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## **ADVANCED DEV-OPS EXPERIMENT-01**

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

### **Theory:**

**Amazon EC2 (Elastic Compute Cloud)** is a web service provided by AWS that offers scalable computing capacity in the cloud. It eliminates the need for investing in hardware upfront, allowing you to develop and deploy applications faster.

- **Scalability:** EC2 allows you to scale your compute capacity up or down as needed. You can increase or decrease the number of instances or the compute power of instances according to your application's needs.
- **Flexibility:** EC2 offers a wide variety of instance types that you can tailor to your application's requirements. These instance types vary based on CPU, memory, storage, and networking capabilities.
- **Security:** EC2 integrates with various AWS services such as AWS Identity and Access Management (IAM), AWS Key Management Service (KMS), and Virtual Private Cloud (VPC) to provide secure computing environments.
- **Cost-Effective:** EC2 provides different pricing models such as On-Demand Instances, Reserved Instances, Spot Instances, and Savings Plans, which help you optimize costs based on your workload.
- **Global Reach:** With data centers in multiple regions around the world, EC2 allows you to deploy applications closer to your users for reduced latency and better performance.

### **AWS Cloud9**

AWS Cloud9 is an integrated development environment (IDE) that runs in the cloud. It allows you to write, run, and debug code with just a browser.

- **Preconfigured Environment:** Cloud9 comes prepackaged with essential tools like Python, Node.js, JavaScript, and more, so you don't have to install anything locally.
- **Collaborative Coding:** Multiple developers can work on the same project simultaneously, seeing each other's changes in real-time, which makes it ideal for pair programming or team collaboration.
- **Integrated Terminal:** You can access the terminal directly from the IDE, allowing you to run commands, install packages, and interact with AWS services using the AWS CLI.
- **Serverless Development:** Cloud9 makes it easier to develop serverless applications with built-in tools and environments that are ready for AWS Lambda functions.

- **Portable Development Environment:** Because it's a cloud-based IDE, you can access your development environment from any device with a web browser, ensuring a consistent experience across different machines.

## PART:1 Hosting a website using AWS EC2 instance

### Steps:

#### 1. Open up EC2 Console and Launch a new Instance

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

 [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

#### ▼ Summary

Number of instances [Info](#)

Software Image (AMI)

Amazon Linux 2023 AMI 2023.5.2...[read more](#)  
ami-0ae8f15ae66fe8cda

Virtual server type (instance type)

t2.micro

Firewall (security group)

New security group

Storage (volumes)

1 volume(s) - 8 GiB

[Cancel](#) [Launch instance](#)

#### 2. Choose the Linux environmentConnect to the instance to access the CLI

Recents | **Quick Start**

Amazon Linux

macOS

Ubuntu

Windows

Red Hat

SUSE Linux

Browse more AMIs

Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

Amazon Linux 2023 AMI

ami-0ae8f15ae66fe8cda (64-bit (x86), uefi-preferred) / ami-0e36db3a3a535e401 (64-bit (Arm), uefi)

Virtualization: hvm ENA enabled: true Root device type: ebs

Free tier eligible ▼

Description

Amazon Linux 2023 is a modern, general purpose Linux-based OS that comes with 5 years of long term support. It is optimized for AWS and designed to provide a secure, stable and high-performance execution environment to develop and run your cloud applications.

Architecture

64-bit (x86) ▼

Boot mode

uefi-preferred

AMI ID

ami-0ae8f15ae66fe8cda

Verified provider

#### ▼ Summary

Number of instances [Info](#)

Software Image (AMI)

Amazon Linux 2023 AMI 2023.5.2...[read more](#)  
ami-0ae8f15ae66fe8cda

Virtual server type (instance type)

t2.micro

Firewall (security group)

New security group

Storage (volumes)

1 volume(s) - 8 GiB

[Cancel](#) [Launch instance](#)

[Review commands](#)

#### 3. Connect to the instance to access the CLI

**Instances (1)** Info Refresh Connect Instance state Actions Launch instances

Find Instance by attribute or tag (case-sensitive) All states

Instance ID = i-0c7283aa113776409 X Clear filters < 1 > Settings

<input type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability
<input type="checkbox"/>	Vaishnal	i-0c7283aa113776409	<span>Pending</span>	t2.micro	-	<a href="#">View alarms</a>	us-east-1d

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**Instance ID**

i-0c7283aa113776409 (Vaishnal)

**IPv6 address**

-

**Hostname type**

IP name: ip-172-31-93-9.ec2.internal

**Answer private resource DNS name IPv4 (A)**

Auto-assigned IP address

3.82.144.85 [Public IP]

**IAM Role**

-

**IMDSv2**

Required

**Public IPv4 address**

3.82.144.85 | [open address](#)

**Instance state**

Running

**Private IP DNS name (IPv4 only)**

ip-172-31-93-9.ec2.internal

**Instance type**

t2.micro

**VPC ID**

vpc-0ead485542ab930aa

**Subnet ID**

subnet-040cf6a0b5363ff58

**Instance ARN**

**Private IPv4 addresses**

172.31.93.9

**Public IPv4 DNS**

ec2-3-82-144-85.compute-1.amazonaws.com | [open address](#)

**Elastic IP addresses**

-

**AWS Compute Optimizer finding**

Opt-in to AWS Compute Optimizer for recommendations. [Learn more](#)

**Auto Scaling Group name**

-

#### 4. Perform following commands on terminal

```
ssh -i your-key.pem ec2-user@your-ec2-public-dns
sudo yum update -y
sudo yum install httpd -y
sudo systemctl start httpd
sudo systemctl enable httpd
scp -i your-key.pem /path/to/your-website-files/* ec2-user@your-ec2-public-dns:/var/www/html/
sudo chown -R apache:apache /var/www/html
sudo chmod -R 755 /var/www/html
sudo yum install certbot python2-certbot-apache -y
sudo certbot --apache
sudo systemctl restart httpd
```

```

total 3724
-rw-r--r--. 1 root root 5811719 Aug  4 14:30 video.mp4
-rw-r--r--. 1 root root 112365 Aug  4 14:30 'introduction audio.mp3'
-rw-r--r--. 1 root root 2457 Aug  4 14:30 index.html
drwxr-xr-x. 2 root root 124 Aug  4 14:30 images
[root@ip-172-31-93-9 html]# systemctl status http
Unit http.service could not be found.
[root@ip-172-31-93-9 html]# systemctl enable http
Failed to enable unit: Unit file http.service does not exist.
[root@ip-172-31-93-9 html]# systemctl status status httpd
Unit status.service could not be found.
o httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; disabled; preset: disabled)
   Active: inactive (dead)
     Docs: man:httpd.service(8)
[root@ip-172-31-93-9 html]# systemctl enable httpd
Created symlink /etc/systemd/system/multi-user.target.wants/httpd.service → /usr/lib/systemd/system/httpd.service.
[root@ip-172-31-93-9 html]# systemctl start httpd

```

## 5.Host your Website



### Welcome to Service Samurai



#### Company Details

Name	Service Samurai
Address	123 Business Ave, Suite 100, City, Country
Contact Information	(123) 456-7890   contact@servicesamurai.com
Description	Service Samurai provides top-notch services in technology solutions, including consulting, development, and support.

#### Our Services

## PART B: Create Environment on cloud 9

[AWS Cloud9](#) > [Environments](#) > my-enviorment

### my-enviorment

[Delete](#) [Open in Cloud9](#)

#### Details

[Edit](#)

Name	my-enviorment	Owner ARN	arn:aws:sts::262586457411:assumed-role/voclabs/user3402785=MALI_VAISHNAL_DILIP	Status	Creating
Description	-	Number of members	1	Lifecycle status	Creating
Environment type	EC2 instance				

[EC2 instance](#) | [Network settings](#) | [Tags](#)

#### EC2 instance

[Manage EC2 instance](#)

File Edit Find View Go Run Tools Window Support Preview Run

Go to Anything (Ctrl-P)

my-enviorment - /  
c9  
README.md

# AWS Cloud9

## Welcome to your development environment

AWS Cloud9 allows you to write, run, and debug your code with just a browser. You can tour the IDE, write code for AWS Lambda and Amazon API Gateway, share your IDE with others in real time, and much more.

### Getting started

Create File

### Toolkit for AWS Cloud9

```
bash - "ip-172-31-66-100. x" Immediate (Javascript (br x  
voclabs:~/environment $
```

CodeWhisperer AWS: profile: default