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## **Experiment 2**

**Aim :-** To study and Implement Infrastructure as a Service (IaaS) using AWS/Microsoft Azure

**Prerequisites :-** Basics of NIST, AWS.

### **Theory :-**

**Infrastructure-as-a-Service**, commonly referred to as simply “IaaS,” is a form of cloud computing that delivers fundamental compute, network, and storage resources to consumers on-demand, over the internet, and on a pay-as-you-go basis. IaaS enables end users to scale and shrink resources on an as-needed basis, reducing the need for high, up-front capital expenditures or unnecessary “owned” infrastructure, especially in the case of “spiky” workloads. In contrast to PaaS and SaaS (even newer computing models like containers and serverless), IaaS provides the lowest-level control of resources in the cloud.

IaaS emerged as a popular computing model in the early 2010s, and since that time, it has become the standard abstraction model for many types of workloads. However, with the advent of new technologies, such as containers and serverless, and the related rise of the microservices application pattern, IaaS remains foundational but is in a more crowded field than ever.

### **IaaS architecture**

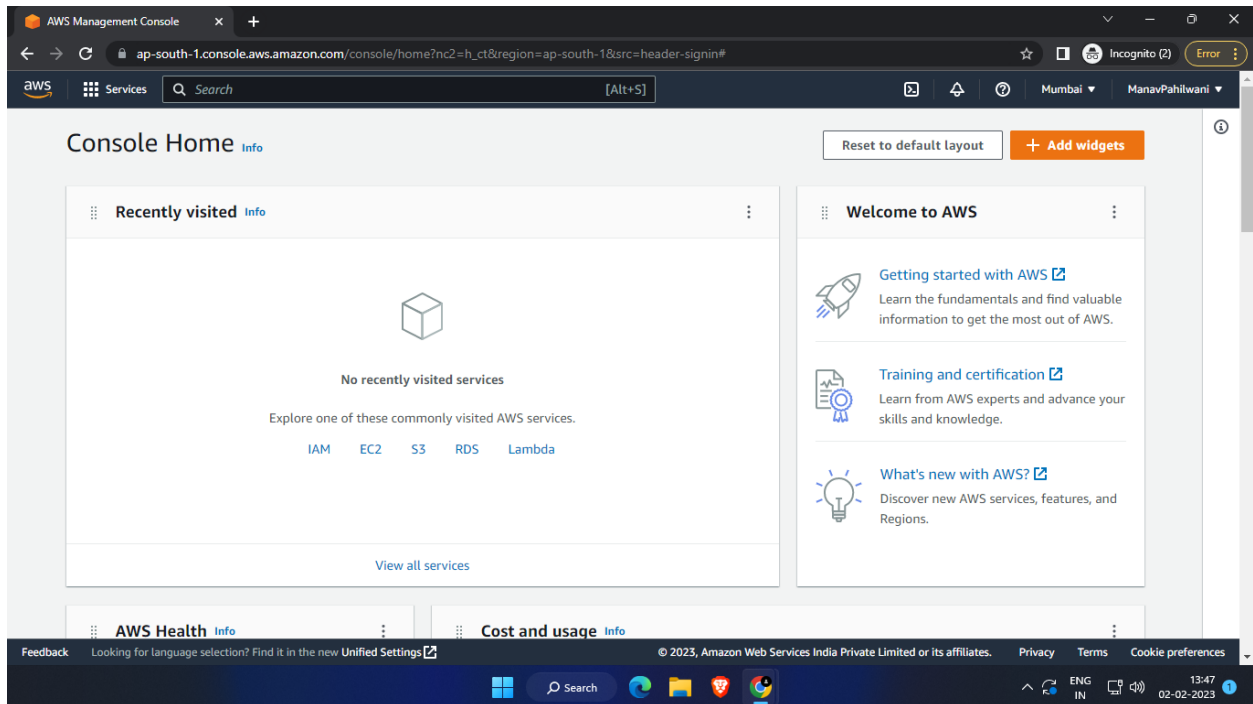
In an IaaS service model, a cloud provider hosts the infrastructure components that are traditionally present in an on-premises data center. This includes servers, storage and networking hardware, as well as the virtualization or hypervisor layer.

IaaS providers also supply a range of services to accompany those infrastructure components. These can include the following:

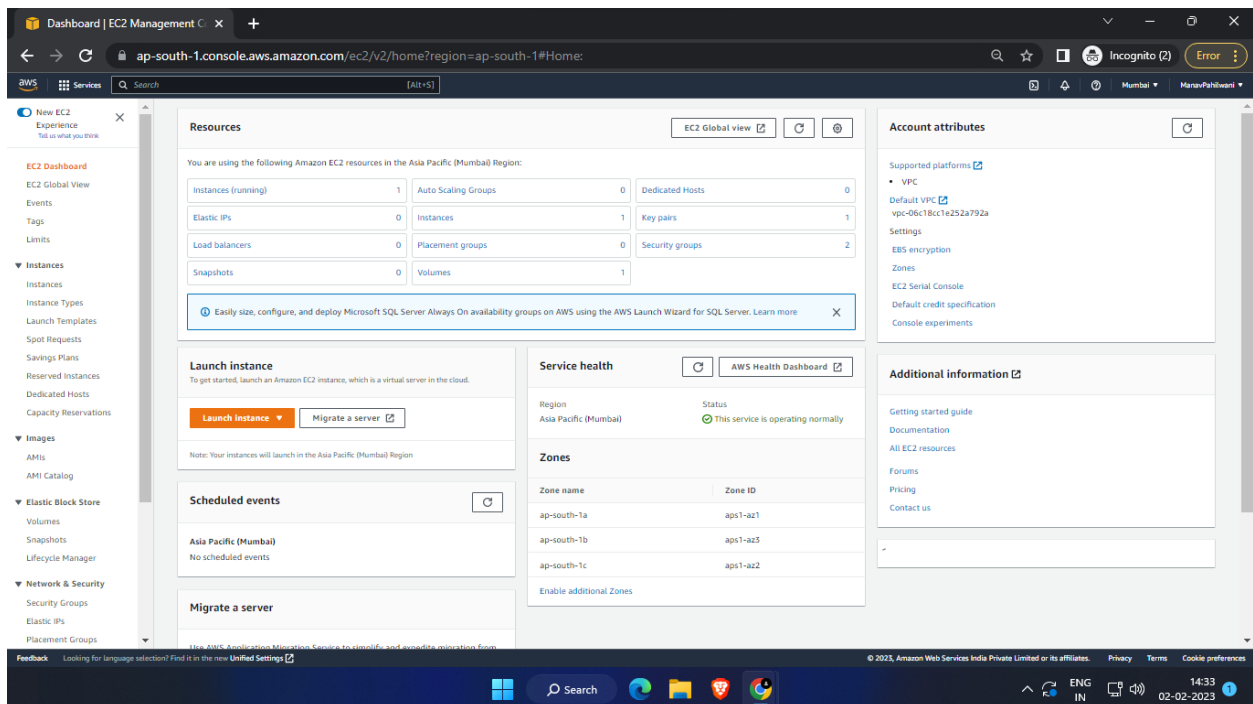
- Detailed billing
- Monitoring
- Log access
- Security
- Load balancing
- Clustering
- Storage resiliency, such as backup, replication and recovery

Steps to implement IaaS on AWS :-

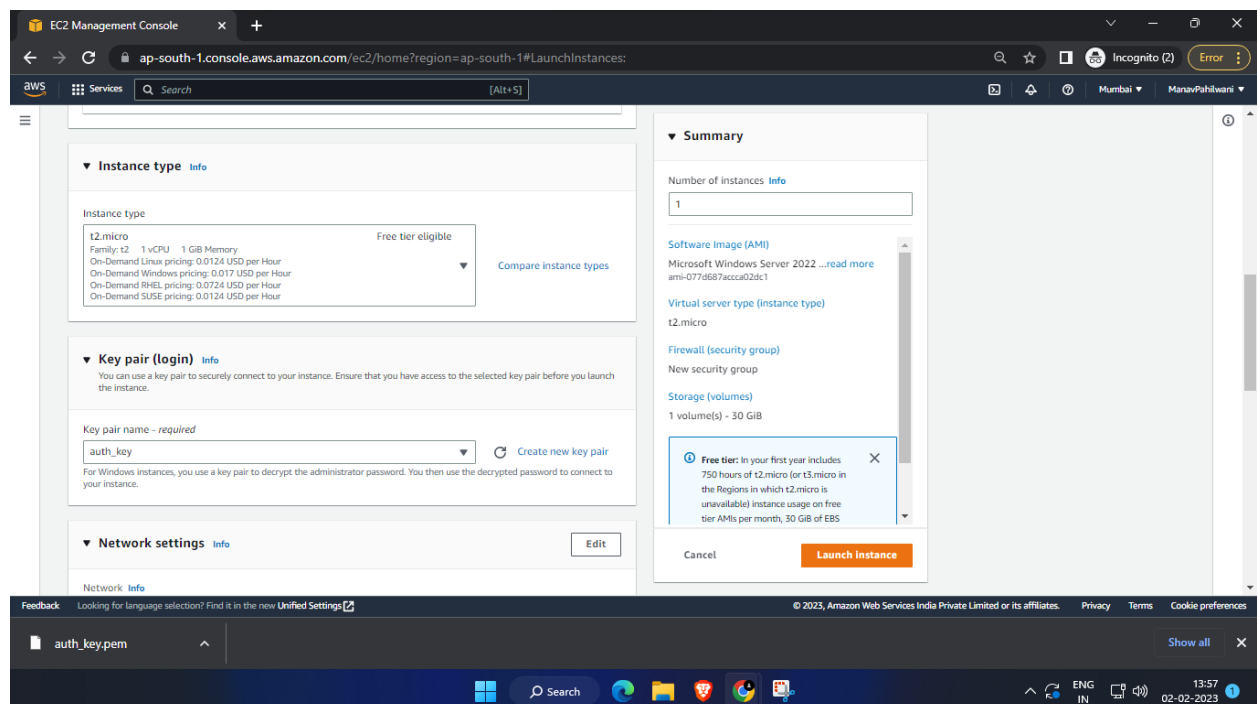
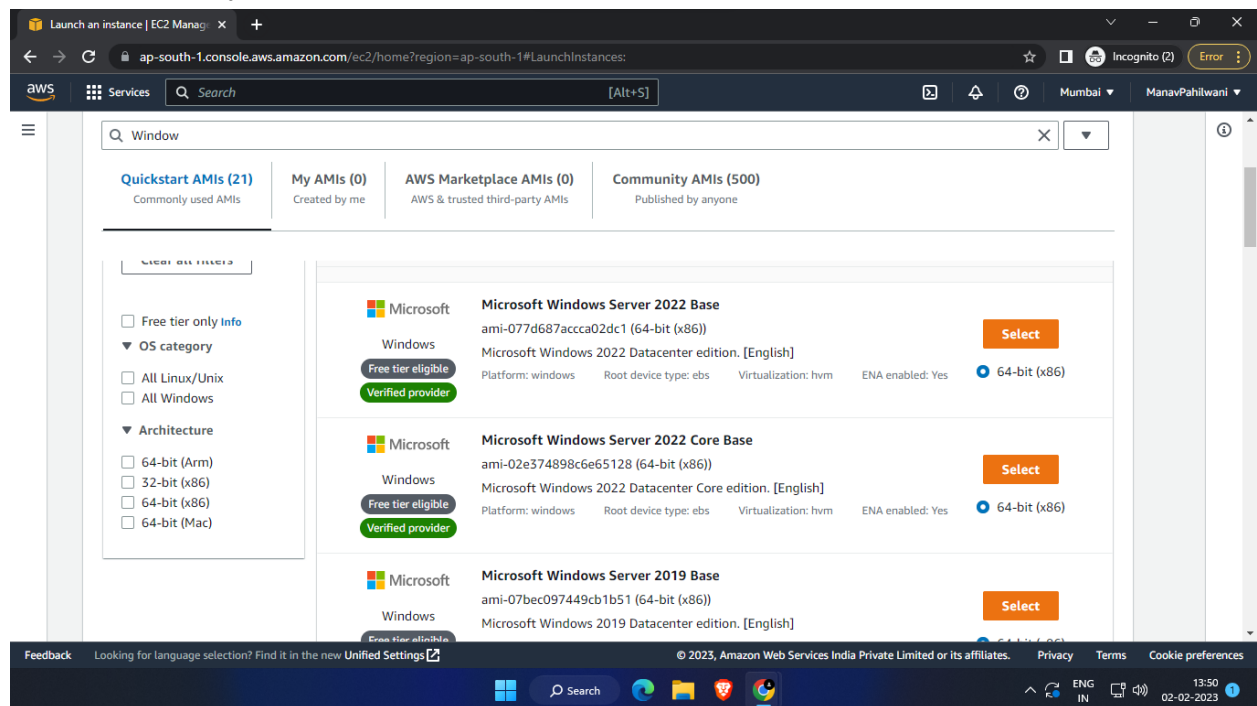
Step 1 - Create an Instance (Click on EC2 from Console Home)



Step 2 - Click on **Launch Instance**



Step 3 - Write a Server name and then search for AMS(Amazon Machine Image) which will be the operating system we want to run our server on then create a new key pair which is the authentication key used to access our server



Step 4 - Create a security group and click on Launch Instance, Our Cloud Server will be initialized

The screenshot shows the AWS Management Console's 'Launch Instance' wizard. The 'Network settings' tab is selected, displaying the VPC (vpc-06c18cc1e252a792a) and Subnet (No preference). The 'Firewall (security groups)' section has 'Create security group' selected. The 'Summary' tab on the right shows the instance configuration: 1 instance, t2.micro type, new security group, and 1 volume (30 GiB). A 'Free tier' notification is displayed. The 'Launch Instance' button is visible.

Feedback Looking for language selection? Find it in the new [Unified Settings](#)

auth\_key.pem Show all

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EC2 Management Console x +

ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#LaunchInstances:

Services Search [Alt+S]

EC2 > Instances > Launch an instance

Success Successfully initiated launch of instance (i-04598e2cd96688171)

Launch log

Next Steps

Create billing and free tier usage alerts To manage costs and avoid surprise bills, set up email notifications for billing and free tier usage thresholds. [Create billing alerts](#)

Connect to your instance Once your instance is running, log into it from your local computer. [Connect to instance](#) [Learn more](#)

Connect an RDS database Configure the connection between an EC2 instance and a database to allow traffic flow between them. [Connect an RDS database](#) [Create a new RDS database](#) [Learn more](#)

[View all instances](#)

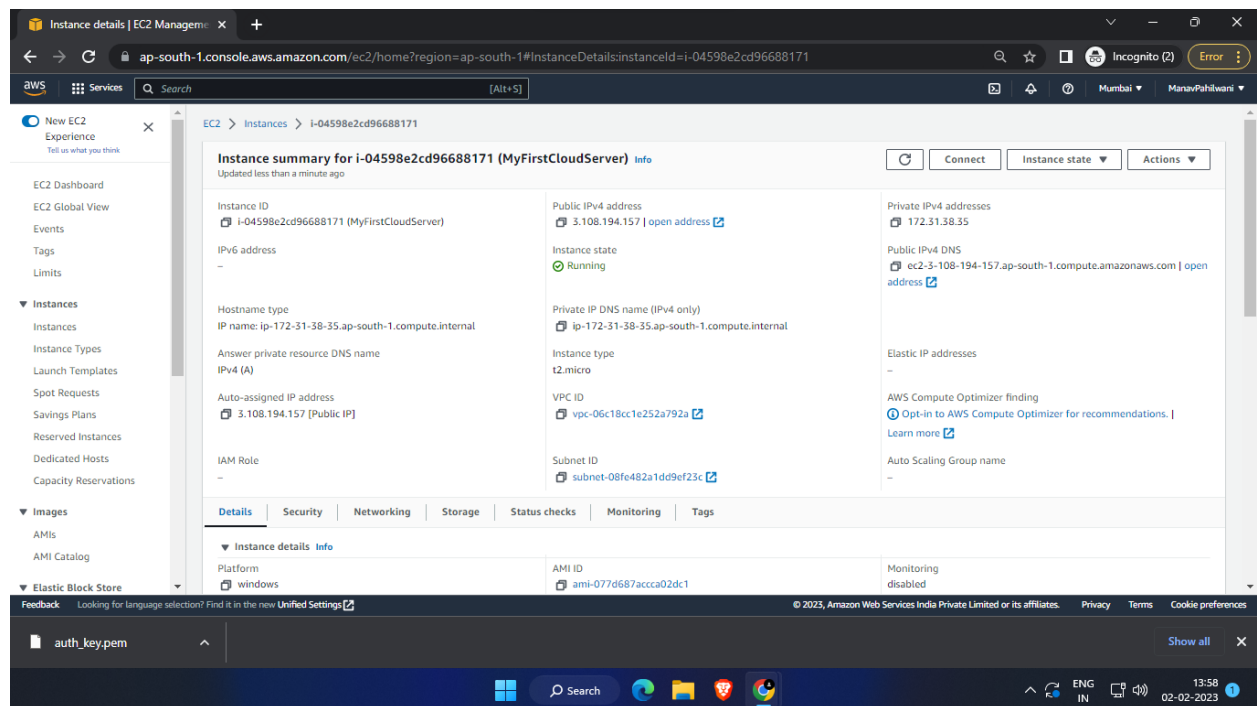
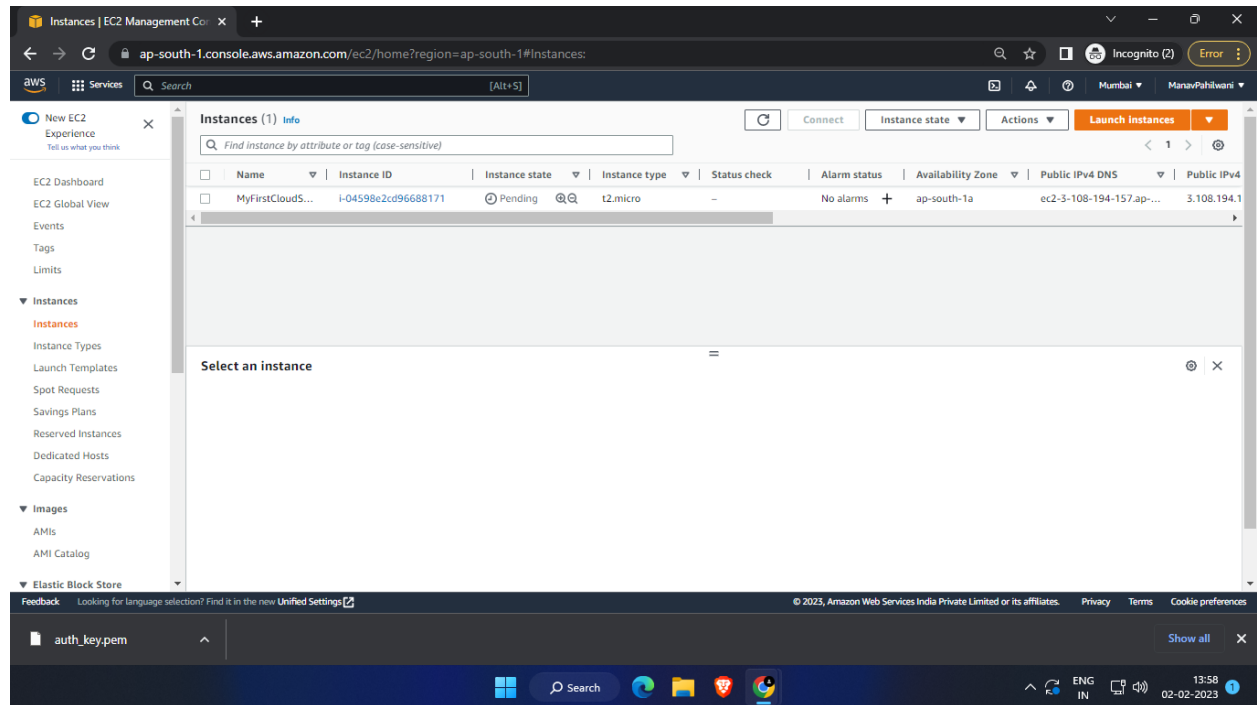
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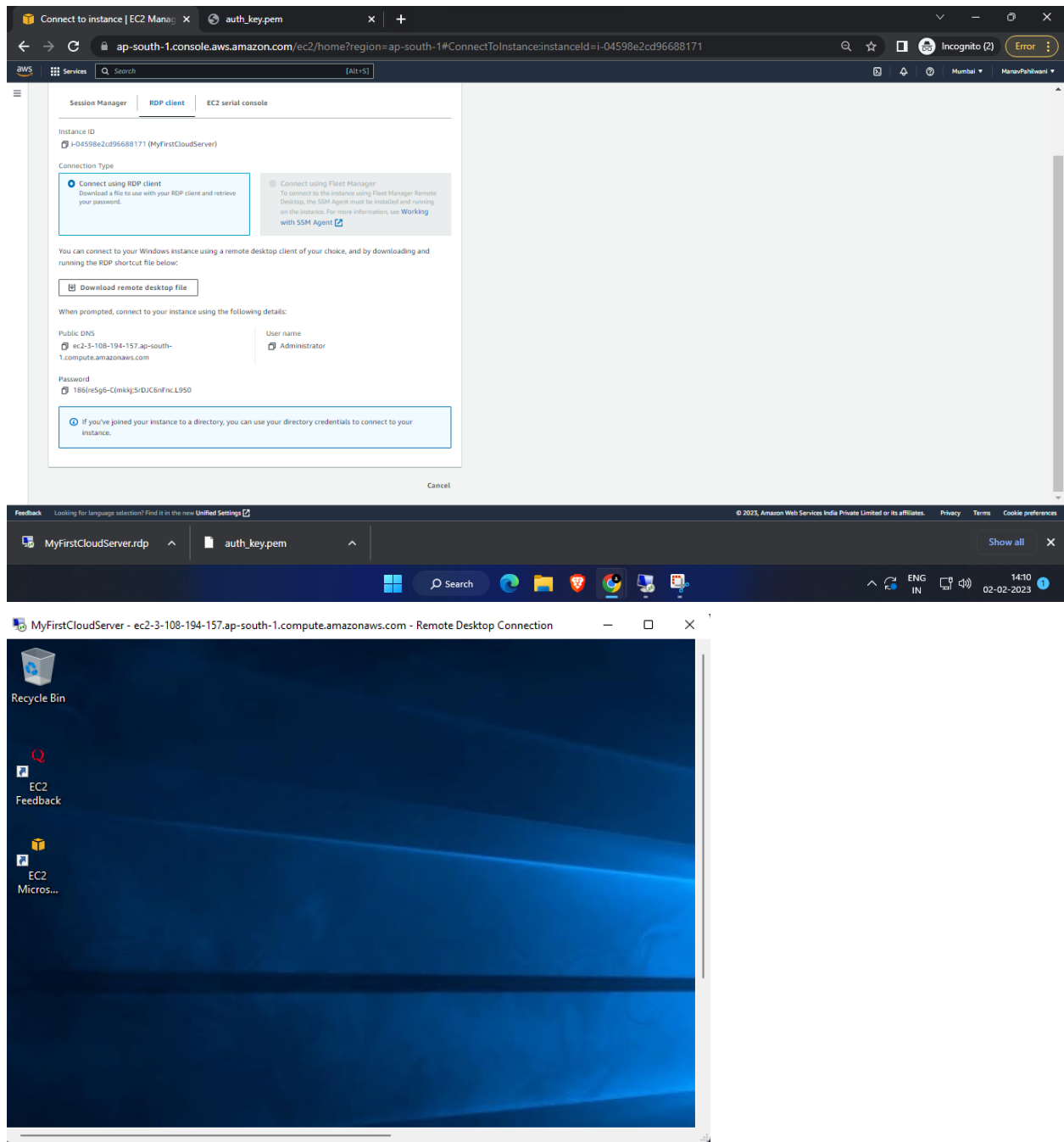
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Step 5- This is the summary of the Server we have created after the status check turns green select the server and click on connect



After successful creation of the server it will ask for the key upload the key downloaded to your device and then decrypt it, the password can be entered to access the cloud server



Conclusion - We have successfully created a Cloud based windows server on AWS using EC2.