Deploying a Python HTTP Server on AWS EC2 (Beginner-Friendly Guide)

This guide walks you through deploying a Python HTTP server on an AWS EC2 instance using `systemd`. It ensures your server runs automatically on system boot.

🛠️ Prerequisites

- AWS EC2 instance (Amazon Linux, Ubuntu, etc.).
- SSH access to the instance.
- `.pem` file for authentication.
- Basic Linux command-line knowledge.

🔗 Connect to Your EC2 Instance

1. Open your terminal.
2. Navigate to your `.pem` file directory.
3. Run the following command (replace values accordingly):

   ssh -i /path/to/your-key.pem ec2-user@<public-ip>

   ssh -i ostad-class-1.pem ec2-user@18.139.211.175

📂 Create the Working Directory

1. Create a directory for the server files:

   mkdir /home/ec2-user/ostad-class

2. Navigate to it:

   cd /home/ec2-user/ostad-class

📄 Add Files to Serve

1. Create an `index.html` file:

   echo "<h1>Welcome to Ostad HTTP Server!</h1>" > index.html

2. Verify the file:

   cat index.html

⚙ Create a systemd Service File

1. Open a new service configuration file:

   sudo nano /etc/systemd/system/ostad.service

2. Add this content:

   [Unit]

   Description=Ostad HTTP Server

   [Service]

   ExecStart=python3 -m http.server 50505

   WorkingDirectory=/home/ec2-user/ostad-class

   StandardOutput=/home/ec2-user/ostad-class/server.log

   StandardError=/home/ec2-user/ostad-class/error.log

   [Install]

   WantedBy=multi-user.target

3. Save and exit (`Ctrl+O`, then `Ctrl+X`).

🚀 Start & Enable the Service

1. Reload systemd to recognize the new service:

   sudo systemctl daemon-reload

2. Start the service:

   sudo systemctl start ostad.service

3. Enable it to start on boot:

   sudo systemctl enable ostad.service

🔍 Verify the Service Status

Check if the service is running:

sudo systemctl status ostad.service

If it's running, you should see `active (running)`.

🌍 Access the HTTP Server

1. Open a web browser and visit:

   http://<public-ip>:50505

2. You should see the content of your `index.html` file.

🔧 Troubleshooting

❌ Service Fails to Start?

Check the error log:

cat /home/ec2-user/ostad-class/error.log

Possible issues:

- Port `50505` is in use.
- Python is missing (`sudo yum install python3` or `sudo apt install python3`).

🌐 Cannot Access the Server?

- Ensure the EC2 security group allows **inbound traffic on port 50505**.
- Verify the service is running:

  sudo systemctl status ostad.service

🔄 Manage the Service

Stop the service:

sudo systemctl stop ostad.service

Restart the service:

sudo systemctl restart ostad.service

🛠️ Updating the Service

1. Edit the service file:

   sudo nano /etc/systemd/system/ostad.service

2. Make changes (e.g., change the port or directory).
3. Apply the changes:

   sudo systemctl daemon-reload

   sudo systemctl restart ostad.service

📚 Learning Resources

- **Systemd Docs** → `man systemd`
- **Python HTTP Server** → `python3 -m http.server --help`
- **AWS EC2 Docs** → AWS EC2 Guide

🎯 Summary

✅ You deployed a Python HTTP server using `systemd` on AWS EC2.
✅ Your server serves files from `/home/ec2-user/ostad-class` on port `50505`.
✅ You can manage it using `systemctl` commands.

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