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 independent 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 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.

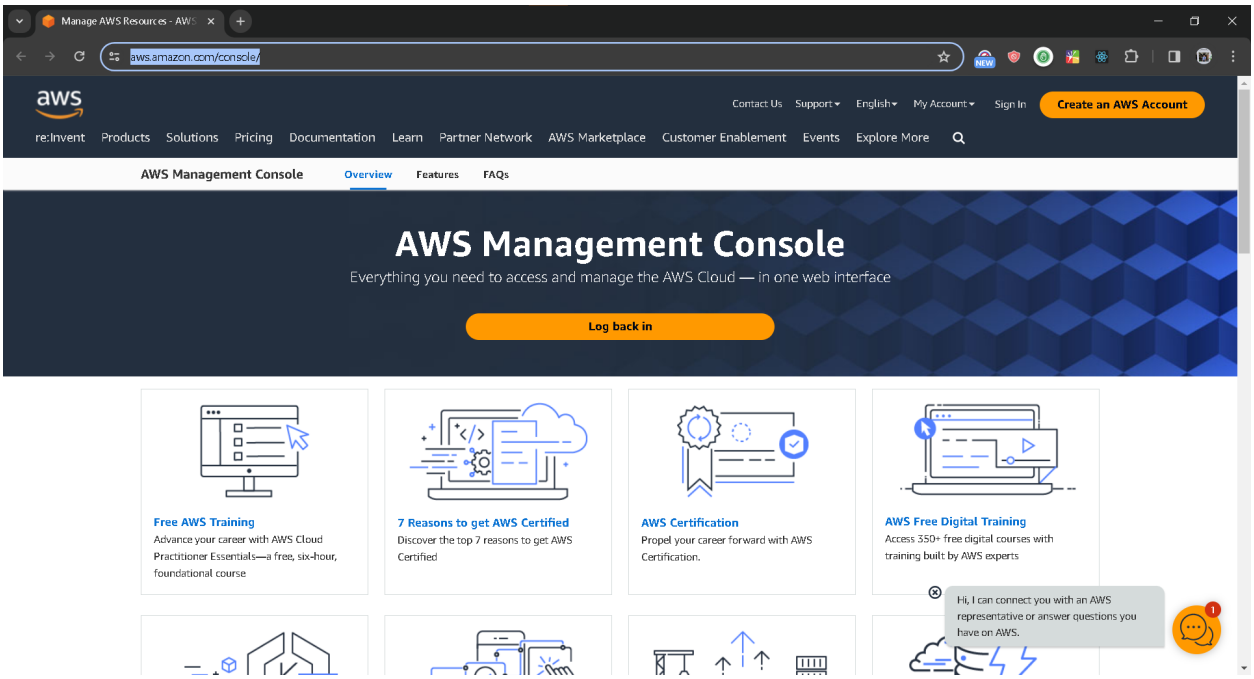
An *AWS Cloud9 environment* is a place where you store your project's files and where you run the tools to develop your applications.

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 your environment.
- Work with a combination of local and cloned files in the environment.

Steps to set up cloud9.

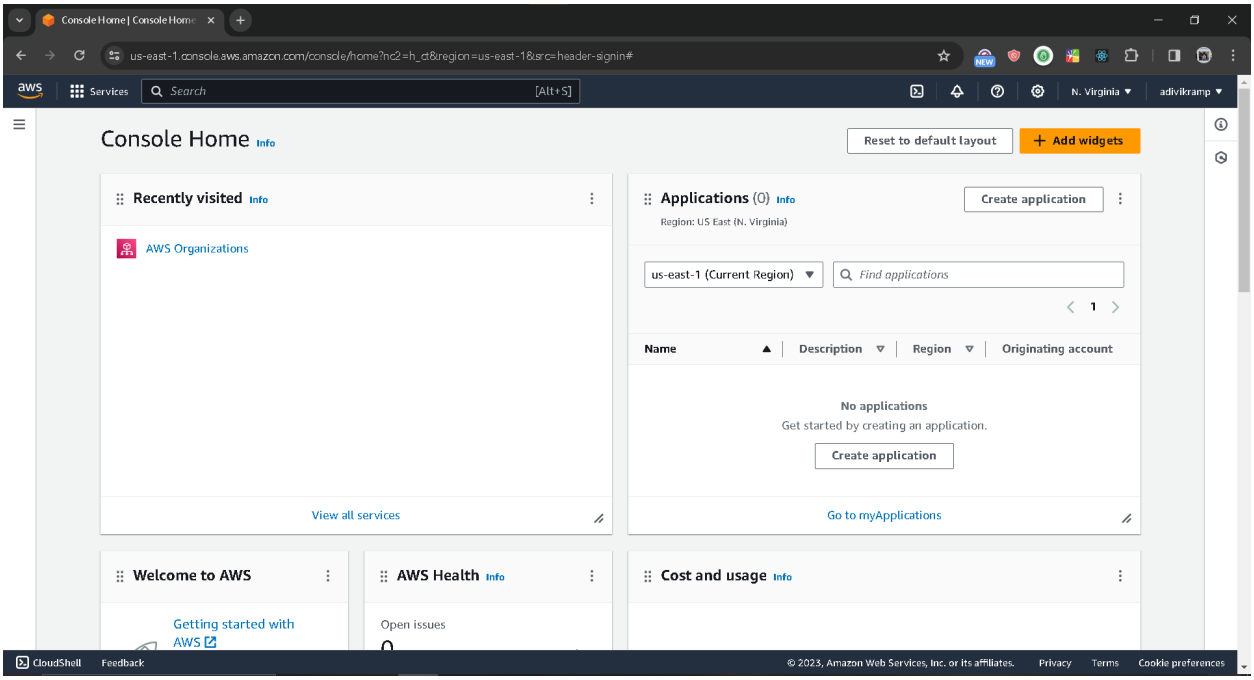
Step 1 - Sign into the Console https://aws.amazon.com/console/

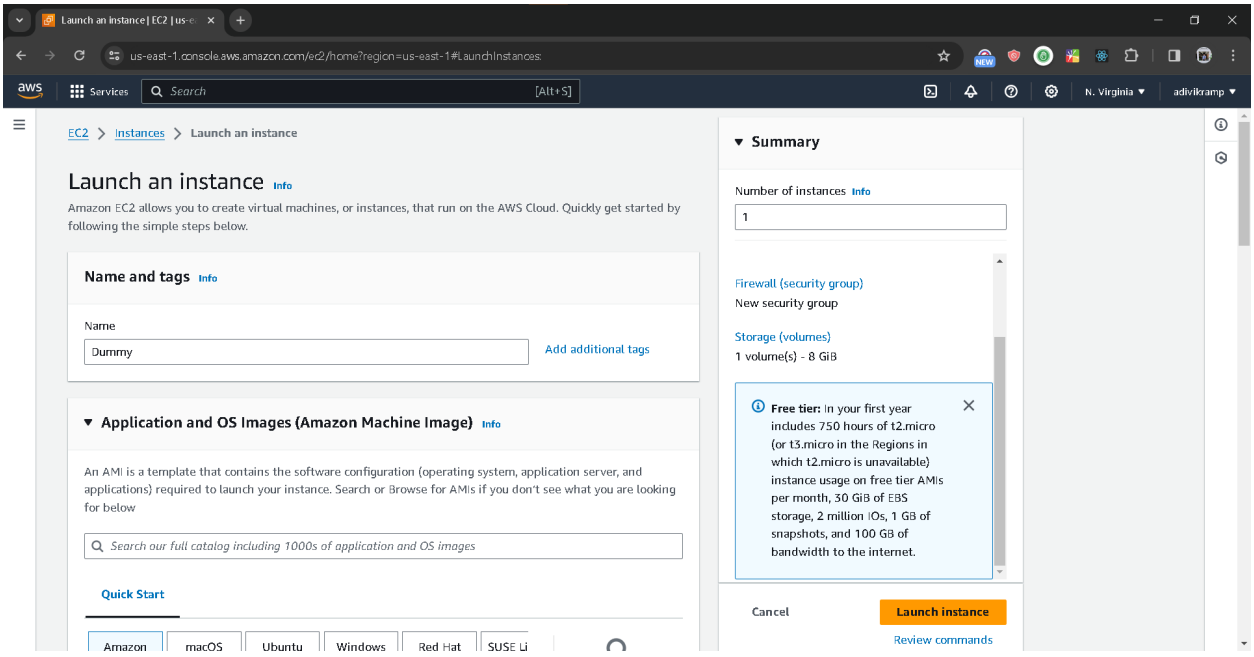


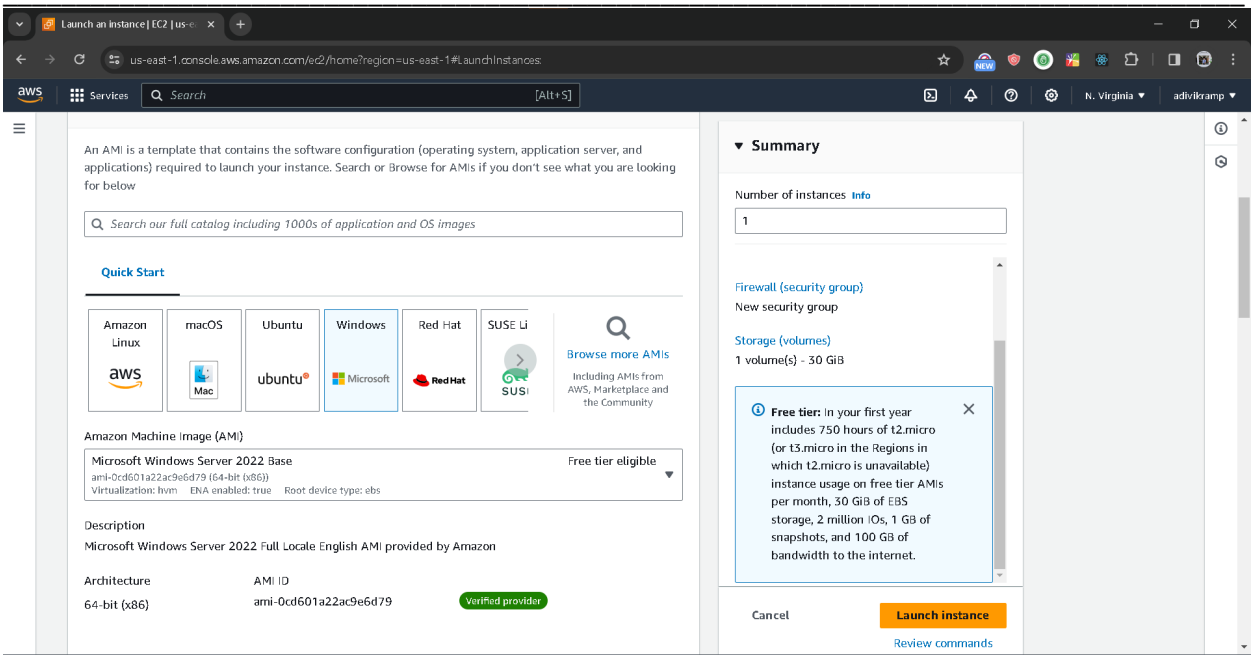
Step 2. Create EC2 instance and launch it.

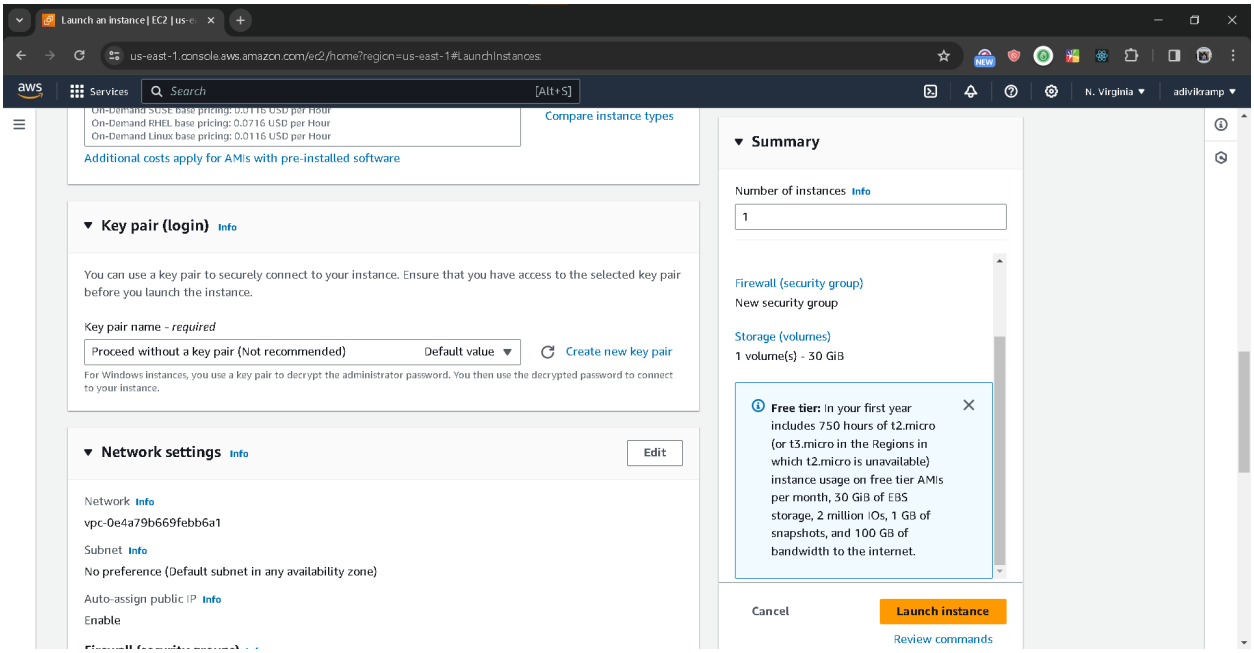
- ✓ **Log in to your AWS Management Console.**
- ✓ **Go to the EC2 dashboard and click on the "Launch Instance" button.**
- ✓ **Choose an Amazon Machine Image (AMI) for your instance.**
- ✓ **Select an instance type and configure instance details like network settings, storage, and tags.**
- ✓ **Create a new key pair.**
- ✓ **Configure security groups to control inbound and outbound traffic.**
- ✓ **Review your instance settings and launch the EC2 instance.**
- ✓ **Create or use an existing key pair for secure access to your instance.**

✓ **Access your EC2 instance using SSH (Secure Shell) or other remote access methods.**






Launch an instance | EC2 | us-e
us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances:
Services
Search
[Alt+S]
N. Virginia
adivikramp
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
Amazon Linux
macOS
Ubuntu
Windows
Red Hat
SUSE Li
Browse more AMIs
Including AMIs from AWS, Marketplace and the Community
Amazon Machine Image (AMI)
Microsoft Windows Server 2022 Base
ami-0cd601a22ac9e6d79 (64-bit (x86))
Virtualization: hvm ENA enabled: true Root device type: ebs
Free tier eligible
Description
Microsoft Windows Server 2022 Full Locale English AMI provided by Amazon
Architecture
64-bit (x86)
AMI ID
ami-0cd601a22ac9e6d79
Verified provider
Summary
Number of instances Info
1
Firewall (security group)
New security group
Storage (volumes)
1 volume(s) - 30 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 usage on free tier AMIs per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of snapshots, and 100 GB of bandwidth to the internet.
Cancel
Launch instance
Review commands


Launch an instance | EC2 | us-e
us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances:
Services
Search
[Alt+S]
N. Virginia
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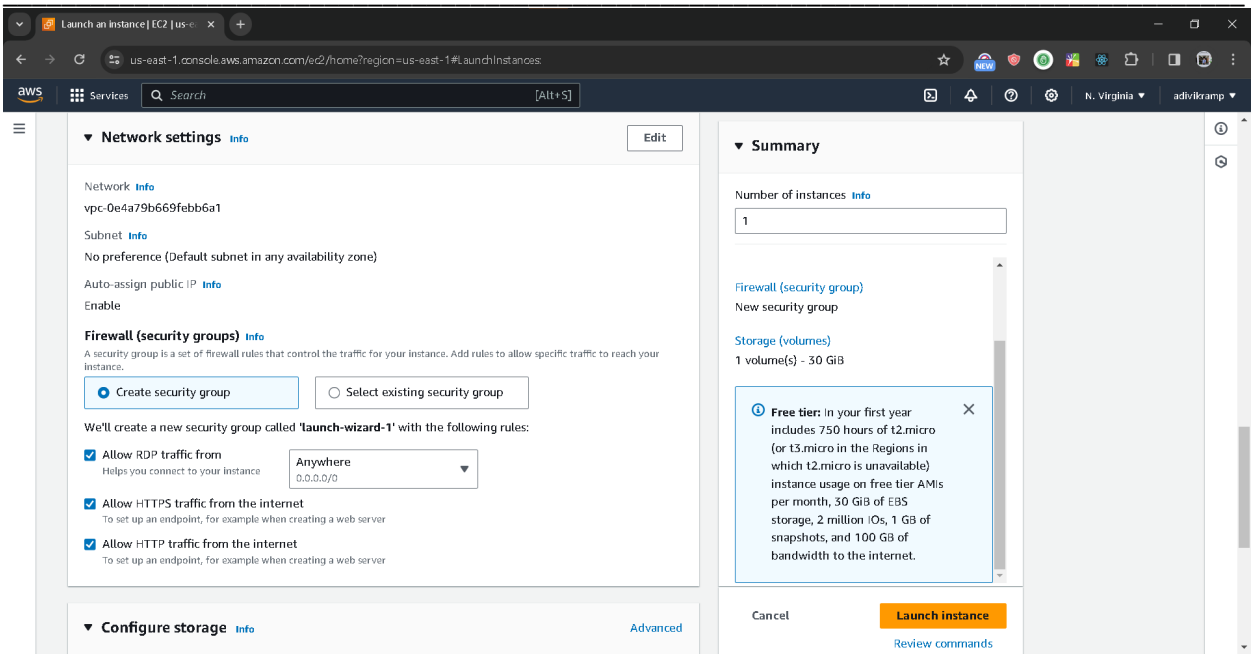
On-Demand SUSE base pricing: 0.0116 USD per Hour
On-Demand RHEL base pricing: 0.0716 USD per Hour
On-Demand Linux base pricing: 0.0116 USD per Hour
Compare instance types
Additional costs apply for AMIs with pre-installed software
Key pair (login) Info
You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.
Key pair name - required
Proceed without a key pair (Not recommended)
Default value
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.
Network settings Info
Edit
Network Info
vpc-0e4a79b669febb6a1
Subnet Info
No preference (Default subnet in any availability zone)
Auto-assign public IP Info
Enable
Summary
Number of instances Info
1
Firewall (security group)
New security group
Storage (volumes)
1 volume(s) - 30 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 usage on free tier AMIs per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of snapshots, and 100 GB of bandwidth to the internet.
Cancel
Launch instance
Review commands


Launch an instance | EC2 | us-e
us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances:
Services
Search
[Alt+S]
N. Virginia
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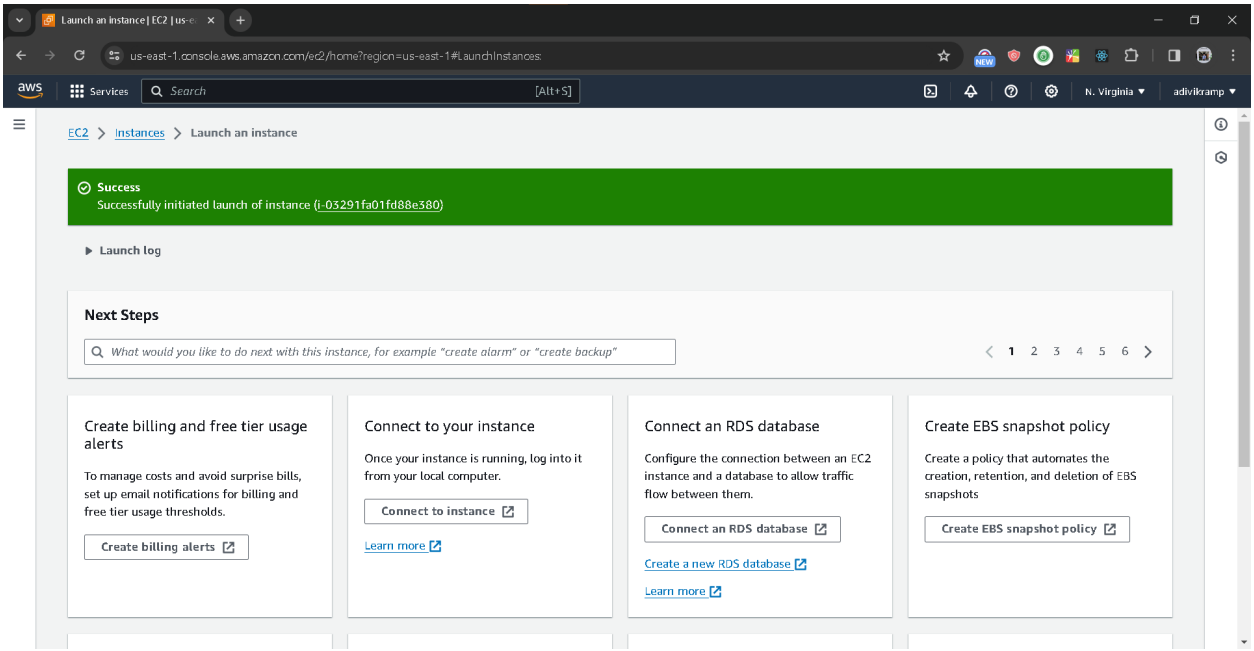
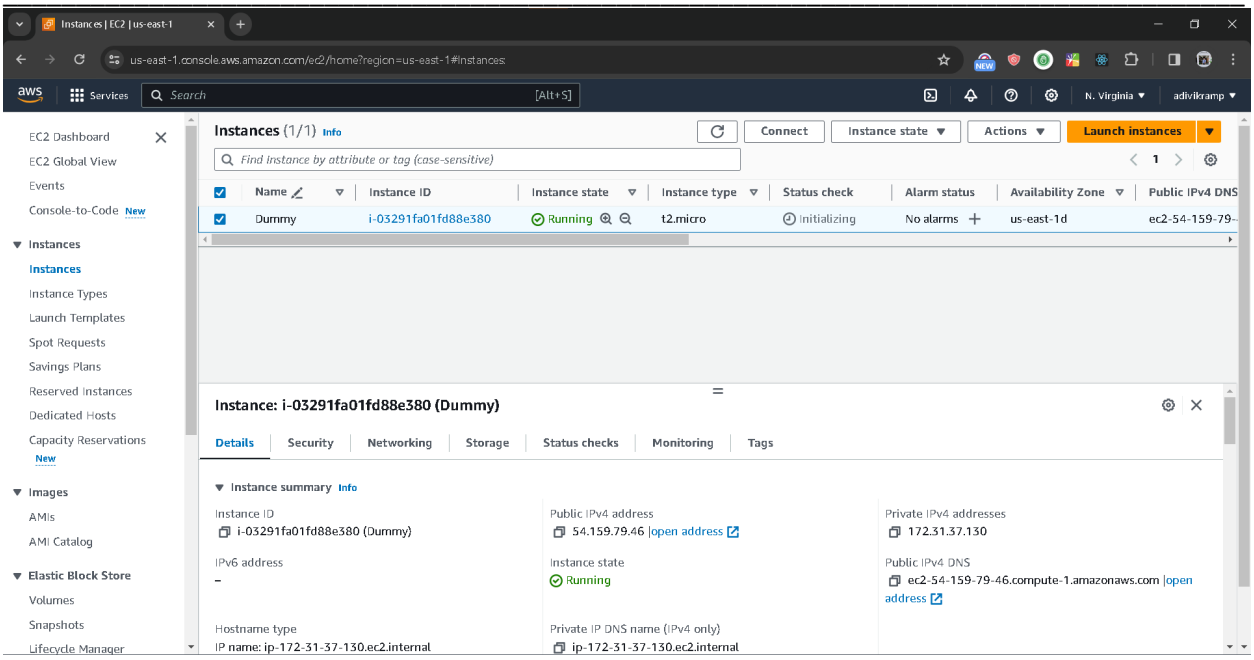
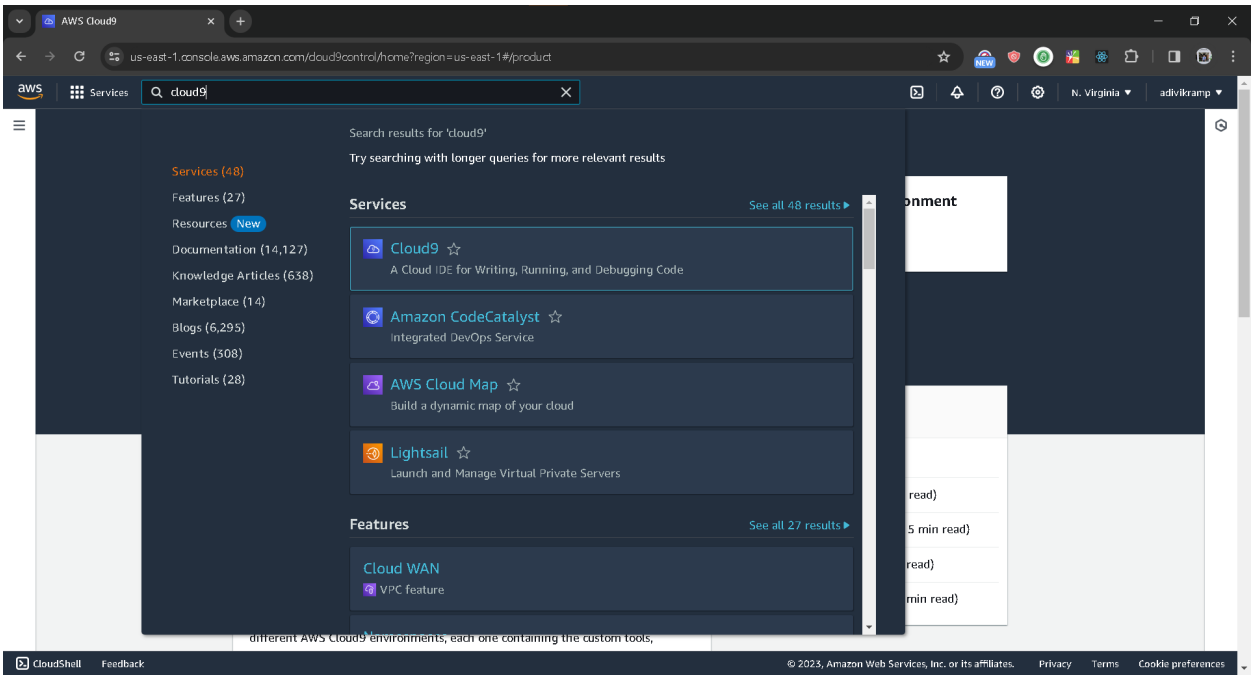
Network settings Info
Edit
Network Info
vpc-0e4a79b669febb6a1
Subnet Info
No preference (Default subnet in any availability zone)
Auto-assign public IP Info
Enable
Firewall (security groups) Info
A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.
Create security group
Select existing security group
We'll create a new security group called 'launch-wizard-1' with the following rules:
Allow RDP 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
Configure storage Info
Advanced
Summary
Number of instances Info
1
Firewall (security group)
New security group
Storage (volumes)
1 volume(s) - 30 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 usage on free tier AMIs per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of snapshots, and 100 GB of bandwidth to the internet.
Cancel
Launch instance
Review commands

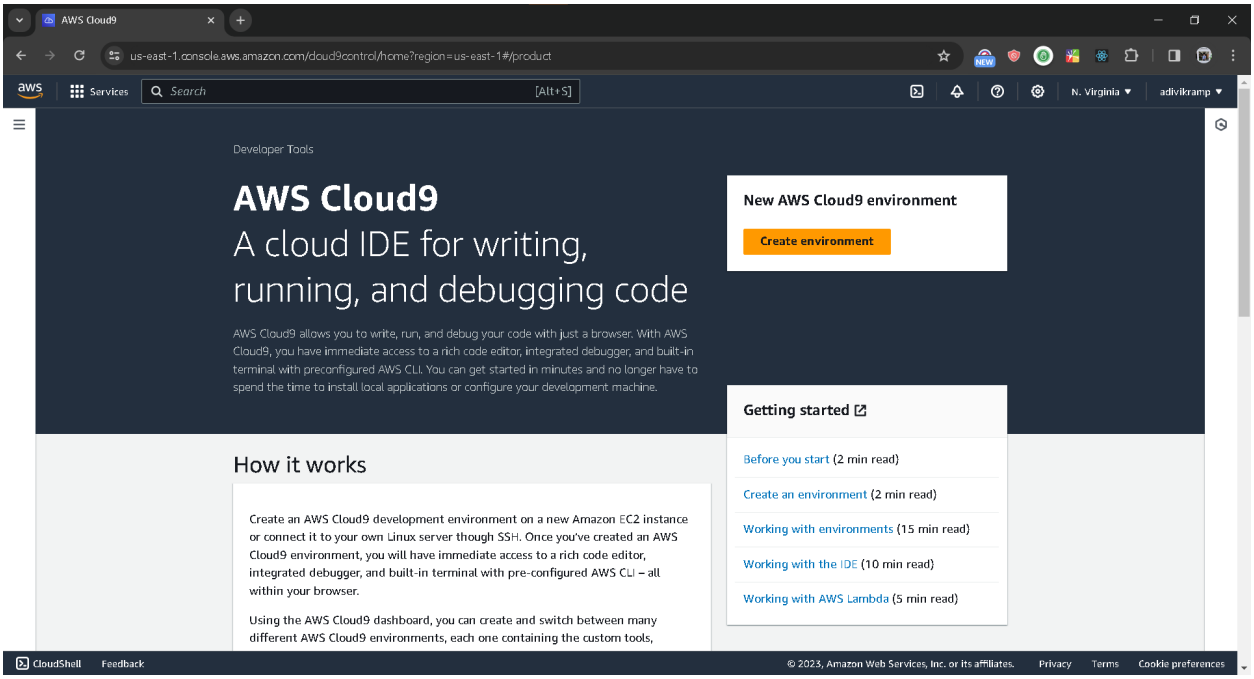

Launch an instance | EC2 | us-e
us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances:
Services
Search
[Alt+S]
N. Virginia
adivikramp
EC2 > Instances > Launch an instance
Success
Successfully initiated launch of instance (i-03291fa01fd88e380)
Launch log
Next Steps
What would you like to do next with this instance, for example "create alarm" or "create backup"
1 2 3 4 5 6
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

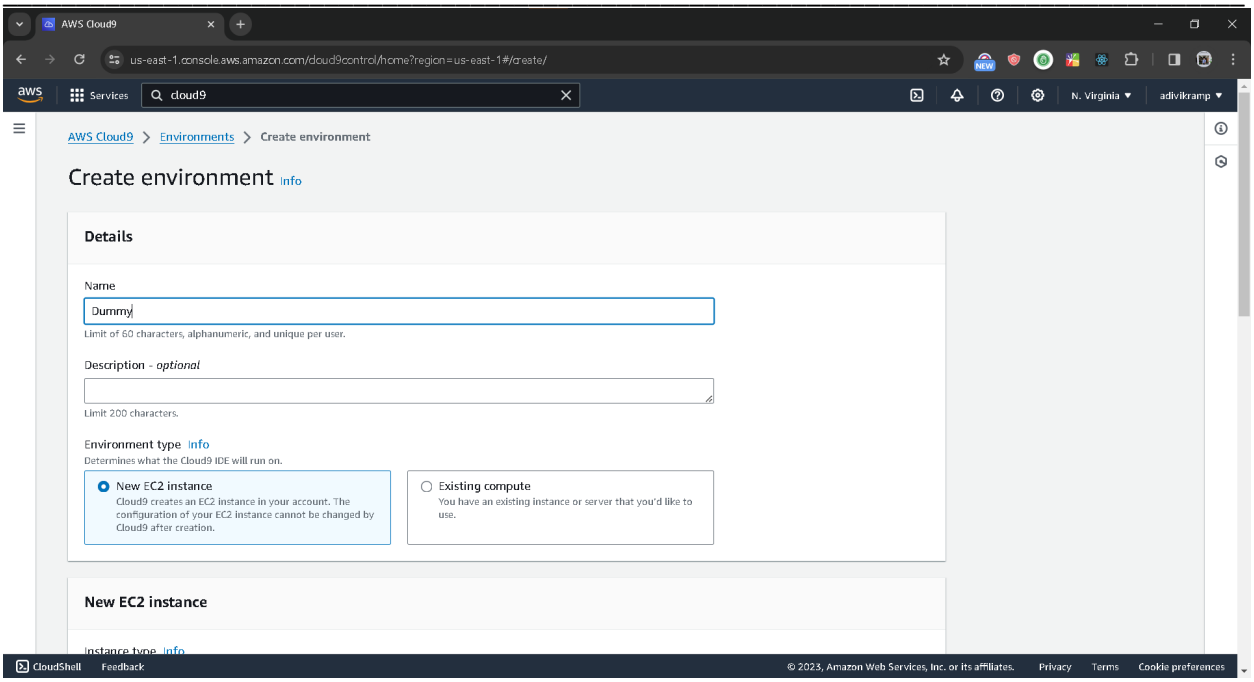

Instances | EC2 | us-east-1
us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Instances:
Services
Search
[Alt+S]
N. Virginia
adivikramp
EC2 Dashboard
EC2 Global View
Events
Console-to-Code New
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations New
Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Snapshots
Lifecycle Manager
Instances (1/1) Info
Connect
Instance state
Actions
Launch instances
Find instance by attribute or tag (case-sensitive)
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
Availability Zone
Public IPv4 DNS
Dummy
i-03291fa01fd88e380
Running
t2.micro
Initializing
No alarms
us-east-1d
ec2-54-159-79-
Instance: i-03291fa01fd88e380 (Dummy)
Details
Security
Networking
Storage
Status checks
Monitoring
Tags
Instance summary Info
Instance ID
i-03291fa01fd88e380 (Dummy)
Public IPv4 address
54.159.79.46 |open address
Private IPv4 addresses
172.31.37.130
IPv6 address
–
Instance state
Running
Public IPv4 DNS
ec2-54-159-79-46.compute-1.amazonaws.com |open address
Hostname type
IP name: ip-172-31-37-130.ec2.internal
Private IP DNS name (IPv4 only)
ip-172-31-37-130.ec2.internal

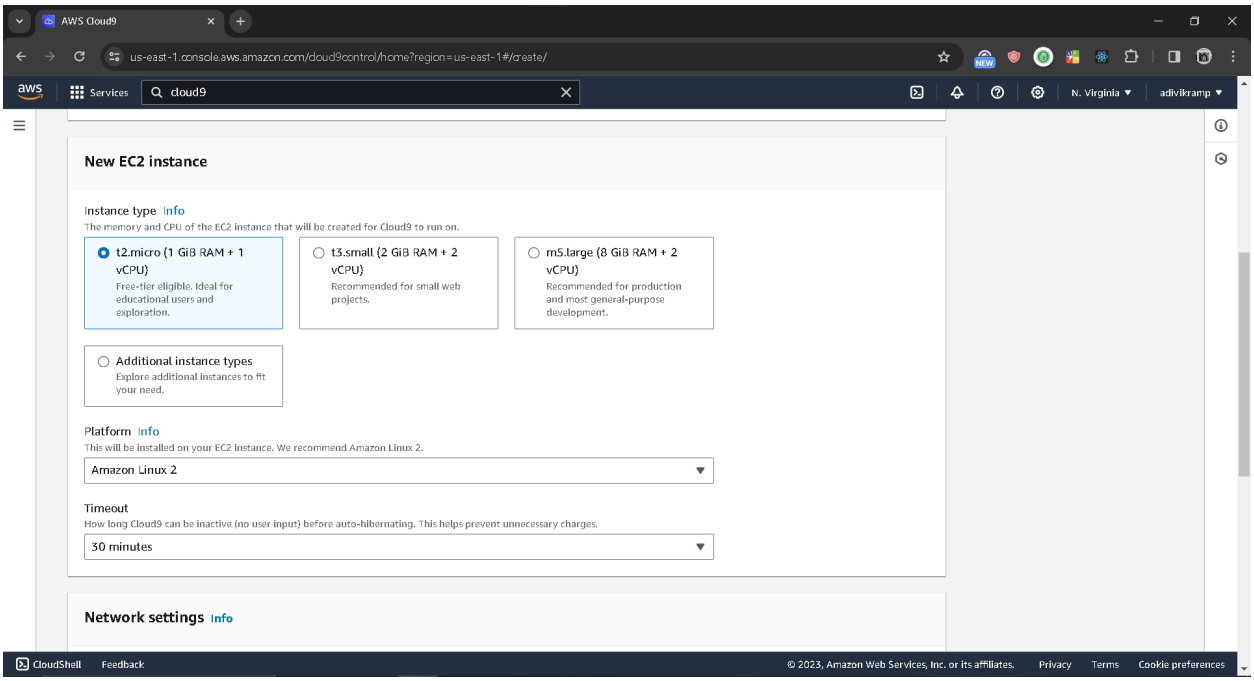
Step 3 – Now we create instance and launch it, now it's time for Cloud9's setup



Create New Environment




AWS Cloud9
us-east-1.console.aws.amazon.com/cloud9control/home?region=us-east-1#/create/
Services
cloud9
N. Virginia
adivikramp
AWS Cloud9 > Environments > Create environment
Create environment Info
Details
Name
Dummy
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
Instance type Info
CloudShell
Feedback
© 2023, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences


AWS Cloud9
us-east-1.console.aws.amazon.com/cloud9control/home?region=us-east-1#/create/
Services
cloud9
N. Virginia
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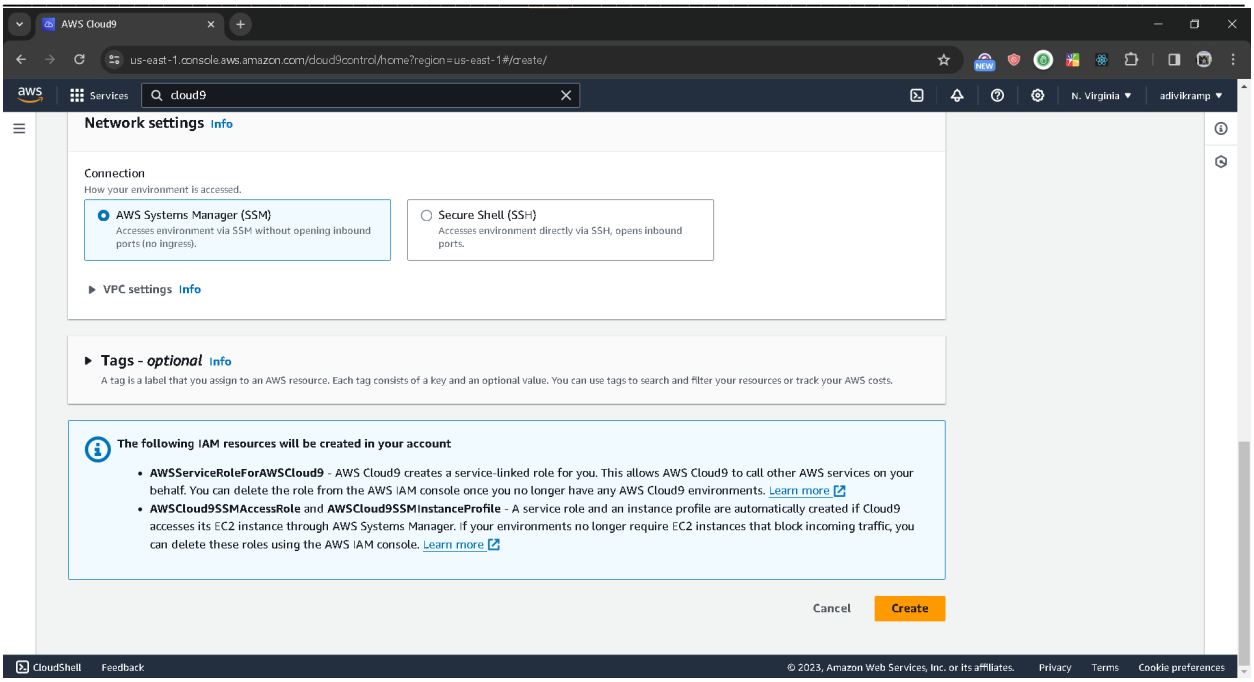
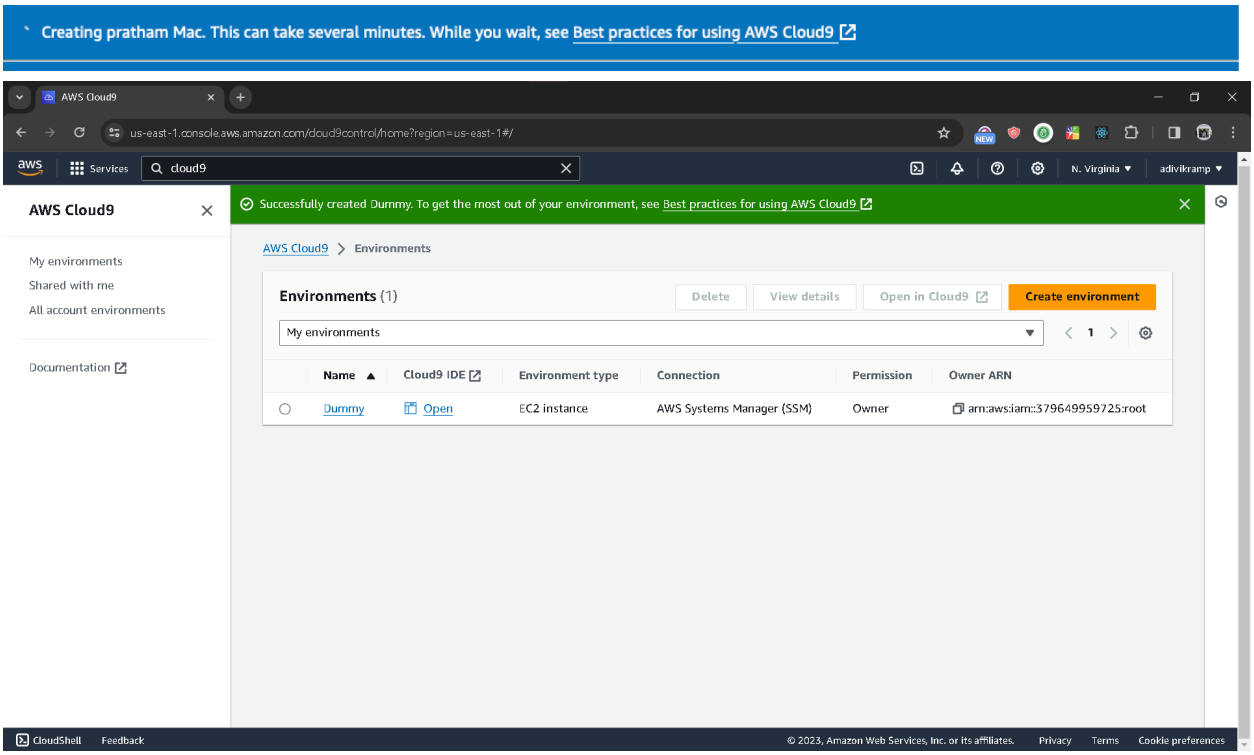
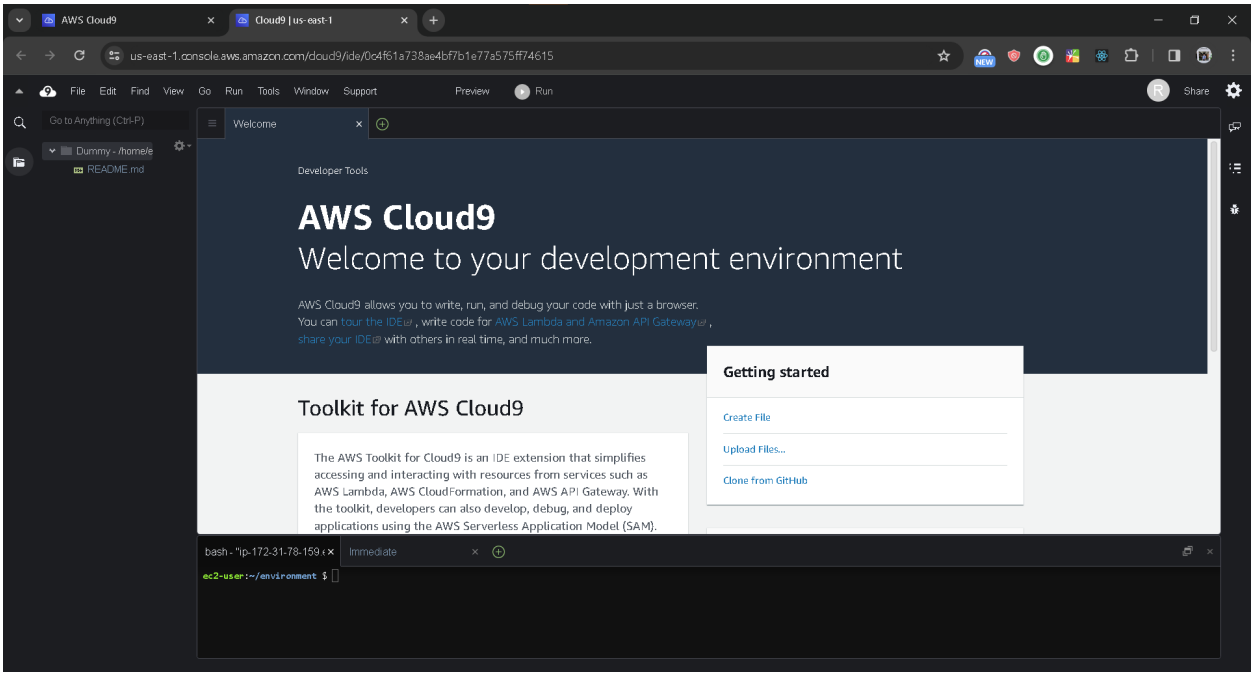
New EC2 instance
Instance type Info
The memory and CPU of the EC2 instance that will be created for Cloud9 to run on.
t2.micro (1 GiB RAM + 1 vCPU)
Free-tier eligible. Ideal for educational users and exploration.
t3.small (2 GiB RAM + 2 vCPU)
Recommended for small web projects.
m5.large (8 GiB RAM + 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
© 2023, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences



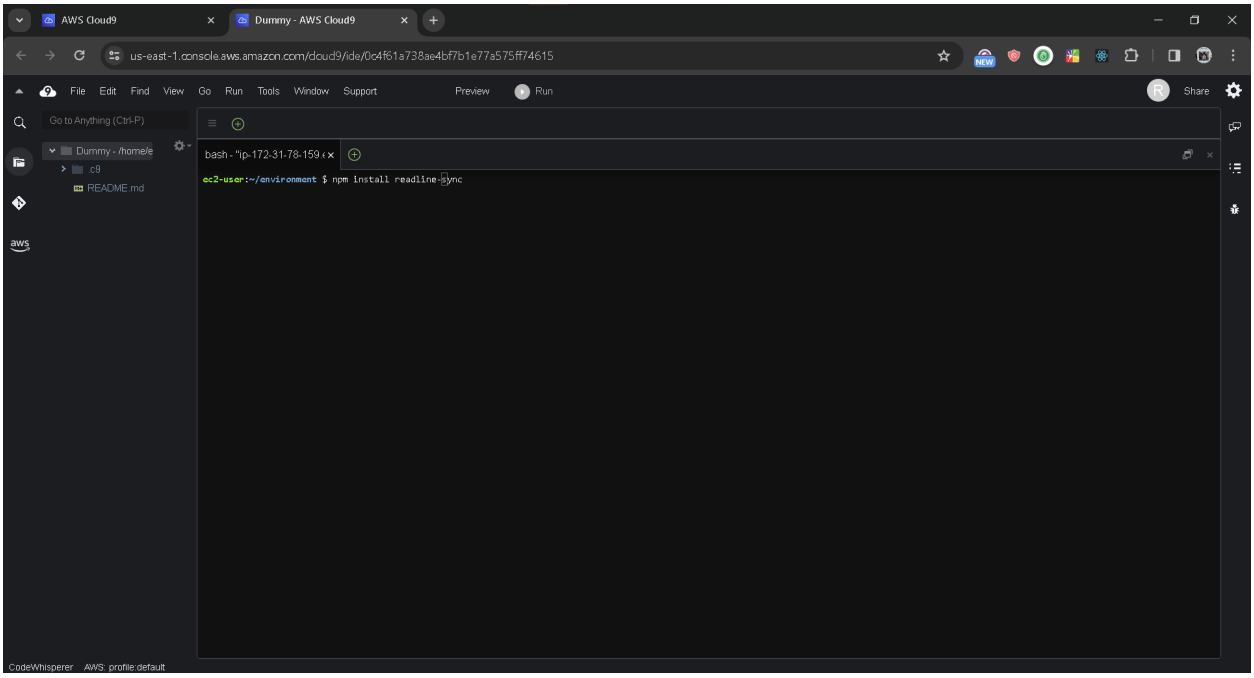
Step 4 – Successfully Account is created

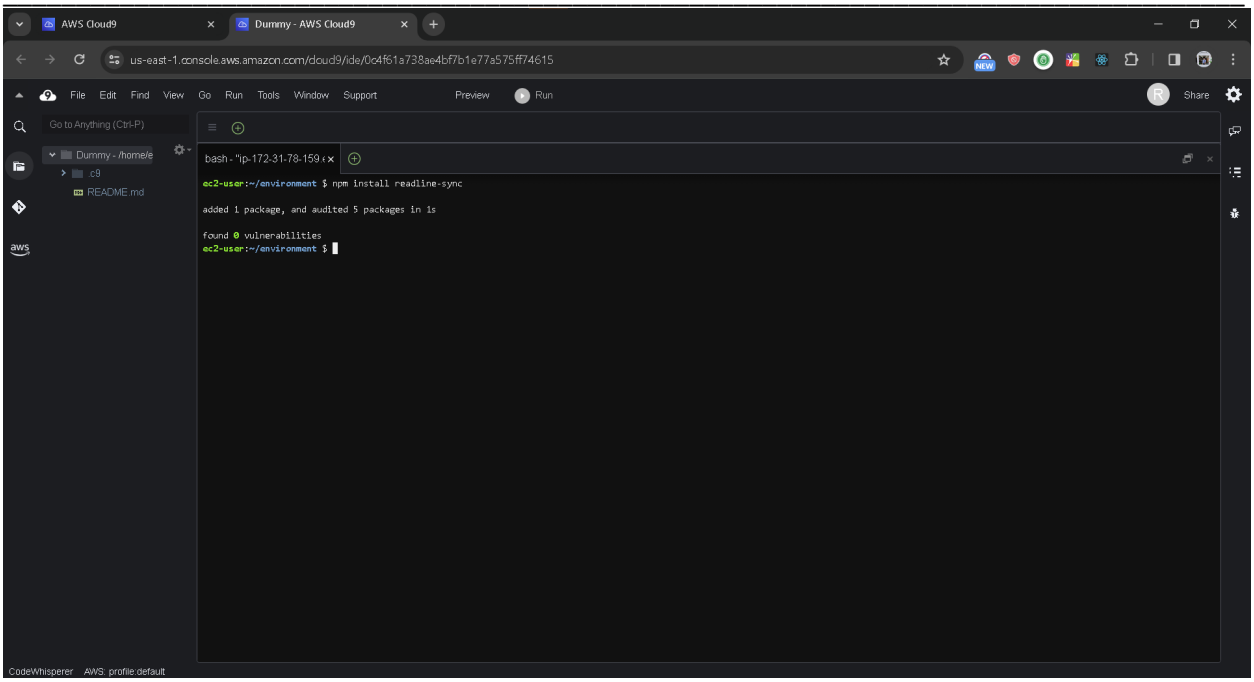


Step 5 – After creating the cloud9 environment now we can start code in the environment.



```npm install readline-sync```

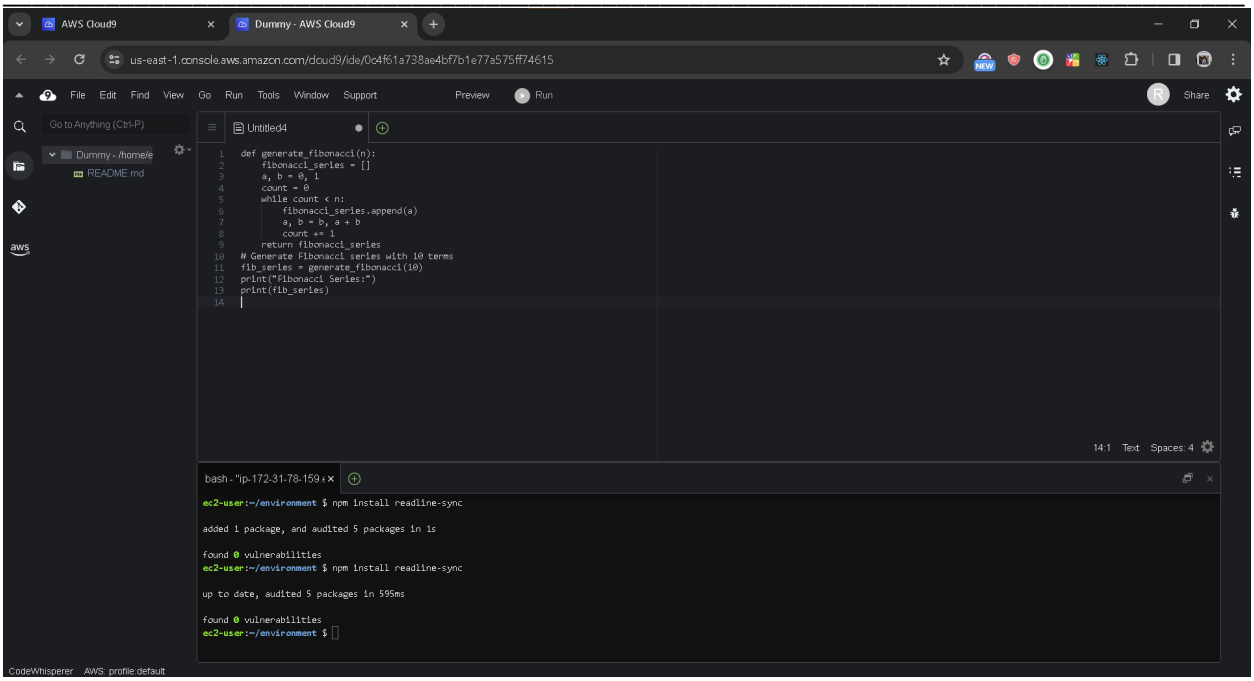

```



Step 6. – Write the code in editor

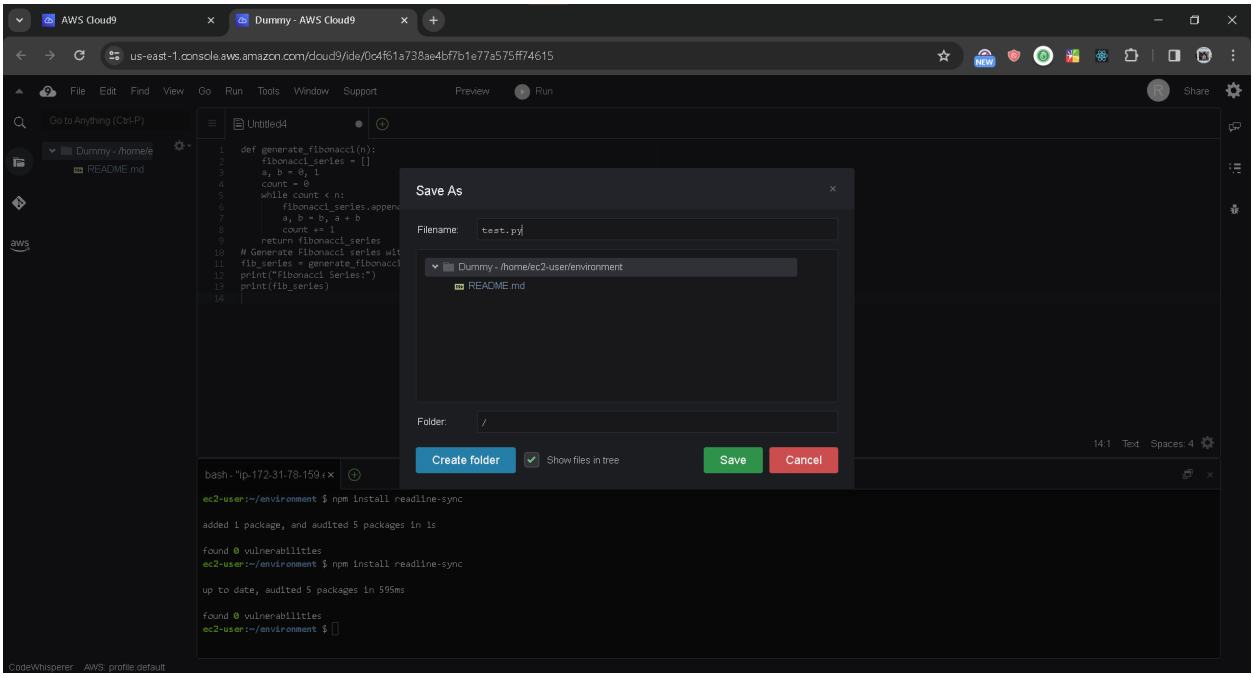
python code for fibonacci series

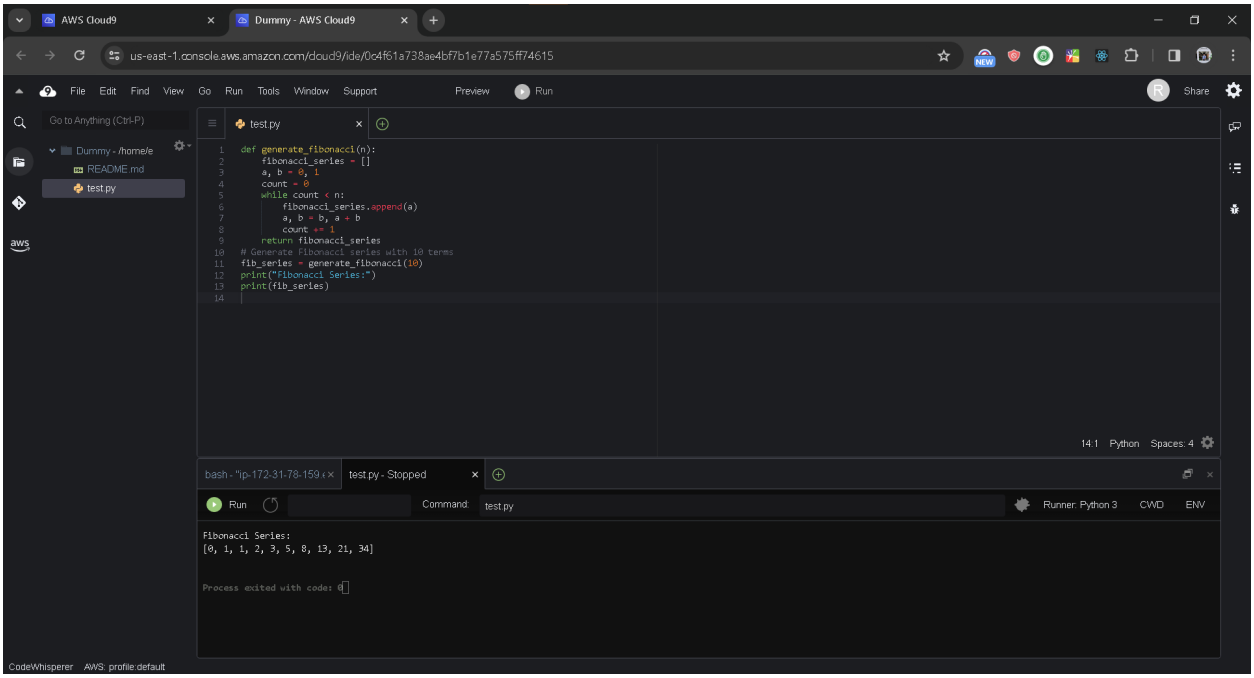
```
def generate_fibonacci(n):
    fibonacci_series = []
    a, b = 0, 1
    count = 0
    while count < n:
        fibonacci_series.append(a)
        a, b = b, a + b
        count += 1
    return fibonacci_series
# Generate Fibonacci series with 10 terms
fib_series = generate_fibonacci(10)
print("Fibonacci Series:")
print(fib_series)
```



Step 7 – 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-

Successfully learnt Working in Cloud9 to demonstrate different language.