Experiment No. 3

Title:

Working in Cloud9 to demonstrate different language.

Objective:

To learn Platform as service (PaaS) using Free trial of Cloud9 in AWS, because firstly it was an independently platform now it is integrated with AWS.

Tools used:

Internet, AWS, EC2, Cloud9

Prerequisite:

Understanding of Platform as service in Service model of cloud computing

Theory:

AWS Cloud9 is an integrated development environment, or *IDE*.

The AWS Cloud9 IDE offers a rich code-editing experience with support for several programming languages and runtime debuggers, and a built-in terminal. It contains a collection of tools that you use to code, build, run, test, and debug software, and helps you release software to the cloud.

You access the AWS Cloud9 IDE through a web browser. You can configure the IDE to your preferences. You can switch color themes, bind shortcut keys, enable programming language-specific syntax coloring and code formatting, and more.

An *AWS Cloud9 environment* is a place where you store your project's files and where you run the tools to develop your applications.

Using the AWS Cloud9 IDE, you can:

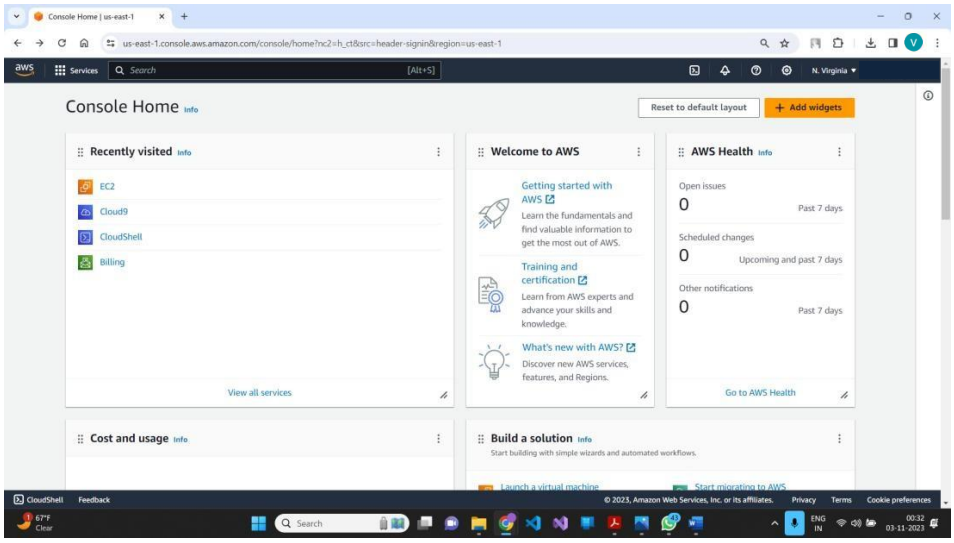
- Store your project's files locally on the instance or server.
- Clone a remote code repository—such as a repo in AWS Code Commit—into yourenvironment.
- Work with a combination of local and cloned files in the environment.

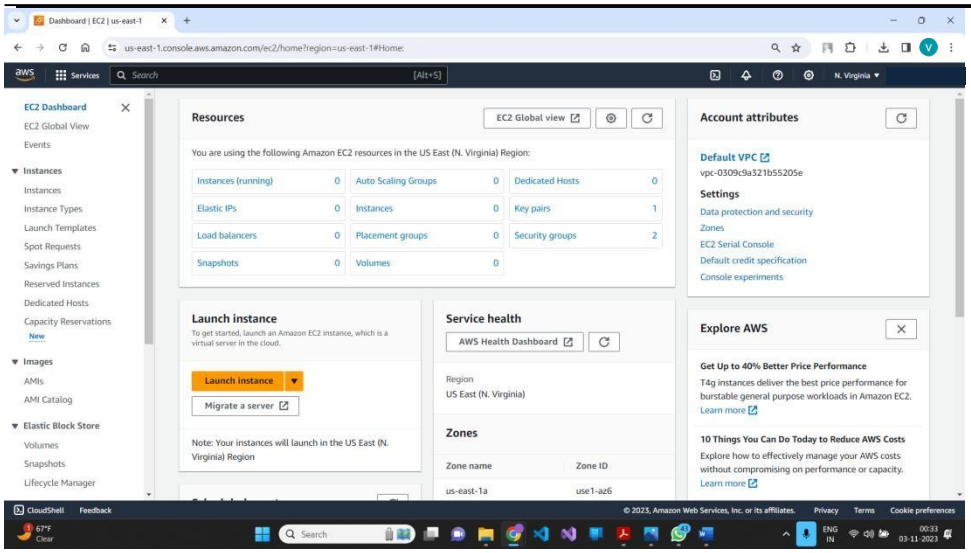
Steps to setting up the cloud9

Step 1. Sign in to the Console

https://aws.amazon.com/console/

Step 2. Create EC2 instance and Launch it




Dashboard | EC2 | us-east-1
us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Home:
Services
Search
[Alt+S]
N. Virginia
EC2 Dashboard
EC2 Global View
Events
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations
New
Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Snapshots
Lifecycle Manager
Resources
EC2 Global view
You are using the following Amazon EC2 resources in the US East (N. Virginia) Region:
Instances (running) 0
Auto Scaling Groups 0
Dedicated Hosts 0
Elastic IPs 0
Instances 0
Key pairs 1
Load balancers 0
Placement groups 0
Security groups 2
Snapshots 0
Volumes 0
Account attributes
Default VPC
vpc-0309c9a321b55205e
Settings
Data protection and security
Zones
EC2 Serial Console
Default credit specification
Console experiments
Launch instance
To get started, launch an Amazon EC2 instance, which is a virtual server in the cloud.
Launch instance
Migrate a server
Note: Your instances will launch in the US East (N. Virginia) Region
Service health
AWS Health Dashboard
Region
US East (N. Virginia)
Zones
Zone name
Zone ID
us-east-1a
use1-az6
Explore AWS
Get Up to 40% Better Price Performance
T4g instances deliver the best price performance for burstable general purpose workloads in Amazon EC2.
Learn more
10 Things You Can Do Today to Reduce AWS Costs
Explore how to effectively manage your AWS costs without compromising on performance or capacity.
Learn more
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Search
ENG
IN
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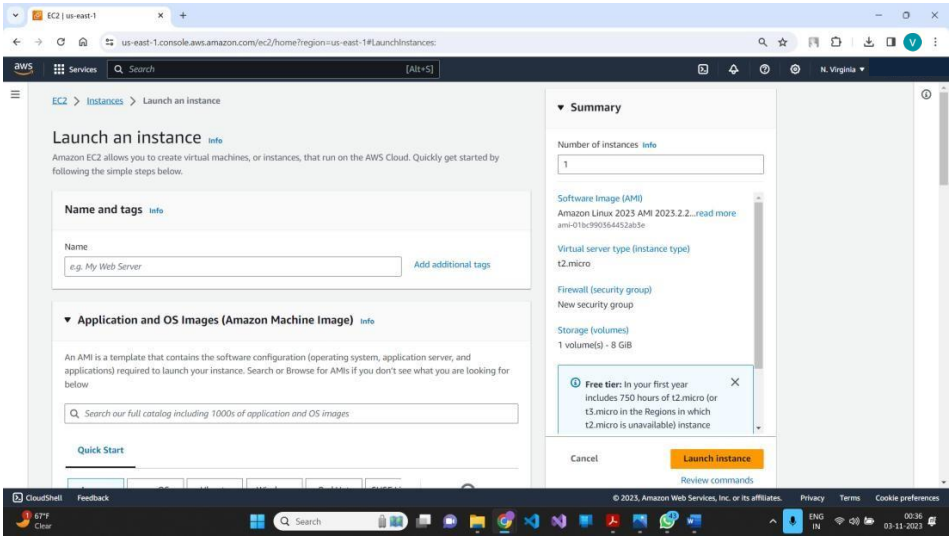
03-11-2023


EC2 | us-east-1
us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances:
Services
Search
[Alt+S]
N. Virginia
EC2 > Instances > Launch an instance
Launch an instance Info
Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.
Name and tags Info
Name
e.g. My Web Server
Add additional tags
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
Search our full catalog including 1000s of application and OS images
Quick Start
Summary
Number of instances Info
1
Software Image (AMI)
Amazon Linux 2023 AMI 2023.2.2...read more
ami-01bc990364452ab5e
Virtual server type (instance type)
t2.micro
Firewall (security group)
New security group
Storage (volumes)
1 volume(s) - 8 GiB
Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance
Cancel
Launch instance
Review commands
CloudShell
Feedback
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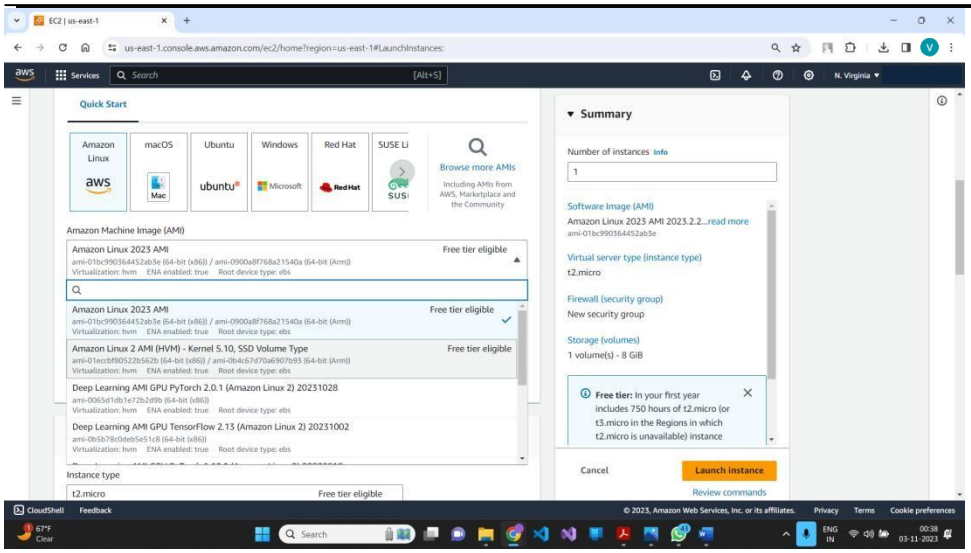
Cookie preferences
67°F
Clear
Search
ENG
IN
00:36
03-11-2023


EC2 | us-east-1
us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances:
Quick Start
Amazon Linux
macOS
Ubuntu
Windows
Red Hat
Browse more AMIs
Including AMIs from AWS, Marketplace and the Community
Amazon Machine Image (AMI)
Amazon Linux 2023 AMI
Free tier eligible
Amazon Linux 2 AMI (HVM) - Kernel 5.10, SSD Volume Type
Deep Learning AMI GPU PyTorch 2.0.1 (Amazon Linux 2) 20231028
Deep Learning AMI GPU TensorFlow 2.13 (Amazon Linux 2) 20231002
Instance type
t2.micro
Summary
Number of instances
Software Image (AMI)
Amazon Linux 2023 AMI 2023.2.2...read more
Virtual server type (instance type)
t2.micro
Firewall (security group)
New security group
Storage (volumes)
1 volume(s) - 8 GiB
Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance
Cancel
Launch instance
Review commands
CloudShell
Feedback
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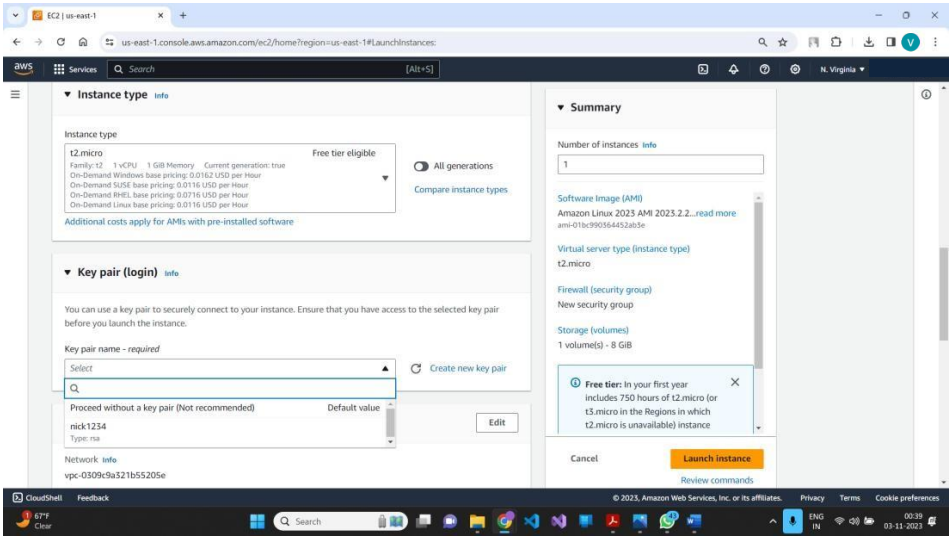
EC2 | us-east-1
us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances:
Instance type
t2.micro
Free tier eligible
All generations
Compare instance types
Additional costs apply for AMIs with pre-installed software
Key pair (login)
You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.
Key pair name - required
Select
Create new key pair
Proceed without a key pair (Not recommended)
Default value
nick1234
Edit
Network
vpc-0309c9a321b55205e
Summary
Number of instances
Software Image (AMI)
Amazon Linux 2023 AMI 2023.2.2...read more
Virtual server type (instance type)
t2.micro
Firewall (security group)
New security group
Storage (volumes)
1 volume(s) - 8 GiB
Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance
Cancel
Launch instance
Review commands
CloudShell
Feedback
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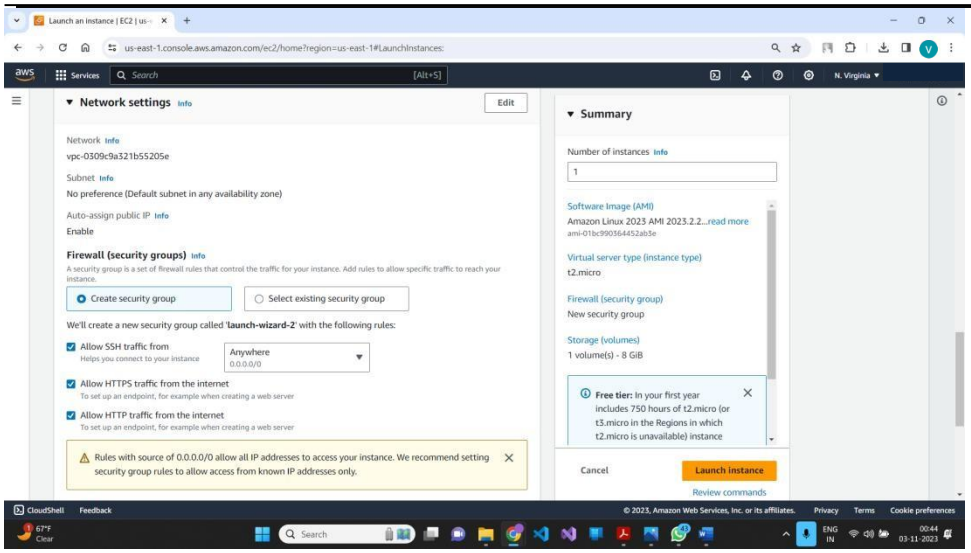
Launch an instance | EC2 | us-east-1
us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances:
Network settings Info
Edit
Network Info
vpc-0309c9a321b55205e
Subnet Info
No preference (Default subnet in any availability zone)
Auto-assign public IP Info
Enable
Firewall (security groups) Info
A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.
Create security group
Select existing security group
We'll create a new security group called 'launch-wizard-2' with the following rules:
Allow SSH traffic from
Helps you connect to your instance
Anywhere
0.0.0.0/0
Allow HTTPS traffic from the internet
To set up an endpoint, for example when creating a web server
Allow HTTP traffic from the internet
To set up an endpoint, for example when creating a web server
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.
Summary
Number of instances Info
1
Software Image (AMI)
Amazon Linux 2023 AMI 2023.2.2...read more
ami-01bc990364452ab3e
Virtual server type (instance type)
t2.micro
Firewall (security group)
New security group
Storage (volumes)
1 volume(s) - 8 GiB
Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance
Cancel
Launch instance
Review commands
CloudShell
Feedback
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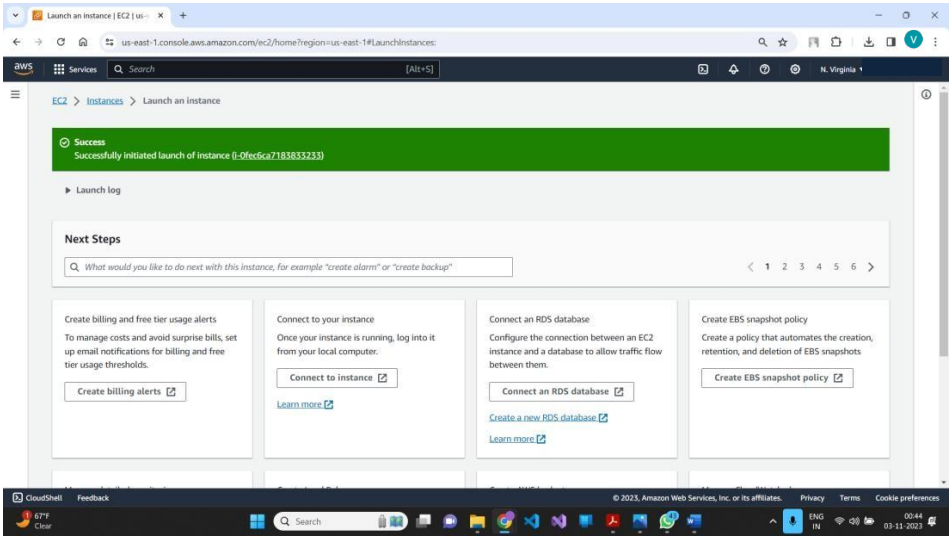
Launch an instance | EC2 | us-east-1
us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances:
EC2 > Instances > Launch an instance
Success
Successfully initiated launch of instance (i-0fec6ca7183833233)
Launch log
Next Steps
What would you like to do next with this instance, for example "create alarm" or "create backup"
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
Create EBS snapshot policy
Create a policy that automates the creation, retention, and deletion of EBS snapshots
Create EBS snapshot policy
CloudShell
Feedback
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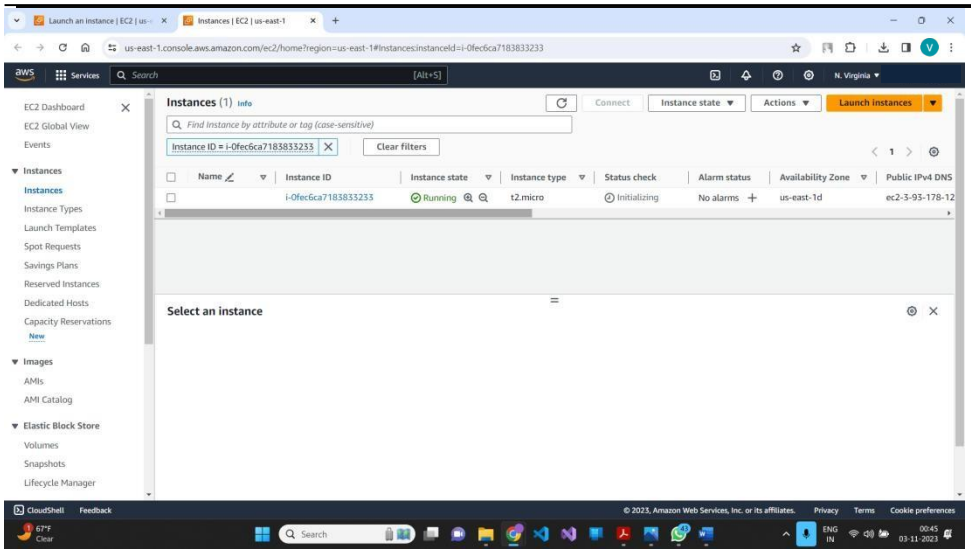
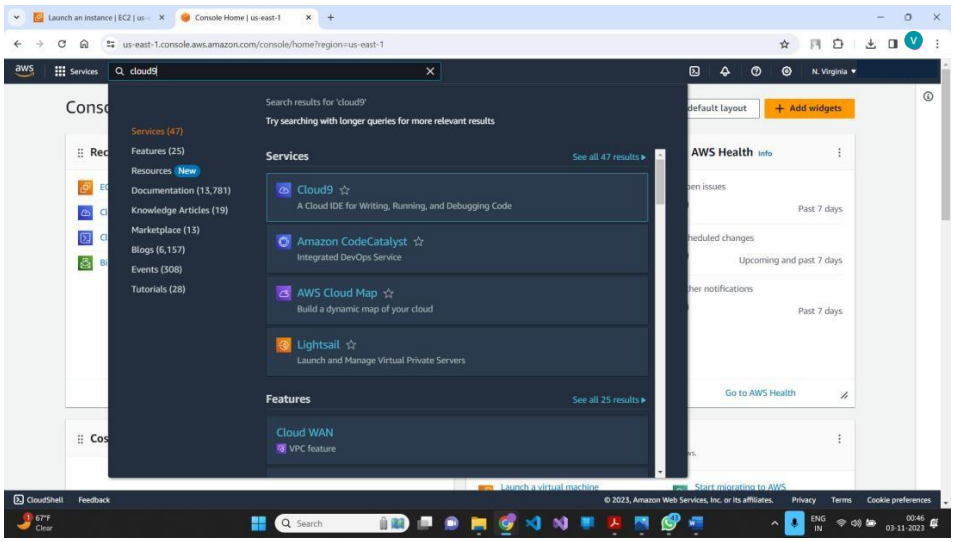
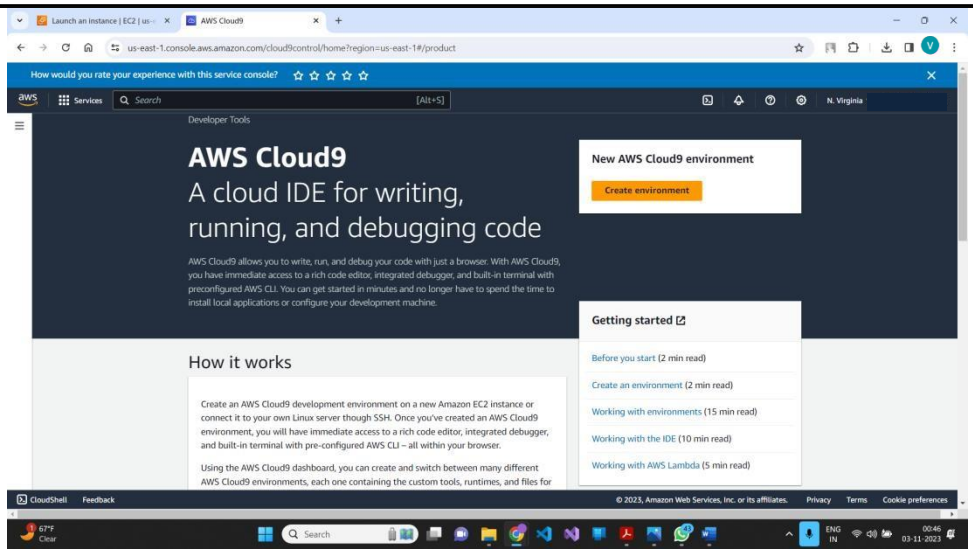


Step 3 – Now we create instance and launch it, Now its time for Cloud9's setup




How would you rate your experience with this service console?
Developer Tools
AWS Cloud9
A cloud IDE for writing, running, and debugging code
AWS Cloud9 allows you to write, run, and debug your code with just a browser. With AWS Cloud9, you have immediate access to a rich code editor, integrated debugger, and built-in terminal with preconfigured AWS CLI. You can get started in minutes and no longer have to spend the time to install local applications or configure your development machine.
New AWS Cloud9 environment
Create environment
Getting started
Before you start (2 min read)
Create an environment (2 min read)
Working with environments (15 min read)
Working with the IDE (10 min read)
Working with AWS Lambda (5 min read)
How it works
Create an AWS Cloud9 development environment on a new Amazon EC2 instance or connect it to your own Linux server though SSH. Once you've created an AWS Cloud9 environment, you will have immediate access to a rich code editor, integrated debugger, and built-in terminal with pre-configured AWS CLI – all within your browser.
Using the AWS Cloud9 dashboard, you can create and switch between many different AWS Cloud9 environments, each one containing the custom tools, runtimes, and files for
CloudShell
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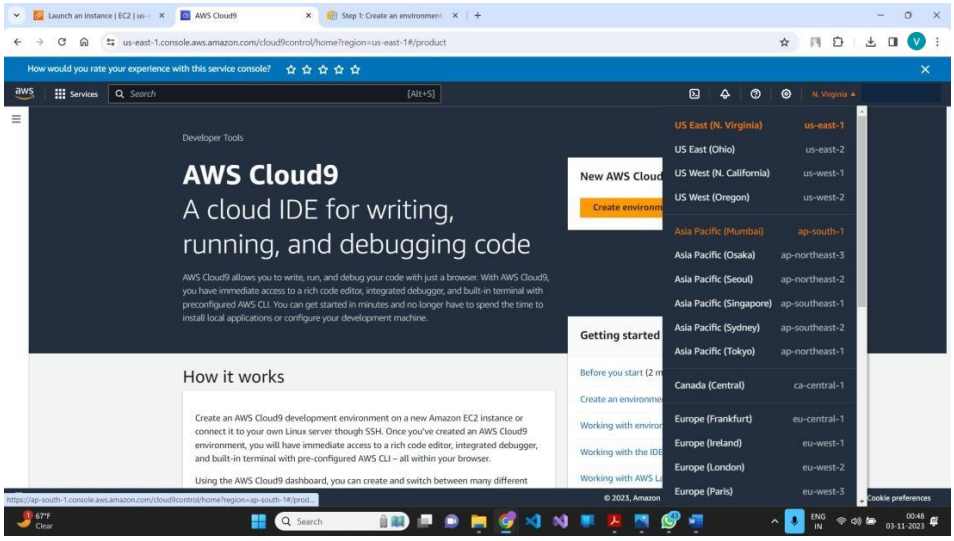
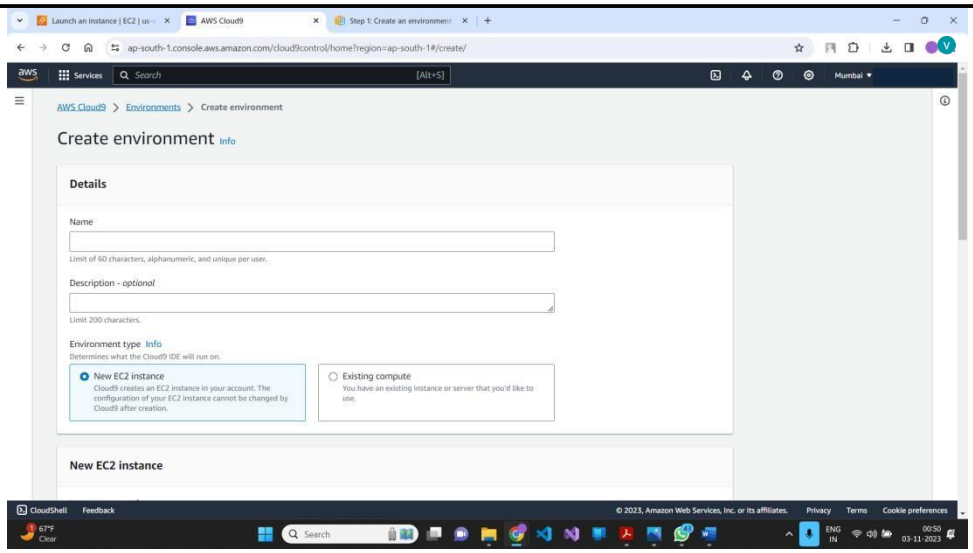

How would you rate your experience with this service console?
Developer Tools
AWS Cloud9
A cloud IDE for writing, running, and debugging code
AWS Cloud9 allows you to write, run, and debug your code with just a browser. With AWS Cloud9, you have immediate access to a rich code editor, integrated debugger, and built-in terminal with preconfigured AWS CLI. You can get started in minutes and no longer have to spend the time to install local applications or configure your development machine.
US East (N. Virginia) us-east-1
US East (Ohio) us-east-2
US West (N. California) us-west-1
US West (Oregon) us-west-2
Asia Pacific (Mumbai) ap-south-1
Asia Pacific (Osaka) ap-northeast-3
Asia Pacific (Seoul) ap-northeast-2
Asia Pacific (Singapore) ap-southeast-1
Asia Pacific (Sydney) ap-southeast-2
Asia Pacific (Tokyo) ap-northeast-1
Canada (Central) ca-central-1
Europe (Frankfurt) eu-central-1
Europe (Ireland) eu-west-1
Europe (London) eu-west-2
Europe (Paris) eu-west-3
How it works
Create an AWS Cloud9 development environment on a new Amazon EC2 instance or connect it to your own Linux server though SSH. Once you've created an AWS Cloud9 environment, you will have immediate access to a rich code editor, integrated debugger, and built-in terminal with pre-configured AWS CLI – all within your browser.
Using the AWS Cloud9 dashboard, you can create and switch between many different


AWS Cloud9 > Environments > Create environment
Create environment Info
Details
Name
Limit of 60 characters, alphanumeric, and unique per user.
Description - optional
Limit 200 characters.
Environment type Info
Determines what the Cloud9 IDE will run on.
New EC2 instance
Cloud9 creates an EC2 instance in your account. The configuration of your EC2 instance cannot be changed by Cloud9 after creation.
Existing compute
You have an existing instance or server that you'd like to use.
New EC2 instance
CloudShell
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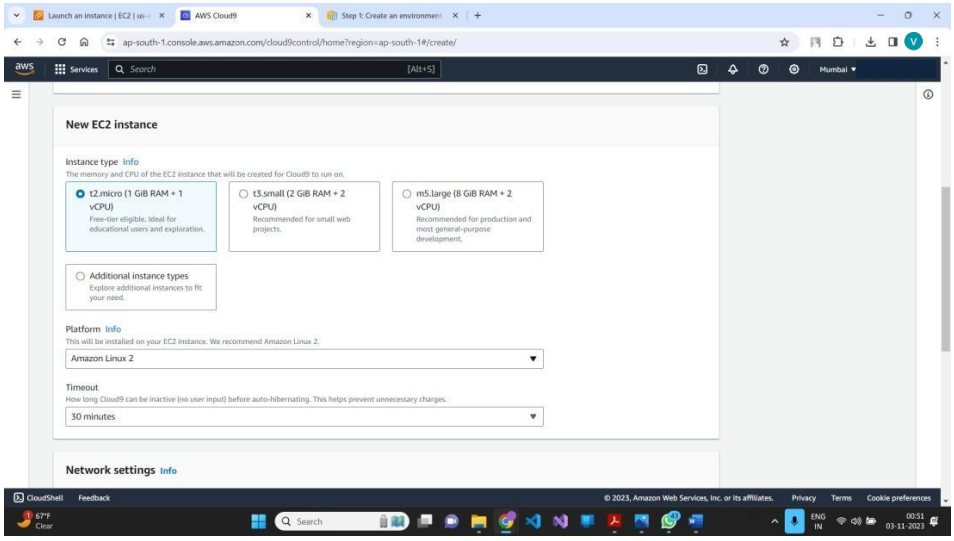
New EC2 instance
Instance type Info
The memory and CPU of the EC2 instance that will be created for Cloud9 to run on.
t2.micro (1 GiB RAM + 1 vCPU)
Free-tier eligible. Ideal for educational users and exploration.
t3.small (2 GiB RAM + 2 vCPU)
Recommended for small web projects.
m5.large (8 GiB RAM + 2 vCPU)
Recommended for production and most general-purpose development.
Additional instance types
Explore additional instances to fit your need.
Platform Info
This will be installed on your EC2 instance. We recommend Amazon Linux 2.
Amazon Linux 2
Timeout
How long Cloud9 can be inactive (no user input) before auto-hibernating. This helps prevent unnecessary charges.
30 minutes
Network settings Info
CloudShell
Feedback
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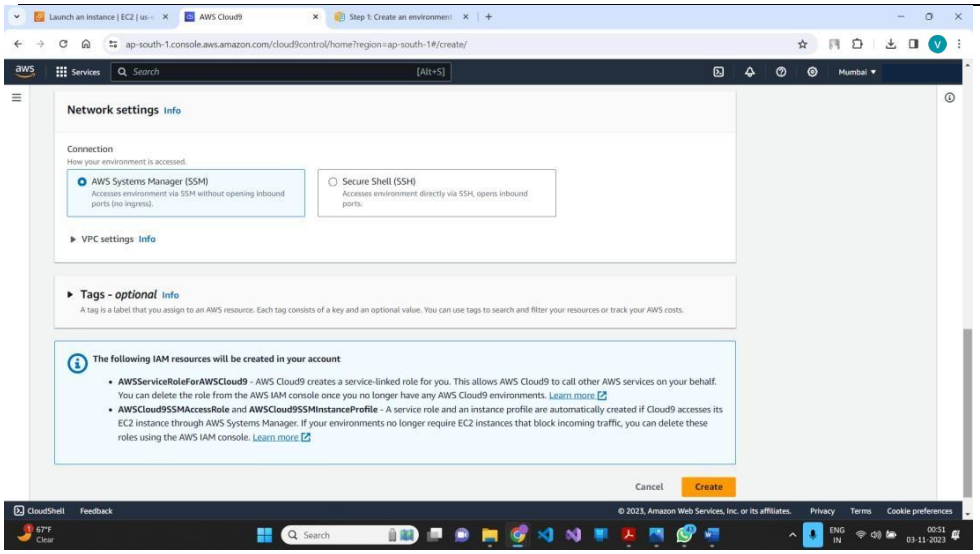
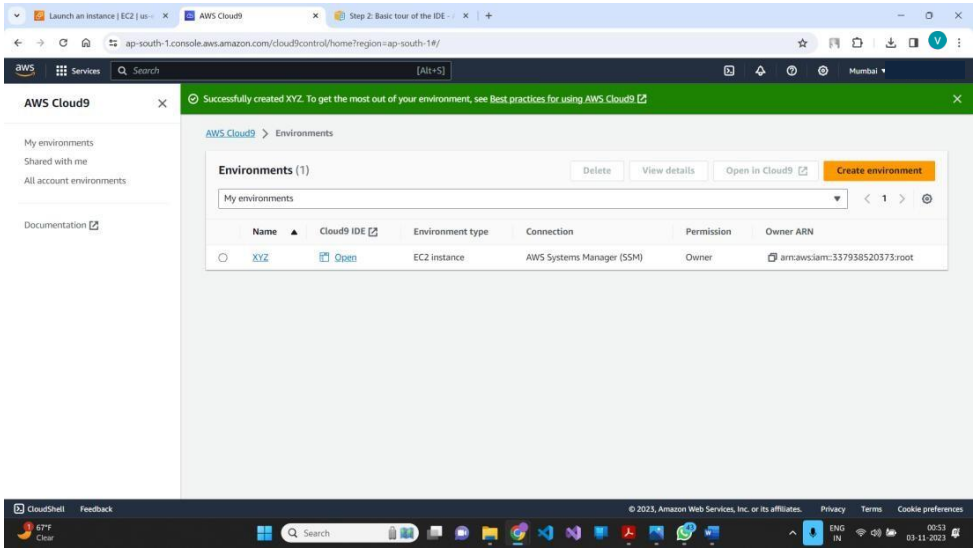
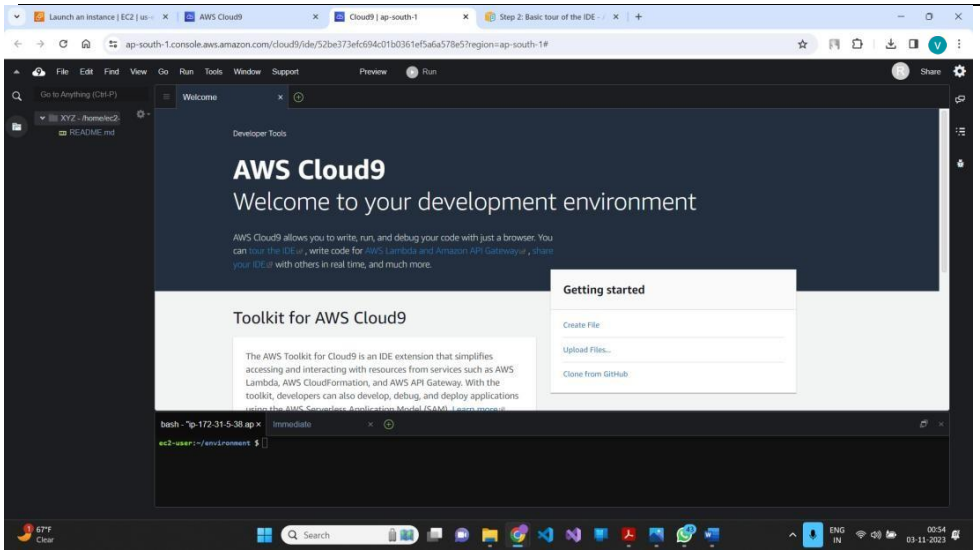


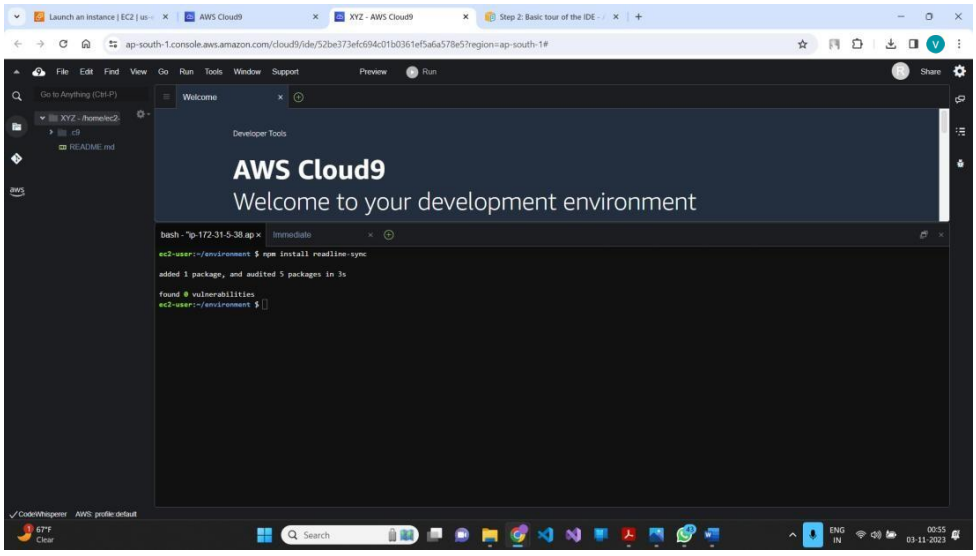


Step 4 – After creating the cloud9 environment now we can start code in theenvironment



Step 5. – Successfully Account is created

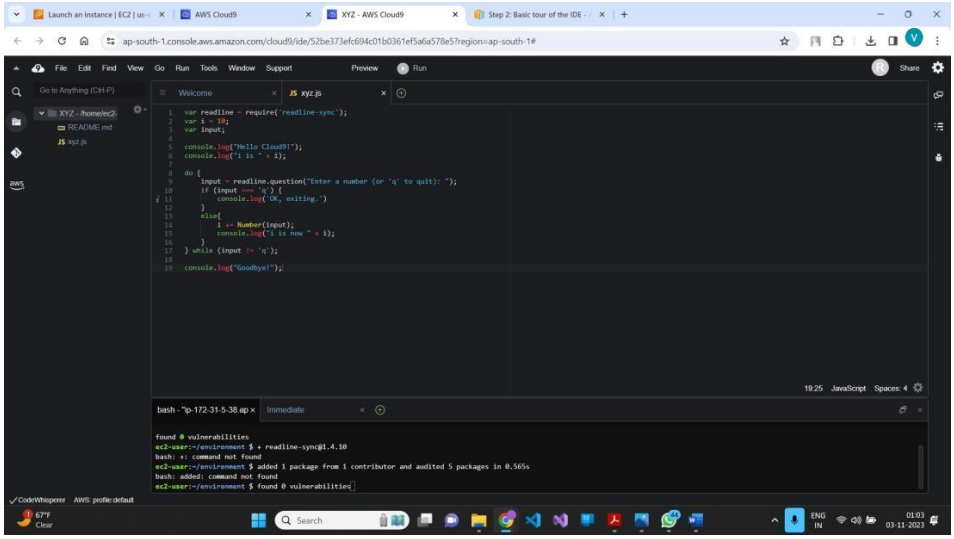
npm install readline-sync



Step 6. – Write the code in editor

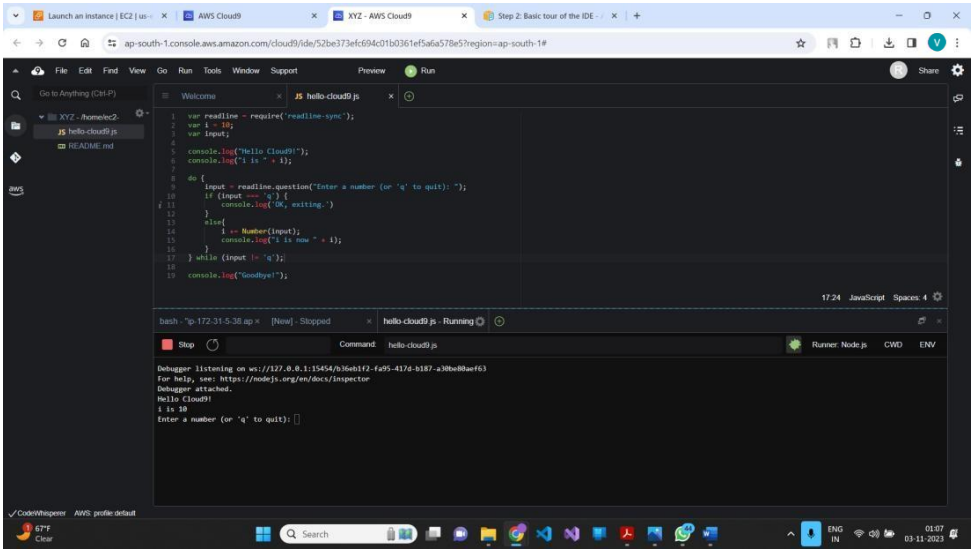
Javacript code: var readline = require('readline-sync');

```
var i = 10;var

input;

console.log("Hello Cloud9!");

console.log("i is " + i);

do {

input = readline.question("Enter a number (or 'q' to quit): ");if

(input === 'q') {

console.log('OK, exiting.')

}

else{

i += Number(input); console.log("i

is now " + i);

}

} while (input != 'q'); console.log("Goodbye!");
```



Step 6. – Save the file and Run the code

1. **Click on Run**
2. **Run Configuration**
3. **New Configuration**



In cloud9 you can write code in any languages like C++, C, python and many more.

Conclusion:

Through this exercise, i have gained hands-on experience with Cloud9, a cloud-based integrated development environment (IDE) that provides a platform to write, run, and debug code in different programming languages. We have explored how Cloud9, now integrated with AWS, offers a robust Platform as a Service (PaaS) solution. This practical understanding of PaaS, a key service model in cloud computing, will be invaluable in our future endeavors in the field of cloud computing.