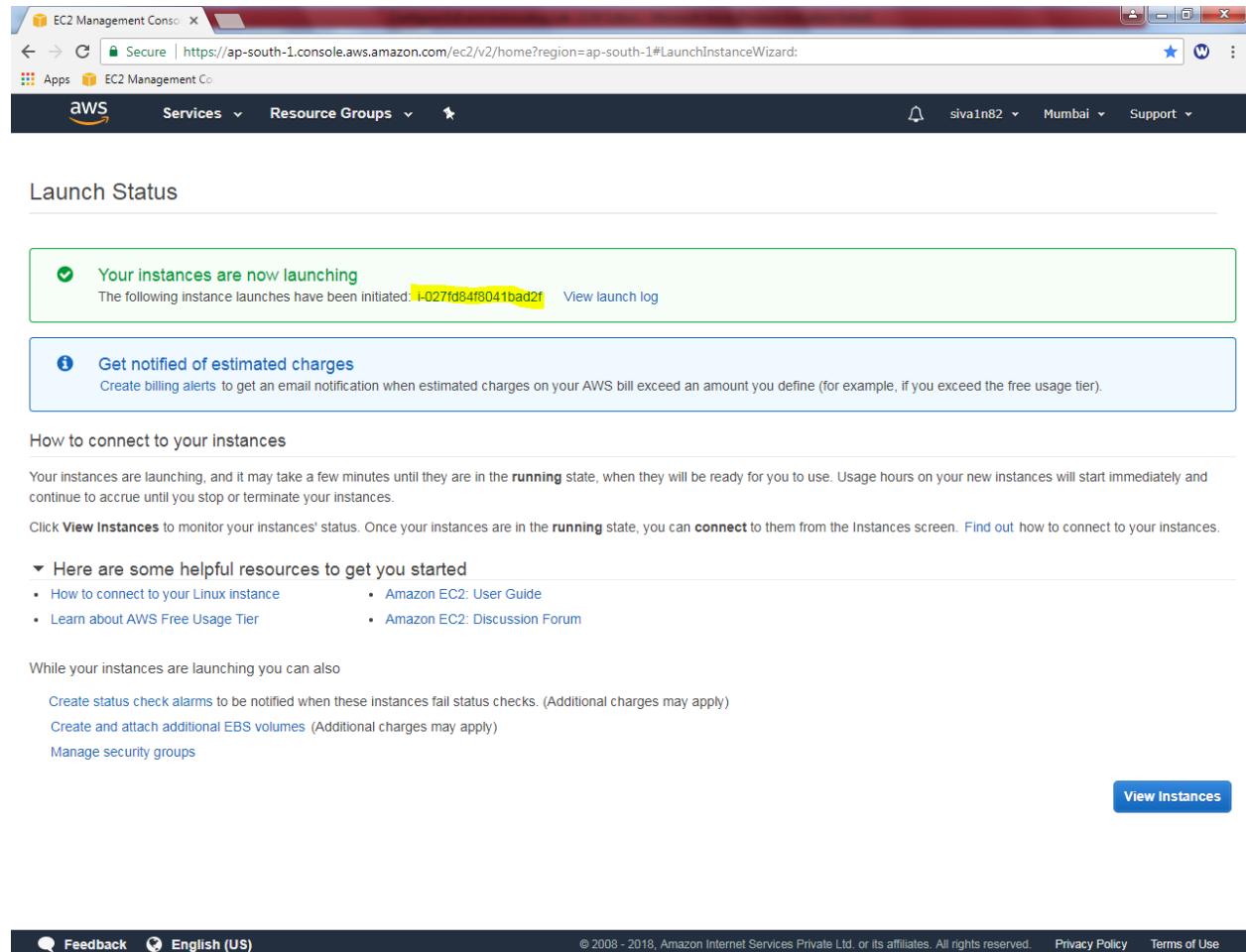
Then select the key pair.

Click “I acknowledge” check box.



Click “launch instances”.

Click Highlighted area to view instance.

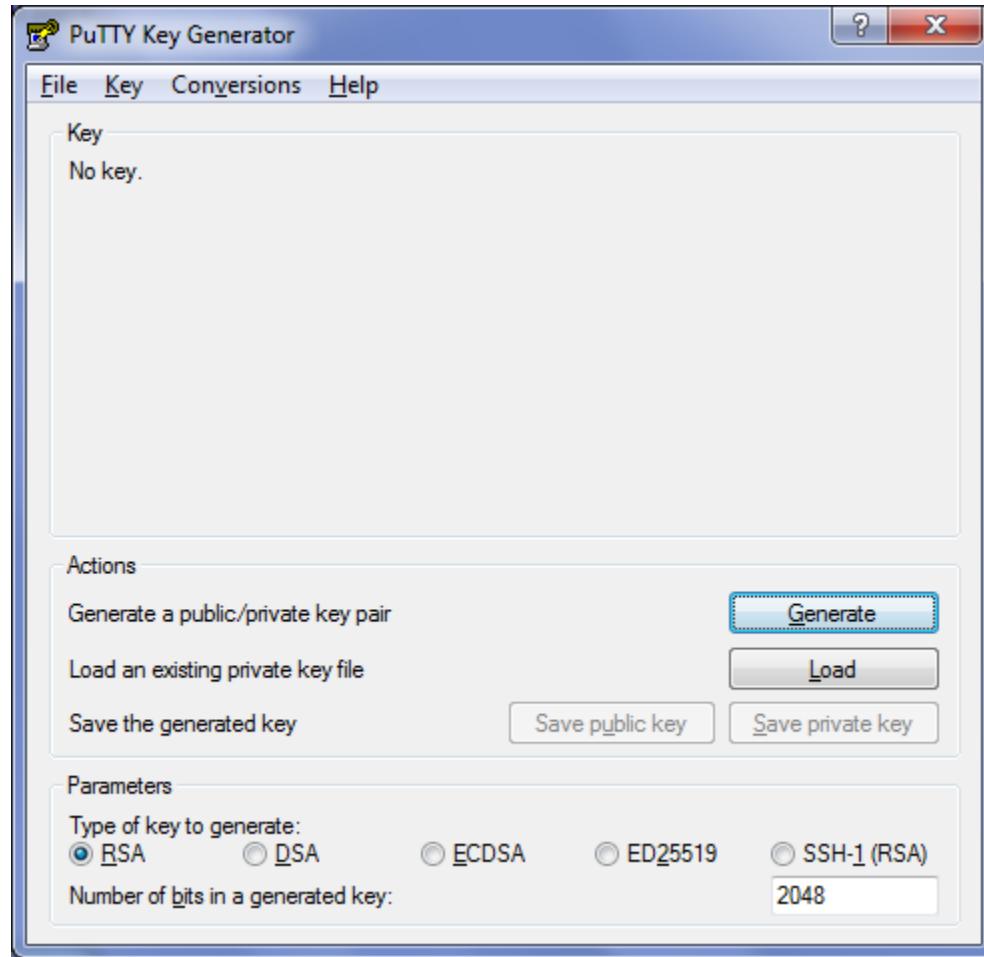


The screenshot shows the AWS EC2 Management Console interface. At the top, there's a header bar with the AWS logo, navigation links like 'Services' and 'Resource Groups', and user information ('siva1n82', 'Mumbai', 'Support'). Below the header, the main content area has a title 'Launch Status'. A prominent green box contains the message 'Your instances are now launching' with a checkmark icon. Below this, it says 'The following instance launches have been initiated: i-027fd84f8041bad2f' and a link 'View launch log'. Another blue box below contains the message 'Get notified of estimated charges' with an info icon, followed by a description of how to receive billing alerts. Further down, a section titled 'How to connect to your instances' provides instructions and links to resources like the User Guide and Discussion Forum. At the bottom right, there's a blue button labeled 'View Instances'.

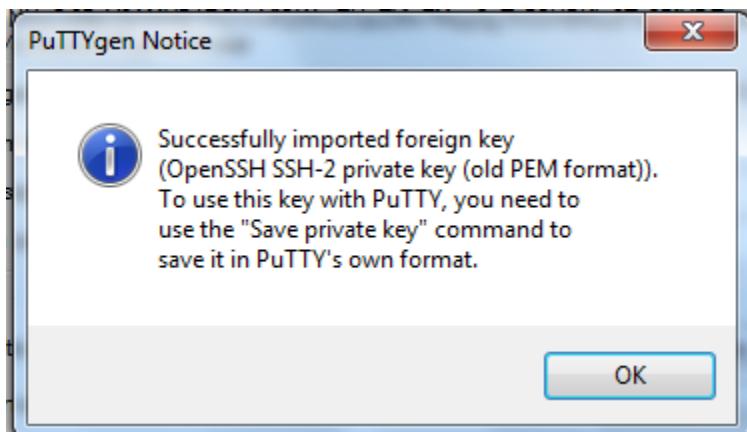
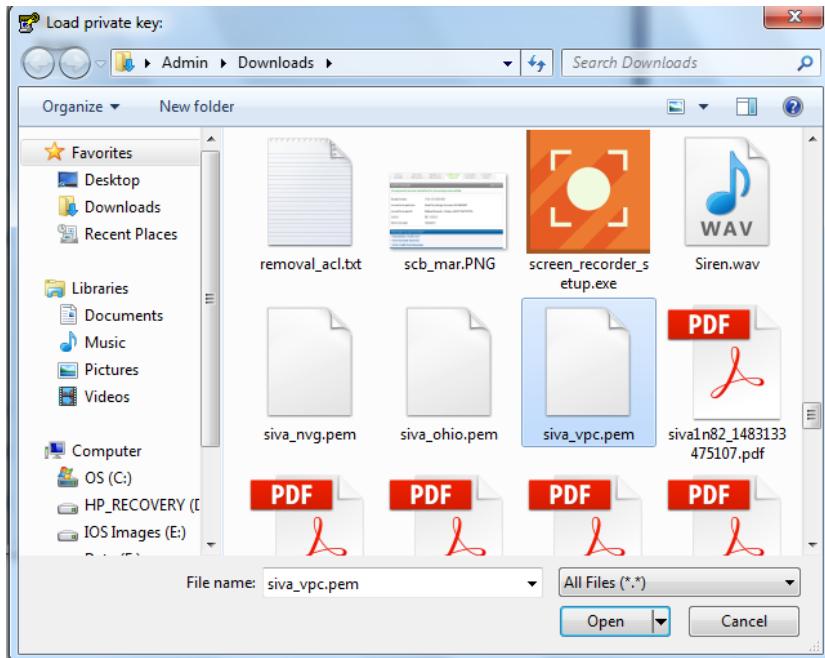
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Now we need to launch the instance (LinuX) by using putty,

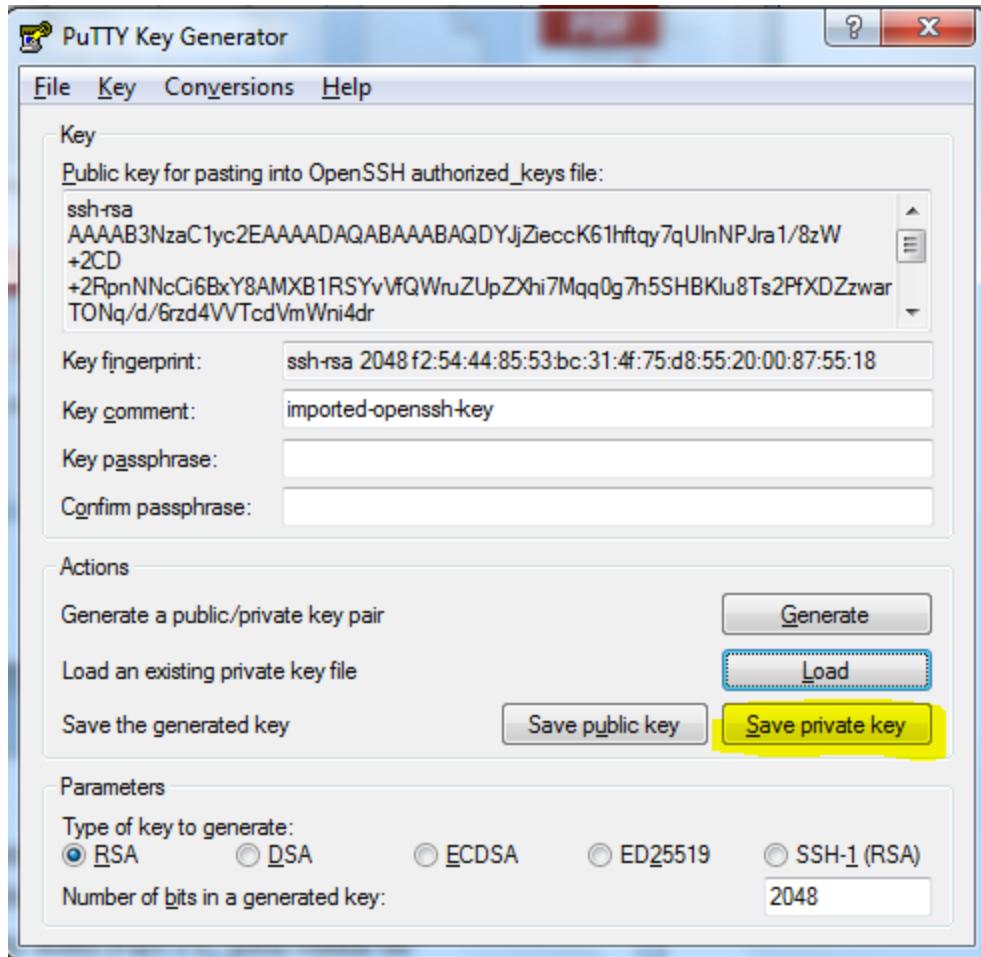
File → Load private key



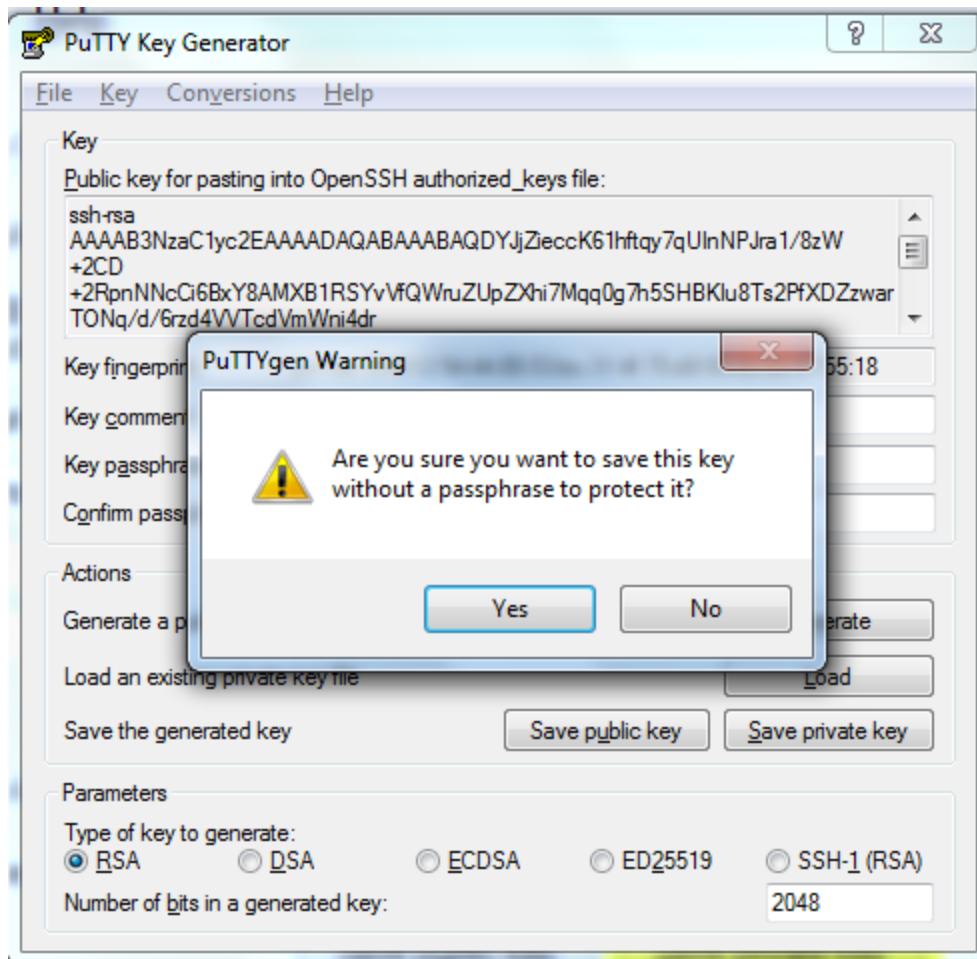
Click "All files "and locate the *.pem file



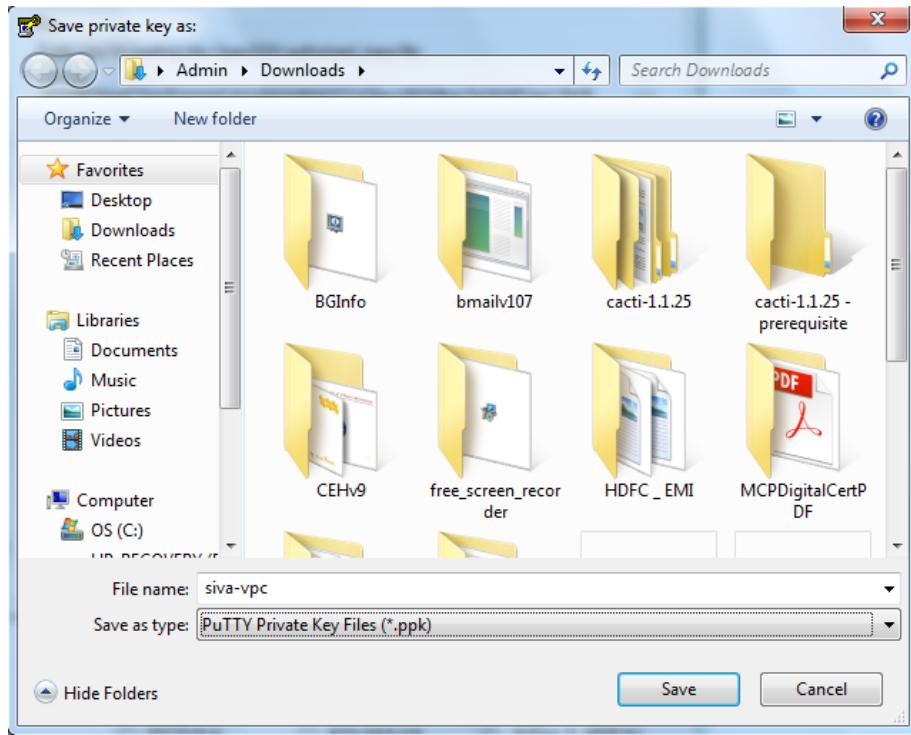
Click "save private key".



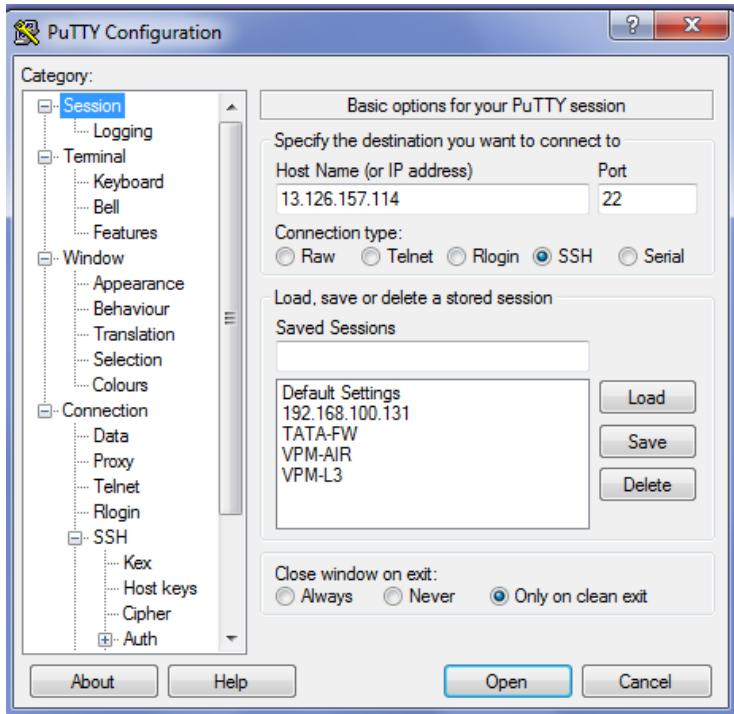
Click "Yes".



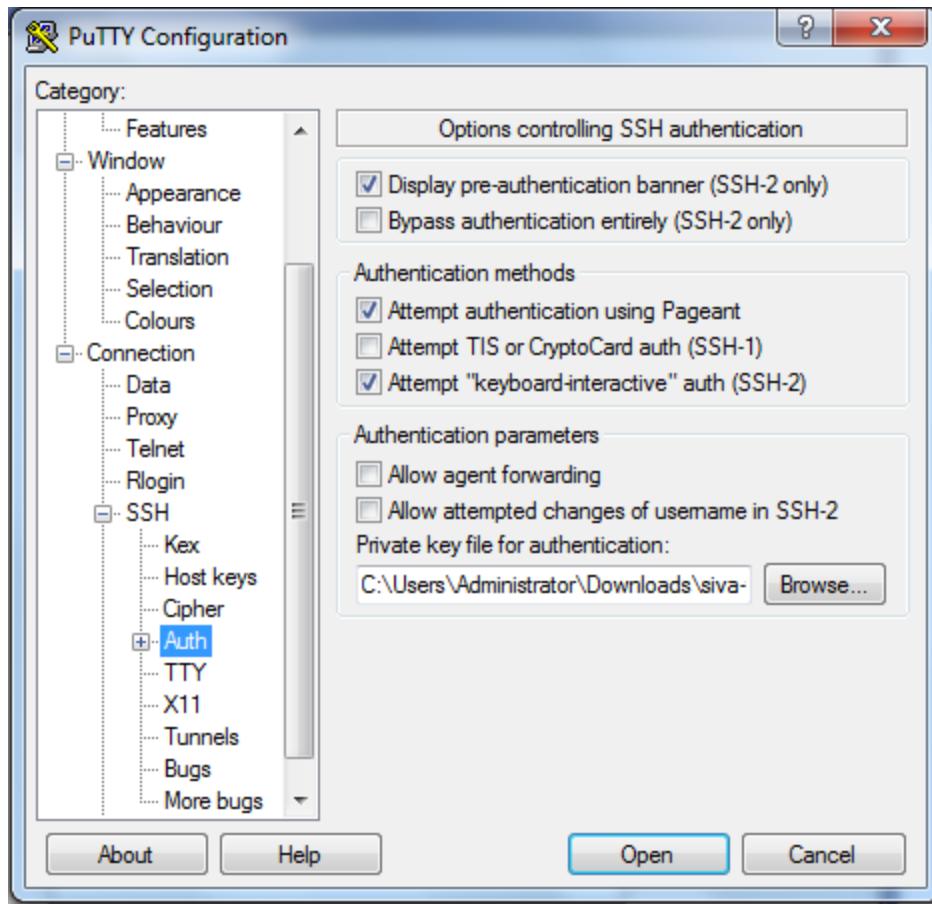
Type the filename to save as ppk file.



Type Public IP address of linux instance in putty,

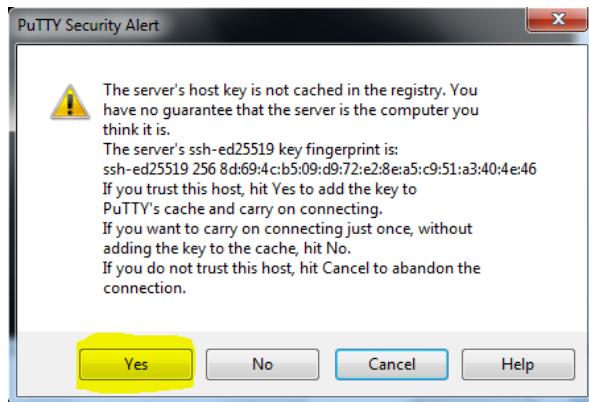


In SSH expand the plus symbol, click Auth, and browse the ppk file.



Click “Open”.

Click “Yes”



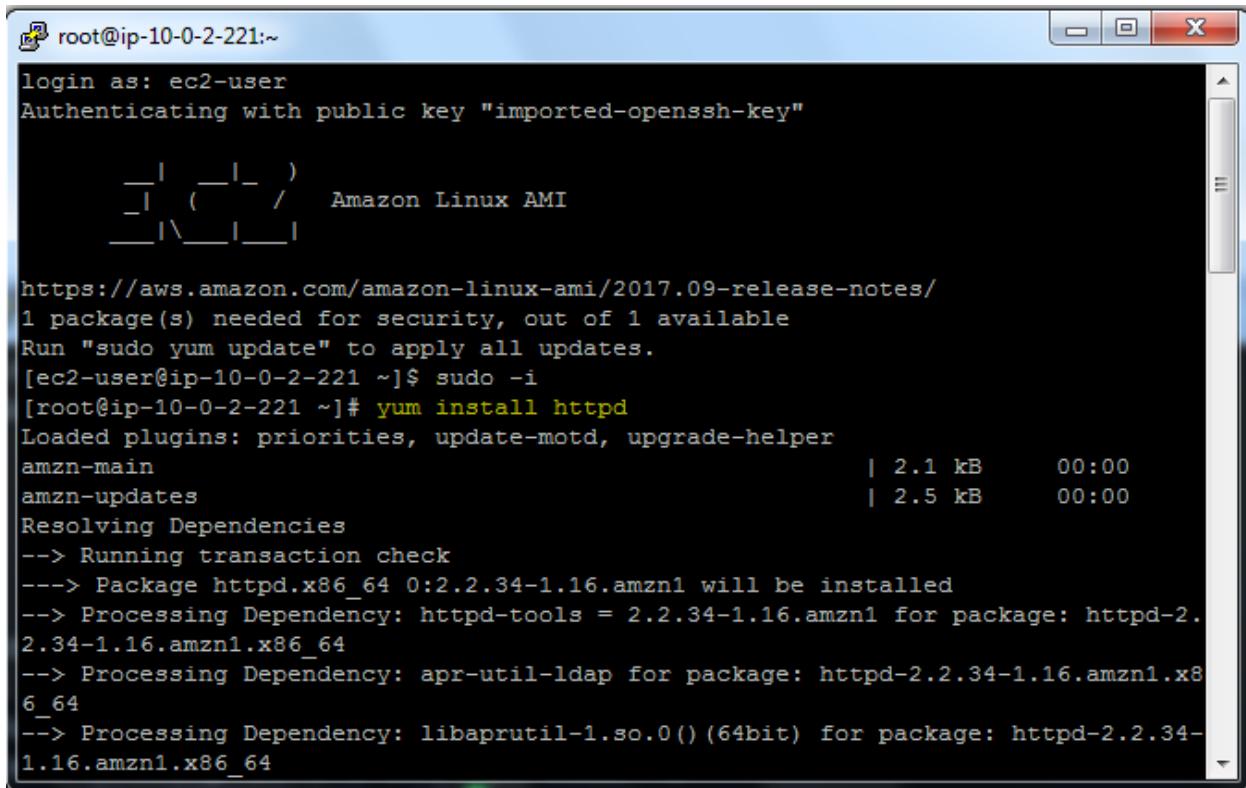
Type user as **ec2-user**

A screenshot of a terminal window titled 'root@ip-10-0-2-221:~'. The session starts with 'login as: ec2-user' and 'Authenticating with public key "imported-openssh-key"'. It then displays the Amazon Linux AMI logo. Below the logo, it shows a URL for release notes and a note about 1 package needed for security. The command '[ec2-user@ip-10-0-2-221 ~]\$ sudo -i' is run, followed by '[root@ip-10-0-2-221 ~]#'. A green rectangle highlights the command line area.

Then type **sudo -i**

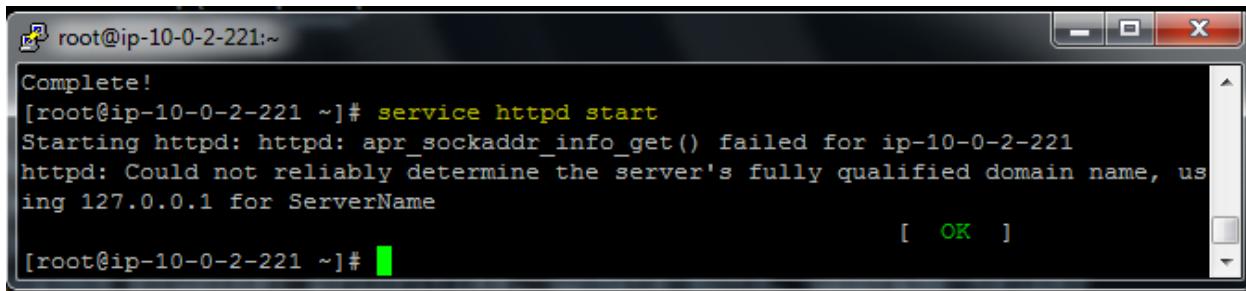
Then we need to install apache webserver in linux by using below mentioned command

Yum install httpd



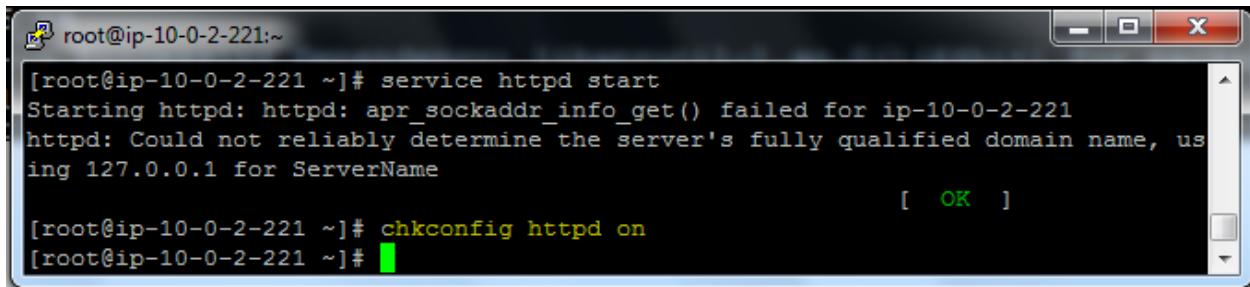
```
root@ip-10-0-2-221:~  
login as: ec2-user  
Authenticating with public key "imported-openssh-key"  
  
      _\   _ /     Amazon Linux AMI  
     _\ \_\ |__|  
  
https://aws.amazon.com/amazon-linux-ami/2017.09-release-notes/  
1 package(s) needed for security, out of 1 available  
Run "sudo yum update" to apply all updates.  
[ec2-user@ip-10-0-2-221 ~]$ sudo -i  
[root@ip-10-0-2-221 ~]# yum install httpd  
Loaded plugins: priorities, update-motd, upgrade-helper  
amzn-main                                         | 2.1 kB     00:00  
amzn-updates                                     | 2.5 kB     00:00  
Resolving Dependencies  
--> Running transaction check  
--> Package httpd.x86_64 0:2.2.34-1.16.amzn1 will be installed  
--> Processing Dependency: httpd-tools = 2.2.34-1.16.amzn1 for package: httpd-2.  
2.34-1.16.amzn1.x86_64  
--> Processing Dependency: apr-util-ldap for package: httpd-2.2.34-1.16.amzn1.x8  
6_64  
--> Processing Dependency: libaprutil-1.so.0()(64bit) for package: httpd-2.2.34-  
1.16.amzn1.x86_64
```

Service httpd start



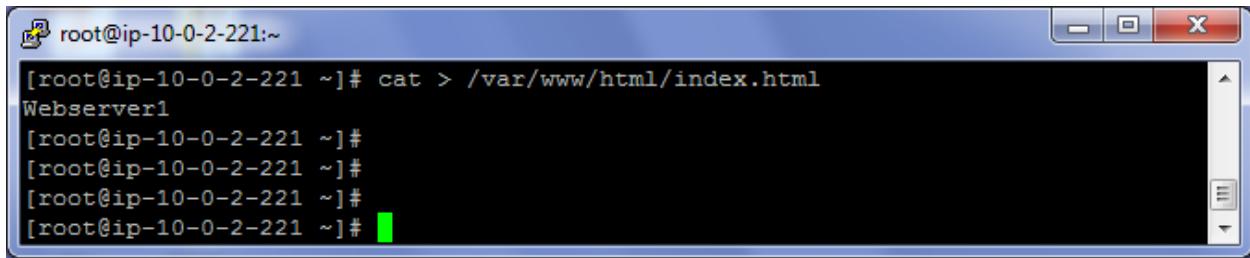
```
root@ip-10-0-2-221:~  
Complete!  
[root@ip-10-0-2-221 ~]# service httpd start  
Starting httpd: httpd: apr_sockaddr_info_get() failed for ip-10-0-2-221  
httpd: Could not reliably determine the server's fully qualified domain name, us  
ing 127.0.0.1 for ServerName  
[ OK ]  
[root@ip-10-0-2-221 ~]#
```

Chkconfig httpd on



```
root@ip-10-0-2-221:~# service httpd start
Starting httpd: httpd: apr_sockaddr_info_get() failed for ip-10-0-2-221
httpd: Could not reliably determine the server's fully qualified domain name, us
ing 127.0.0.1 for ServerName
[ OK ]
[root@ip-10-0-2-221 ~]# chkconfig httpd on
[root@ip-10-0-2-221 ~]#
```

Type cat > /var/www/html/index.html



```
root@ip-10-0-2-221:~#
[root@ip-10-0-2-221 ~]# cat > /var/www/html/index.html
Webserver1
[root@ip-10-0-2-221 ~]#
[root@ip-10-0-2-221 ~]#
[root@ip-10-0-2-221 ~]#
[root@ip-10-0-2-221 ~]#
```

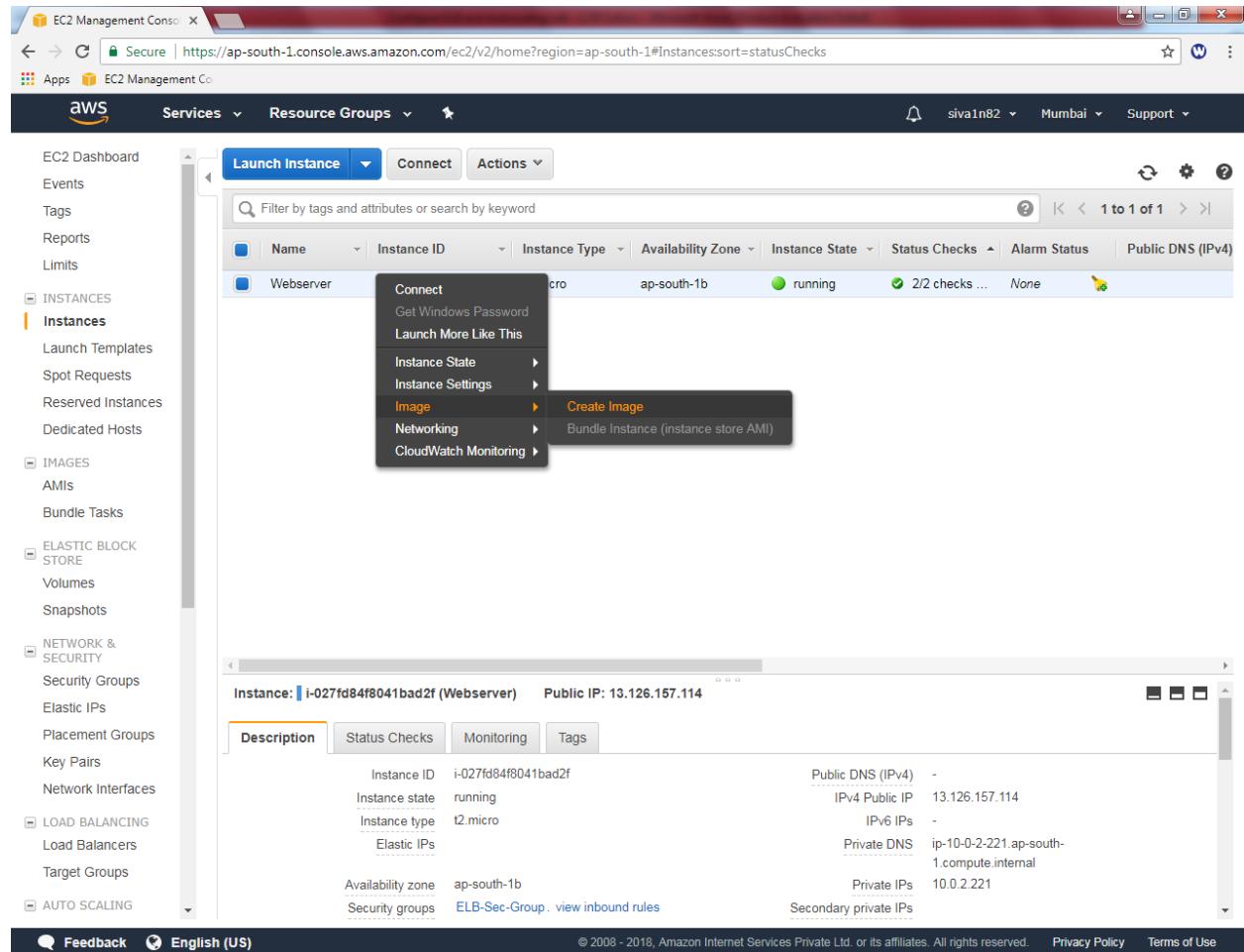
Type the webserver1

Press enter

Then click Ctrl + D

Now we need to create an image for Linux instance.

Select instance, right click click image → create image.



Type image name as “Sansbound webserver”

Image description as “ELB Testing”.

Create Image

Instance ID	i-027fd84f8041bad2f
Image name	Sansbound webserver
Image description	ELB Testing
No reboot	<input type="checkbox"/>

Instance Volumes

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)	Delete on Termination	Encrypted
Root	/dev/xvda	snap-0fbaf6369a5a7ca56	8	General Purpose SSD (GP2)	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypted

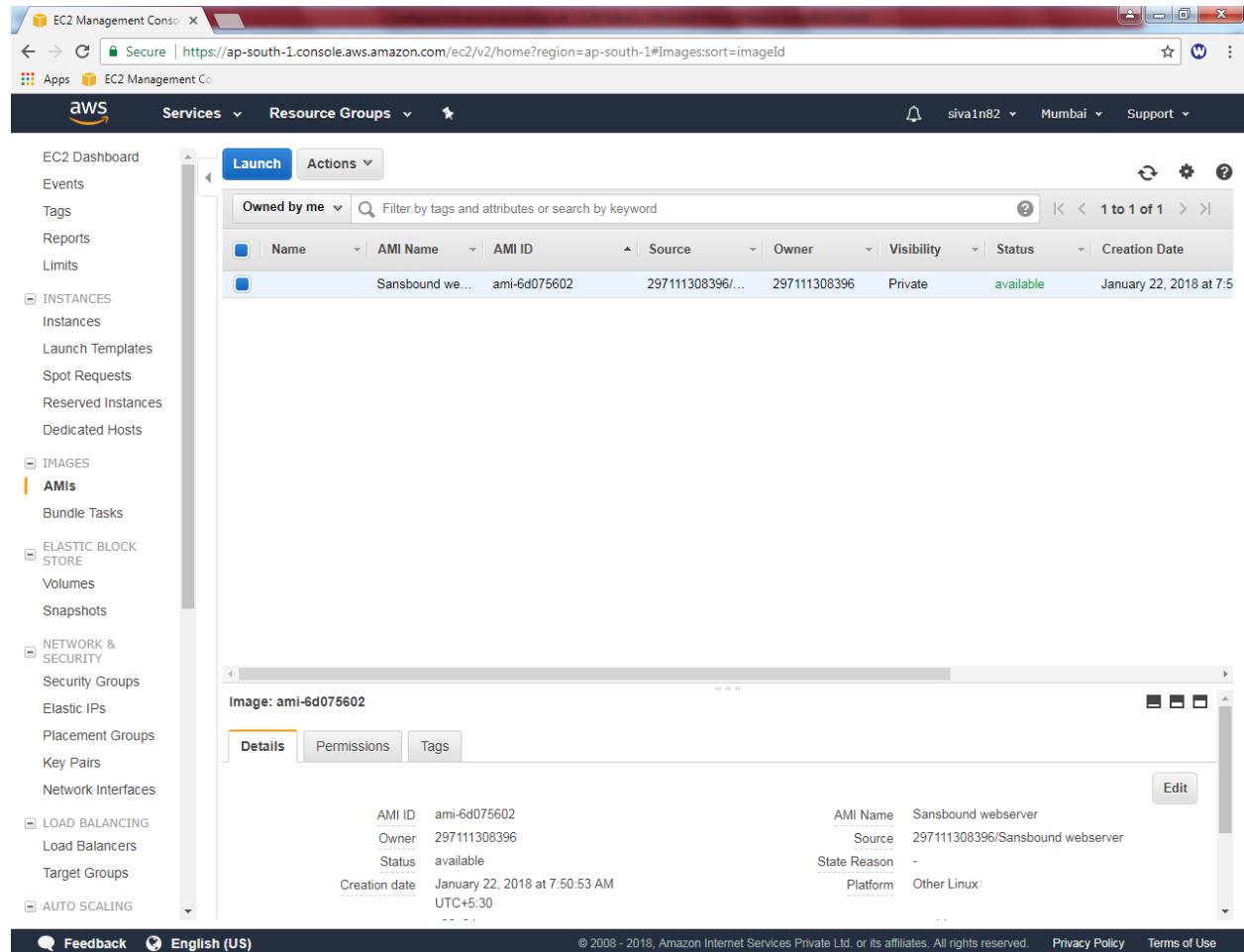
Add New Volume

Total size of EBS Volumes: 8 GiB
When you create an EBS image, an EBS snapshot will also be created for each of the above volumes.

[Cancel](#) **Create Image**

Click “create image”.

To view the image , click “AMI”. Wait up to the state is **available**.



Click “Launch”.

Click “My AMIs” and select “Sansbound webserver”.

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 1 to 1 of 1 AMIs

My AMIs

Image ID	Name	Type	Root device type	Virtualization type	Owner
ami-6d075602	Sansbound webserver	ELB Testing	ebs	hvm	297111308396

Select 64-bit

Ownership

Owned by me
 Shared with me

Architecture

32-bit
 64-bit

Root device type

EBS
 Instance store

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Select "t2.micro".

The screenshot shows the AWS EC2 Management Console interface. The title bar says "EC2 Management Console". The URL in the address bar is "https://ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#LaunchInstanceWizard:". The top navigation bar includes "Services", "Resource Groups", and "Support". On the right, there are user details "siva1n82" and "Mumbai".

The main content area is titled "Step 2: Choose an Instance Type". It displays a table of instance types:

Family	Type	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance	IPv6 Support
General purpose	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
General purpose	t2.micro <small>Free tier eligible</small>	1	1	EBS only	-	Low to Moderate	Yes
General purpose	t2.small	1	2	EBS only	-	Low to Moderate	Yes
General purpose	t2.medium	2	4	EBS only	-	Low to Moderate	Yes
General purpose	t2.large	2	8	EBS only	-	Low to Moderate	Yes
General purpose	t2.xlarge	4	16	EBS only	-	Moderate	Yes
General purpose	t2.2xlarge	8	32	EBS only	-	Moderate	Yes
General purpose	m4.large	2	8	EBS only	Yes	Moderate	Yes
General purpose	m4.xlarge	4	16	EBS only	Yes	High	Yes
General purpose	m4.2xlarge	8	32	EBS only	Yes	High	Yes

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

Click "Next".

Create an Number of instances as "2".

Network as Sansbound_VPC_Mumbai

Subnet as Sansbound_mumbai_Public_subnet

Auto-assign public IP: Enable.

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: 2

You may want to consider launching these instances into an Auto Scaling Group to help you maintain application availability and for easy scaling in the future. [Learn how Auto Scaling can help your application stay healthy and cost effective.](#)

Purchasing option: Request Spot instances

Network: vpc-09fe2261 | Sansbound_VPC_Mumbai

Subnet: subnet-07d1c44a | Sansbound_Mumbai_Public_sub
250 IP Addresses available

Auto-assign Public IP: **Enable**

IAM role: None

Shutdown behavior: Stop

Enable termination protection: Protect against accidental termination

Monitoring: Enable CloudWatch detailed monitoring
Additional charges apply.

Tenancy: Shared - Run a shared hardware instance Additional charges will apply for dedicated tenancy.

T2 Unlimited: Enable Additional charges may apply

Buttons: Cancel, Previous, **Review and Launch**, Next: Add Storage

Click “Next”.

Leave as default and click “Next”.

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-0142ccf52ee41e2eb	8	General Purpose SSD (GP2)	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypted

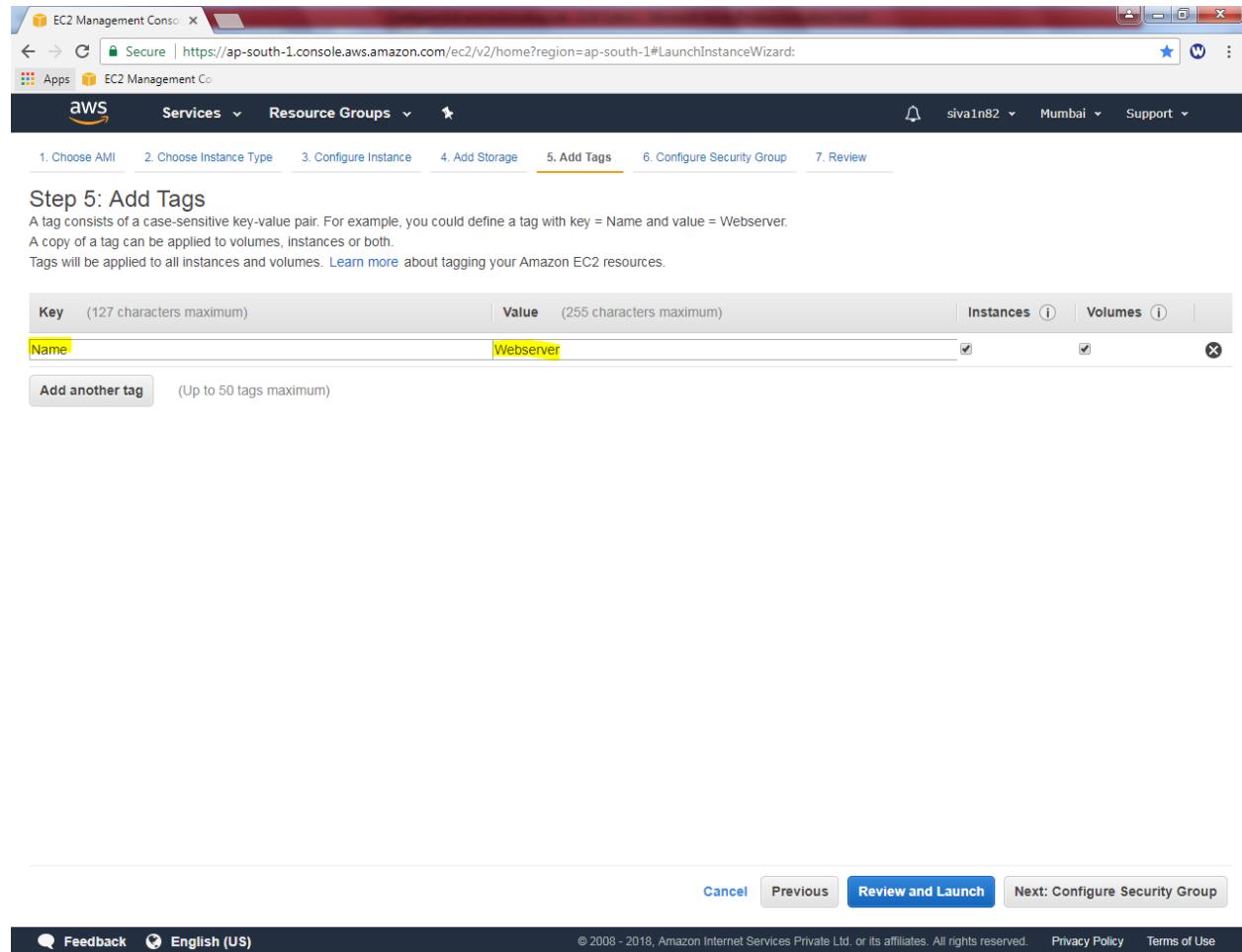
Add New Volume

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: Add Tags

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In Add tags, Name: Webserver



Click "Next".

Select "ELB-Sec-Group"

The screenshot shows the AWS EC2 Management Console interface. At the top, there's a navigation bar with links for 'Services', 'Resource Groups', and 'Support'. Below the navigation bar, a progress bar indicates the current step: '6. Configure Security Group' (highlighted in orange). The main content area is titled 'Step 6: Configure Security Group'. A sub-instruction says: '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.' Below this, there's a note: 'Learn more about Amazon EC2 security groups.' Underneath, there are two options for assigning a security group: 'Create a new security group' (radio button) and 'Select an existing security group' (radio button, which is selected). A table lists existing security groups:

Security Group ID	Name	Description	Actions
sg-6a3ed501	default	default VPC security group	Copy to new
sg-437e8b28	ELB-Sec-Group	ELB-Sec-Group	Copy to new

Below the table, a section titled 'Inbound rules for sg-437e8b28 (Selected security groups: sg-a61bf0cd)' shows the current inbound rules:

Type	Protocol	Port Range	Source	Description
HTTP	TCP	80	0.0.0.0/0	
HTTP	TCP	80	::/0	
SSH	TCP	22	0.0.0.0/0	

At the bottom right, there are buttons for 'Cancel', 'Previous', and 'Review and Launch' (which is highlighted in blue).

Click "Review and Launch".

Step 7: Review Instance Launch

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

AMI Details

Sansbound webserver - ami-6d075602
 ELB Testing
 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

Security Groups

Security Group ID	Name	Description
sg-a61bf0cd	Mumbai_Linux_Sec_Group	Mumbai_Linux_Sec_Group

All selected security groups inbound rules

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

Buttons: Cancel, Previous, Launch

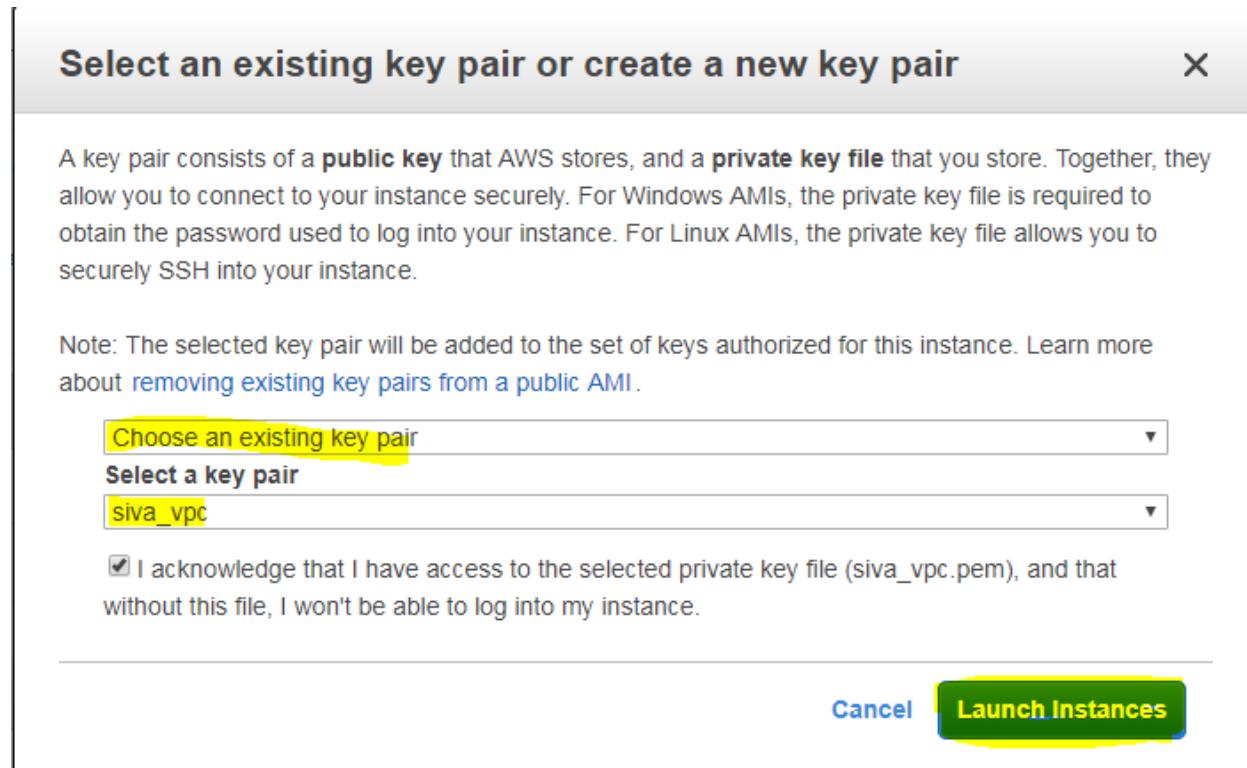
Click “Launch”.

While launch instance it asks Select an existing key pair or create a new key pair.

I will choose “Choose an existing key pair”

Select a key pair “siva_vpc”.

Click “I acknowledge”.



Click “Launch instances”.

Wait upto status checks becomes 2/2 checks, now 3 servers (Linux) are up and running.

The screenshot shows the AWS EC2 Management Console interface. The left sidebar navigation menu includes: EC2 Dashboard, Events, Tags, Reports, Limits, INSTANCES (with Instances selected), Launch Templates, Spot Requests, Reserved Instances, Dedicated Hosts, IMAGES (with AMIs selected), Bundle Tasks, ELASTIC BLOCK STORE (with Volumes selected), Snapshots, NETWORK & SECURITY (with Security Groups selected), Elastic IPs, Placement Groups, Key Pairs, Network Interfaces, LOAD BALANCING (with Load Balancers selected), Target Groups, and AUTO SCALING (with Launch Configurations selected). The main content area displays a table of instances. The table has columns: Name, Instance ID, Instance Type, Availability Zone, Instance State, Status Checks, Alarm Status, and Public DNS. Three instances are listed: Webserver1 (selected), Webserver, and another Webserver. Below the table, a detailed view for the selected instance (Webserver1) is shown. The instance details include: Instance ID (i-01a7d4fe9f1e5f337), Instance state (running), Instance type (t2.micro), Elastic IPs, Availability zone (ap-south-1b), and Security groups (ELB-Sec-Group). The public IP is 52.66.108.176 and the private IP is 10.0.2.177. The detailed view also shows Public DNS (ip-10-0-2-177.ap-south-1.compute.internal).

Need to rename the Linux servers name as webserver2 and webserver3.

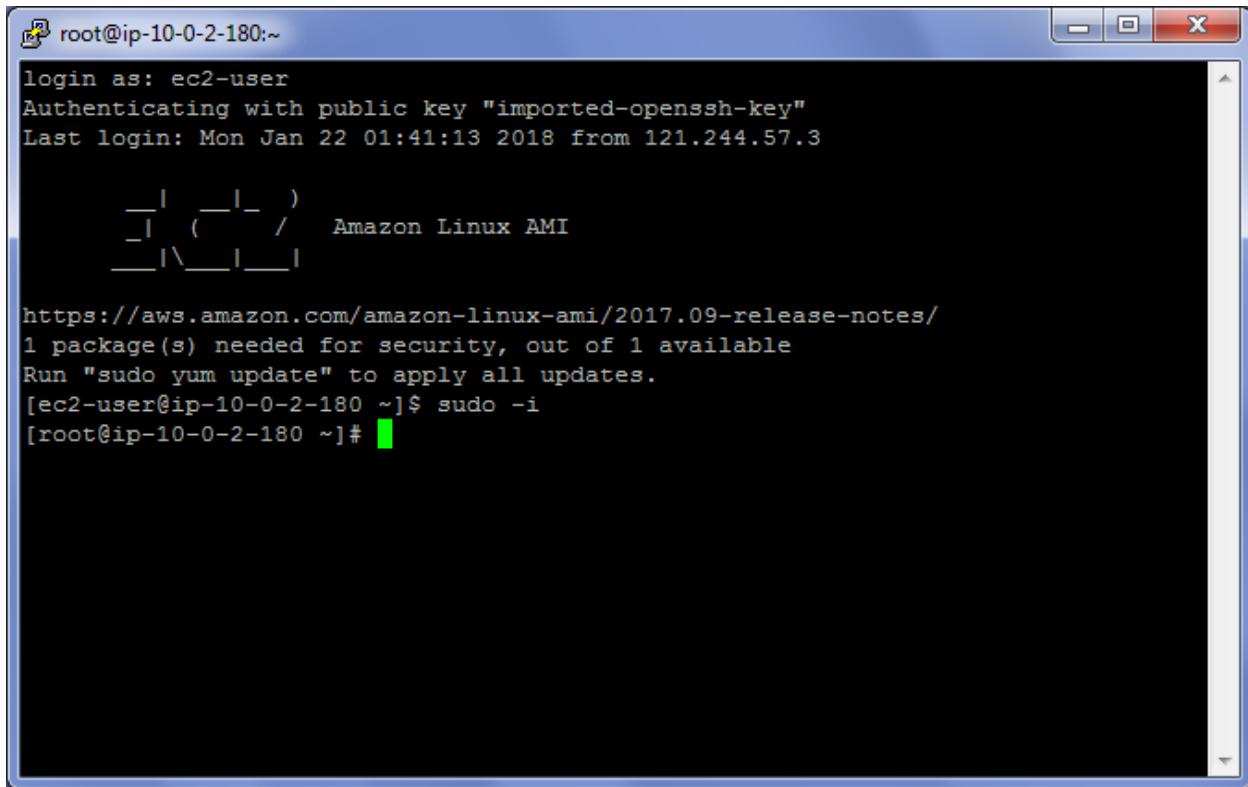
You have renamed the server name successfully.

The screenshot shows the AWS EC2 Management Console interface. The left sidebar contains a navigation menu with categories 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, Key Pairs, Network Interfaces, Load Balancing, Load Balancers, Target Groups, and Auto Scaling. The 'Instances' category is currently selected, indicated by an orange border. The main content area displays a table of three instances:

	Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)
	Webserver1	i-027fd84f8041bad2f	t2.micro	ap-south-1b	running	2/2 checks ...	None	...
	Webserver2	i-0b9ae675b13e5f41a	t2.micro	ap-south-1b	running	2/2 checks ...	None	...
	Webserver3	i-01938dfc6a72ebbf	t2.micro	ap-south-1b	running	2/2 checks ...	None	...

Below the table, a message says "Select an instance above". At the bottom of the page, there are links for Feedback, English (US), and footer links for © 2008 - 2018, Amazon Internet Services Private Ltd. or its affiliates. All rights reserved., Privacy Policy, and Terms of Use.

Login to webserver2



The screenshot shows a terminal window titled "root@ip-10-0-2-180:~". The session starts with a password prompt for "ec2-user" followed by a public key authentication message. It then displays the last login information: "Mon Jan 22 01:41:13 2018 from 121.244.57.3". Below this, the Amazon Linux AMI logo is shown. The terminal then lists available security updates from the AWS Amazon Linux AMI 2017.09 release notes, indicating 1 package needed and 1 available. It prompts the user to run "sudo yum update" to apply all updates. Finally, the command "[root@ip-10-0-2-180 ~]# " is shown at the bottom, with a green cursor bar indicating where the user can type.

Type ***cat > /var/www/html/index.html***

webserver2

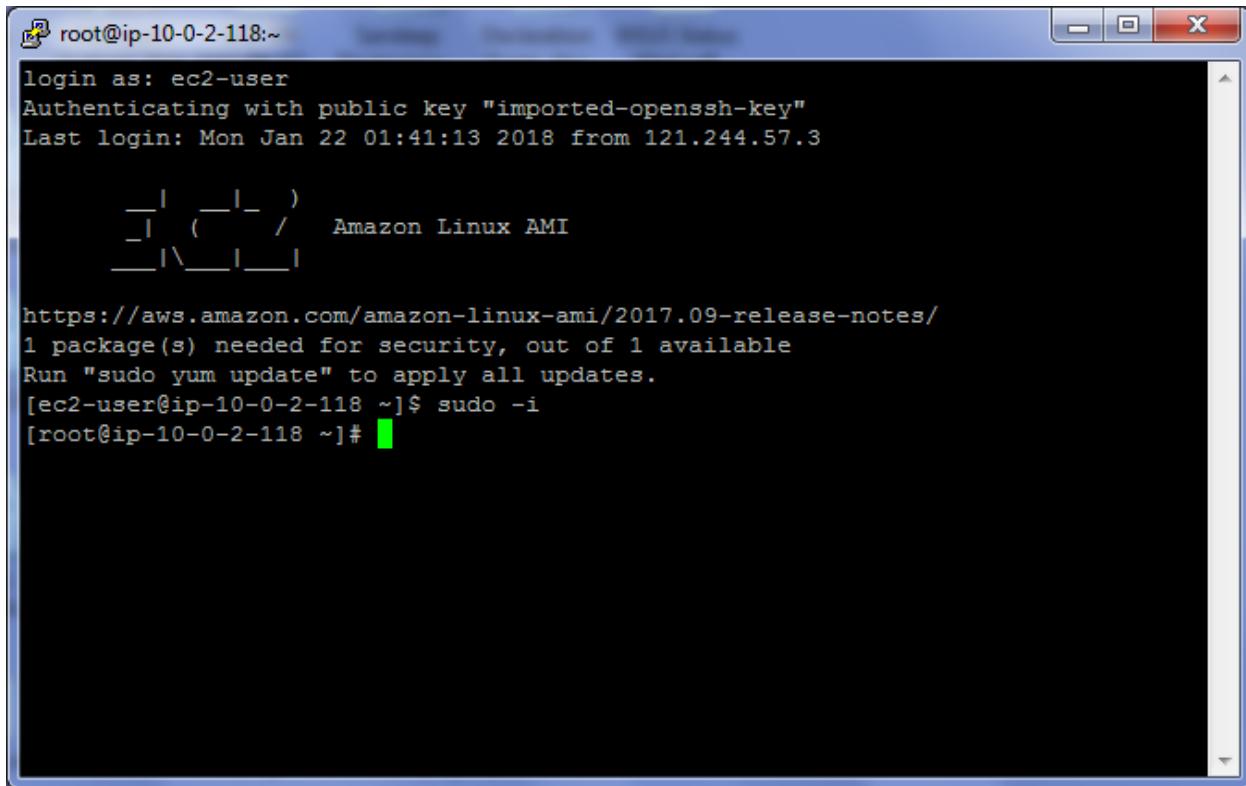
Press enter

Then click Ctrl + D



```
[root@ip-10-0-2-180 ~]# cat > /var/www/html/index.html
Webserver2
[root@ip-10-0-2-180 ~]#
```

Login to webserver3



The screenshot shows a terminal window titled "root@ip-10-0-2-118:~". The session starts with a login message for "ec2-user" using an imported OpenSSH key. It then displays the Amazon Linux AMI logo. A link to the release notes is shown, followed by a message indicating 1 package is needed for security updates. The user runs "sudo yum update" and then types "sudo -i" at the root prompt. The terminal has a blue header bar and a black body with white text.

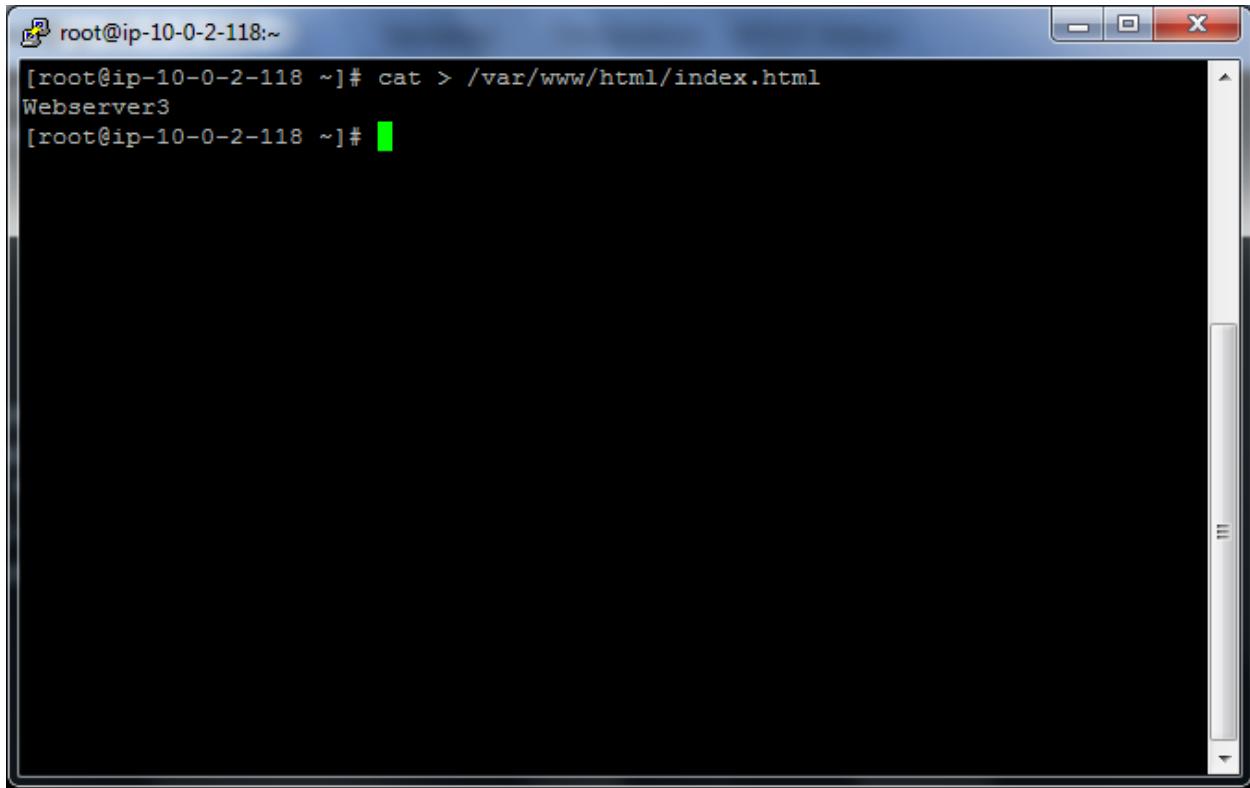
```
root@ip-10-0-2-118:~  
login as: ec2-user  
Authenticating with public key "imported-openssh-key"  
Last login: Mon Jan 22 01:41:13 2018 from 121.244.57.3  
  
_ _| | _ )  
-| ( _ / | Amazon Linux AMI  
__| \_ | __|  
  
https://aws.amazon.com/amazon-linux-ami/2017.09-release-notes/  
1 package(s) needed for security, out of 1 available  
Run "sudo yum update" to apply all updates.  
[ec2-user@ip-10-0-2-118 ~]$ sudo -i  
[root@ip-10-0-2-118 ~]#
```

Type **cat > /var/www/html/index.html**

Webserver3

Press enter

Then click Ctrl + D



A screenshot of a terminal window titled "root@ip-10-0-2-118:~". The window contains the following command and output:

```
[root@ip-10-0-2-118 ~]# cat > /var/www/html/index.html  
Webserver3  
[root@ip-10-0-2-118 ~]#
```

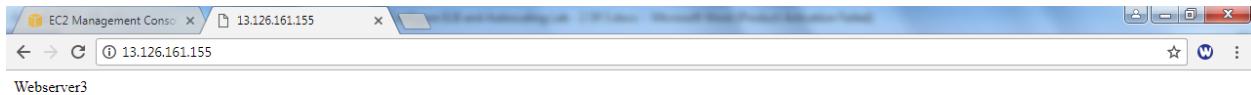
Able to access webserver1 publicly



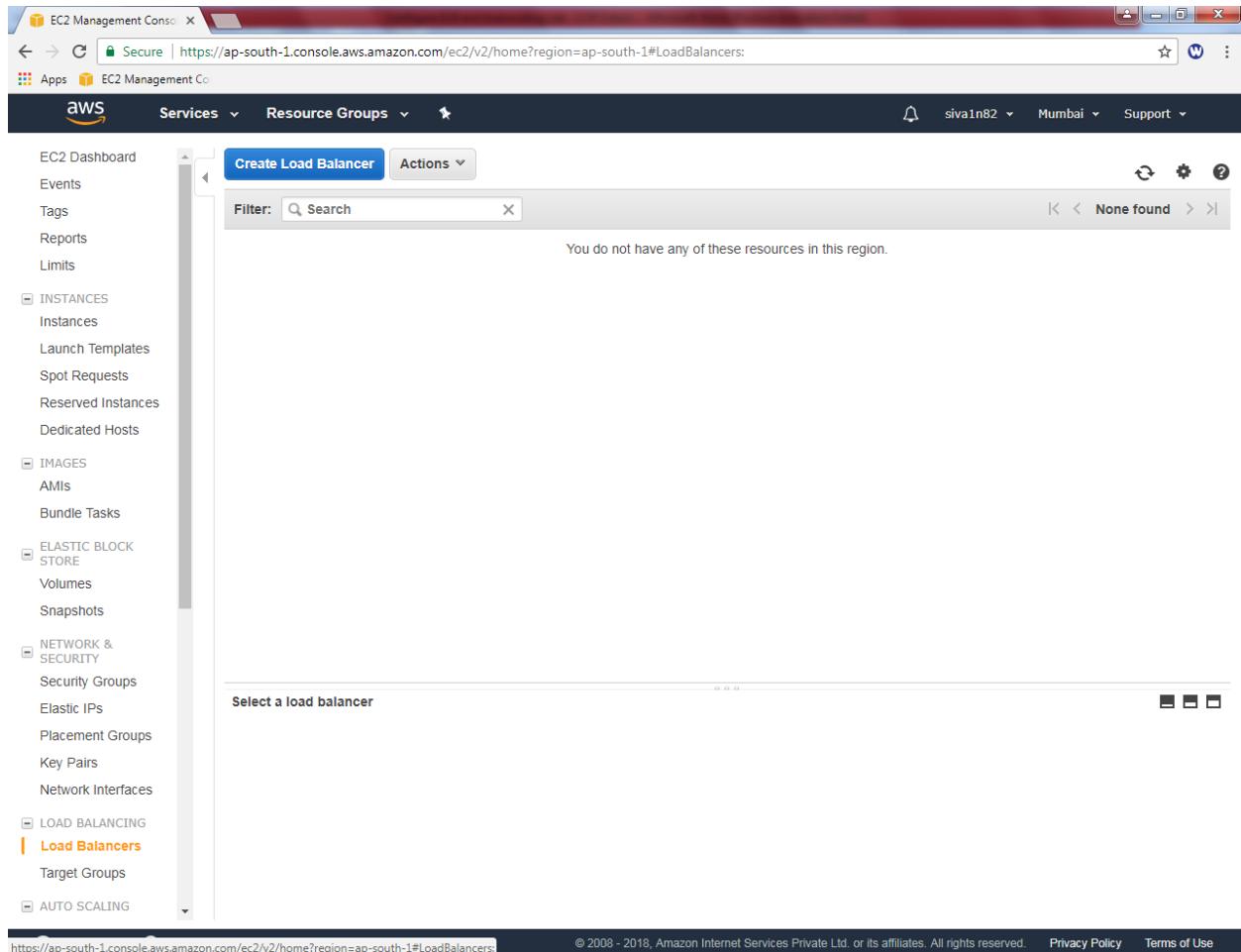
Able to access webserver2 publicly



Able to access webserver3 publicly



Now we need to configure Load balancer. In EC2 dashboard, click "Load balancers"



Click “Create Load balancer”

Click “classic Load balancer”

The screenshot shows the AWS EC2 Management Console with the URL <https://ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#SelectCreateELBWizard:>. The top navigation bar includes 'Services', 'Resource Groups', and user information 'siva1n82 Mumbai Support'. The main content area is titled 'Select load balancer type' and describes three types of load balancers: Application Load Balancer, Network Load Balancer, and Classic Load Balancer. Each section has a 'Create' button. The 'Classic Load Balancer' section is labeled 'PREVIOUS GENERATION for HTTP, HTTPS, and TCP' and features a yellow-bordered 'Create' button.

Select load balancer type

Elastic Load Balancing supports three types of load balancers: Application Load Balancers, Network Load Balancers (new), and Classic Load Balancers. Choose the load balancer type that meets your needs. [Learn more about which load balancer is right for you](#)

Application Load Balancer	Network Load Balancer	Classic Load Balancer
Create	Create	Create
Choose an Application Load Balancer when you need a flexible feature set for your web applications with HTTP and HTTPS traffic. Operating at the request level, Application Load Balancers provide advanced routing, TLS termination and visibility features targeted at application architectures, including microservices and containers. Learn more >	Choose a Network Load Balancer when you need ultra-high performance and static IP addresses for your application. Operating at the connection level, Network Load Balancers are capable of handling millions of requests per second while maintaining ultra-low latencies. Learn more >	Choose a Classic Load Balancer when you have an existing application running in the EC2-Classic network. Learn more >

[Cancel](#)

[Feedback](#) [English \(US\)](#)

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Load balancer name: SansboundELB

Create LB Inside : Select Sansbound_VPC_Mumbai

In Load balancer protocol select "TCP"

Step 1: Define Load Balancer

Basic Configuration

This wizard will walk you through setting up a new load balancer. Begin by giving your new load balancer a unique name so that you can identify it from other load balancers you might create. You will also need to configure ports and protocols for your load balancer. Traffic from your clients can be routed from any load balancer port to any port on your EC2 instances. By default, we've configured your load balancer with a standard web server on port 80.

Load Balancer name: SansboundELB
Create LB Inside: vpc-09fe2261 (10.0.0.0/16) | Sansbound_VPC_Mumbai

Create an internal load balancer: (what's this?)
Enable advanced VPC configuration:

Listener Configuration:

Load Balancer Protocol	Load Balancer Port	Instance Protocol	Instance Port
TCP	80	TCP	80

Select Subnets

You will need to select a Subnet for each Availability Zone where you wish traffic to be routed by your load balancer. If you have instances in only one Availability Zone, please select at least two Subnets in different Availability Zones to provide higher availability for your load balancer.

VPC vpc-09fe2261 (10.0.0.0/16) | Sansbound_VPC_Mumbai

Please select at least two Subnets in different Availability Zones to provide higher availability for your load balancer.

Available subnets

Actions	Availability Zone	Subnet ID	Subnet CIDR	Name
+ <input checked="" type="checkbox"/>	ap-south-1b	subnet-07d1c44a	10.0.2.0/24	Sansbound_Mumbai_Public_subnet

Next: Assign Security Groups

Click “+” symbol to select the subnet.

You can able to see the 10.0.2.0/24 subnet has been selected.

Step 1: Define Load Balancer

Please use this wizard to configure ports and protocols for your load balancer. Traffic from your clients can be routed from any load balancer port to any port on your EC2 instances. By default, we've configured your load balancer with a standard web server on port 80.

Load Balancer name: SansboundELB

Create LB Inside: vpc-09fe2261 (10.0.0.0/16) | Sansbound_VPC_Mumbai

Create an internal load balancer: (what's this?)

Enable advanced VPC configuration:

Listener Configuration:

Load Balancer Protocol	Load Balancer Port	Instance Protocol	Instance Port
TCP	80	TCP	80

Select Subnets

You will need to select a Subnet for each Availability Zone where you wish traffic to be routed by your load balancer. If you have instances in only one Availability Zone, please select at least two Subnets in different Availability Zones to provide higher availability for your load balancer.

VPC vpc-09fe2261 (10.0.0.0/16) | Sansbound_VPC_Mumbai

Please select at least two Subnets in different Availability Zones to provide higher availability for your load balancer.

Available subnets				
Actions	Availability Zone	Subnet ID	Subnet CIDR	Name
—	ap-south-1a	subnet-07d1c44a	10.0.2.0/24	Sansbound_Mumbai_Public_subnet

Selected subnets				
Actions	Availability Zone	Subnet ID	Subnet CIDR	Name
—	ap-south-1b	subnet-07d1c44a	10.0.2.0/24	Sansbound_Mumbai_Public_subnet

Cancel **Next: Assign Security Groups**

Click "Next".

Select "ELB-Sec-Group"

The screenshot shows the AWS EC2 Management Console interface. The browser address bar displays a secure connection to <https://ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#CreateELBWizard>. The AWS logo is at the top left, followed by 'Services' and 'Resource Groups'. The user 'siva1n82' is logged in from 'Mumbai'. A navigation bar at the top right includes 'Support'.

The main content area shows the 'Step 2: Assign Security Groups' page of a wizard. The steps are numbered 1 through 7: 1. Define Load Balancer, 2. Assign Security Groups (which is highlighted in orange), 3. Configure Security Settings, 4. Configure Health Check, 5. Add EC2 Instances, 6. Add Tags, 7. Review.

A message at the top states: "You have selected the option of having your Elastic Load Balancer inside of a VPC, which allows you to assign security groups to your load balancer. Please select the security groups to assign to this load balancer. This can be changed at any time."

Below this, there is a section titled "Assign a security group:" with two radio button options: "Create a new security group" (unchecked) and "Select an existing security group" (checked). A "Filter" input field is set to "VPC security groups".

A table lists existing security groups:

Security Group ID	Name	Description	Actions
sg-6a3ed501	default	default VPC security group	Copy to new
sg-437e8b28	ELB-Sec-Group	ELB-Sec-Group	Copy to new
sg-a61bf0cd	Mumbai_Linux_Sec_Group	Mumbai_Linux_Sec_Group	Copy to new

At the bottom of the page are buttons for "Cancel", "Previous", and "Next: Configure Security Settings".

Footer links include "Feedback", "English (US)", "© 2008 - 2018, Amazon Internet Services Private Ltd. or its affiliates. All rights reserved.", "Privacy Policy", and "Terms of Use".

Click “Next”.

Click “Next”.

The screenshot shows the AWS EC2 Management Console with the URL <https://ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#CreateELBWizard>. The navigation bar includes 'Services' (selected), 'Resource Groups', and 'Support'. The top menu has 'AWS', 'Services', 'Resource Groups', and user information 'sivaIn82', 'Mumbai', and 'Support'. Below the menu, a progress bar shows steps 1 through 7: 1. Define Load Balancer, 2. Assign Security Groups, 3. Configure Security Settings (selected), 4. Configure Health Check, 5. Add EC2 Instances, 6. Add Tags, 7. Review. A callout box highlights a warning: **⚠ Improve your load balancer's security. Your load balancer is not using any secure listener.** It advises using HTTPS or SSL for secure connections and provides links to 'Basic Configuration' and 'Configure Health Check'. At the bottom, there are 'Cancel', 'Previous', and 'Next: Configure Health Check' buttons, along with 'Feedback' and language settings ('English (US)').

Click “Next”.

Step 4: Configure Health Check

Your load balancer will automatically perform health checks on your EC2 instances and only route traffic to instances that pass the health check. If an instance fails the health check, it is automatically removed from the load balancer. Customize the health check to meet your specific needs.

Ping Protocol: TCP
Ping Port: 80

Advanced Details

Setting	Value
Response Timeout	5 seconds
Interval	30 seconds
Unhealthy threshold	2
Healthy threshold	10

Cancel Previous Next: Add EC2 Instances

Need to click Three linux instances to add in load balancer.

Step 5: Add EC2 Instances

The table below lists all your running EC2 Instances. Check the boxes in the Select column to add those instances to this load balancer.

VPC vpc-09fe2261 (10.0.0.0/16) | Sansbound_VPC_Mumbai

Select	Instance	Name	State	Security groups	Zone	Subnet ID	Subnet CIDR
<input type="checkbox"/>	i-027fd84f8041bad2f	Webserver1	running	ELB-Sec-Group	ap-south-1b	subnet-07d1c44a	10.0.2.0/24
<input type="checkbox"/>	i-01938dfc6a72ebbf	Webserver3	running	Mumbai_Linux_Sec_Group	ap-south-1b	subnet-07d1c44a	10.0.2.0/24
<input type="checkbox"/>	i-0b9ae675b13e5f41a	Webserver2	running	Mumbai_Linux_Sec_Group	ap-south-1b	subnet-07d1c44a	10.0.2.0/24

Availability Zone Distribution
3 instances in ap-south-1b

Enable Cross-Zone Load Balancing (i)
 Enable Connection Draining (i) seconds

[Cancel](#) [Previous](#) [Next: Add Tags](#)

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Click “Next”.

In Add tags, Key as Name and value as “Webserver”

The screenshot shows the AWS EC2 Management Console interface. At the top, there's a navigation bar with links for 'Services', 'Resource Groups', and 'Support'. On the right side of the header, it shows the user 'siva1n82' and the location 'Mumbai'. Below the header, a progress bar indicates 'Step 6: Add Tags' is active, with seven steps in total: 1. Define Load Balancer, 2. Assign Security Groups, 3. Configure Security Settings, 4. Configure Health Check, 5. Add EC2 Instances, 6. Add Tags (which is underlined), and 7. Review.

Step 6: Add Tags

Apply tags to your resources to help organize and identify them.

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	Value
Name	Webserver

Create Tag

At the bottom of the page, there are buttons for 'Cancel', 'Previous', and a prominent blue 'Review and Create' button.

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Click "Review and create".

Step 7: Review

Please review the load balancer details before continuing

▼ Define Load Balancer [Edit load balancer definition](#)

- Load Balancer name: SansboundELB
- Scheme: internet-facing
- Port Configuration: 80 (TCP) forwarding to 80 (TCP)

▼ Configure Health Check [Edit health check](#)

- Ping Target: TCP-80
- Timeout: 5 seconds
- Interval: 30 seconds
- Unhealthy threshold: 2
- Healthy threshold: 10

▼ Add EC2 Instances [Edit instances](#)

- Cross-Zone Load Balancing: Enabled
- Connection Draining: Enabled, 300 seconds
- Instances: i-027fd84f8041bad2f (Webserver1), i-01938dfc6a72ebbf (Webserver3), i-0b9ae675b13e5f41a (Webserver2)

▼ VPC Information [Edit subnets](#)

- VPC: vpc-09fe2261 (Sansbound_VPC_Mumbai)
- Subnets: subnet-07d1c44a (Sansbound_Mumbai_Public_subnet)

▼ Security groups [Edit security groups](#)

- Security groups: sg-437e8b28

▼ Add Tags [Edit Tags](#)

- Name: Webserver

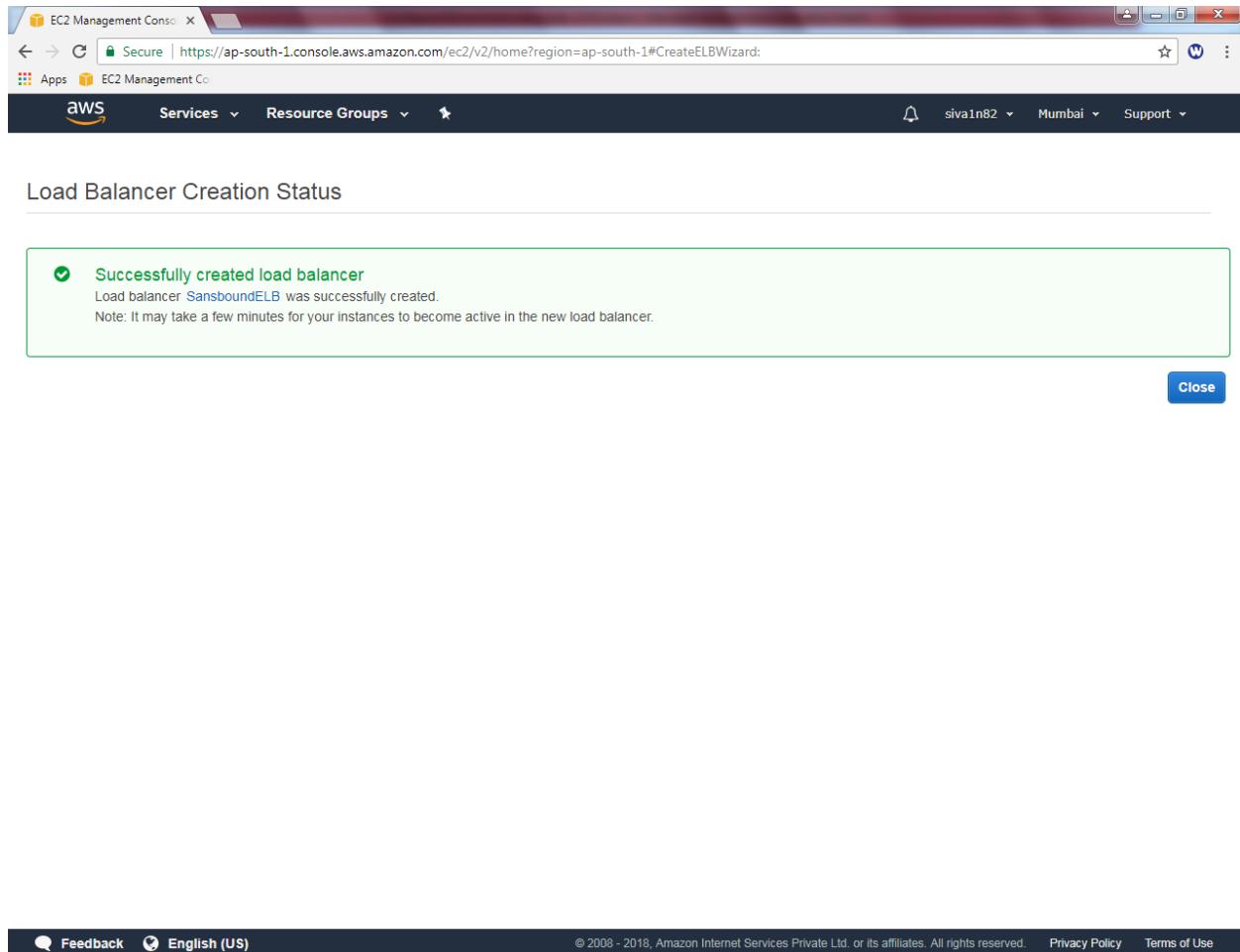
[Cancel](#) [Previous](#) [Create](#)

[Feedback](#) [English \(US\)](#)

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Click "create".

Now load balancer has been successfully created.



Click load balancer, Click “Instances”, to view the instance status. Click refresh frequently to get the status of instance. By default it is in out of service state.

Load balancer: SansboundELB

Instance ID	Name	Availability Zone	Status	Actions
i-0756ca6e121199f8f	Webserver2	ap-south-1b	OutOfService ⓘ	Remove from Load Balancer
i-0b36b45d2fc5148f0	Webserver3	ap-south-1b	OutOfService ⓘ	Remove from Load Balancer
i-01a7d4fe9f1e5f337	Webserver1	ap-south-1b	OutOfService ⓘ	Remove from Load Balancer

Availability Zone	Subnet ID	Subnet CIDR	Instance Count	Healthy?	Actions
ap-south-1b	subnet-07d1c44a	10.0.2.0/24	3	No (Availability Zone contains no healthy targets)	-

Click refresh and wait for 1-2 minutes It should be “**In service**” instead of out of service.

The screenshot shows the AWS EC2 Management Console interface. The left sidebar navigation includes: EC2 Dashboard, Events, Tags, Reports, Limits, INSTANCES (Instances, Launch Templates, Spot Requests, Reserved 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 (Target Groups, Load Balancers - selected), and AUTO SCALING (Launch Configurations). The main content area displays the 'Load balancer: SansboundELB' configuration. The 'Instances' tab is active, showing the following table:

Instance ID	Name	Availability Zone	Status	Actions
i-0756ca6e121199f8f	Webserver2	ap-south-1b	InService	Remove from Load Balancer
i-0b36b45d2fc5148f0	Webserver3	ap-south-1b	InService	Remove from Load Balancer
i-01a7d4fe9f1e5f37	Webserver1	ap-south-1b	InService	Remove from Load Balancer

Below the instances table is another table for 'Edit Availability Zones':

Availability Zone	Subnet ID	Subnet CIDR	Instance Count	Healthy?	Actions
ap-south-1b	subnet-07d1c44a	10.0.2.0/24	3	Yes	-

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Copy the URL and try to connect from chrome.

The screenshot shows the AWS EC2 Management Console interface. The left sidebar navigation includes EC2 Dashboard, Events, Tags, Reports, Limits, Instances (Instances, Launch Templates, Spot Requests, Reserved 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 (Load Balancers, Target Groups), and Auto Scaling (Launch Configurations). The 'Load Balancers' section is currently selected. The main content area displays a table of existing load balancers. One entry, 'SansboundELB', is selected. The detailed view for 'SansboundELB' shows the following configuration:

Name	DNS name	VPC ID	Availability Zones	Type
SansboundELB	SansboundELB-34376818.ap-south-1.elb.amazonaws.com	vpc-09fe2261	ap-south-1b	classic

Description tab (selected):

Name	DNS name	Creation time	Hosted zone
SansboundELB	SansboundELB-34376818.ap-south-1.elb.amazonaws.com	February 9, 2018 at 9:40:10 AM UTC+5:30	ZP97RAFLXTNZK

Basic Configuration section:

Name	Type	Scheme	Availability Zones	Creation time	Hosted zone	Status	VPC
SansboundELB	Classic (Migrate Now)	internet-facing	subnet-07d1c44a - ap-south-1b	February 9, 2018 at 9:40:10 AM UTC+5:30	ZP97RAFLXTNZK	3 of 3 instances in service	vpc-09fe2261

Port Configuration section:

Port Configuration
80 (TCP) forwarding to 80 (TCP) Stickiness options not available for TCP protocols

Security section:

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We are able to connect the server successfully.

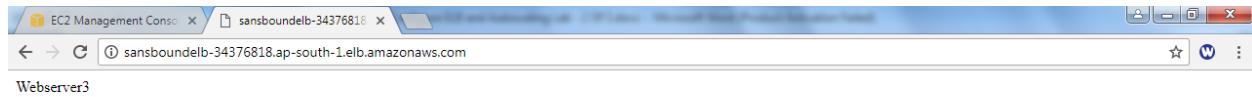
Webserver1 is connected.



Webserver1

We are able to connect the server successfully.

Webserver3 is connected.



We are able to connect the server successfully.

Webserver2 is connected.

