Cloud 9

TJ Cloud Computing Club

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1 Integrated Development Environment (IDE)

An integrated development environment (IDE) is a software application that provides comprehensive facilities to computer programmers for software development. An IDE normally consists of at least a source code editor, build automation tools and a debugger.

1. Visual Studio
2. Eclipse
3. PyCharm (Python)

2 AWS Cloud9

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. Since your Cloud9 IDE is cloud-based, you can work on your projects from your office, home, or anywhere using an internet-connected machine.

3 Benefits

1. **In Browser** - Your development environment can be managed on an EC2 instance or 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.

2. **Collaboration** - With Cloud9, you can collaborate on various projects with other users, making it possible to interact with your teammates within the interface. If you know the benefits of Google Drive, this should be regarded as a powerful ability, as it makes collaborative projects much easier.

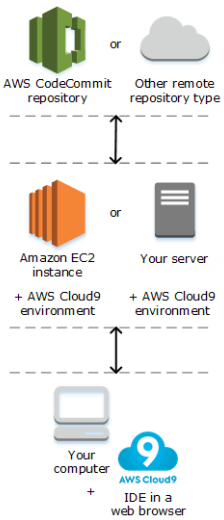
3. **Preconfigurations** - The IDE comes included with SDKs, libraries, and etc needed for server-less development. This removes the need to install packages for different languages.

4. **Access to AWS Products** - In the built-in EC2 instance, you can access AWS products linked to your account such as files or data stored. The AWS Command Line Interface (CLI) is also configured in the terminal, allowing you to set up and configure resources using command line commands instead of a graphical user interface.

5. **Background Processes** - Since Cloud9 runs on an EC2, it can stay active even when you log off. This allows you to run code over an extended period of time in the background without worrying about it crashing when you shut your computer off or slowing your computer down.

4 How does AWS Cloud 9 Work?

From the diagram (starting at the bottom), you use the AWS Cloud9 IDE, running in a web browser on your local computer, to interact with your AWS Cloud9 environment. A computing resource (for example, an Amazon EC2 instance or your own server) connects to that environment. Finally, your work is stored in an AWS CodeCommit repository or other type of remote repository.



5 Other online IDEs

The other major public cloud providers do not offer an online IDE as part of their cloud platform. However, they do provide this service separately.

1. **Google** - Google Colab is an online Jupyter notebook that lets you write, run, and share code within Google Drive. This is limited to only Python but is very powerful for AI/ML since it provides advances Python libraries and CPU accelerators such as GPUs and TPUs. This is all free but your work won't be saved after you leave!

2. **Microsoft** - Microsoft provides an online IDE of their desktop IDE, Visual Studio Code. Visual Studio Online runs code in the cloud (either your own server or a provisioned one) and is ideal for collaborative projects in any language.

6 Demo: Using AWS Cloud9 Console

6.1 Creating an Environment

1. Sign into AWS using your educate account and navigate to Services → AWS Cloud9

2. Select **Region: US East (N. Virginia)**

3. In the Cloud9 page, click on the "Create environment" button

   (a) Name: your choice

   (b) Description: you can choose to add one if you wish

   (c) Select **Next step**

   (d) Use the default settings for this page (EC2 instance, t2.micro, Amazon Linux, 30 minutes)

   (e) Select **Create environment**

6.2 Exploring the IDE

Now that you are in the environment, there are many features for you to explore. We will start by creating an HTML file to display a web page:

1. Select **File** → **New From Template** → **HTML File**

2. In between the ¡body¿ tags, type "Hello World"
3. Ctrl + S to save your file as a name of your choice
4. On the top bar, select **Preview** and preview the HTML file you just made

This feature of being able to preview your web page is very useful, as can be seen through this simple example. There are many other unique features to Cloud9 that make it so versatile, so try to explore as much as you can.

6.3 Deleting the Environment

1. Go to **AWS Cloud9** and click on **Your environments**
2. Click on your environment and follow the instructions for deleting the environment after clicking the **Delete** button.