

User Manual

Introduction

This user manual provides step-by-step instructions for using the Jenkins Continuous Integration (CI) system implemented in this project. It explains how to access Jenkins, run jobs, view build results, and manage pipelines.

Accessing Jenkins

Steps:

1. Open a web browser.
2. Enter the Jenkins URL:

```
http://localhost:8080
```

3. Log in using the administrator credentials (Enrolment Number as username).

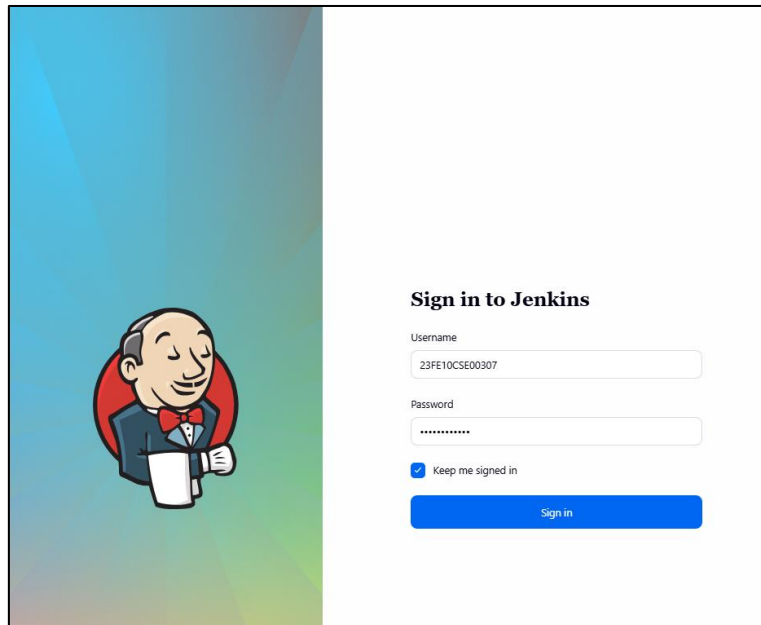


Figure 1. Jenkins login page

Dashboard Navigation

After logging in, the Jenkins dashboard is displayed.

Main features of the dashboard:

- **New Item:** Create new jobs
- **Build History:** View previous builds
- **Manage Jenkins:** Configure system settings
- **Job List:** Displays all configured jobs

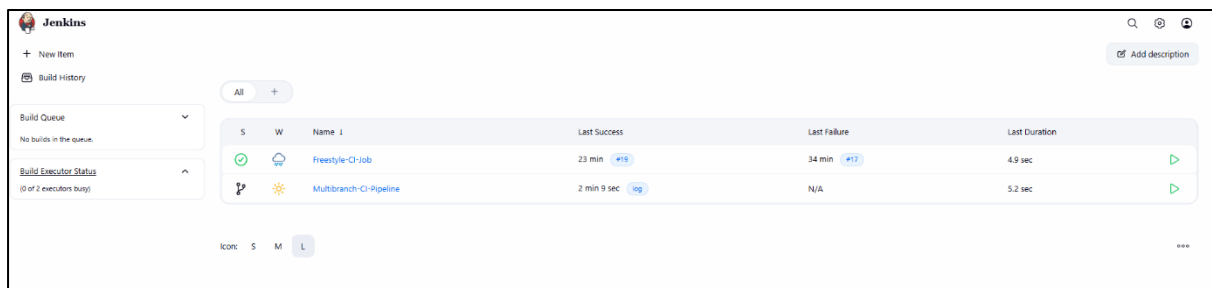


Figure 2. Jenkins dashboard with job list

Running a Freestyle Job

Steps:

1. Click on the Freestyle job name.
2. Click **Build Now**.
3. Jenkins starts executing the job.
4. Click on the build number to view details.

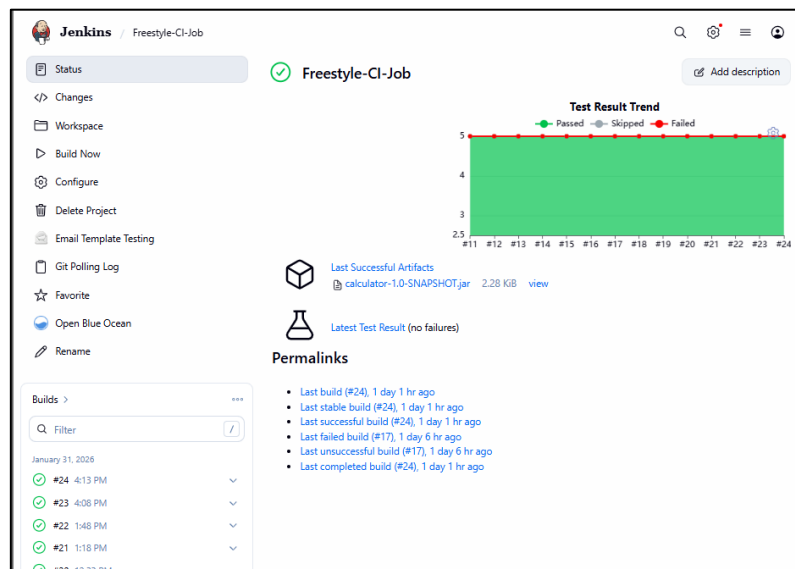


Figure 3. Freestyle job page with “Build Now” option

Viewing Build Console Output

Steps:

1. Click on the build number (e.g., #1).
2. Click on **Console Output**.
3. Observe the logs for:
 - a. Code checkout
 - b. Build execution
 - c. Test results

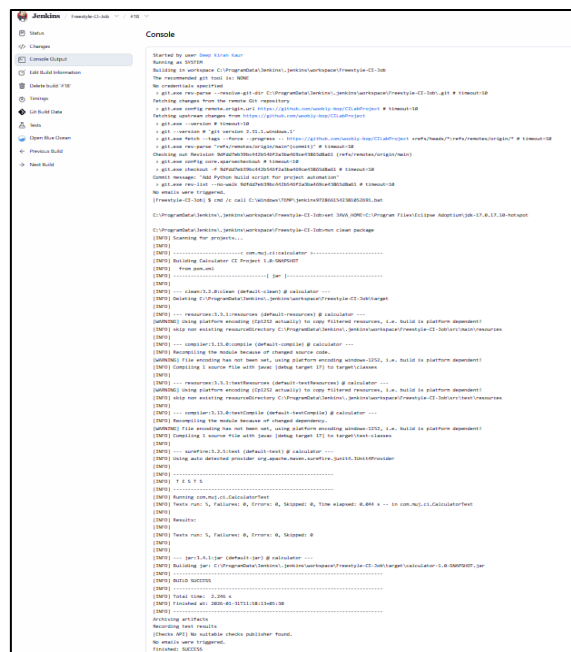


Figure 4. Console Output showing successful build

Running Multibranch Pipeline Job

Steps:

1. Click on the Multibranch Pipeline job.
2. Jenkins automatically displays discovered branches.
3. Click any branch to view its pipeline.
4. Click **Build Now** to trigger a pipeline run.

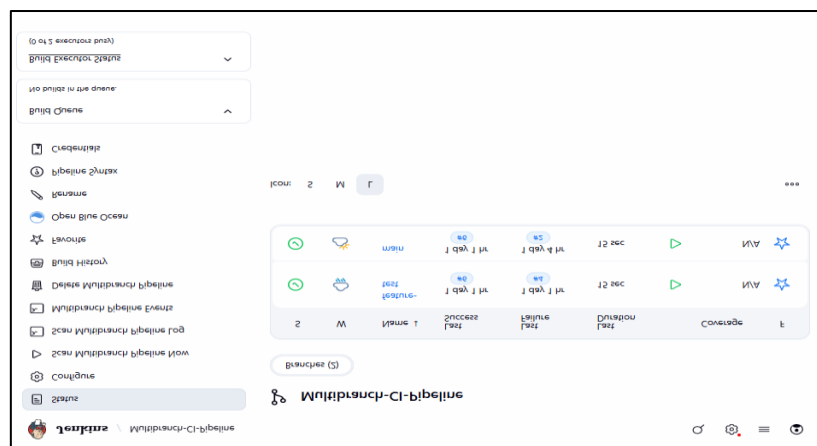


Figure 5. Multibranch Pipeline job showing branches

Viewing Pipeline Stages

Steps:

1. Click on a pipeline build.
2. View the stage-wise execution (Checkout, Build, Test, Deploy).
3. Click on any stage to view logs.

| Jenkins | | | | | | | Pipelines | Administration | Logout |
|-------------------------|-----|---------|--------------|---|----------|-----------|-----------|----------------|---------------|
| Multibranch-CI-Pipeline | | | | | | | Activity | Branches | Pull Requests |
| STATUS | RUN | COMMIT | BRANCH | MESSAGE | DURATION | COMPLETED | | | |
| ✓ | 6 | dee078a | feature-test | Refactor code structure f... (5 commits) | 16s | a day ago | | | |
| ✓ | 6 | d87cab5 | main | Refactor code structure f... (4 commits) | 16s | a day ago | | | |
| ✓ | 5 | 493b686 | feature-test | Add environment variables for Java s... | 13s | a day ago | | | |
| ✗ | 4 | 4c5561e | feature-test | Started by user Deep Kiran Kaur | 6s | a day ago | | | |
| ✗ | 3 | 4c5561e | feature-test | Started by user Deep Kiran Kaur | 7s | a day ago | | | |
| ✓ | 5 | 8343d43 | main | changes in README.md | 11s | a day ago | | | |
| ✓ | 4 | 3b662cb | main | Add installation guide for Jenkins set... | 27s | a day ago | | | |
| ✓ | 3 | bda9577 | main | Fix JAVA_HOME in Jenkinsfile for pi... | 13s | a day ago | | | |
| ✗ | 2 | 4c5561e | feature-test | changes in README.md | 7s | a day ago | | | |
| ✗ | 2 | 365c97d | main | Started by user Deep Kiran Kaur | 8s | a day ago | | | |
| ✗ | 1 | 365c97d | feature-test | Branch indexing | 8s | a day ago | | | |
| ✗ | 1 | 365c97d | main | Branch indexing | 10s | a day ago | | | |

Figure 6. Pipeline stage view (Blue Ocean)

Viewing Test Results

Steps:

1. Open a completed build.
2. Click on **Test Result**.
3. View passed and failed test cases.

| Freestyle-CI-Job < 24 | | | | Pipeline | Changes | Tests | Artifacts | Settings | Logout | × |
|-----------------------|---|--|--------------------------|---|---------|-------|-----------|----------|--------|---|
| Branch: | — | 10s | Changes by Indeeprankaur | | | | | | | |
| Commit: | — | a day ago | Started by an SCM change | | | | | | | |
| | | | | <div> <p>All tests are passing</p> <p>Nice one! All 5 tests for this pipeline are passing.</p> </div> | | | | | | |
| Passed - 5 | | | | | | | | | | |
| ✓ | > | testDivideByZero - com.muj.ci.CalculatorTest | <1s | | | | | | | |
| ✓ | > | testAdd - com.muj.ci.CalculatorTest | <1s | | | | | | | |
| ✓ | > | testSubtract - com.muj.ci.CalculatorTest | <1s | | | | | | | |
| ✓ | > | testDivide - com.muj.ci.CalculatorTest | <1s | | | | | | | |
| ✓ | > | testMultiply - com.muj.ci.CalculatorTest | <1s | | | | | | | |

Figure 7. Test Results page

Downloading Build Artifacts

Steps:

1. Open a completed build.
2. Click on **Artifacts**.
3. Download generated files.

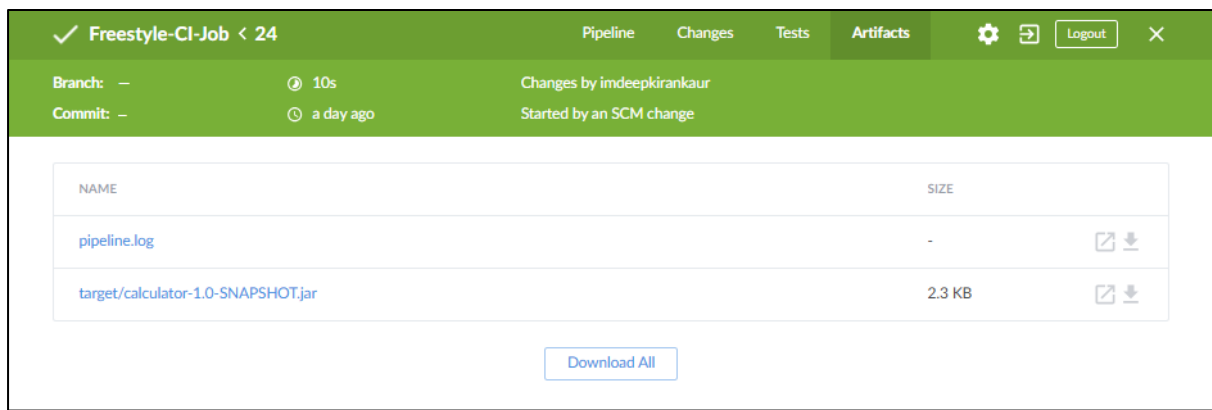


Figure 8. Artifacts section

Triggering Builds Automatically

Builds can be triggered automatically by:

- Pushing code to GitHub (via webhook)
- Polling SCM schedule
- Branch indexing in Multibranch Pipeline

This ensures Continuous Integration without manual intervention.

Logging Out

Steps:

1. Click on the username at the top-right corner.
2. Click **Log out**.

Summary

This user manual enables users to effectively operate the Jenkins CI system.

It covers login, job execution, pipeline monitoring, and result analysis.

Using these steps, users can continuously integrate and test their code using Jenkins.