Jenkins

✅ Final Deployment Guide: Deploy MERN App Using Jenkins (with GitHub SSH & PM2)

🔧 1. Install Jenkins on Ubuntu

Step 1: Install Java

```
bash
CopyEdit
sudo apt update
sudo apt install openjdk-17-jdk -y
java -version
```

Step 2: Add Jenkins Repo and Install Jenkins

```
bash
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curl -fsSL https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key | sudo te
e \
  /usr/share/keyrings/jenkins-keyring.asc > /dev/null

echo deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc] \
  https://pkg.jenkins.io/debian-stable binary/ | sudo tee \
  /etc/apt/sources.list.d/jenkins.list > /dev/null

sudo apt update
```

```
sudo apt install jenkins -y
```

Step 3: Start and Enable Jenkins

```
bash
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sudo systemctl enable jenkins
sudo systemctl start jenkins
```

Step 4: Access Jenkins Web UI

- Open browser: `http://<your-server-ip>:8080`
- Get the admin password:

```
bash
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sudo cat /var/lib/jenkins/secrets/initialAdminPassword
```

- Paste it into the Jenkins UI and install **Suggested Plugins**.
- Create an **admin user**.

⚙️ 2. Install Node.js and PM2

```
bash
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curl -fsSL https://deb.nodesource.com/setup_16.x | sudo -E bash -
sudo apt install -y nodejs
sudo npm install -g pm2
```

📁 3. Clone Your MERN App Repository (for Deployment)

```
bash
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cd /home/ubuntu
git clone git@github.com:sabarim6369/Jenkins.git
sudo chown -R jenkins:jenkins /home/ubuntu/Jenkins
```

🔐 4. Generate SSH Key (as `jenkins` user) for GitHub Access

```
bash
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sudo su - jenkins
ssh-keygen -t rsa -b 4096 -C "jenkins@yourserver"
# (Just press Enter for everything)
exit
```

🔑 5. Add Public Key to GitHub

- Open `/var/lib/jenkins/.ssh/id_rsa.pub`
- Go to your GitHub repo → **Settings > Deploy keys**
  - **Title**: Jenkins Key
  - **Key**: Paste the public key
  - ✅ Check **Allow write access**
  - Click **Add key**

🔐 6. Add Private Key in Jenkins Credentials

1. Go to: **Jenkins Dashboard > Manage Jenkins > Credentials > (Global)**

2. Click **Add Credentials**.
    - **Kind**: SSH Username with private key
    - **Username**: `git`
    - **Private Key**: Paste contents of `/var/lib/jenkins/.ssh/id_rsa`
    - **ID**: `github-ssh`
    - **Description**: GitHub SSH for MERN deploy

🚀 7. Create Jenkins Job

- Click **New Item** → Freestyle Project → Name: `Deploy-MERN-App`
- In **Source Code Management**:
    - **Git**: `git@github.com:sabarim6369/Jenkins.git`
    - **Credentials**: Select `github-ssh`
    - **Branch**: `main`

🧾 8. Add Execute Shell Build Step

Paste this script:

```
bash
CopyEdit
#!/bin/bash

cd /home/ubuntu/Jenkins
git pull origin main
npm install
pm2 restart mern-app || pm2 start index.js --name mern-app
```

🔁 9. Configure GitHub Webhook (Optional but Recommended)

1. Go to your repo → **Settings > Webhooks**
2. Add a new webhook:

- **Payload URL:** `http://<YOUR_JENKINS_IP>:8080/github-webhook/`
- **Content type:** `application/json`
- ✅ Trigger: **Just the push event**

3. Save

✅ 10. Deployment Workflow Summary

Step	Action
1	Install Jenkins (Java + Repo + Start)
2	Install Node.js + PM2
3	Clone your repo to `/home/ubuntu/Jenkins`
4	Generate SSH key as `jenkins` user
5	Add public key to GitHub repo
6	Add private key in Jenkins credentials
7	Create Jenkins job to pull repo using SSH
8	Write shell script to `git pull`, `npm install`, `pm2 restart`
9	Set GitHub webhook for auto-trigger
10	Push → Jenkins pulls → PM2 restarts app