Deploying a Static Website Using AWS EC2 and Bash Script

Introduction:

In this project, I deployed a simple `index.html` website to an **AWS EC2 instance** using a **Bash script**. The purpose was to learn about cloud servers, file deployment, and automating tasks with scripts. In this document, I'll explain each step of the process and how I got my website running on EC2.

Prerequisites:

Before starting this project, I made sure I had the following:

1. **AWS Account:**
   I created an AWS account to be able to launch an EC2 instance.

2. **SSH Key Pair:**
   I needed an SSH key (`.pem` file) to securely access my EC2 instance. I downloaded the key when launching the EC2 instance on AWS.

3. **Mac or Linux System:**
   I used my Mac to run the terminal and execute the Bash script.

Steps to Deploy:

1. Launch EC2 Instance on AWS:

To get started, I launched an EC2 instance using the following steps:

1. I logged into the **AWS Management Console** and navigated to **EC2 → Launch Instance**.

2. I chose the **Ubuntu Server** as the operating system for the EC2 instance.

3. I created a new **key pair** (which I saved on my desktop as `your-key.pem`).

4. I made sure that **port 80 (HTTP)** was open in the **Security Group** settings to allow web traffic to my instance.

5. After launching the instance, I noted the **public IPv4 address** (e.g., `54.163.122.54`), which I will use to access the website.

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2. SSH into My EC2 Instance:

Once the EC2 instance was up and running, I needed to connect to it. To do that, I followed these steps:

1. On my **Mac**, I opened the **Terminal**.

I changed the permissions of my **`.pem` key** to make it read-only:

bash
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```
chmod 400 ~/Desktop/your-key.pem
```

2.

I connected to my EC2 instance by running the following SSH command (replacing the IP with my own):

bash
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```
ssh -i ~/Desktop/your-key.pem ubuntu@54.163.122.54
```

3.

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3. Install Apache Web Server on EC2:

Once I was logged into the EC2 instance, I installed **Apache** to serve my website:

I ran the following commands to update the system and install Apache:

bash
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sudo apt update
sudo apt install apache2 -y
```

1.

After installation, I started the Apache service and made sure it would start automatically on boot:

bash
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sudo systemctl start apache2
sudo systemctl enable apache2
```

2.
3. I then opened my browser and navigated to `http://54.163.122.54`. I saw the default Apache welcome page, confirming that the web server was running.

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4. Change Permissions for Uploading Files:

Next, I needed to ensure that I had permission to upload my `index.html` file to the server. I ran the following command on the EC2 instance to give the **`ubuntu`** user permission to write to the web server's root directory:

bash
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sudo chown -R ubuntu:ubuntu /var/www/html
```

This allowed me to upload my website files to the `/var/www/html` folder.

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5. Create the `index.html` File on My Mac:

On my **Mac**, I created a simple `index.html` file with the following content:

html

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```
<!DOCTYPE html>
<html>
<head>
  <title>Hello World</title>
</head>
<body>
  <h1>Hello from Bishal's first website!</h1>
</body>
</html>
```

I saved the file to my **Desktop** at `/Users/bishalranjitkar/Desktop/index.html`.

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6. Write a Bash Script for Deployment:

Now it was time to automate the deployment process. I wrote a simple Bash script named `basic-deploy.sh` to upload the `index.html` file to my EC2 instance and check if the website was live. Here's the content of my script:

bash
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```
#!/bin/bash

# CONFIG
KEY_PATH="/Users/bishalranjitkar/Desktop/your-key.pem"
SERVER_IP="54.163.122.54"
SERVER_USER="ubuntu"
LOCAL_FILE="/Users/bishalranjitkar/Desktop/index.html"
REMOTE_DIR="/var/www/html"

# DEPLOY
echo "Uploading file..."
scp -i "$KEY_PATH" "$LOCAL_FILE" "$SERVER_USER@$SERVER_IP:$REMOTE_DIR"

# CHECK SITE
echo "Checking website..."
curl "http://$SERVER_IP"
```

I made sure to replace the file paths and IP address with my own values.

To give the script permission to run, I ran:

bash
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chmod +x basic-deploy.sh
```

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7. Run the Deployment Script:

With everything ready, I ran the script by executing the following command in the terminal:

bash
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./basic-deploy.sh
```

This did two things:

1. It uploaded my `index.html` file to the server.
2. It used `curl` to check if the website was accessible.

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8. Verify the Deployment:

To make sure everything worked, I opened my browser and navigated to:

cpp
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http://54.163.122.54
```

I was thrilled to see my `index.html` file being displayed with the message:
"Hello from Bishal's first website!"

Conclusion:

I successfully deployed a simple static website to an **AWS EC2 instance** using a **Bash script**. The process was straightforward, and I learned how to use tools like SSH, `scp`, `curl`, and Apache to serve a website on the cloud.