

St. Francis Institute of Technology, Mumbai-400 103
Department of Information Technology

A.Y. 2023-2024

Class: TE-ITA/B, Semester: V

Subject: **Advanced DevOps Lab**

Experiment – 2: AWS Cloud9 IDE.

1. **Aim:** To understand the benefits of Cloud Infrastructure and Setup AWS Cloud9 IDE, Launch AWS Cloud9 IDE, write and run simple python program in IDE.
2. **Objectives:** After study of this experiment, the student will be able to
 - Understand basics of cloud9 IDE
 - Difference between desktop IDE and Web IDE
 - Steps to set up cloud9 IDE and acquiring EC2 instance also cloudFormation stack.
 - How to write program in different languages, edit program, and run program.
 - To execute commands on terminal window.
3. **Lab objective mapped : ITL504.2:** To understand the fundamentals of Cloud Computing and be fully proficient with Cloud based DevOps solution deployment options to meet your business requirements
4. **Prerequisite:** Fundamentals of IDE framework, working with desktop IDE
5. **Requirements:** Computer, Windows operating system, Internet Connection, web browser, AWS cloud account..
6. **Pre-Experiment Exercise:**

Brief 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.

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.

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 type in real time, and instantly chat with one another from within the IDE.

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.

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 pre-authenticated AWS Command Line Interface. This makes it easy for you to quickly run commands and directly access AWS services

START NEW PROJECTS QUICKLY

AWS Cloud9 makes it easy for you to start new projects. Cloud9's development environment comes prepackaged with tooling for over 40 programming languages, including Node.js, JavaScript, Python, PHP, Ruby, Go, and C++. This enables you to start writing code for popular application stacks within minutes by eliminating the need to install or configure files, SDKs, and plug-ins for your development machine. Because Cloud9 is cloud-based, you can easily maintain multiple development environments to isolate your project's resources.

Pricing example (monthly estimates for AWS Cloud9 EC2 environments)

If you use the default settings running an IDE for 4 hours per day for 20 days in a month with a 30-minute auto-hibernation setting your monthly charges for 90 hours of usage would be:

Type of charge	Amount	Comments
Compute fees*	\$1.05	t2.micro Linux instance at \$0.0116/hour x 90 total hours used per month = \$1.05
Storage fees	\$1.00	\$0.10 per GB-month of provisioned storage x 10-GB storage volume = \$1.00
Total monthly fees	\$2.05	

7. Laboratory Exercise (attach Screen Shot for each step given below)

1. Login to AWS account.
2. Check EC2 and cloudFormation dashboard. Make sure no instances and stack running for your account.
3. Navigate to Cloud 9 IDE service from Developer tools section
4. Click on Create Environment
5. Provide name for the Environment (WebAppIDE) and click on next.
6. Keep all the Default settings as it is
7. Review the Environment name and Settings and click on Create Environment
8. Go to EC2 dashboard to ensure new instance running.
9. Go to CloudFormation to ensure new stack created. check resources and templates tabs.
10. Launch IDE
11. run some commands on terminal.
12. write simple python program in an IDE
13. save changes to py file , run the code and check the result in terminal.
14. Click on settings option. Change some of the settings.

8. Post-Experiments Exercise

A. Extended Theory:

- a. Check current git version supported by IDE(attach SS here)
- b. Give command to create empty python file using IDE terminal(attach SS here)

B. Questions:

1. What is the need of IDE? (Write in Hand)
2. Which programming languages are supported by cloud9? (Soft copy)
<https://docs.aws.amazon.com/cloud9/latest/user-guide/language-support.html>
3. Compare Desktop IDE (Offline IDE) with AWS Cloud9 online IDE? (Write in Hand)

C. Conclusion:(Write in Hand)

1. Write what was performed in the experiment
2. Mention few applications of what was studied.
3. Write the significance of the studied topic

D. References:

1. <https://docs.aws.amazon.com/cloud9/latest/user-guide/aws-cloud9-ug.pdf>
2. <https://aws.amazon.com/cloud9/faqs/>
3. <https://cloudacademy.com/course/working-aws-cloud9/working-aws-cloud9/>
