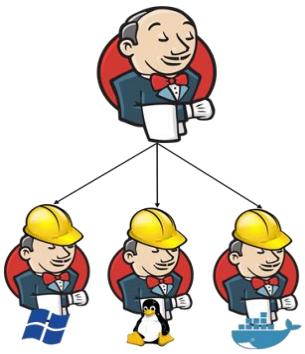


Setting up an On-Prem Jenkins as an Agent to a Cloud Master

In our production environment, our **on-prem Jenkins server was getting heavily loaded** due to multiple concurrent jobs. To improve scalability and stability, I configured it to work as an **agent** connected to our **cloud-hosted Jenkins master** using the **JNLP (Inbound) agent method**.

This setup allowed the **on-prem server to offload builds**, connect **outbound** to the cloud master securely, and maintain better resource utilization without opening inbound firewall ports.

Problem Statement:

- Our on-prem Jenkins master handled all builds locally. As the number of pipelines and jobs increased, the server experienced:
- High CPU and memory usage
- Slower build times and job queue delays
- Limited scalability
- Instead of moving everything to the cloud, I decided to **keep on-prem compute** but **control it from the cloud Jenkins master.**
- JNLP agents were the perfect fit they connect **outbound to Jenkins**, so no firewall changes were needed.

Step-by-Step Configuration:

- **STEP1:**
  Verify Jenkins Master is Running On your cloud Jenkins server and ensure Jenkins is accessible**.**
- **http://<Jenkins_public_IP>:8080** (access the Jenkins server)
- systemctl status Jenkins (Check the status of Jenkins active or not)

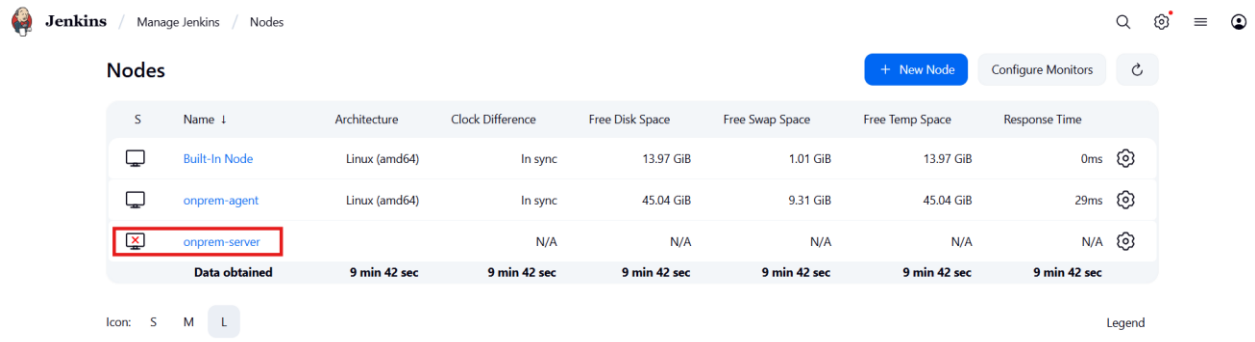
STEP2:

Create a new node on the Cloud Jenkins master

- Navigate to **Manage Jenkins → Nodes → New Node → Permanent Agent**

Set:

- Remote root directory: **/home/Jenkins**
- Launch method: **Launch agent by connecting to the controller**
- Save the node Jenkins will display the node as **offline.**



- Click on agent which you have created and Jenkins will display a **jnlpUrl** and **secret** for the agent.

STEP3:

Prepare the On-Prem Server

- Install Java and create a dedicated user

- sudo apt update
- sudo apt install -y openjdk-21-jdk

- sudo adduser Jenkins (Creates /home/Jenkins)
- sudo usermod -aG sudo Jenkins (Give the sudo access)
- su – Jenkins **(**verify Jenkins **id Jenkins)**

STEP4:

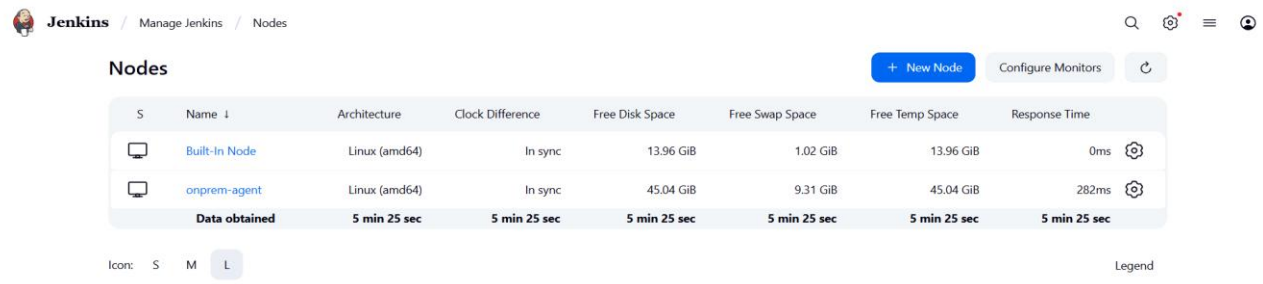
Download the Agent JAR File

- Copy the URL from above showing agent command line
- wget http://:8080/jnlpJars/agent.jar (or) curl http://:8080/jnlpJars/agent.jar

Connect the Agent to Cloud Master

- Use the command provided by Jenkins
  java -jar agent.jar \ -jnlpUrl http://<JENKINS_URL>:8080/computer/onprem-agent/jenkins-agent.jnlp \ -secret <SECRET_KEY> -workDir "/home/jenkins"

Note: If the setup is correct your on-prem node will show ONLINE on the Jenkins dashboard.



STEP5:

(Optional but Recommended) Run as a Systemd Service. To make sure the agent starts automatically on reboot and stays alive:

- sudo nano /etc/systemd/system/jenkins-agent.service

Add:

[Unit] Description=Jenkins JNLP

Agent After=network.target

[Service]

User=jenkins

WorkingDirectory=/home/Jenkins

ExecStart=/usr/bin/java -jar /home/jenkins/agent.jar -jnlpUrl
http://:8080/computer/onprem-agent/jenkins-agent.jnlp -secret -workDir "/home/jenkins"

Restart=always

[Install]

WantedBy=multi-user.target

Then enable it:

- sudo systemctl daemon-reload
- sudo systemctl enable jenkins-agent
- sudo systemctl start jenkins-agent

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