

Jenkins Server ↔ Agent Server

Step-by-Step Creation & Attachment Guide

1. Basic Understanding (Flow)

Jenkins Server (Master) controls jobs and pipelines. Agent Server (Node) executes the jobs. The connection happens via SSH using key-based authentication.

Golden Rule:

- Private Key stays on Jenkins Server
- Public Key stays on Agent Server

2. Prerequisites

- Jenkins Server is already installed and running
- Agent Server is an Ubuntu EC2 instance
- Port 22 (SSH) is open
- You have an SSH key pair

3. Agent Server Setup (EC2 Ubuntu)

Install Java (mandatory):

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

Create Jenkins working directory:

```
mkdir -p /home/ubuntu/jenkins
chmod 755 /home/ubuntu/jenkins
```

4. SSH Setup on Agent Server

```
mkdir -p /home/ubuntu/.ssh
chmod 700 /home/ubuntu/.ssh
```

Add PUBLIC key to authorized_keys:

```
nano /home/ubuntu/.ssh/authorized_keys
(Paste jenkins-agent-key.pub here)
```

Fix permissions:

```
chmod 600 /home/ubuntu/.ssh/authorized_keys
chown -R ubuntu:ubuntu /home/ubuntu/.ssh
```

5. Jenkins Server Setup

Private key location:

```
/home/ubuntu/.ssh/jenkins-agent-key
```

Fix key permission:

```
chmod 400 /home/ubuntu/.ssh/jenkins-agent-key
```

Convert key to Jenkins-compatible format:

```
ssh-keygen -p -m PEM -f /home/ubuntu/.ssh/jenkins-agent-key
```

(Press ENTER, no passphrase)

6. Manual SSH Test (Most Important Step)

```
ssh -i /home/ubuntu/.ssh/jenkins-agent-key ubuntu@AGENT_PUBLIC_IP
```

If this works, Jenkins agent will work. If this fails, Jenkins agent will also fail.

7. Add SSH Credential in Jenkins UI

Manage Jenkins → Credentials → Global → Add Credentials

Kind: SSH Username with private key

Username: ubuntu

Private Key: Enter directly (paste PRIVATE key)

ID: jenkins-agent-cred

8. Create Jenkins Agent (Node)

Manage Jenkins → Nodes → New Node

Node Name: aws-agent-1

Type: Permanent Agent

Remote root directory: /home/ubuntu/jenkins

Launch method: Launch agents via SSH

9. SSH Launcher Configuration

Host: AGENT_PUBLIC_IP

Port: 22

Credentials: jenkins-agent-cred

Java path: /usr/bin/java

Host Key Verification: Non-verifying

10. Launch Agent

Nodes → aws-agent-1 → Launch agent

Success message: Agent successfully connected and online

11. Common Mistakes & Learning

- Using wrong key path
- Copying public key into Jenkins instead of private key
- Not testing manual SSH first
- Selecting wrong credential in node configuration

Final One-Line Summary

Jenkins Server connects to Agent Server using SSH private key, verifies via public key, and executes jobs remotely using Java.