

## Assignment of Docker (Day 1)

### EC2 Instance

Ec2 is a web service which aims to make life easier for developers by providing secure and resizable compute capacity in the cloud.

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.

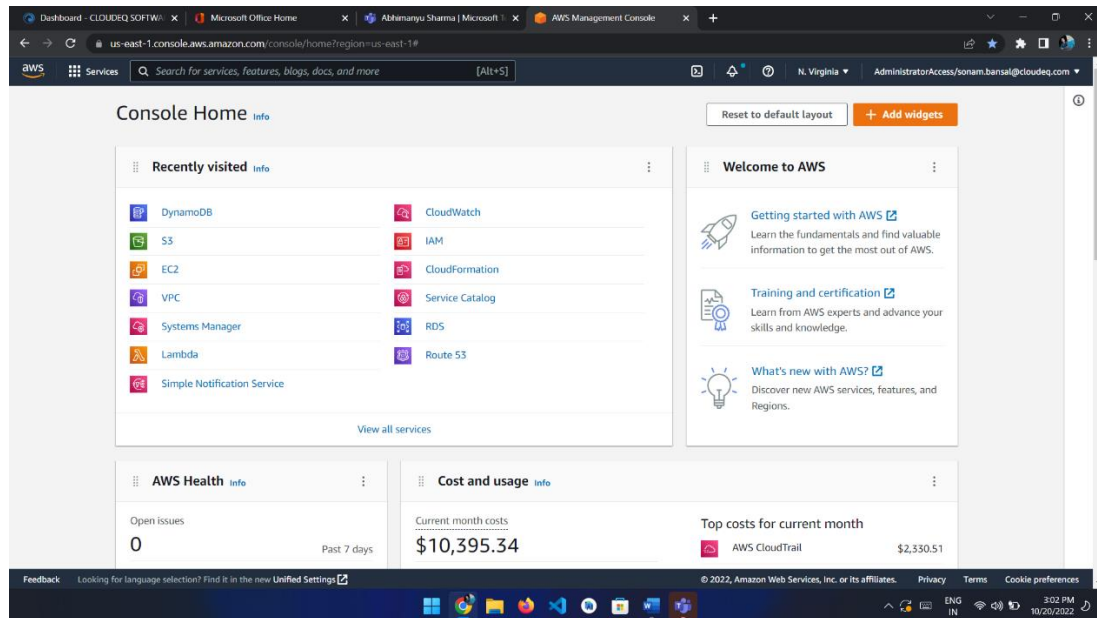
#### Features of EC2

- 1) Easy in scaling (up/down)
- 2) It can be integrated into several other services.
- 3) Pay only for what you use.

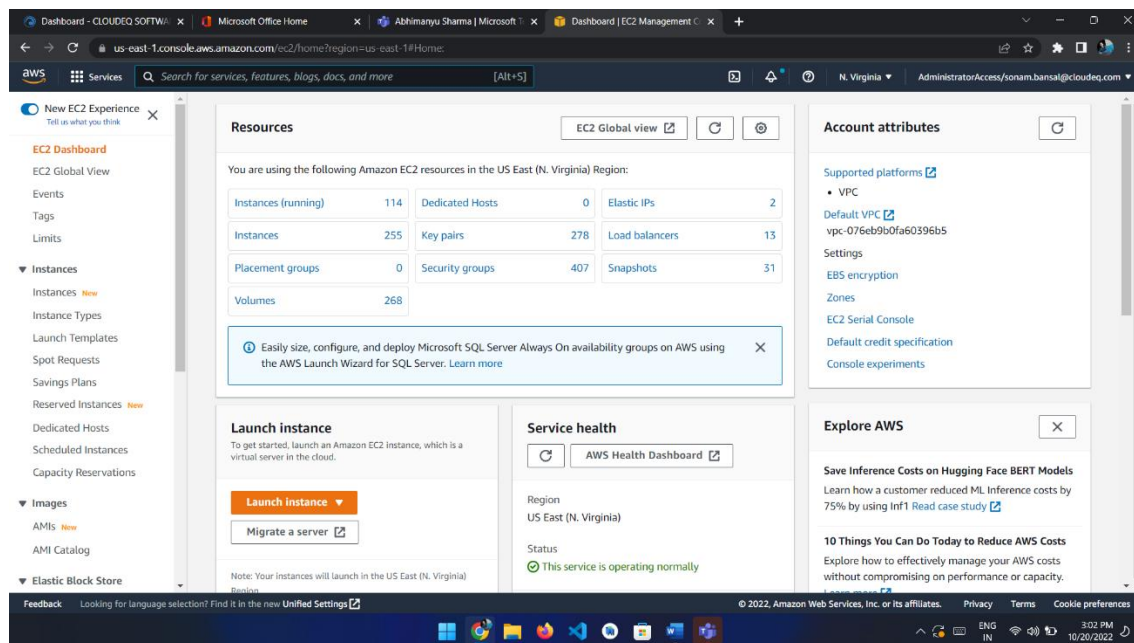
#### Steps in making Ec2 instance with console

Step1 Log in to AWS console, Click on Management Console AWS page will open.

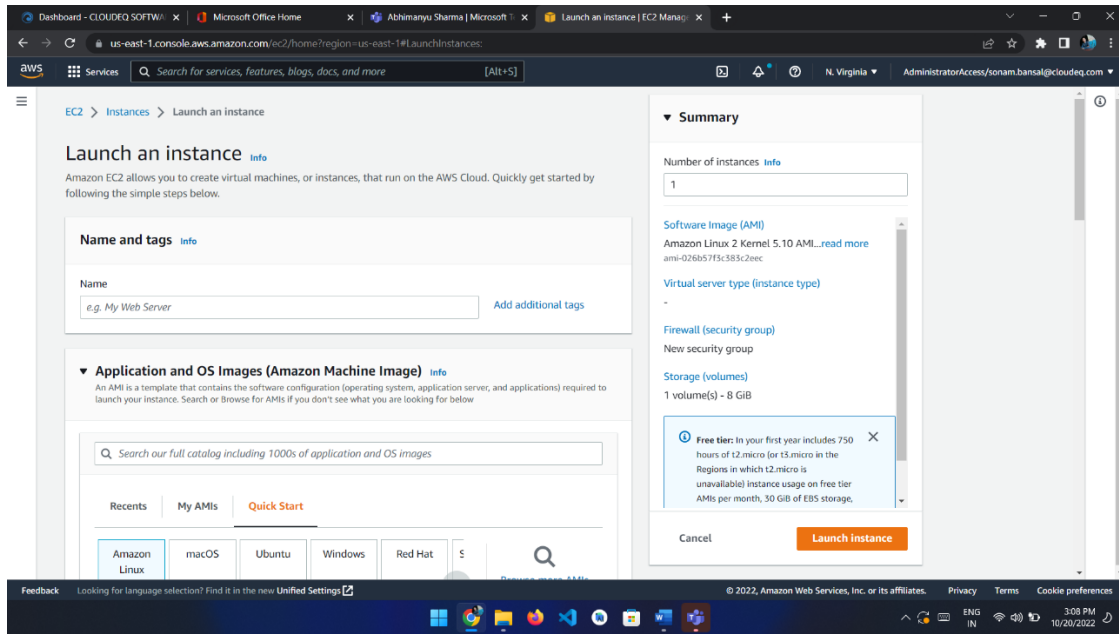
Step2 A service Dashboard will open.



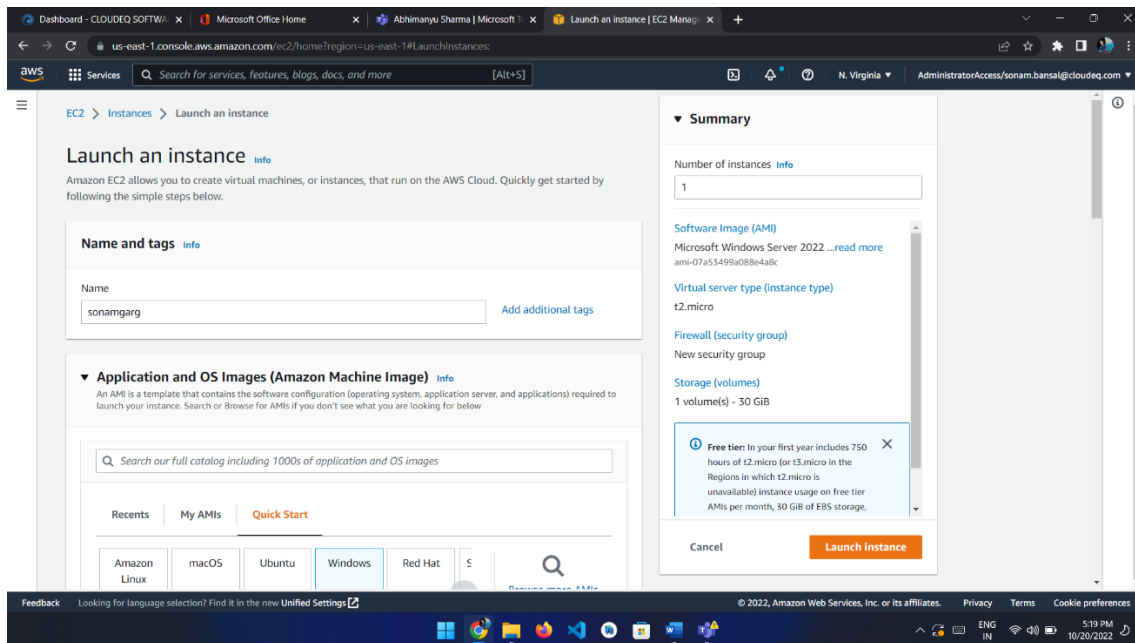
Step3 Click on option EC2, EC2 dashboard will be open.



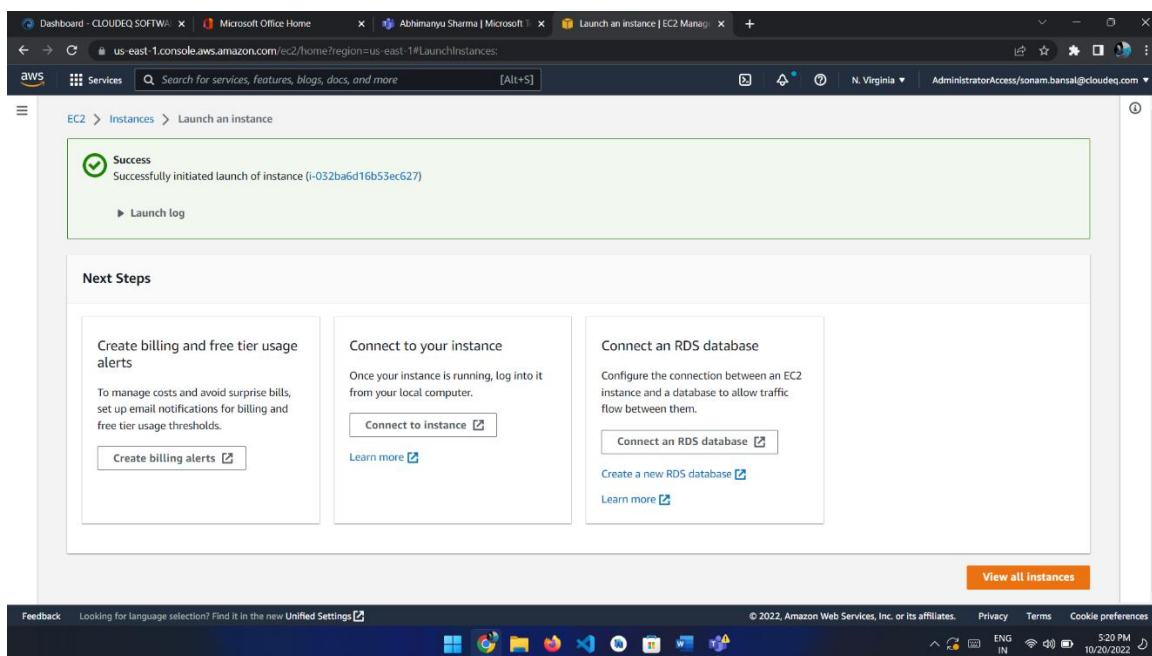
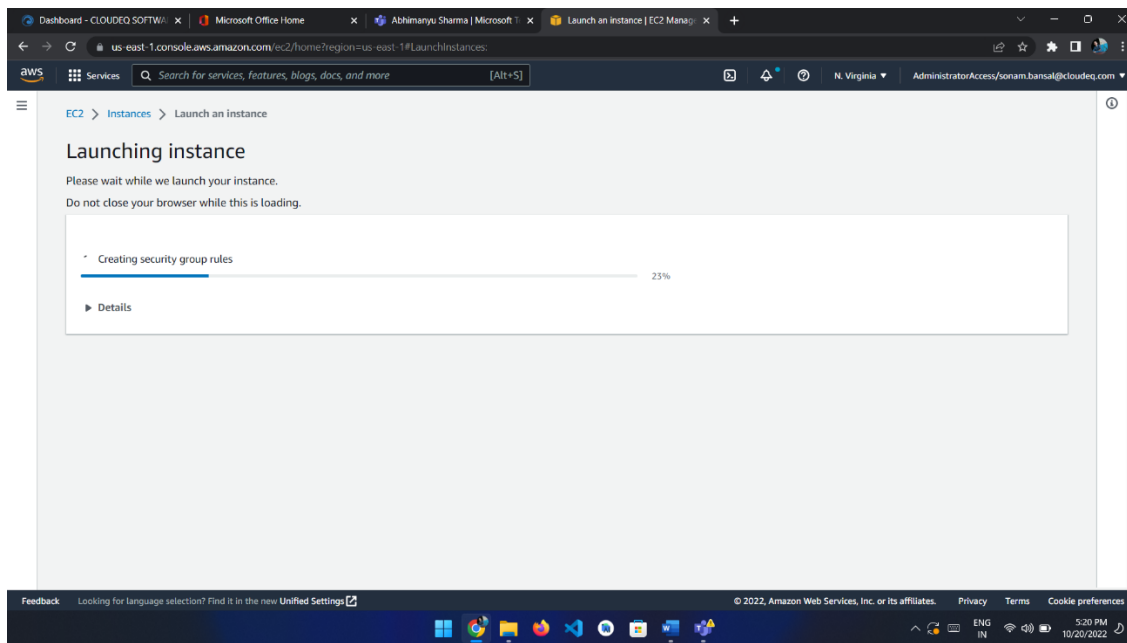
Step4 click on Launch Instance a page will be open.

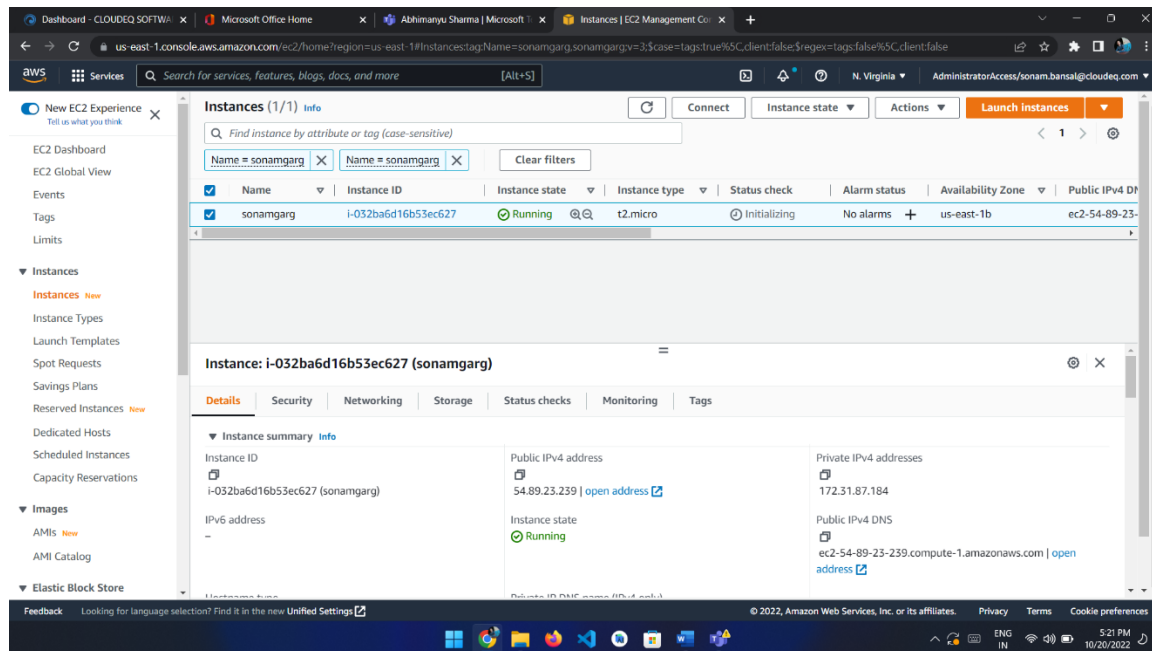


Step5 Fill the all fields for making an EC2 instance.



Step6 After fill the details click on launch instance.





# Docker

Docker is a software platform that allows us to build, test and deploy applications quickly. Docker packages software into standardized units called containers that have everything the software needs to run including libraries, system tools, code and runtime. Using Docker we can quickly deploy and scale applications into any environment and know your code will run.

Running Docker on AWS provides developers and admins a highly reliable, low cost way to build, ship and run distributed applications at any scale.

Why we use Docker?

Using Docker we ship code faster, standardize application operations, move code, and save money by improving resource utilization. With Docker, we can get a single object that can reliably run anywhere. Docker's simple and straight forward syntax gives us full control.

Docker is installed on each server and provides simple commands we can use to build, start or stop containers. AWS services make it easy to run and manage Docker container at scale.

## **Virtual Machine**

A Virtual machine is a virtual environment that functions as a virtual computer system with its own CPU, memory network interface, and storage, created on a physical hardware system. Software called a hypervisor separates the machine's resources from the hardware. The many VMs that use its resources are guest machines, guest computers, guest operating systems, or simply guests. VMs allow multiple different operating systems to run simultaneously on a single computer- like a Linux.

How do VMs Work?

Virtualization technology allows you to share a system with many virtual environments. When the VM is running and a user or program issues an instruction that requires additional resources from the physical environment.

Why use a VM?

By virtualizing your servers, you can place many virtual servers onto each physical server to improve hardware utilization. This keeps us from needing to purchase additional physical resources, like hard drives or hard disks. Whatever is running inside a VM won't interfere with anything else running on the host hardware.

## **Docker vs Virtual Machine**

The main difference between docker and Virtual Machine is that the Docker containers are considered suitable to run multiple applications over a single OS kernel, Whereas Virtual Machine are needed if the applications or services required to run on different OS.

- 1) Operating system support-- Virtual Machine has its guest operating system above the host OS which makes VM heavy, While on the other hand Docker containers share the host operating system that is why they are lightweight.
- 2) Security—VM's does no share OS, and there is strong isolation in the host kernel. Hence they are more secure. Whereas Docker resources are shared and attacker can exploit all the containers in a cluster.
- 3) Portability—Docker Containers are easily portable because they do not have separate OS. On the other hand VM's have separate OS, so porting a VM is difficult and porting a VM take lot of time due to its size.