

**Batch: B1(CC\_1) Roll No.:16010121045**  
**Experiment / assignment / tutorial No.4**

**Grade: AA / AB / BB / BC / CC / CD / DD**  
**Signature of the Staff In-charge with date**

## Experiment No: 4

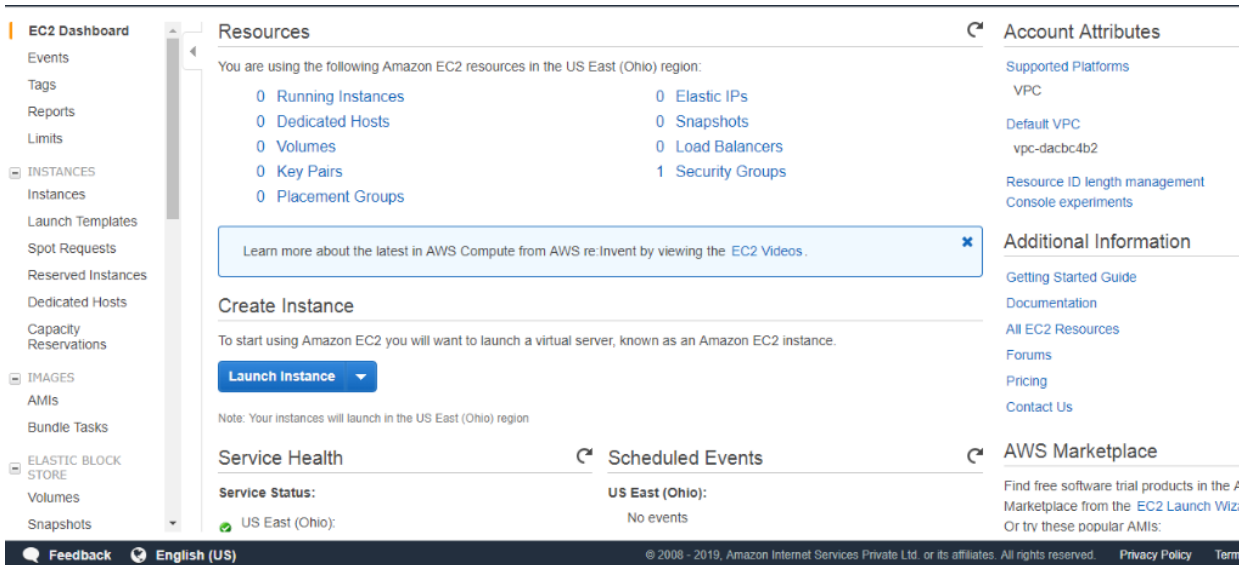
**Title: Study Experiment (Case Study)**

**Aim and Objective of the Experiment:**

Explore AWS

Refer to the lab instruction and add your screenshots

- 1) Sign in into AWS console, click into EC2 service and click launch instance button to start a new service.



The screenshot displays the AWS Management Console interface. On the left, a navigation menu includes 'EC2 Dashboard', 'INSTANCES' (with sub-items like Instances, Launch Templates, etc.), 'IMAGES' (with sub-items like AMIs, Bundle Tasks), and 'ELASTIC BLOCK STORE' (with sub-items like Volumes, Snapshots). The main panel shows the 'Resources' section for the 'US East (Ohio)' region, listing various EC2 resources with their counts. A 'Launch Instance' button is prominently displayed under the 'Create Instance' section. The right-hand side of the console shows 'Account Attributes' and 'Additional Information' links.

## 2) Now select a predefined AMI (Amazon Machine Images) and select an instance type.

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 1: Choose an Amazon Machine Image (AMI) Cancel and Exit

Quick Start

My AMIs

AWS Marketplace

Community AMIs

☒ Free tier only ⓘ

Amazon Linux 2 AMI (HVM), SSD Volume Type - ami-04328208f4f0cf1fe (64-bit x86) / ami-0cc848d82172af (64-bit Arm) Select

Amazon Linux 2 comes with five years support. It provides Linux kernel 4.14 tuned for optimal performance on Amazon EC2, systemd 219, GCC 7.3, Glibc 2.26, Binutils 2.29.1, and the latest software packages through extras.

Root device type: ebs Virtualization type: hvm

64-bit (x86)  
64-bit (Arm)

Amazon Linux AMI 2018.03.0 (HVM), SSD Volume Type - ami-0cd3dfa4e37921605 Select

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

64-bit (x86)

Red Hat Enterprise Linux 7.6 (HVM), SSD Volume Type - ami-0b500ef59d8335eee (64-bit x86) / ami-0302c1ecc74930ba5 (64-bit Arm) Select

Red Hat Enterprise Linux version 7.6 (HVM), EBS General Purpose (SSD) Volume Type

64-bit (x86)  
64-bit (Arm)

Services Resource Groups Akshita Gupta Ohio Sup

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 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 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 ⓘ	Storage Performance ⓘ
<input type="checkbox"/>	General purpose	t2.nano	1	0.5	EBS only	-	Low to Moderate	Low to Moderate
<input checked="" type="checkbox"/>	General purpose	t2.micro Free tier eligible	1	1	EBS only	-	Low to Moderate	Low to Moderate
<input type="checkbox"/>	General purpose	t2.small	1	2	EBS only	-	Low to Moderate	Low to Moderate
<input type="checkbox"/>	General purpose	t2.medium	2	4	EBS only	-	Low to Moderate	Low to Moderate
<input type="checkbox"/>	General purpose	t2.large	4	8	EBS only	-	Low to Moderate	Low to Moderate

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

### 3) Configure your Instance with network, no.of instances, subnet IP and other advance details.

1. Choose AMI2. Choose Instance Type3. Configure Instance4. Add Storage5. Add Tags6. Configure Security Group7. Review

#### 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 instance, and more.

Number of instances

1

Launch into Auto Scaling Group

Purchasing option

☐ Request Spot instances

Network

vpc-dacbc4b2 (default)

Create new VPC

Subnet

No preference (default subnet in any Availability Zone)

Create new subnet

Auto-assign Public IP

Use subnet setting (Enable)

Placement group

☐ Add instance to placement group

Capacity Reservation

Open

Create new Capacity Reservation

IAM role

None

Create new IAM role

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.

Elastic Inference

☐ Add an Elastic Inference accelerator  
Additional charges apply.

T2/T3 Unlimited

☐ Enable  
Additional charges may apply

Advanced Details

User data

☒ As text ☐ As file ☐ Input is already base64 encoded  
(Optional)

Cancel

Previous

Review and Launch

Next: Add

### 3) After clicking Next, add EBS instance on the EC2 instance and click delete on termination which will delete the stored in EBS after the instance is terminated and add tags to your instance.

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

#### 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-040ce2c3f0d1a8f58	8	Magnetic (standard)	N/A	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

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

#### Step 5: Add Tags

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver. A copy of a tag can be applied to volumes, instances or both.

Tags will be applied to all instances and volumes. [Learn more](#) about tagging your Amazon EC2 resources.

Key (127 characters maximum)	Value (255 characters maximum)	Instances ⓘ	Volumes ⓘ	
Name	MyEc2webserver	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	✕
Department	Developer	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	✕

Add another tag (Up to 50 tags maximum)

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

Feedback English (US)

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### 5) Configure security group and review your instance

1. Choose AMI
2. Choose Instance Type
3. Configure Instance
4. Add Storage
5. Add Tags
6. Configure Security Group
7. Review

### Step 6: Configure Security Group

A security group is a set of firewall rules that control the traffic for your instance. On this page, you can add rules to allow specific traffic to reach your instance. For example, if you want to set up a web server and allow Internet traffic to reach your instance, add rules that allow unrestricted access to the HTTP and HTTPS ports. You can create a new security group or select from an existing one below. [Learn more](#) about Amazon EC2 security groups.

**Assign a security group:** ☒ Create a **new** security group  
☐ Select an **existing** security group

**Security group name:**

**Description:**

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, ::/0	e.g. SSH for Admin Desktop
HTTPS	TCP	443	Custom 0.0.0.0/0, ::/0	e.g. SSH for Admin Desktop

[Add Rule](#)

[Cancel](#) [Previous](#) [Review and Launch](#)

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1. Choose AMI
2. Choose Instance Type
3. Configure Instance
4. Add Storage
5. Add Tags
6. Configure Security Group
7. Review

### Step 7: Review Instance Launch

**Amazon Linux AMI 2018.03.0 (HVM), SSD Volume Type - ami-0cd3dfa4e37921605**  
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.

**Free tier eligible**  
Root Device Type: ebs Virtualization type: hvm

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

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

**Security Groups** [Edit security groups](#)

**Security group name:** WebServer  
**Description:** WebServer

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	
HTTPS	TCP	443	0.0.0.0/0	
HTTPS	TCP	443	::/0	

**Instance Details** [Edit instance details](#)

[Cancel](#) [Previous](#) [Launch](#)

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6) Create and Download the key pair and launch your instance

### 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**

ec2instance

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

aws
Services ▾ Resource Groups ▾
🔔 Akshita Gupta ▾ Ohio ▾ Support ▾

EC2 Dashboard

Events

Tags

Reports

Limits

---

INSTANCES

Instances

Launch Templates

Spot Requests

Reserved Instances

Dedicated Hosts

Capacity Reservations

---

IMAGES

AMIs

Bundle Tasks

---

ELASTIC BLOCK STORE

Volumes

Snapshots

Lifecycle Manager

Launch Instance ▾ Connect ▾ Actions ▾
🔍 Filter by tags and attributes or search by keyword
🔔 1 to 1 of 1

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)	IPv4 Public IP	IPv6 IPs	Key Name
MyEc2webs...	i-035edf8125b21e39	t2.micro	us-east-2c	running	2/2 checks ...	None	ec2-3-16-147-220.us-e...	3.16.147.220	-	ec2instan

Instance: **i-035edf8125b21e39 (MyEc2webserver)** Public DNS: ec2-3-16-147-220.us-east-2.compute.amazonaws.com

**Description**

Instance ID	i-035edf8125b21e39
Instance state	running
Instance type	t2.micro
Elastic IPs	

**Public DNS (IPv4)** ec2-3-16-147-220.us-east-2.compute.amazonaws.com

**IPv4 Public IP** 3.16.147.220

**IPv6 IPs** -

**Private DNS** ip-172-31-44-91.us-east-2.compute.internal

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○

7) Download Putty and PuttyKeyGen follow the steps below and then open the EC2 file.



download putty and puttygen



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Videos

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Images

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More

Settings

About 76,300 results (0.37 seconds)

**Download PuTTY: latest release (0.70) - Chiark**

<https://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html> ▼

Jul 19, 2018 - This page contains download links for the latest released version of PuTTY. Current release: **puttygen.exe** (a RSA and DSA key generation utility).

[Download PuTTY: release 0.70](#) · [PuTTY FAQ](#) · [PuTTY Feedback and Bug ...](#) · [Docs](#)

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[winscp](#)

[putty 0.7 release notes](#)

[putty tutorial](#)

[putty commands](#)

[tera term](#)

- Download the putty.exe and puttygen.exe file.

**putty.exe (the SSH and Telnet client itself)**

32-bit:

[putty.exe](#)

[\(or by FTP\)](#)

[\(signature\)](#)

64-bit:

[putty.exe](#)

[\(or by FTP\)](#)

[\(signature\)](#)

**pscp.exe (an SCP client, i.e. command-line secure file copy)**

32-bit:

[pscp.exe](#)

[\(or by FTP\)](#)

[\(signature\)](#)

64-bit:

[pscp.exe](#)

[\(or by FTP\)](#)

[\(signature\)](#)

**psftp.exe (an SFTP client, i.e. general file transfer sessions much like FTP)**

32-bit:

[psftp.exe](#)

[\(or by FTP\)](#)

[\(signature\)](#)

64-bit:

[psftp.exe](#)

[\(or by FTP\)](#)

[\(signature\)](#)

**puttytel.exe (a Telnet-only client)**

32-bit:

[puttytel.exe](#)

[\(or by FTP\)](#)

[\(signature\)](#)

64-bit:

[puttytel.exe](#)

[\(or by FTP\)](#)

[\(signature\)](#)

**plink.exe (a command-line interface to the PuTTY back ends)**

32-bit:

[plink.exe](#)

[\(or by FTP\)](#)

[\(signature\)](#)

64-bit:

[plink.exe](#)

[\(or by FTP\)](#)

[\(signature\)](#)

**pageant.exe (an SSH authentication agent for PuTTY, PSCP, PSFTP, and Plink)**

32-bit:

[pageant.exe](#)

[\(or by FTP\)](#)

[\(signature\)](#)

File Key Conversions Help

Key  
No key.

Actions

Generate a public/private key pair Generate

Load an existing private key file Load

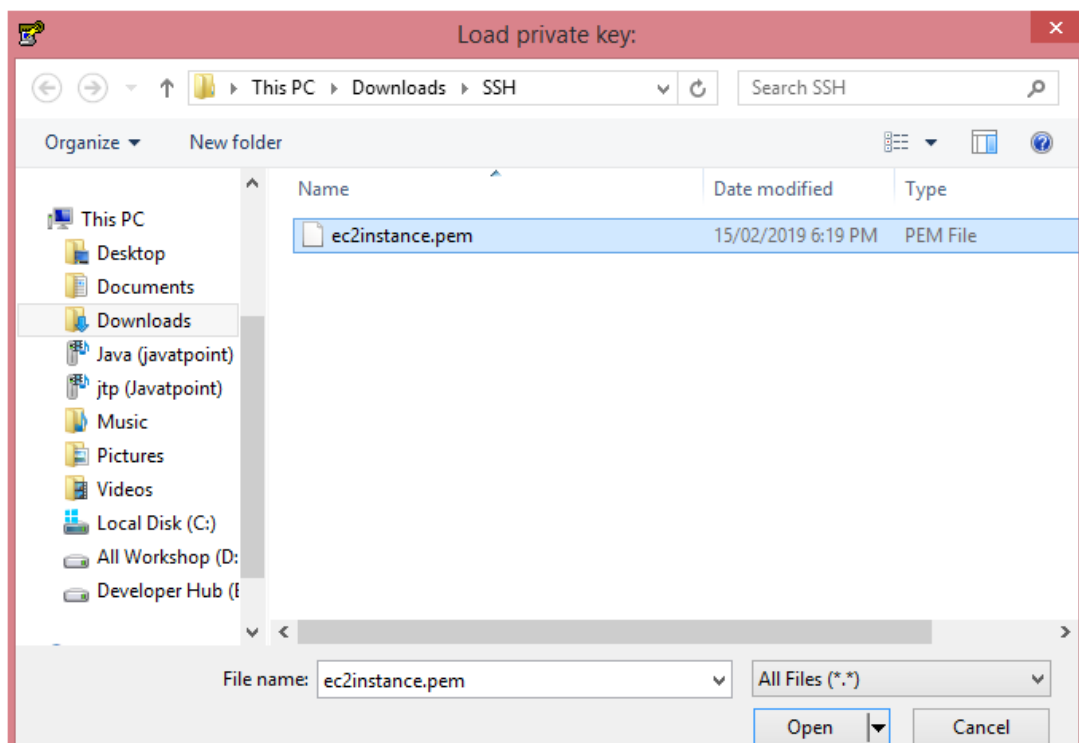
Save the generated key Save public key Save private key

Parameters

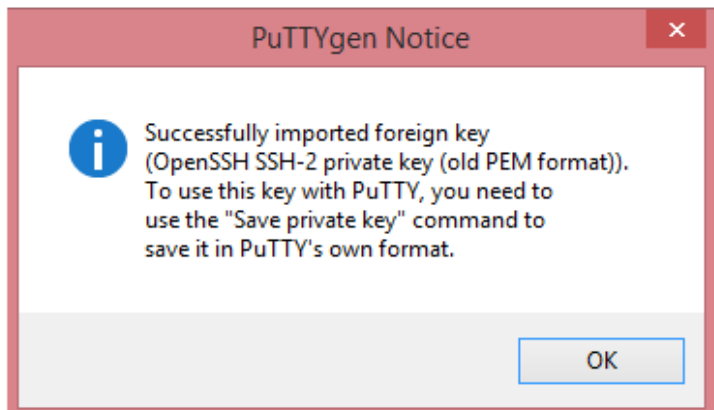
Type of key to generate:  
☒ RSA ☐ DSA ☐ ECDSA ☐ ED25519 ☐ SSH-1 (RSA)

Number of bits in a generated key:

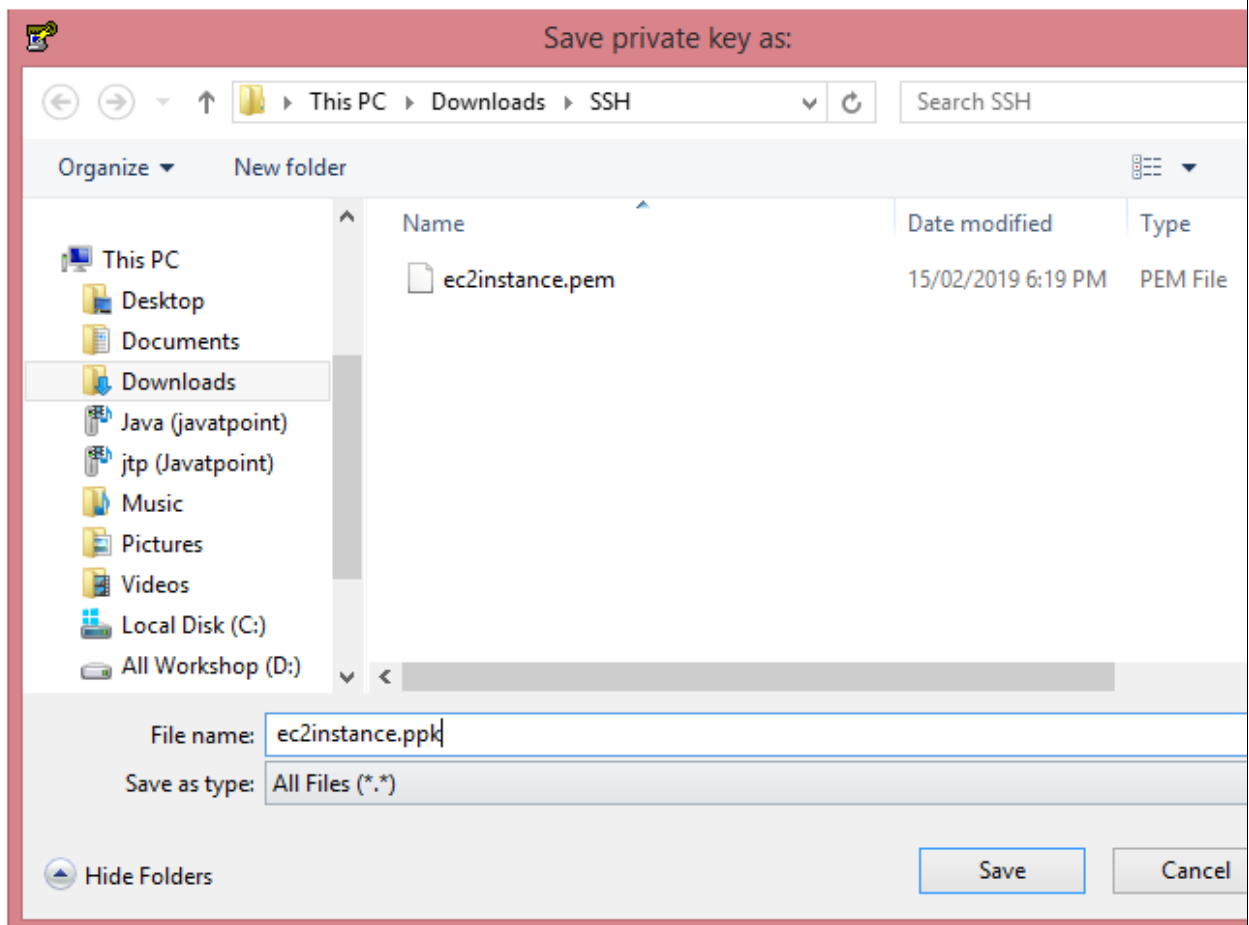
- o Open the key-pair file, i.e., ec2instance.pem.



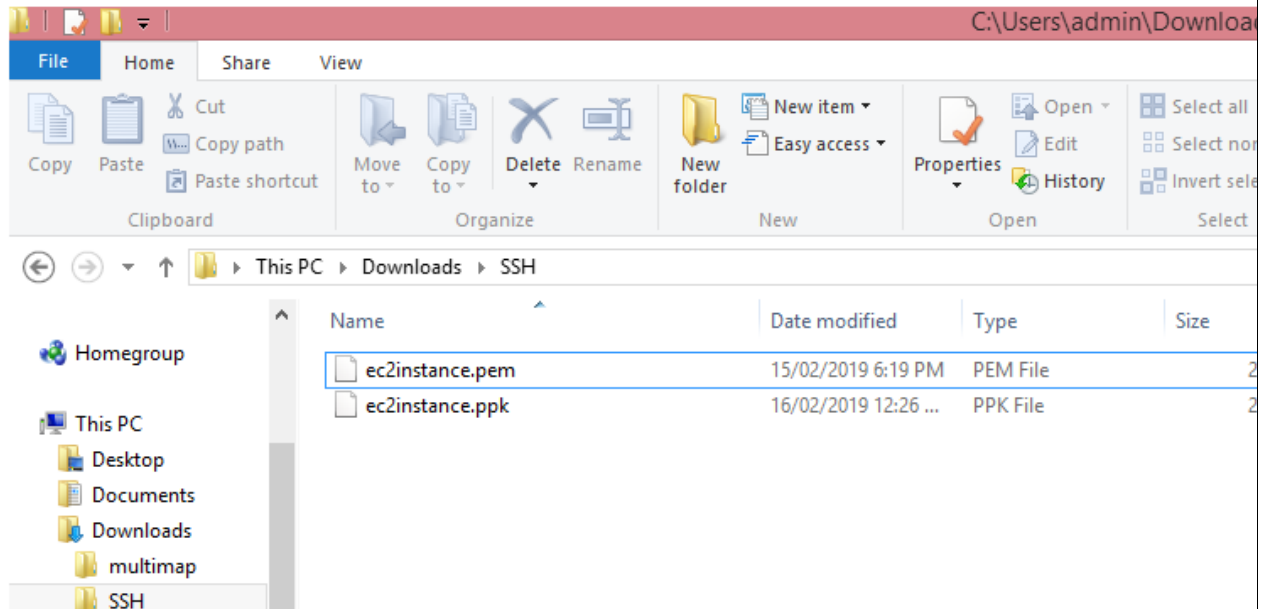




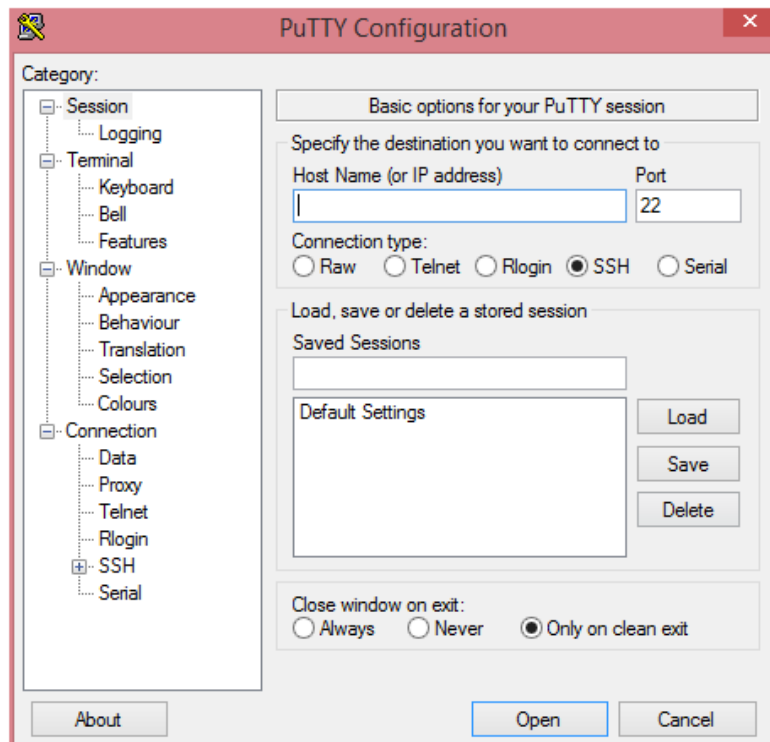
- Click on the Save private key. Change the file extension from pem to ppk.



- 8) Click on the Save button, Move to the download directory where the ppk file is downloaded.



- Open the Putty.



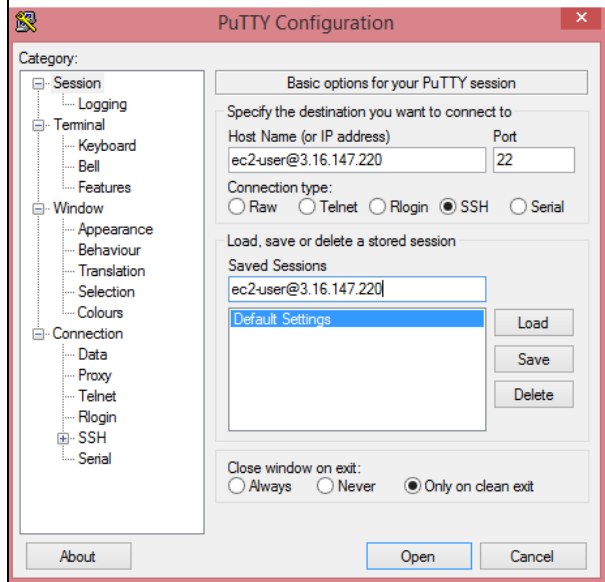
9) Move the EC2 instance and copy its IP address

Instance: **i-035edf6125bf21e39 (MyEc2webserver)** Public DNS: **ec2-3-16-147-220.us-east-2.compute.amazonaws.com**

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

Instance ID	i-035edf6125bf21e39	Public DNS (IPv4)	ec2-3-16-147-220.us-east-2.compute.amazonaws.com
Instance state	running	IPv4 Public IP	<b>3.16.147.220</b>
Instance type	t2.micro	IPv6 IPs	-
Elastic IPs		Private DNS	ip-172-31-44-91.us-east-2.compute.internal
Availability zone	us-east-2c	Private IPs	172.31.44.91

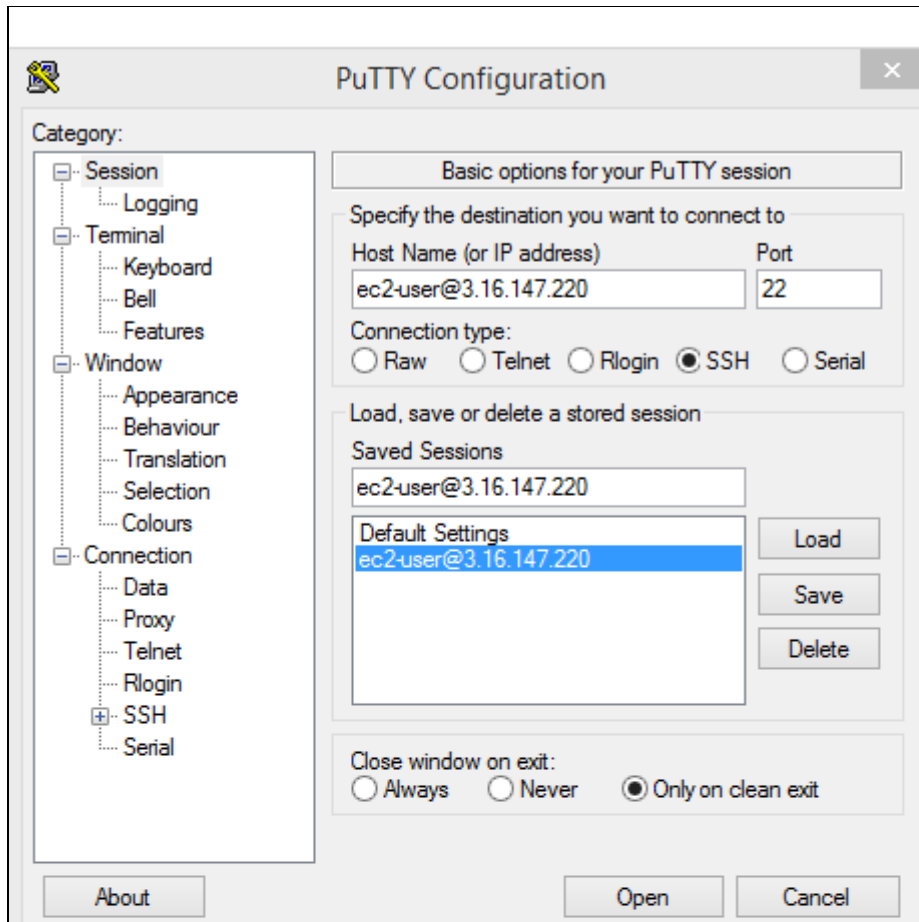
Now, move to the Putty configuration and type `ec2user@`, and then paste the IP address that you have copied in a previous step. Copy the Host Name in Saved Sessions.



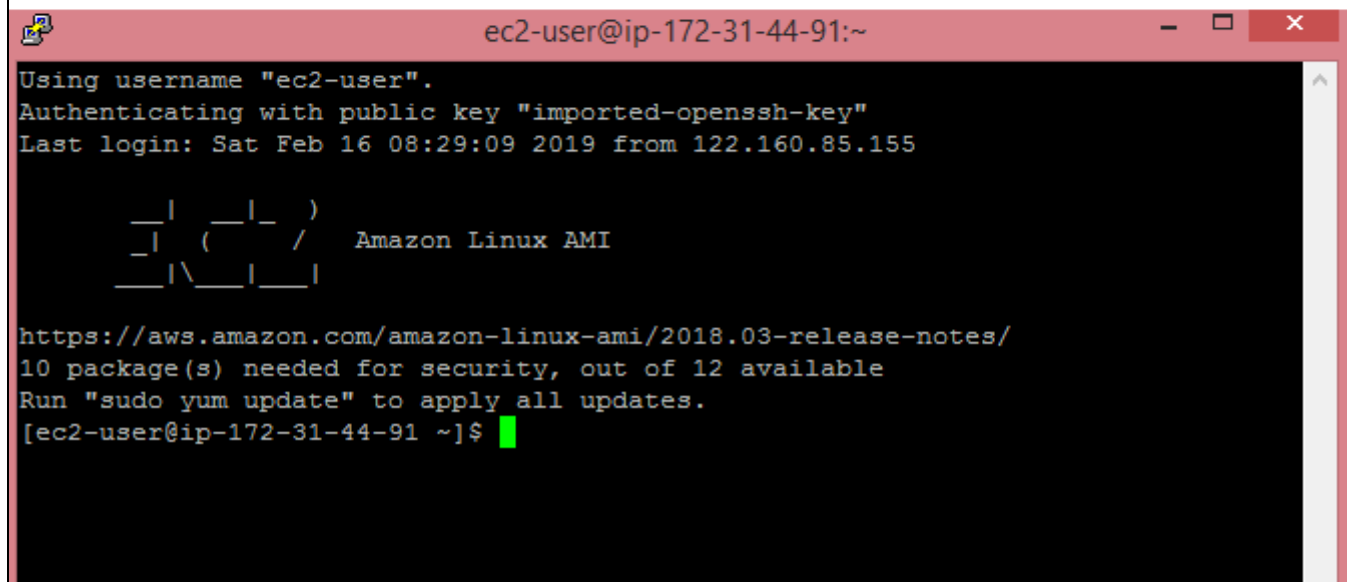
The PuTTY Configuration window shows the following settings:

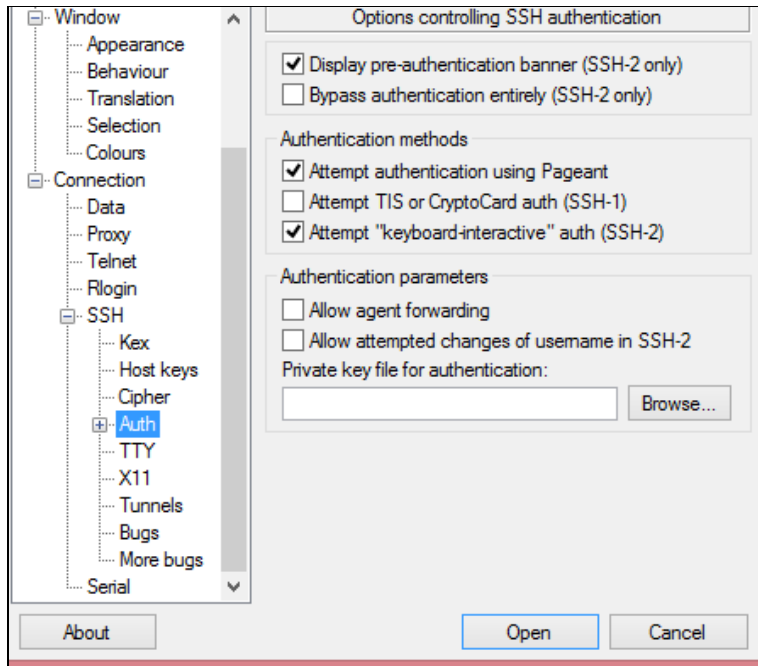
- Category:** Session
- Basic options for your PuTTY session:**
  - Specify the destination you want to connect to:
    - Host Name (or IP address): `ec2-user@3.16.147.220`
    - Port: `22`
  - Connection type: ☒ SSH
  - Load, save or delete a stored session:
    - Saved Sessions: `ec2-user@3.16.147.220`
    - Default Settings (selected)
    - Buttons: Load, Save, Delete
  - Close window on exit: ☒ Only on clean exit
- Buttons: About, Open, Cancel

Now, your Host Name is saved in the default settings.

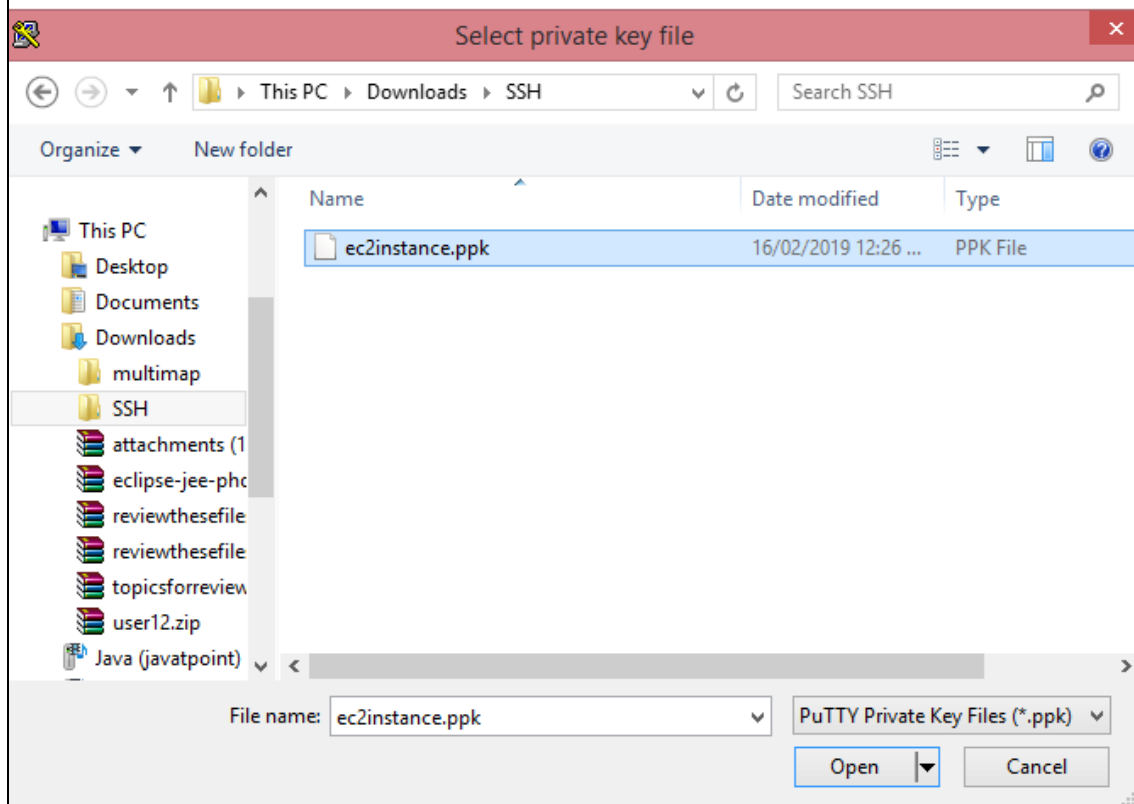


- Click on the Open button to open the Putty window.





- Click on the Browse to open the ppk file.



10) Now we see the following final setup for this by connecting apache server and hosting platform

- Now, we install the apache web server to ensure that an EC2 instance becomes a web server by running a command **yum install httpd -y**.

```
root@ip-172-31-44-91:/home/ec2-user
[root@ip-172-31-44-91 ec2-user]# yum install httpd -y
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.x86_64
--> Processing Dependency: libaprutil-1.so.0()(64bit) for package: httpd-2.2.34-1.16.amzn1.x86_64
--> Processing Dependency: libapr-1.so.0()(64bit) for package: httpd-2.2.34-1.16.amzn1.x86_64
--> Running transaction check
---> Package apr.x86_64 0:1.5.2-5.13.amzn1 will be installed
---> Package apr-util.x86_64 0:1.5.4-6.18.amzn1 will be installed
---> Package apr-util-ldap.x86_64 0:1.5.4-6.18.amzn1 will be installed
---> Package httpd-tools.x86_64 0:2.2.34-1.16.amzn1 will be installed
--> Finished Dependency Resolution

Dependencies Resolved
```

- Run the command **cd /var/www/html**.

```
root@ip-172-31-44-91:/var/www/html
[root@ip-172-31-44-91 ec2-user]# cd /var/www/html
[root@ip-172-31-44-91 html]#
```

- o Run the command **sudo su**, and then run the command **yum update -y** to update the EC2 instance.

```
root@ip-172-31-44-91:/home/ec2-user
(12/12): python27-libs-2.7.15-1.124.amzn1.x86_64.rpm | 6.8 MB 00:00
-----
Total | 15 MB/s | 85 MB 00:05
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Updating : glibc-common-2.17-260.175.amzn1.x86_64 1/23
  Updating : glibc-2.17-260.175.amzn1.x86_64 2/23
  Updating : 1:openssl-1.0.2k-16.146.amzn1.x86_64 3/23
  Updating : krb5-libs-1.15.1-34.44.amzn1.x86_64 4/23
  Updating : python27-2.7.15-1.124.amzn1.x86_64 5/23
  Updating : python27-libs-2.7.15-1.124.amzn1.x86_64 6/23
  Updating : libcurl-7.61.1-7.91.amzn1.x86_64 7/23
  Updating : curl-7.61.1-7.91.amzn1.x86_64 8/23
  Updating : python27-devel-2.7.15-1.124.amzn1.x86_64 9/23
  Updating : aws-cfn-bootstrap-1.4-31.22.amzn1.noarch 10/23
  Updating : amazon-ssm-agent-2.3.274.0-1.amzn1.x86_64 11/23
  Installing : kernel-4.14.97-74.72.amzn1.x86_64 12/23
  Cleanup : python27-devel-2.7.14-1.123.amzn1.x86_64 13/23
  Cleanup : curl-7.53.1-16.84.amzn1.x86_64 14/23
  Cleanup : aws-cfn-bootstrap-1.4-30.21.amzn1.noarch 15/23
  Cleanup : python27-2.7.14-1.123.amzn1.x86_64 16/23
  Cleanup : python27-libs-2.7.14-1.123.amzn1.x86_64 17/23
```

**Conclusion:**

EC2 instances were explored and documented as to how their setup in AWS environment.