

# ***Jenkins in DevOps***

Jenkins is an open-source automation server widely used in DevOps for continuous integration and continuous delivery (CI/CD). It helps automate software development, testing, and deployment processes.

## *Key Points about Jenkins*

1. Open-source Automation Tool – Free and widely used for CI/CD.
2. Written in Java – Runs on various operating systems like Windows, macOS, and Linux.
3. Supports Continuous Integration (CI) – Automates code integration, testing, and build processes.
4. Facilitates Continuous Deployment (CD) – Enables automated delivery of applications.
5. Extensible with Plugins – Offers plugins to integrate with tools like Git, Docker, Kubernetes, and AWS.
6. Easy Installation and Configuration – Simple web-based GUI for setup and job creation.
7. Distributed Build System – Uses master-slave architecture for faster and efficient execution.
8. Integrates with Version Control Systems – Works with Git, SVN, and Mercurial.
9. Scheduling and Automation – Can trigger builds manually, on schedule, or via webhook triggers.
10. Error Detection and Reporting – Provides logs and notifications for debugging failed builds.
11. Security and Access Control – Supports authentication and authorization for restricted access.
12. Containerization Support – Works with Docker and Kubernetes for container-based CI/CD.
13. Scalable and Flexible – Can integrate with various DevOps tools to fit different project needs.

## 14. Community Support – Large community with regular updates and active discussions.

```
user@LAPTOP-9EU7EI28:~$ su -
Password:
root@LAPTOP-9EU7EI28:~# sudo apt update
Ign:1 https://pkg.jenkins.io/debian-stable binary/ InRelease
Ign:1 https://pkg.jenkins.io/debian-stable binary/ InRelease
Ign:2 http://archive.ubuntu.com/ubuntu noble InRelease
Ign:3 http://archive.ubuntu.com/ubuntu noble-updates InRelease
Ign:4 http://archive.ubuntu.com/ubuntu noble-backports InRelease
Ign:5 http://security.ubuntu.com/ubuntu noble-security InRelease
Ign:2 http://archive.ubuntu.com/ubuntu noble InRelease
Ign:3 http://archive.ubuntu.com/ubuntu noble-updates InRelease
Ign:4 http://archive.ubuntu.com/ubuntu noble-backports InRelease
Ign:5 http://security.ubuntu.com/ubuntu noble-security InRelease
Ign:1 https://pkg.jenkins.io/debian-stable binary/ InRelease
Ign:2 http://archive.ubuntu.com/ubuntu noble InRelease
Ign:3 http://archive.ubuntu.com/ubuntu noble-updates InRelease
Ign:4 http://archive.ubuntu.com/ubuntu noble-backports InRelease
Ign:5 http://security.ubuntu.com/ubuntu noble-security InRelease
Err:1 https://pkg.jenkins.io/debian-stable binary/ InRelease
  Could not connect to pkg.jenkins.io:443 (151.101.158.133), connection timed out
Err:2 http://archive.ubuntu.com/ubuntu noble InRelease
  Could not connect to archive.ubuntu.com:80 (91.189.91.83), connection timed out Could not connect to archive.ubuntu.com:80 (185.125.190.83), connection timed out Could not connect to archive.ubuntu.com:80 (91.189.91.81), connection timed out Could not connect to archive.ubuntu.com:80 (185.125.190.82), connection timed out Could not connect to archive.ubuntu.com:80 (91.189.91.82), connection timed out Could not connect to archive.ubuntu.com:80 (185.125.190.81), connection timed out
Err:3 http://archive.ubuntu.com/ubuntu noble-updates InRelease
  Unable to connect to archive.ubuntu.com:http:
Err:4 http://archive.ubuntu.com/ubuntu noble-backports InRelease
  Unable to connect to archive.ubuntu.com:http:
Err:5 http://security.ubuntu.com/ubuntu noble-security InRelease
  Could not connect to security.ubuntu.com:80 (185.125.190.82), connection timed out Could not connect to security.ubuntu.com:80 (185.125.190.83), connection timed out Could not connect to security.ubuntu.com:80 (91.189.91.83), connection timed out Could not connect to security.ubuntu.com:80 (91.189.91.81), connection timed out Could not connect to security.ubuntu.com:80 (91.189.91.82), connection timed out Could not connect to security.ubuntu.com:80 (185.125.190.82), connection timed out
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
All packages are up to date.
W: Failed to fetch https://pkg.jenkins.io/debian-stable/binary/InRelease Could not connect to pkg.jenkins.io:443 (151.101.158.133), connection timed out
W: Failed to fetch http://archive.ubuntu.com/ubuntu/dists/noble/InRelease Could not connect to archive.ubuntu.com:80 (91.189.91.83), connection timed out Could not connect to archive.ubuntu.com:80 (185.125.190.83), connection timed out Could not connect to archive.ubuntu.com:80 (91.189.91.81), connection timed out Could not connect to archive.ubuntu.com:80 (185.125.190.82), connection timed out Could not connect to archive.ubuntu.com:80 (91.189.91.82), connection timed out Could not connect to archive.ubuntu.com:80 (185.125.190.81), connection timed out
W: Failed to fetch http://archive.ubuntu.com/ubuntu/dists/noble-updates/InRelease Unable to connect to archive.ubuntu.com:http:
W: Failed to fetch http://archive.ubuntu.com/ubuntu/dists/noble-backports/InRelease Unable to connect to archive.ubuntu.com:http:
W: Failed to fetch http://security.ubuntu.com/ubuntu/dists/noble-security/InRelease Could not connect to security.ubuntu.com:80 (185.125.190.82), connection timed out Could not connect to security.ubuntu.com:80 (185.125.190.83), connection timed out Could not connect to security.ubuntu.com:80 (91.189.91.83), connection timed out Could not connect to security.ubuntu.com:80 (91.189.91.81), connection timed out Could not connect to security.ubuntu.com:80 (91.189.91.82), connection timed out Could not connect to security.ubuntu.com:80 (185.125.190.82), connection timed out
W: Some index files failed to download. They have been ignored, or old ones used instead.
```

```

root@LAPTOP-9EU7EI28:~# sudo apt install fontconfig openjdk-17-jre
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
fontconfig is already the newest version (2.15.0-1.1ubuntu2).
fontconfig set to manually installed.
The following package was automatically installed and is no longer required:
  libllvm17t64
Use 'sudo apt autoremove' to remove it.
The following additional packages will be installed:
  alsa-topology-conf alsa-ucm-conf ca-certificates-java fonts-dejavu-extra java-common libasound2-data libasound2t64 libatk-wrapper-java libatk-wrapper-java-
  jni libgif7 libice6 libnspr4 libnss3 libpcsc-lite
  libsm6 libxaw7 libxcb-shape0 libxft2 libxkbfile1 libxmu6 libxpm4 libxt6t64 libxv1 libxxf86dga1 openjdk-17-jre-headless x11-utils
Suggested packages:
  default-jre alsa-utils libasound2-plugins pcsd libnss-mdns fonts-ipafont-gothic fonts-ipafont-mincho fonts-wqy-microhei | fonts-wqy-zenhei fonts-indic mes-
  sages
Recommended packages:
  luit
The following NEW packages will be installed:
  alsa-topology-conf alsa-ucm-conf ca-certificates-java fonts-dejavu-extra java-common libasound2-data libasound2t64 libatk-wrapper-java libatk-wrapper-java-
  jni libgif7 libice6 libnspr4 libnss3 libpcsc-lite
  libsm6 libxaw7 libxcb-shape0 libxft2 libxkbfile1 libxmu6 libxpm4 libxt6t64 libxv1 libxxf86dga1 openjdk-17-jre openjdk-17-jre-headless x11-utils
0 upgraded, 27 newly installed, 0 to remove and 0 not upgraded.
Need to get 53.2 MB of archives.
After this operation, 210 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://archive.ubuntu.com/ubuntu noble/main amd64 alsa-topology-conf all 1.2.5.1-2 [15.5 kB]
Get:2 http://archive.ubuntu.com/ubuntu noble/main amd64 libasound2-data all 1.2.11-1build2 [21.0 kB]
Get:3 http://archive.ubuntu.com/ubuntu noble/main amd64 libasound2t64 amd64 1.2.11-1build2 [399 kB]
Get:4 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 alsa-ucm-conf all 1.2.10-1ubuntu5.4 [64.8 kB]
Get:5 http://archive.ubuntu.com/ubuntu noble/main amd64 ca-certificates-java all 20240118 [11.6 kB]
Get:6 http://archive.ubuntu.com/ubuntu noble/main amd64 fonts-dejavu-extra all 2.37-8 [1947 kB]
Get:7 http://archive.ubuntu.com/ubuntu noble/main amd64 java-common all 0.75+exp1 [6798 B]
Get:8 http://archive.ubuntu.com/ubuntu noble/main amd64 libice6 amd64 2:1.0.10-1build3 [41.4 kB]
Get:9 http://archive.ubuntu.com/ubuntu noble/main amd64 libsm6 amd64 2:1.2.3-1build3 [15.7 kB]
Get:10 http://archive.ubuntu.com/ubuntu noble/main amd64 libxt6t64 amd64 1:1.2.1-1.2build1 [171 kB]
Get:11 http://archive.ubuntu.com/ubuntu noble/main amd64 libxmu6 amd64 2:1.1.3-3build2 [47.6 kB]
Get:12 http://archive.ubuntu.com/ubuntu noble/main amd64 libxpm4 amd64 1:3.5.17-1build2 [36.5 kB]
Get:13 http://archive.ubuntu.com/ubuntu noble/main amd64 libxaw7 amd64 2:1.0.14-1build2 [187 kB]
Get:14 http://archive.ubuntu.com/ubuntu noble/main amd64 libxcb-shape0 amd64 1.15-1ubuntu2 [6100 B]
Get:15 http://archive.ubuntu.com/ubuntu noble/main amd64 libxft2 amd64 2.3.6-1build1 [45.3 kB]
Get:16 http://archive.ubuntu.com/ubuntu noble/main amd64 libxkbfile1 amd64 1:1.1.0-1build4 [70.0 kB]
Get:17 http://archive.ubuntu.com/ubuntu noble/main amd64 libxv1 amd64 2:1.0.11-1.1build1 [10.7 kB]
Get:18 http://archive.ubuntu.com/ubuntu noble/main amd64 libxxf86dga1 amd64 2:1.1.5-1build1 [11.6 kB]
Get:19 http://archive.ubuntu.com/ubuntu noble/main amd64 x11-utils amd64 7.7+6build2 [189 kB]
Get:20 http://archive.ubuntu.com/ubuntu noble/main amd64 libatk-wrapper-java all 0.40.0-3build2 [54.3 kB]
Get:21 http://archive.ubuntu.com/ubuntu noble/main amd64 libatk-wrapper-java-jni amd64 0.40.0-3build2 [46.4 kB]
Get:22 http://archive.ubuntu.com/ubuntu noble/main amd64 libgif7 amd64 5.2.2-1ubuntu1 [35.2 kB]
Get:23 http://archive.ubuntu.com/ubuntu noble/main amd64 libnspr4 amd64 2:4.35-1.1build1 [117 kB]

```

```
Setting up openjdk-17-jre:amd64 (17.0.13+11-2ubuntu1~24.04) ...
root@LAPTOP-9EUEI28:~# sudo wget -O /usr/share/keyrings/jenkins-keyring.asc \
https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key
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-get update
sudo apt-get install jenkins
--2025-02-03 09:58:53-- https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key
Resolving pkg.jenkins.io (pkg.jenkins.io)... 151.101.158.133, 2a04:4e42:25::645
Connecting to pkg.jenkins.io (pkg.jenkins.io)[151.101.158.133]:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 3175 (3.1K) [application/pgp-keys]
Saving to: '/usr/share/keyrings/jenkins-keyring.asc'

/usr/share/keyrings/jenkins-keyring.asc      100%[=====]
3.10K  ---KB/s   in 0s

2025-02-03 09:58:53 (14.6 MB/s) - '/usr/share/keyrings/jenkins-keyring.asc' saved [3175/3175]

Ign:1 https://pkg.jenkins.io/debian-stable binary/ InRelease
Get:2 https://pkg.jenkins.io/debian-stable binary/ Release [2044 B]
Get:3 https://pkg.jenkins.io/debian-stable binary/ Release.gpg [833 B]
Hit:4 http://archive.ubuntu.com/ubuntu noble InRelease
Get:5 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:6 https://pkg.jenkins.io/debian-stable binary/ Packages [28.4 kB]
Get:7 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:8 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [9020 B]
Get:9 http://archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:10 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [51.9 kB]
Get:11 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Components [212 B]
Get:12 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [208 B]
Get:13 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [837 kB]
Get:14 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [150 kB]
Get:15 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [1002 kB]
Get:16 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [315 kB]
Get:17 http://archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Components [212 B]
Get:18 http://archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [940 B]
Get:19 http://archive.ubuntu.com/ubuntu noble-backports/main amd64 Components [208 B]
Get:20 http://archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [17.7 kB]
Get:21 http://archive.ubuntu.com/ubuntu noble-backports/restricted amd64 Components [216 B]
Get:22 http://archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 Components [212 B]
Fetched 2796 kB in 5s (590 kB/s)
Reading package lists... Done
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following package was automatically installed and is no longer required:
  liblvm17t64
Use 'sudo apt autoremove' to remove it.
The following additional packages will be installed:
```

```

Setting up openjdk-17-jre:amd64 (17.0.13+11-2ubuntu1~24.04) ...
root@LAPTOP-9EUEI28:~# sudo wget -O /usr/share/keyrings/jenkins-keyring.asc \
  https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key
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-get update
sudo apt-get install jenkins
--2025-02-03 09:58:53-- https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key
Resolving pkg.jenkins.io (pkg.jenkins.io)... 151.101.158.133, 2a04:4e42:25::645
Connecting to pkg.jenkins.io (pkg.jenkins.io)[151.101.158.133]:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 3175 (3.1K) [application/pgp-keys]
Saving to: '/usr/share/keyrings/jenkins-keyring.asc'

/usr/share/keyrings/jenkins-keyring.asc      100%[=====]
3.10K  ---KB/s   in 0s

2025-02-03 09:58:53 (14.6 MB/s) - '/usr/share/keyrings/jenkins-keyring.asc' saved [3175/3175]

Ign:1 https://pkg.jenkins.io/debian-stable binary/ InRelease
Get:2 https://pkg.jenkins.io/debian-stable binary/ Release [2044 B]
Get:3 https://pkg.jenkins.io/debian-stable binary/ Release.gpg [833 B]
Hit:4 http://archive.ubuntu.com/ubuntu noble InRelease
Get:5 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:6 https://pkg.jenkins.io/debian-stable binary/ Packages [28.4 kB]
Get:7 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:8 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [9020 B]
Get:9 http://archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:10 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [51.9 kB]
Get:11 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Components [212 B]
Get:12 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [208 B]
Get:13 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [837 kB]
Get:14 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [150 kB]
Get:15 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [1002 kB]
Get:16 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [315 kB]
Get:17 http://archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Components [212 B]
Get:18 http://archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [940 B]
Get:19 http://archive.ubuntu.com/ubuntu noble-backports/main amd64 Components [208 B]
Get:20 http://archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [17.7 kB]
Get:21 http://archive.ubuntu.com/ubuntu noble-backports/restricted amd64 Components [216 B]
Get:22 http://archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 Components [212 B]
Fetched 2796 kB in 5s (590 kB/s)
Reading package lists... Done
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following package was automatically installed and is no longer required:
  liblvm17t64
Use 'sudo apt autoremove' to remove it.
The following additional packages will be installed:

```

localhost:8080/job/Task/

LeetCode - The Wor...LeetCode SolutionsAICTE Internship En...YouTubeChatGPTAvatarWix Site Creation [...]Quick Start - ReactHome | Infosys Spri...java dev.pdf - Goog...All Bookmarks

Jenkins

Search (CTRL+K)

1

Ragavi

log out

Dashboard > Task >

Status

Changes

Workspace

Build Now

Configure

Delete Project

Rename

Task

Edit description

Jenkins Login Testing

Permalinks

- Last build (#2), 4 min 21 sec ago
- Last stable build (#2), 4 min 21 sec ago
- Last successful build (#2), 4 min 21 sec ago
- Last completed build (#2), 4 min 21 sec ago

Builds

Filter

Today

#2 10:37

#1 10:34

localhost:8080/job/Task/configure

REST APIJenkins 2.479.3

32°C Sunny

Search

16:11 03-02-2025

Jenkins

Search (CTRL+K)

1

Ragavi

log out

Dashboard > Task > Configuration

Configure

General

Source Code Management

Build Triggers

Build Environment

Build Steps

Post-build Actions

General

Enabled

Description

Jenkins Login Testing

Plain text Preview

☐ Commit agent's Docker container

☐ Define a Docker template

☐ Discard old builds

☐ GitHub project

☐ This project is parameterised

SaveApply

32°C Sunny

Search

16:11 03-02-2025

localhost:8080/job/Task/configure

LeetCode - The Wor...LeetCode SolutionsAICTE Internship En...YouTubeChatGPTAvatarWix Site Creation ...Quick Start - ReactHome | Infosys Spr...java dev.pdf - Goog...All Bookmarks

Dashboard > Task > Configuration

Configure

General

Source Code Management

Build Triggers

Build Environment

Build Steps

Post-build Actions

With Ant ?

Build Steps

Execute shell ?

Command

See the list of available environment variables

```
#!/bin/bash

# Update & Upgrade the system
sudo apt update -y && sudo apt upgrade -y

# Install Nginx if not installed
sudo apt install -y nginx

# Start & Enable Nginx service
sudo systemctl start nginx
sudo systemctl enable nginx

# Create the index.html file for Netflix
cat <<EOF | sudo tee /var/www/html/index.html
```

Save

Apply

Dashboard > Task > Configuration

Configure

General

Source Code Management

Build Triggers

Build Environment

Build Steps

Post-build Actions

Advanced

Add build step

Post-build Actions

Add post-build action

Save

Apply

REST APIJenkins 2.479.3



Status



Changes



Workspace



Build Now



Configure



Delete Project



Rename

Builds



Filter



Today



#2 10:37



#1 10:34





