



## Assignment: 01

**Practical Title:** Case study on Amazon EC2 and learn about Amazon EC2 web services.

### Objectives:

- To learn Amazon EC2 web services
- To study on Amazon EC2 and learn about Amazon EC2 web services.

### Hardware Requirements:

- Pentium IV with latest configuration

### Software Requirements:

- Ubuntu 20.04

### Theory:

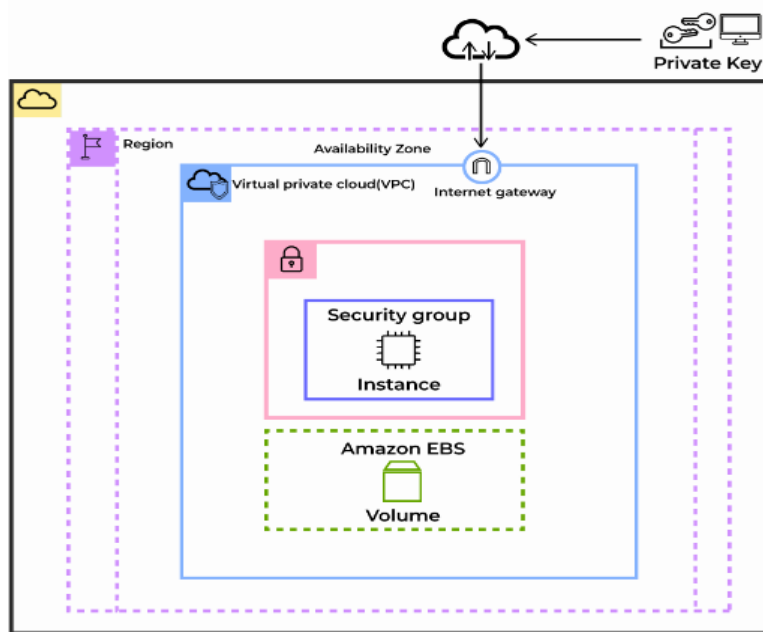
An EC2 instance is nothing but a virtual server in Amazon Web services terminology. It stands for Elastic Compute Cloud. It is a web service where an AWS subscriber can request and provision a compute server in AWS cloud. An on-demand EC2 instance is an offering from AWS where the subscriber/user can rent the virtual server per hour and use it to deploy his/her own applications. The instance will be charged per hour with different rates based on the type of the instance chosen.

AWS provides multiple instance types for the respective business needs of the user. Thus, you can rent an instance based on your own CPU and memory requirements and use it as long as you want. You can terminate the instance when it's no more used and save on costs. This is the most striking advantage of an on-demand instance- you can drastically save on your CAPEX.

### What is Amazon EC2 (Elastic Compute Cloud)?

[Amazon Web service](#) offers EC2 which is a short form of Elastic Compute Cloud (ECC) it is a cloud computing service offered by the Cloud Service Provider AWS. You can deploy your applications in EC2 servers without any worrying about the underlying infrastructure. You configure the EC2-Instance in a very secure manner by using the VPC, [Subnets](#), and [Security groups](#). You can scale the configuration of the EC2 instance you have configured based on the demand of the application by attaching the autoscaling group to the EC2 instance. You can scale up and scale down the instance based on the incoming traffic of the application.

following figure shows the EC2-Instance which is deployed in VPC (Virtual Private Cloud).

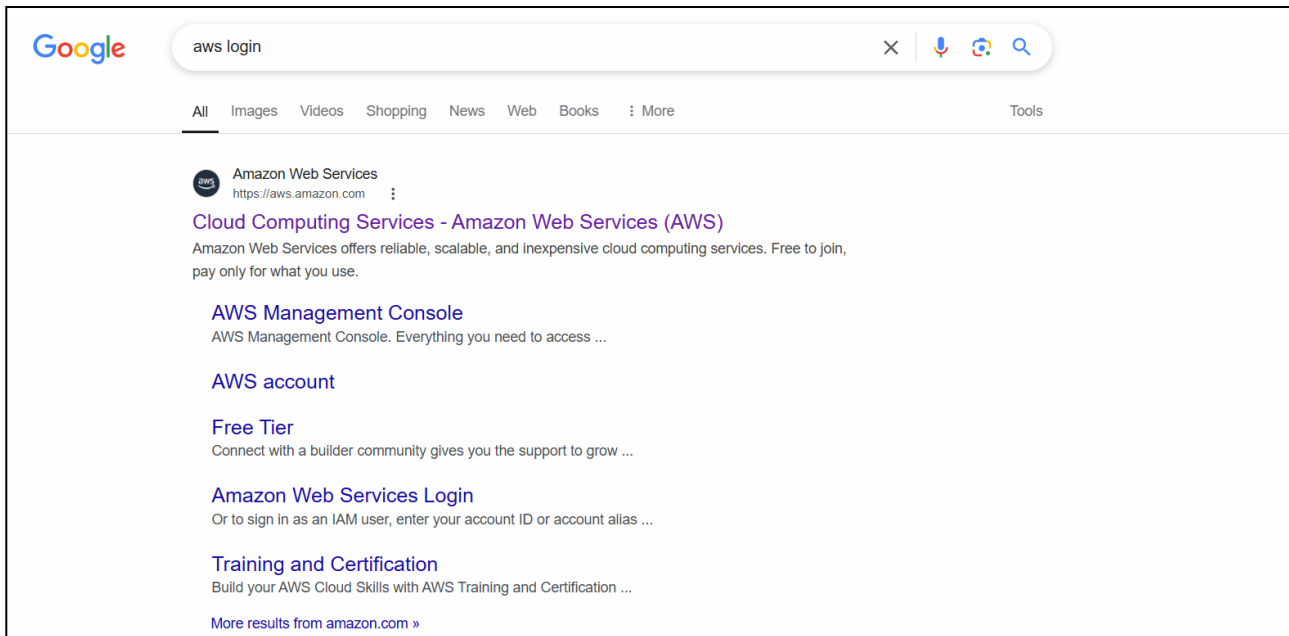


### Use Cases of Amazon EC2 (Elastic Compute Cloud)

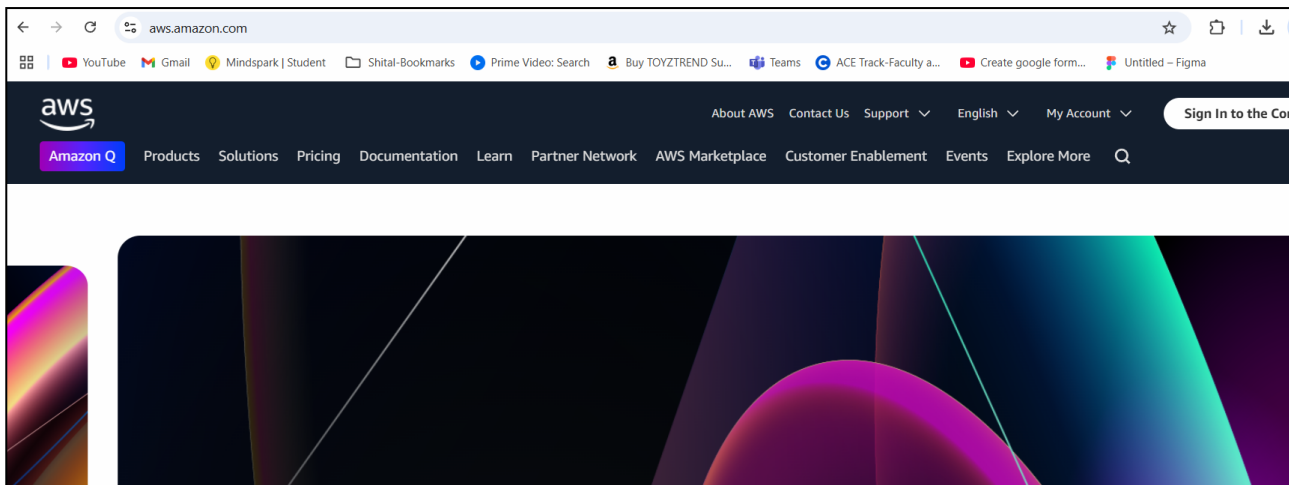
1. **Deploying Application:** In the AWS EC2 instance, you can deploy your application like `.jar`, `.war`, or `.ear` application without maintaining the underlying infrastructure.
1. **Scaling Application:** Once you deployed your web application in the EC2 instance know you can scale your application based upon the demand you are having by scaling the AWS EC2-Instance.
1. **Deploying The ML Models:** You can train and deploy your ML models in the EC2-instance because it offers up to 400 Gbps), and storage services purpose-built to optimize the price performance for ML projects.
1. **Hybrid Cloud Environment:** You can deploy your web application in EC2-Instance and you can connect to the database which is deployed in the on-premises servers.
1. **Cost-Effective:** Amazon EC2-instance is cost-effective so you can deploy your gaming application in the Amazon EC2-Instances

## Steps For Creating EC2 Instance- Take a print from here till end

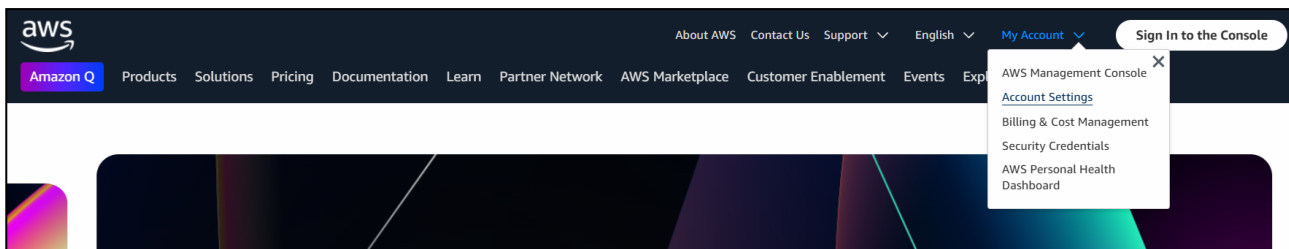
Login to AWS Account



Click on Cloud Computing Service



Then go to My Account and select Account settings



Try the new sign in UI

X

See our new improved Amazon Web Services sign in experience before we officially launch.

Enable new sign in

## Sign in

☒ **Root user**  
Account owner that performs tasks requiring unrestricted access. [Learn more](#)

☐ **IAM user**  
User within an account that performs daily tasks. [Learn more](#)

**Root user email address**  

Next

By continuing, you agree to the [AWS Customer Agreement](#) or other agreement for AWS services, and the [Privacy Notice](#). This site uses essential cookies. See our [Cookie Notice](#) for more information.

## AWS Training and Certification





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The screenshot displays the AWS Management Console interface. The top navigation bar includes the AWS logo, search functionality, and user information for 'United States (N. Virginia)'. The left-hand sidebar contains a menu with categories like Dashboard, Instances, Images, Elastic Block Store, and Network & Security.

The main content area is divided into several sections:

- Resources:** A section titled 'EC2 Global View' showing a summary of EC2 resources in the US East (N. Virginia) Region. It lists instances (running), auto scaling groups, capacity reservations, dedicated hosts, elastic IPs, key pairs, load balancers (with an API Error status), placement groups, security groups, and snapshots.
- Launch instance:** A section providing instructions on how to start a new Amazon EC2 instance. It features a 'Launch instance' button and a 'Migrate a server' link.
- Instance alarms:** A section showing the status of instance alarms, specifically mentioning a signature expiration date and a note about earlier expiration.
- Service health:** A section indicating an error occurred while retrieving service health information, with a link to diagnose the issue using Amazon Q.
- Zones:** A table listing available availability zones in the region, such as us-east-1a and us-east-1az.
- Account attributes:** A section displaying account details, including the default VPC, settings for data protection and security, allowed AMIs, zones, and console preferences.
- Explore AWS:** Promotional banners for Amazon GuardDuty Malware Protection and Spot Instances, highlighting cost savings and performance benefits.





 Asia Pacific (Mumbai) ▼
 Shital ▼

### Then check on Eachening an instance

▼ **Application and OS Images (Amazon Machine Image)** [Info](#)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

Q My Server ✕

**Recents** | **Quick Start**

Amazon Linux  
aws

macOS  
Mac

Ubuntu  
ubuntu

**Windows**  
Microsoft

Red Hat  
Red Hat

SUSE Linux  
SUSE

Debian  
debian

[Browse more AMIs](#)  
Including AMIs from AWS, Marketplace and the Community

**Amazon Machine Image (AMI)**

Microsoft Windows Server 2019 Base

ami-05b4ded3ceb71e470 (64-bit (x86))

Virtualization: hvm ENA enabled: true Root device type: ebs

Free tier eligible

## Creating key pair

▼ **Instance type** [Info](#) | [Get advice](#)

**Instance type**

t2.micro

Family: t2 1 vCPU 1 GiB Memory Current generation: true

On-Demand Windows base pricing: 0.0162 USD per Hour

On-Demand Ubuntu Pro base pricing: 0.0134 USD per Hour On-Demand SUSE base pricing: 0.0116 USD per Hour

On-Demand RHEL base pricing: 0.026 USD per Hour On-Demand Linux base pricing: 0.0116 USD per Hour

Free tier eligible

☐ All generations [Compare instance types](#)

[Additional costs apply for AMIs with pre-installed software](#)

▼ **Key pair (login)** [Info](#)

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

**Key pair name - required**

MyKey ▼ [Create new key pair](#)

For Windows instances, you use a key pair to decrypt the administrator password. You then use the decrypted password to connect to your instance.

Click on create new key pair  
Provide name for key pair(E.g S1.key)  
Then select .pem option  
Then key file downloaded

Launch the instance.  
Instance is successfully created (follow the link)

✔ **Success**  
Successfully initiated launch of instance (i-06130f1ea4c0a85f3)

Select instance and connect to remote server to enable it

**Instances (1/1)** [Info](#) Last updated less than a minute ago [Connect](#) [Instance state](#) [Actions](#) [Launch instances](#)

Find Instance by attribute or tag (case-sensitive) All states

Instance ID = i-06130f1ea4c0a85f3 ✕ [Clear filters](#)

<input checked="" type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
<input checked="" type="checkbox"/>		i-06130f1ea4c0a85f3	Running	t2.micro	Initializing	<a href="#">View alarms</a>	us-east-1d	ec2-44-220-148-25.c

Then click on connect  
Choose RDP agent and click on “download remote desktop file” and “Get password”

### Connect to instance Info

Connect to your instance i-06130f1ea4c0a85f3 (myServer) using any of these options

Session Manager

RDP client

EC2 serial console

Instance ID

i-06130f1ea4c0a85f3 (myServer)

Connection Type

Connect using RDP client

Download a file to use with your RDP client and retrieve your password.

Connect using Fleet Manager

To connect to the instance using Fleet Manager Remote Desktop, the instance. For more information, see [Working with SSM Agent](#)

You can connect to your Windows instance using a remote desktop client of your choice, and by downloading and running the RDP shortcut file below:

Download remote desktop file

When prompted, connect to your instance using the following username and password:

Public DNS

ec2-44-220-148-25.compute-1.amazonaws.com

Username Info

Administrator

Password

[Get password](#)

Upload downloaded key pair file

### Get Windows password Info

Use your private key to retrieve and decrypt the initial Windows administrator password for this instance.

Instance ID

i-06130f1ea4c0a85f3 (myServer)

Key pair associated with this instance

MyKey

Private key

Either upload your private key file or copy and paste its contents into the field below.

Upload private key file

MyKey.pem

1.674KB

Private key contents - optional

-----BEGIN RSA PRIVATE KEY-----  
MIIEogIBAAKCAQEA49MRysEjnmMj/JD+Y5R+s2O8523d7qzifJ/hdh7U5yGKEIZ  
sz+/aJ+uy0wCHof8BpxGil6d9KPWw4Rd+pdEUXs3hkJ6AVpPpPMoUrCr0WHd80O  
AGvU8WUJtIG94JGO+hW4U7ksOgRnnsbQmeLk1E2rJ1v/RNSJ+JHT+JWBFug9rf  
FGdOC9qPwzp+0SmOSgWaAKG2+78rS1b8Z+YEjyqXmTUNNo/chX8LYor/Uy6FHCS  
sgVqUw2q8rHbPU9cM7iwl1gvuQVv9rMfIH9cb5oenFG70CHF37+WhIM9PBgf4sly  
x3DoT8/f23gurYtm3FYHlnjxMDzEQnYovy8KwIDAQABAolBADZHTU/fIBtWR3ab  
TQBwmpcmxe+6p0t8CQvn6Ej9QLQgRX5Hq4VXRMUqdjyd5Uv43g59KtjSEbP9bOd8

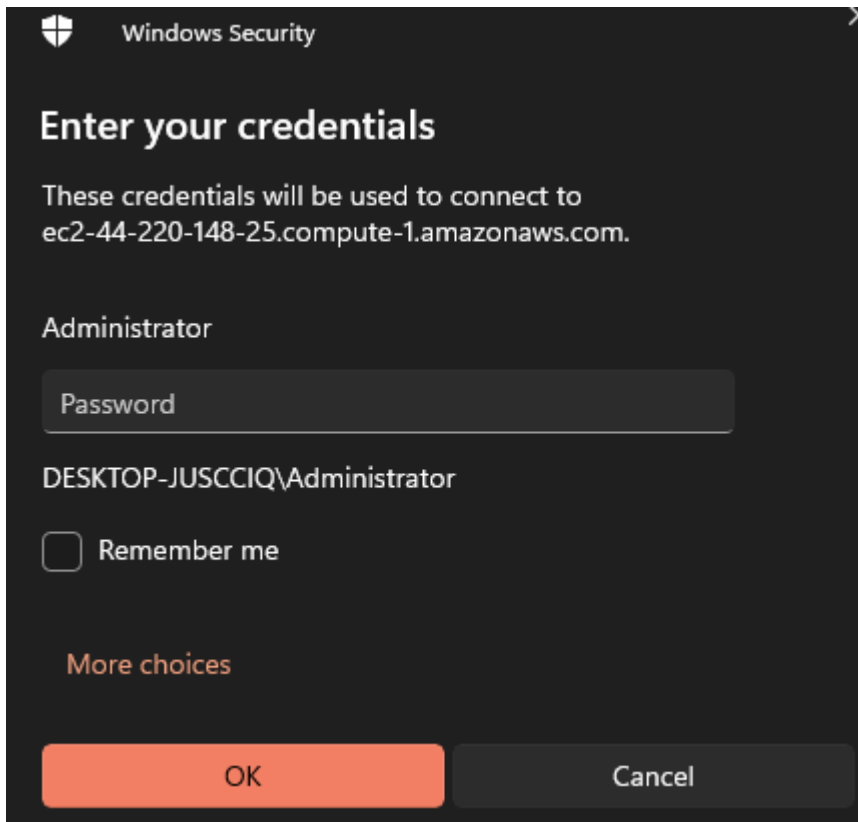
Cancel

Decrypt password

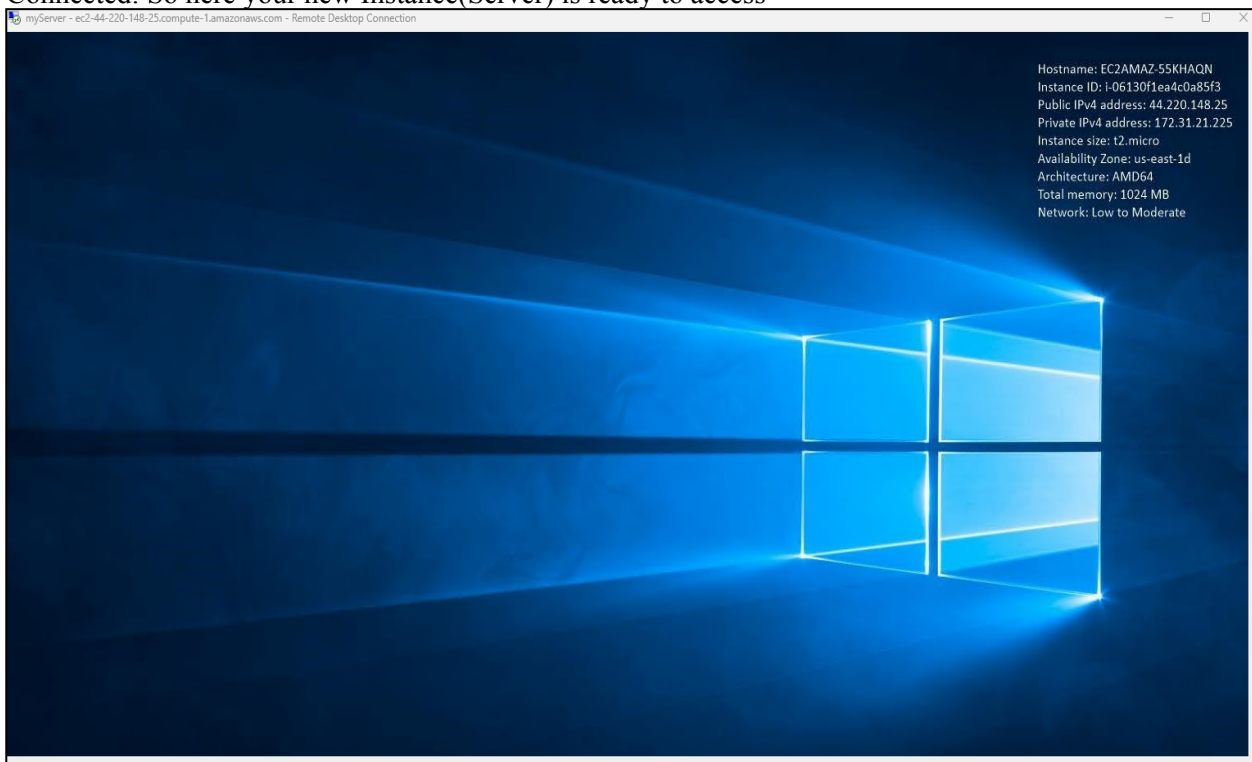
Save decrypted password

**Password**  
fUqKiS.inhGyCV;uHAb6CMu6aQpfngK

Open the downloaded server application Enter decrypted password



Connected: So here your new Instance(Server) is ready to access



### Conclusion:

Thus, we saw in detail how to create an on-demand EC2 instance. Because it is an on demand server, you can keep it running when in use and 'Stop' it when it's unused to save on your costs