Vivekanand Education Society's

Institute of Technology

An Autonomous Institute Affiliated to University of Mumbai,, Approved by AICTE & Recognized by Govt. of Maharashtra

Hashu Advani Memorial Complex, Collector Colony, Chembur East, Mumbai - 400074.

Department of Information Technology

A.Y. 2024-25

Advance DevOps Lab

Experiment 01

Aim:To understand the benefits of Cloud Infrastructure and Setup AWS Cloud9 IDE, Launch AWS Cloud9 IDE and Perform Collaboration Demonstration.

Roll No.	22
Name	Sarthak Harade
Class	D15B
Subject	Advance DevOps Lab
LO Mapped	LO1 To understand the fundamentals of Cloud Computing and be fully proficient with Cloud based DevOps solution deployment options to meet your business requirements.
Grade:	

AIM : To understand the benefits of Cloud Infrastructure and setup AWS Cloud9 IDE, launch AWS Cloud9 IDE, and perform a collaboration demonstration.

THEORY :

AWS Cloud9 is a cloud-based integrated development environment (IDE) that lets you write, run, and debug your code with just a browser. It includes a code editor, debugger, and terminal. Cloud9 comes prepackaged with essential tools for popular programming languages, including JavaScript, Python, PHP, and more, so you don't need to install files or configure your development machine to start new projects. Since your Cloud9 IDE is cloud-based, you can work on your projects from your office, home, or anywhere using an internet-connected machine.

Cloud9 also provides a seamless experience for developing serverless applications enabling you to easily define resources, debug, and switch between local and remote execution of serverless applications. With Cloud9, you can quickly share your development environment with your team, enabling you to pair-program and track each other's inputs in real time.

Benefits

1. Code with Just a Browser

AWS Cloud9 gives you the flexibility to run your development environment on a managed Amazon EC2 instance or any existing Linux server that supports SSH. This means that you can write, run, and debug applications with just a browser, without needing to install or maintain a local IDE. The Cloud9 code editor and integrated debugger include helpful, time-saving features such as code hinting, code completion, and step-through debugging. The Cloud9 terminal provides a browser-based shell experience enabling you to install additional software, do a git push, or enter commands.

2. Code Together in Real-Time

AWS Cloud9 makes collaborating on code easy. You can share your development environment with your team in just a few clicks and pair program together. While collaborating, your team members can see each other in real-time, and instantly chat with one another from within the IDE.

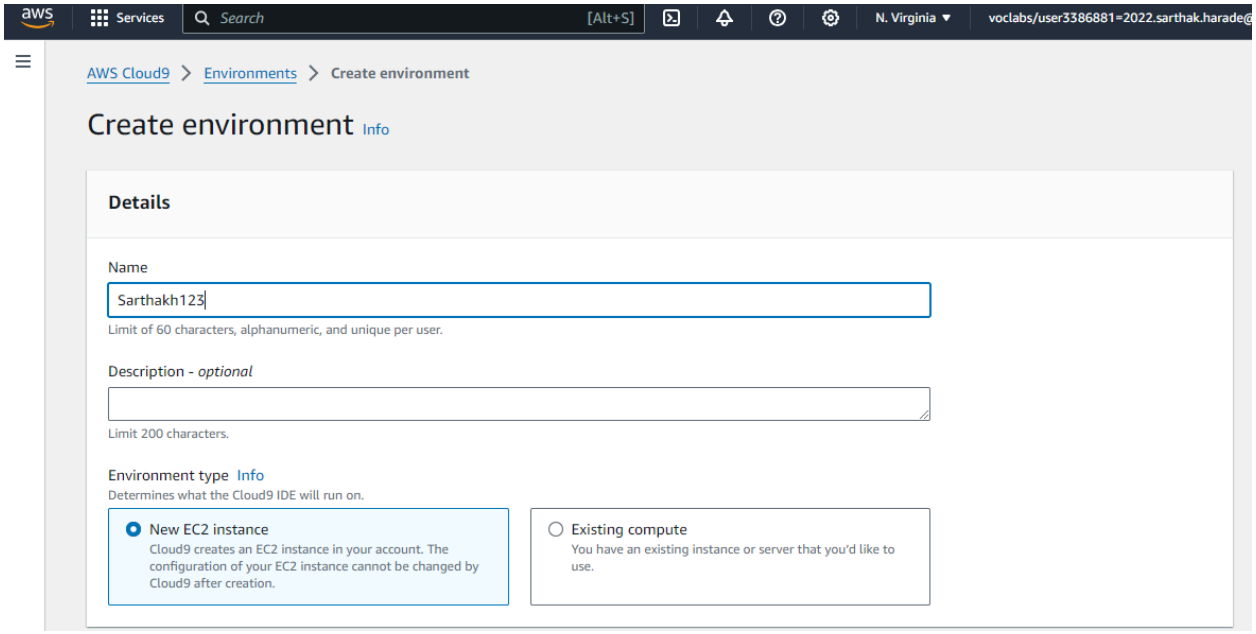
3. Build Serverless Applications with Ease

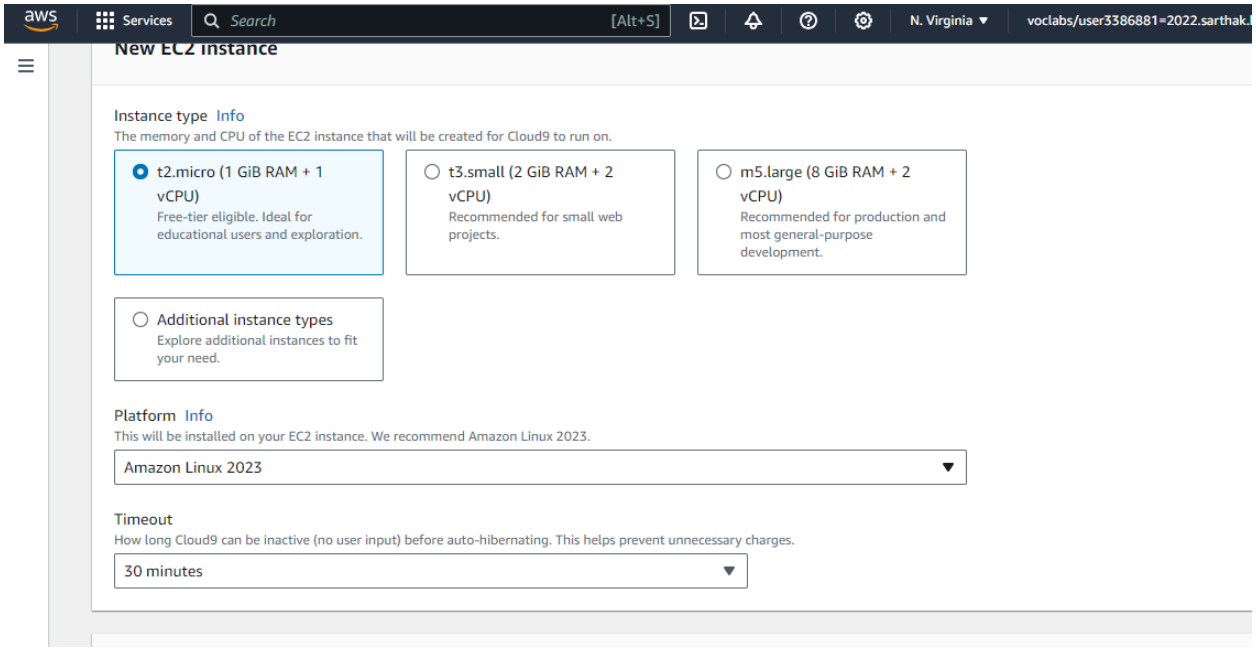
AWS Cloud9 makes it easy to write, run, and debug serverless applications. It preconfigures the development environment with all the SDKs, libraries, and plug-ins needed for serverless development. Cloud9 also provides an environment for locally testing and debugging AWS Lambda functions. This allows you to iterate on your code directly, saving you time and improving the quality of your code.

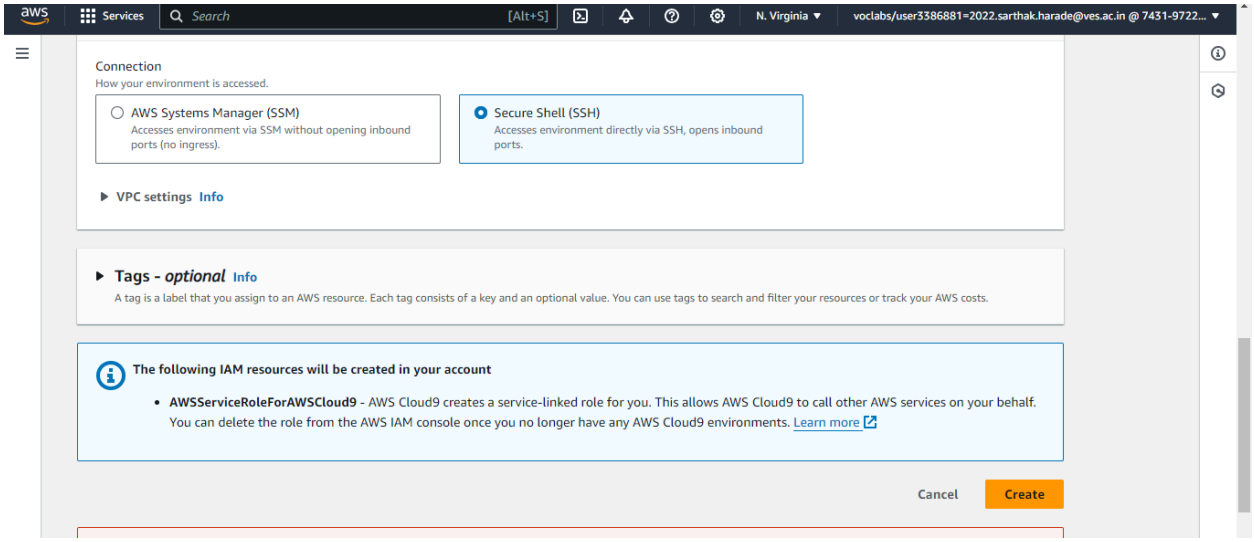
4. Direct Terminal Access to AWS

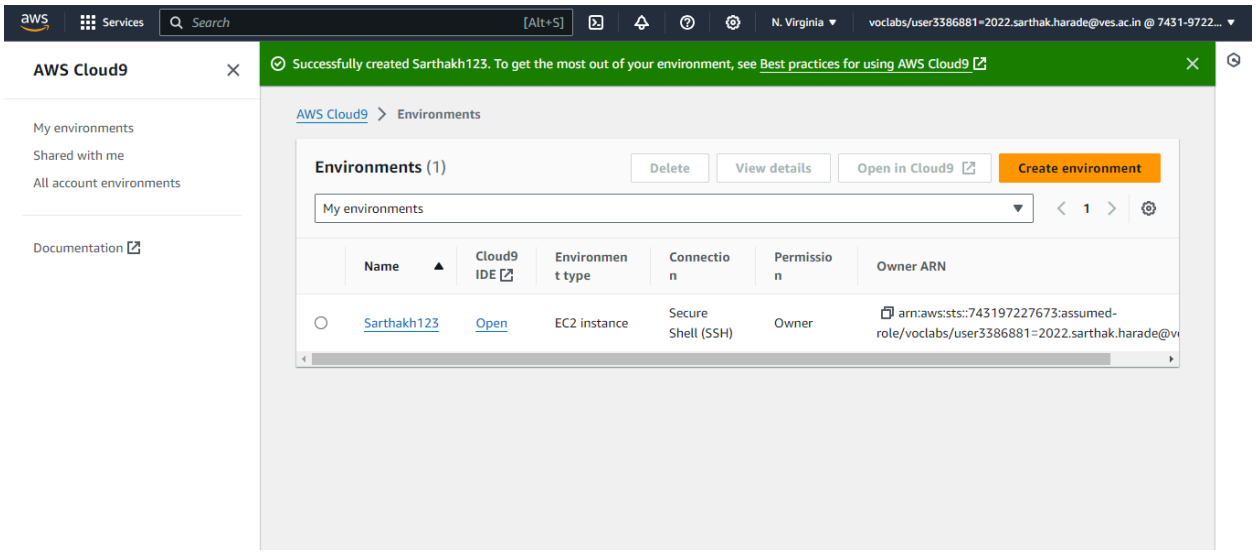
AWS Cloud9 comes with a terminal that includes sudo privileges to the managed Amazon EC2 instance that is hosting your development environment and a preauthenticated AWS Command Line Interface. This makes it easy for you to quickly run commands and directly access AWS

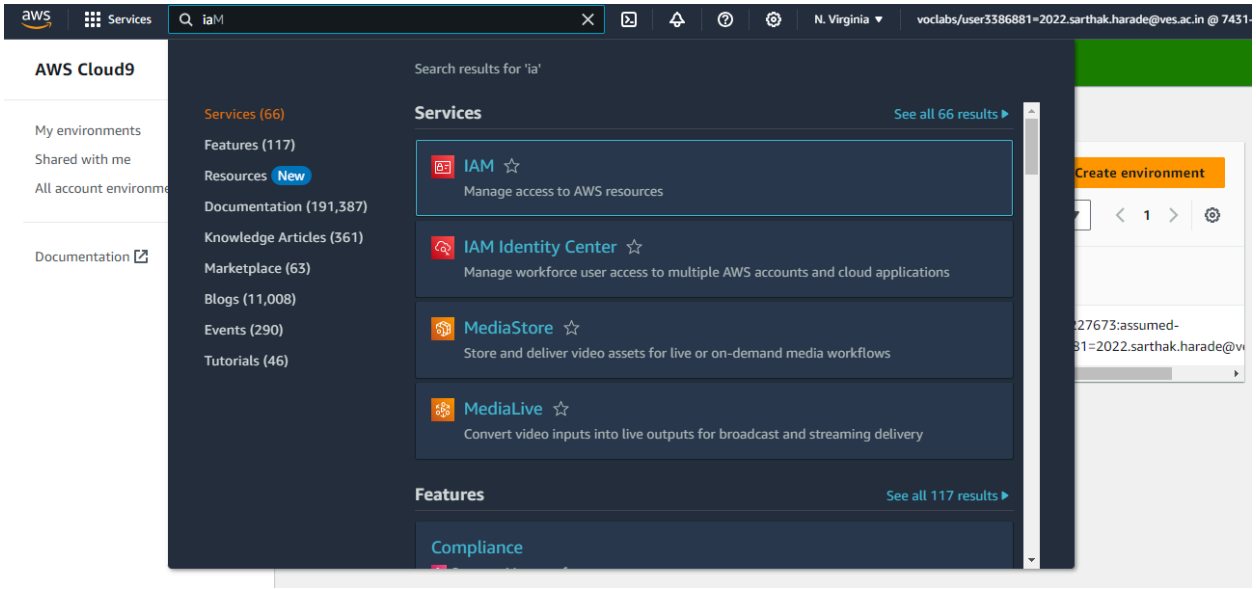
services.

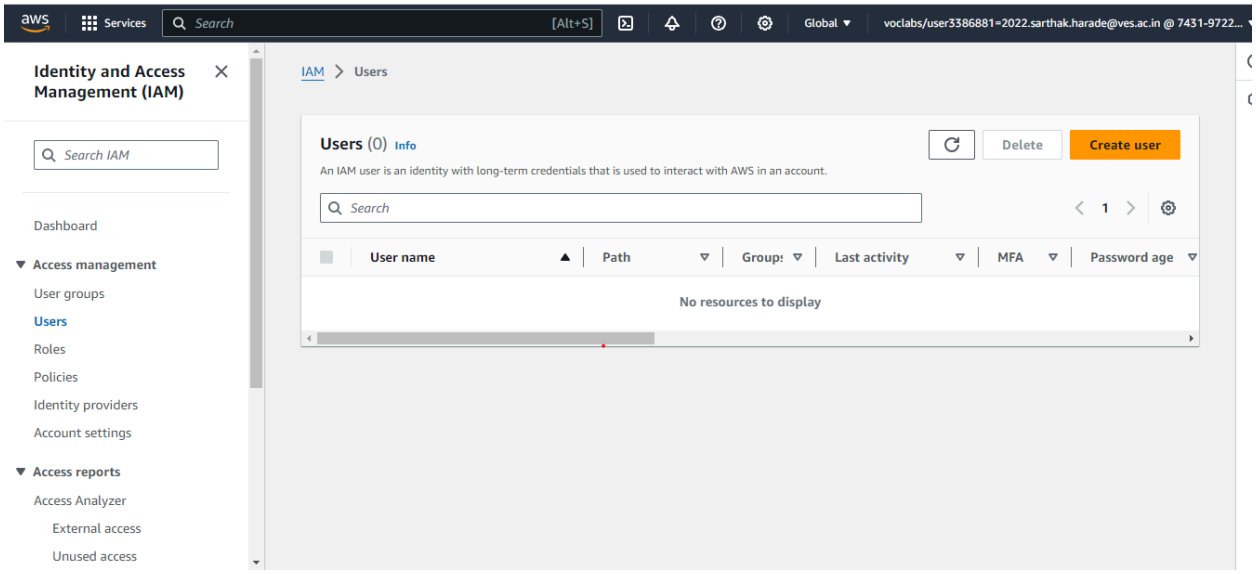

aws
Services
Search
[Alt+S]
N. Virginia
voclabs/user3386881=2022.sarthak.harade@
AWS Cloud9 > Environments > Create environment
Create environment Info
Details
Name
Sarthakh123
Limit of 60 characters, alphanumeric, and unique per user.
Description - optional
Limit 200 characters.
Environment type Info
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.


aws
Services
Search
[Alt+S]
N. Virginia
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 2023.
Amazon Linux 2023
Timeout
How long Cloud9 can be inactive (no user input) before auto-hibernating. This helps prevent unnecessary charges.
30 minutes


Services
Search
[Alt+S]
N. Virginia
voclabs/user3386881=2022.sarthak.harade@ves.ac.in @ 7431-9722...
Connection
How your environment is accessed.
AWS Systems Manager (SSM)
Accesses environment via SSM without opening inbound ports (no ingress).
Secure Shell (SSH)
Accesses environment directly via SSH, opens inbound ports.
VPC settings Info
Tags - optional Info
A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.
The following IAM resources will be created in your account
AWSServiceRoleForAWSCloud9 - AWS Cloud9 creates a service-linked role for you. This allows AWS Cloud9 to call other AWS services on your behalf. You can delete the role from the AWS IAM console once you no longer have any AWS Cloud9 environments. Learn more
Cancel
Create


Services
Search
[Alt+S]
N. Virginia
voclabs/user3386881=2022.sarthak.harade@ves.ac.in @ 7431-9722...
AWS Cloud9
My environments
Shared with me
All account environments
Documentation
Successfully created Sarthakh123. To get the most out of your environment, see Best practices for using AWS Cloud9
AWS Cloud9 > Environments
Environments (1)
Delete
View details
Open in Cloud9
Create environment
My environments
1
Name
Cloud9 IDE
Environment type
Connection
Permission
Owner ARN
Sarthakh123
Open
EC2 instance
Secure Shell (SSH)
Owner
arn:aws:sts::743197227673:assumed-role/voclabs/user3386881=2022.sarthak.harade@v


aws
Services
iaM
N. Virginia
voclabs/user3386881=2022.sarthak.harade@ves.ac.in @ 7431-
AWS Cloud9
My environments
Shared with me
All account environme
Documentation
Search results for 'ia'
Services (66)
Features (117)
Resources New
Documentation (191,387)
Knowledge Articles (361)
Marketplace (63)
Blogs (11,008)
Events (290)
Tutorials (46)
Services
See all 66 results
IAM
Manage access to AWS resources
IAM Identity Center
Manage workforce user access to multiple AWS accounts and cloud applications
MediaStore
Store and deliver video assets for live or on-demand media workflows
MediaLive
Convert video inputs into live outputs for broadcast and streaming delivery
Features
See all 117 results
Compliance
Create environment
1
227673:assumed-
31=2022.sarthak.harade@v


aws
Services
Search
[Alt+S]
Global
voclabs/user3386881=2022.sarthak.harade@ves.ac.in @ 7431-9722...
Identity and Access Management (IAM)
Search IAM
Dashboard
Access management
User groups
Users
Roles
Policies
Identity providers
Account settings
Access reports
Access Analyzer
External access
Unused access
IAM > Users
Users (0) Info
An IAM user is an identity with long-term credentials that is used to interact with AWS in an account.
Delete
Create user
Search
1
User name
Path
Group:
Last activity
MFA
Password age
No resources to display

User details

User name

Thenew@123

The user name can have up to 64 characters. Valid characters: A-Z, a-z, 0-9, and + = , . @ _ - (hyphen)

☑ Provide user access to the AWS Management Console - *optional*
If you're providing console access to a person, it's a best practice to manage their access in IAM Identity Center.

Console password

○ Autogenerated password
You can view the password after you create the user.

◉ Custom password
Enter a custom password for the user.

Soham@890

- Must be at least 8 characters long
- Must include at least three of the following mix of character types: uppercase letters (A-Z), lowercase letters (a-z), numbers (0-9), and symbols ! @ # $ % ^ & * ( ) _ + - (hyphen) = [ ] { } | '

☑ Show password

☐ Users must create a new password at next sign-in - Recommended
Users automatically get the IAMUserChangePassword policy to allow them to change their own password.

IAM > Users > Create user

Step 1
Specify user details

Step 2
Set permissions

Step 3
Review and create

Step 4
Retrieve password

Set permissions

Add user to an existing group or create a new one. Using groups is a best-practice way to manage user's permissions by job functions. Learn more

Permissions options

◉ Add user to group
Add user to an existing group, or create a new group. We recommend using groups to manage user permissions by job function.

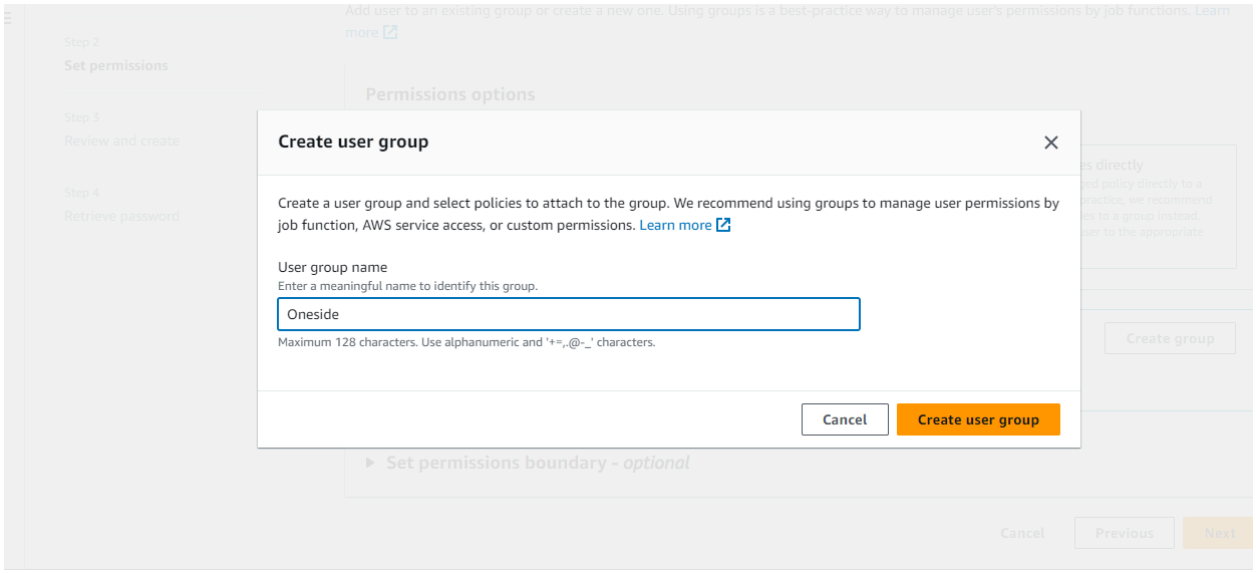
○ Copy permissions
Copy all group memberships, attached managed policies, and inline policies from an existing user.

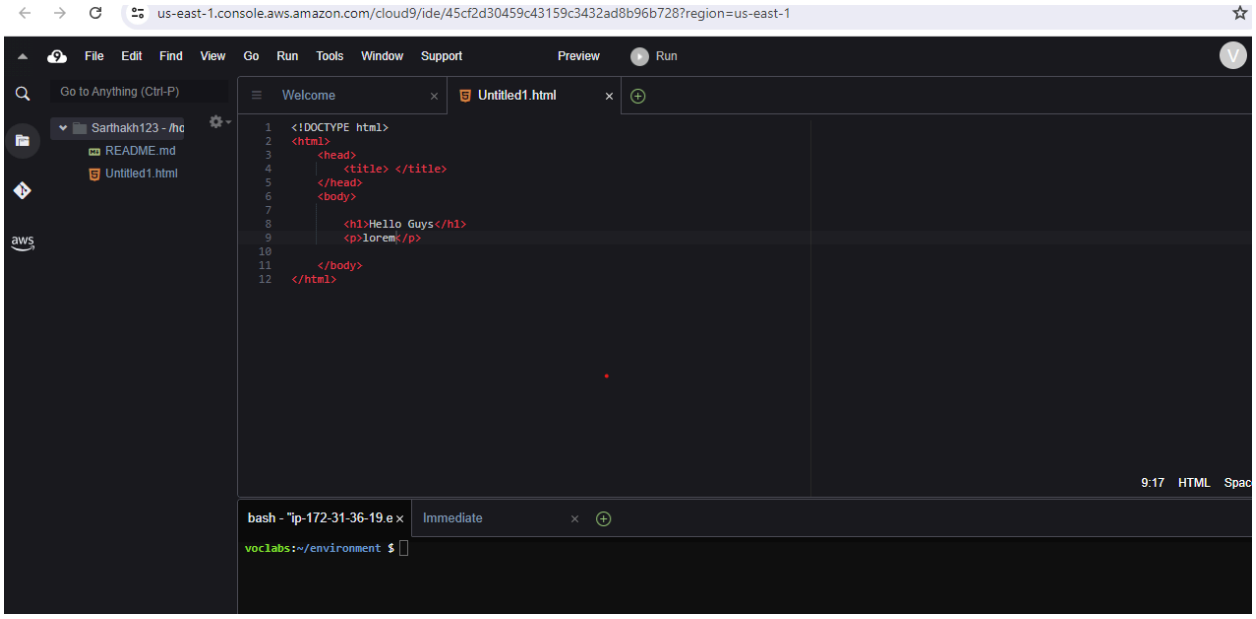
○ Attach policies directly
Attach a managed policy directly to a user. As a best practice, we recommend attaching policies to a group instead. Then, add the user to the appropriate group.

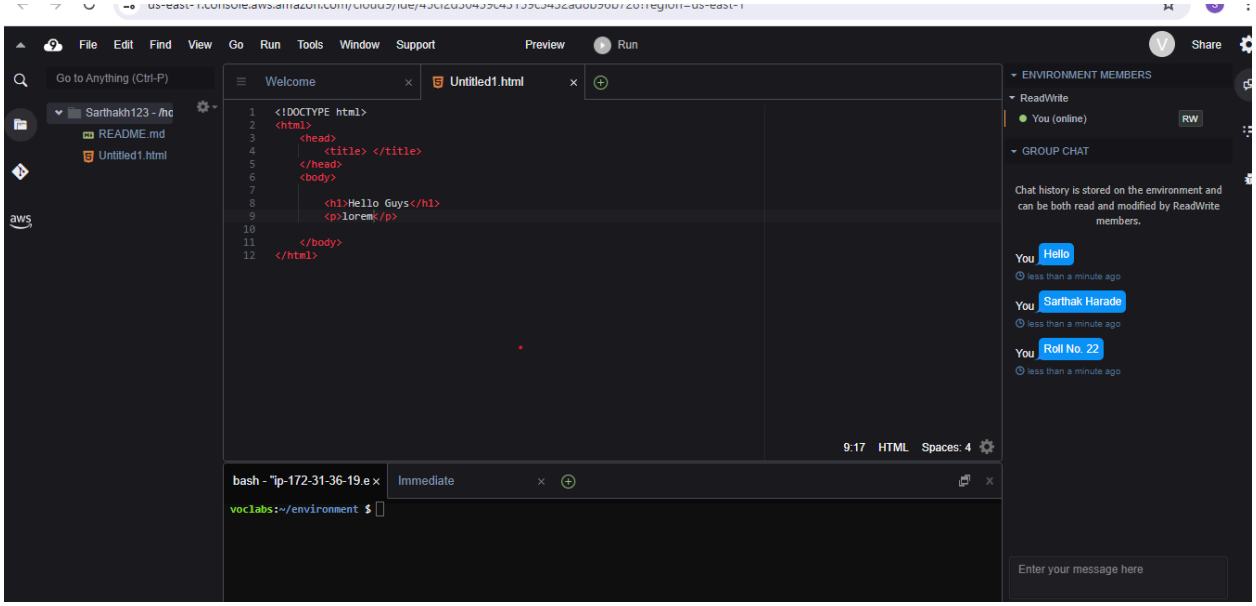
Get started with groups
Create a group and select policies to attach to the group. We recommend using groups to manage user permissions by job function, AWS service access, or custom permissions. Learn more

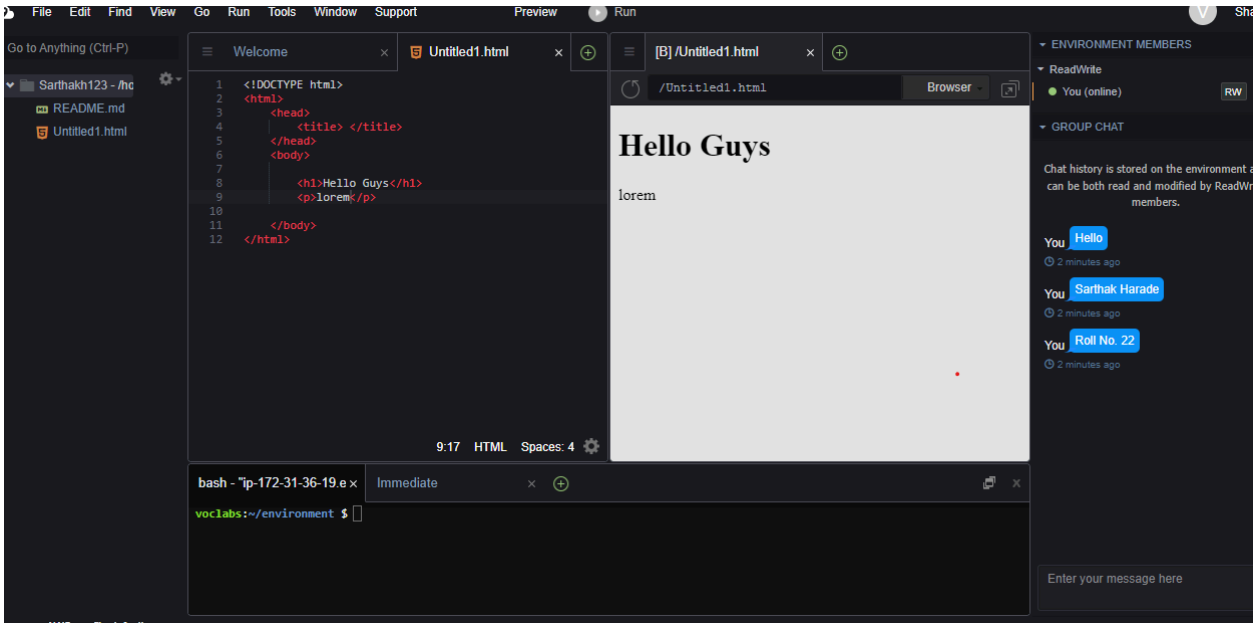
Create group

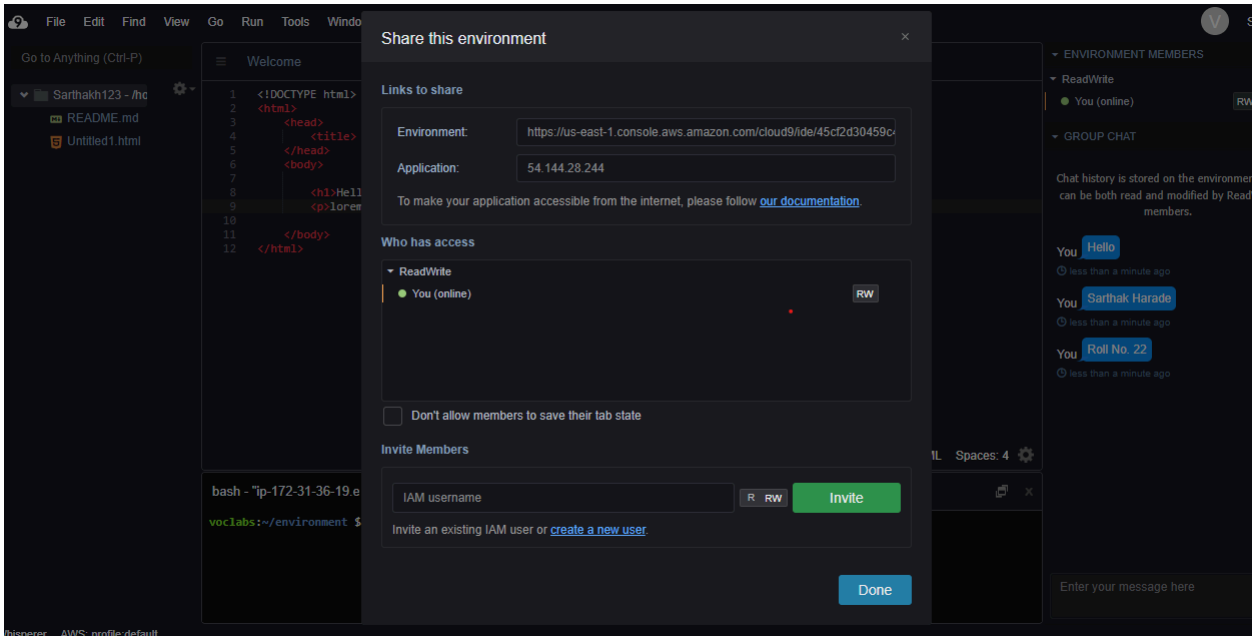
▸ Set permissions boundary - *optional*

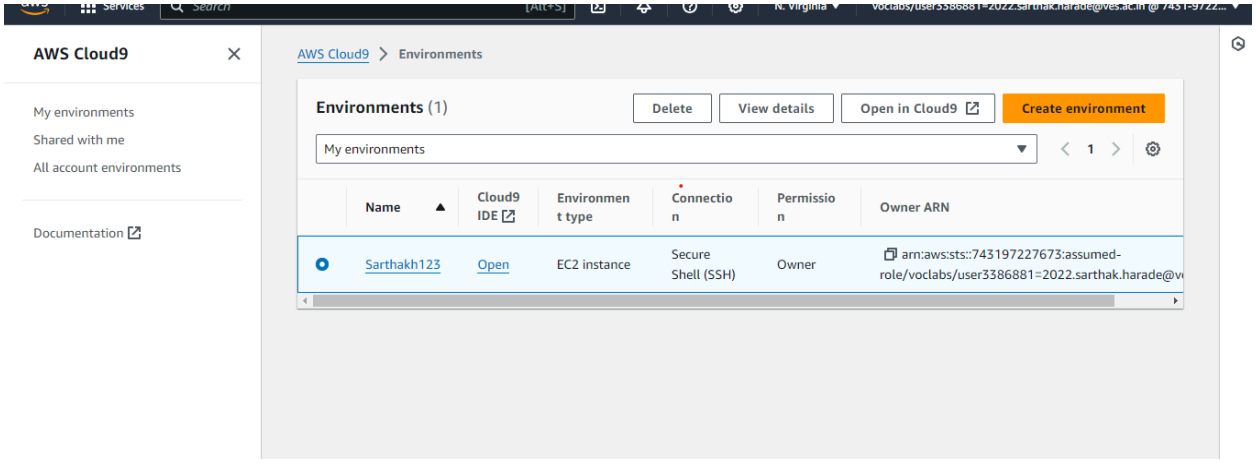

Add user to an existing group or create a new one. Using groups is a best-practice way to manage user's permissions by job functions. Learn more
Step 2
Set permissions
Step 3
Review and create
Step 4
Retrieve password
Permissions options
Create user group
Create a user group and select policies to attach to the group. We recommend using groups to manage user permissions by job function, AWS service access, or custom permissions. Learn more
User group name
Enter a meaningful name to identify this group.
Oneside
Maximum 128 characters. Use alphanumeric and '+=,.@-_' characters.
Cancel
Create user group
Set permissions boundary - optional
Cancel
Previous
Next


us-east-1.console.aws.amazon.com/cloud9/ide/45cf2d30459c43159c3432ad8b96b728?region=us-east-1
File Edit Find View Go Run Tools Window Support Preview Run
Go to Anything (Ctrl-P)
Sarthakh123 - /hc
README.md
Untitled1.html
Welcome
Untitled1.html
<!DOCTYPE html>
<html>
<head>
<title> </title>
</head>
<body>
<h1>Hello Guys</h1>
lorem
</body>
</html>
9:17 HTML Spac
bash - "ip-172-31-36-19.e
Immediate
voclabs:~/environment $


File Edit Find View Go Run Tools Window Support Preview Run Share
Go to Anything (Ctrl-P)
Sarthakh123 - /hc
README.md
Untitled1.html
Welcome
Untitled1.html
<!DOCTYPE html>
<html>
<head>
<title> </title>
</head>
<body>
<h1>Hello Guys</h1>
lorem
</body>
</html>
9:17 HTML Spaces: 4
bash - "ip-172-31-36-19.e
Immediate
voclabs:~/environment $
ENVIRONMENT MEMBERS
ReadWrite
You (online)
RW
GROUP CHAT
Chat history is stored on the environment and can be both read and modified by ReadWrite members.
You Hello
less than a minute ago
You Sarthak Harade
less than a minute ago
You Roll No. 22
less than a minute ago
Enter your message here


File Edit Find View Go Run Tools Window Support Preview Run
Go to Anything (Ctrl-P)
Sarthakh123 - /hc
README.md
Untitled1.html
Welcome
Untitled1.html
<!DOCTYPE html>
<html>
<head>
<title> </title>
</head>
<body>
<h1>Hello Guys</h1>
lorem
</body>
</html>
9:17 HTML Spaces: 4
[B] /Untitled1.html
/Untitled1.html
Browser
Hello Guys
lorem
bash - "ip-172-31-36-19.e
Immediate
voclabs:~/environment $
ENVIRONMENT MEMBERS
ReadWrite
You (online)
RW
GROUP CHAT
Chat history is stored on the environment
can be both read and modified by ReadWr
members.
You Hello
2 minutes ago
You Sarthak Harade
2 minutes ago
You Roll No. 22
2 minutes ago
Enter your message here





CONCLUSION : In this experiment, we learned how to use AWS Cloud9 to create an IDE and code in a collaborative environment, creating and managing IAM users, creating user groups, setting permissions, etc.