Weather Updater Website Deployment on AWS EC2 - Documentation

This documentation provides a step-by-step guide for deploying a Weather Updater Website on an AWS EC2 instance. The deployment process includes launching an EC2 instance, setting up the web server, and deploying the weather updater application.

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1. Launch the EC2 Instance

Objective: Launch an EC2 instance with the required OS and create a Key Pair for secure access.

- **OS**: AWS Linux (Amazon Linux 2)
- **Instance Type**: Choose the desired instance type based on your requirements (e.g., t2.micro for testing).
- **Security Group**: Ensure proper inbound and outbound rules are configured.
    - Inbound rule: Allow HTTP traffic (port 80).
    - Outbound rule: Allow all traffic for server communication.

Steps:

1. In the AWS Management Console, navigate to EC2.
2. Click on "Launch Instance."
3. Select **Amazon Linux 2 AMI**.
4. Choose the instance type (e.g., t2.micro for testing).
5. Configure instance details, storage, and security group.
6. Create a new Key Pair or use an existing one for SSH access.

---

2. Connect to the Instance

Objective: Securely connect to the EC2 instance using SSH.

Steps:

1. After the instance is running, note the public IPv4 address of the EC2 instance.

Use an SSH client to connect to the instance using the private key generated during the setup.
ssh -i "your-key.pem" ec2-user@your-public-ip

2.

Verify the connection by checking the instance's operating system:
```
uname -a
```

3.

---

3. Set Up the Web Server

Objective: Install and configure Apache HTTP Server on the EC2 instance to host the weather application.

Steps:

Update the system to ensure all packages are up to date:
```
sudo yum update -y
```

1.

Install Apache HTTP Server (httpd):
```
sudo yum install -y httpd
```

2.

Check if the Apache service is running:
```
systemctl status httpd
```

3.

Enable Apache to start automatically on boot:
```
sudo systemctl enable httpd
```

4.

Start the Apache service:
```
sudo systemctl start httpd
```

5.

---

4. Deploy the Weather Updater Website

Objective: Download and deploy the weather updater application on the EC2 instance.

Steps:

1. Clone or download the weather updater website files from GitHub or your local machine.

If using GitHub:
```
git clone https://github.com/yourusername/weather-updater.git
```

2.

Unzip or move the files to the Apache web server directory:
```
sudo mv weather-updater/* /var/www/html/
```

3.

Set appropriate file permissions:
```
sudo chown -R apache:apache /var/www/html/
```

4.

---

5. Configure the Server

Objective: Modify the security settings and verify that the web server is accessible.

Steps:

1. Modify the **Inbound Rules** of your EC2 instance to allow HTTP traffic (port 80):
    - Go to the EC2 Dashboard → Security Groups.
    - Edit the inbound rules to allow HTTP traffic from any IP address (0.0.0.0/0).

Restart Apache to ensure the changes take effect:
```
sudo systemctl restart httpd
```

2.

---

6. Access the Weather Updater Website

Objective: Make the weather updater website accessible via the browser.

Steps:

Open a web browser and enter the public IPv4 address of the EC2 instance:
```
http://your-public-ip
```

1.
2. You should see the weather updater website live and operational.

Troubleshooting

- **Cannot access the website**:
  - Check the instance's security group to ensure HTTP (port 80) is open.
  - Ensure Apache is running with `systemctl status httpd`.
- **Permission issues**:
  - Verify file permissions with `ls -l /var/www/html/` and ensure the files are owned by the Apache user.

Conclusion

This guide has successfully walked you through the steps to deploy a weather updater website on an AWS EC2 instance using Apache HTTP Server. With your EC2 instance running, you now have a fully operational web application hosted on AWS.

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