CIS 92 Cloud DevOps AWS Lab EC2 Instance Web Page Customization

Lab Objective: Connect to an EC2 Instance via SSH and Customize a Web Page

In this lab, students will learn how to securely connect to an **Amazon EC2 instance** using **SSH** and modify a web server's content. By the end of the lab, students will be able to:

- Establish an **SSH connection** to an EC2 instance using a private key.
- Navigate the **Linux file system** and access the web server directory.
- Use a command-line text editor (**nano**) to edit the index.html file.
- Restart the **Apache web server** to apply changes.
- Verify and access the customized web page from a web browser.

Note: AWS Lab Automate EC2 Setup with User Data needs to be completed prior to this lab, as you will be using the instance created in that lab

Lab Instructions:

Step 1: Verify Your Security Group Settings

- Before connecting, make sure your EC2 instance allows SSH connections.
- **Go to the AWS Console → EC2 Dashboard**
    - Click **Instances** → Select your running instance
    - Scroll down to the **Security** section → Click on the **Security Group** link
    - Check **Inbound rules** and ensure you have:
        - **Type:** SSH
        - **Protocol:** TCP
        - **Port Range:** 22
        - **Source:** Your IP (My IP) or 0.0.0.0/0 (less secure, but allows connection from anywhere)

If SSH is missing, click **Edit inbound rules** → **Add rule** → Configure as above → Click **Save rules**

Step 2: Move and Set Permissions for the Key File (.pem)

Windows (Using PowerShell or Command Prompt)

- Move the .pem file to a safe location, like C:\Users\YourUsername\.ssh\
- Open **PowerShell** and navigate to the directory where the key is saved:
    - cd C:\Users\YourUsername\.ssh\
- Set the correct file permissions to prevent access issues:

```
icacls MyEC2Key.pem /inheritance:r
icacls MyEC2Key.pem /grant:r YourUsername:F
```

Mac/Linux

- Move the .pem file to your ~/.ssh folder:

```
mv ~/Downloads/MyEC2Key.pem ~/.ssh/
```

- Set the correct permissions:

```
chmod 400 ~/.ssh/MyEC2Key.pem
```

Step 3: Connect to Your EC2 Instance via SSH

- Go back to the AWS **EC2 Instances** page
- Copy the **Public IPv4 Address** of your instance
- Run this command in **PowerShell (Windows) or Terminal (Mac/Linux):**

```
ssh -i ~/.ssh/MyEC2Key.pem ec2-user@YOUR_PUBLIC_IP
```

  - Example: ssh -i ~/.ssh/MyEC2Key.pem ec2-user@18.234.56.78
- If prompted with Are you sure you want to continue connecting (yes/no)?
- Type yes and press **Enter**

Troubleshooting SSH Connection Issues

If Connection Times Out or is Refused

- Double-check the **Security Group** settings (Step 1)
- Ensure the **EC2 instance is running**
- Verify you're using **ec2-user** as the username

If You Get a "Permission Denied" Error

- Ensure the .pem file permissions are set correctly (**Step 2**)
- Use the **correct key name** in the ssh -i command

Modify the index.html file to customize the webpage.

Step 1: Navigate to the Web Server Directory

In your EC2 terminal, change to the default web server directory:

```
cd /var/www/html
```

Step 2: Edit the index.html File

Open the file using the nano text editor:

sudo nano index.html

Modify the content inside the file. For example, change it to:

```
<html>
<head>
    <title>My Custom Web Page</title>
</head>
<body>
    <h1>Welcome to My AWS EC2 Web Server!</h1>
    <p>This is a customized webpage running on Apache.</p>
    <p>Powered by Amazon Linux.</p>
</body>
</html>
```

Save the file:

Press CTRL + X to exit

Press Y to confirm changes

Press Enter to save

Step 3: Restart Apache (If Needed)

To ensure the changes take effect, restart the Apache web server:

```
sudo systemctl restart httpd
```

Step 4: View Your Custom Web Page

- Copy your **EC2 Public IPv4 Address** from the AWS Console.
- Open a browser and go to:
- http://YOUR_PUBLIC_IP (use your Public IP address)

Screenshot

- Take a screenshot of your customized web page and attach it to your Canvas assignment before submission