



**CONTINUOUS INTEGRATION AND CONTINUOUS
DEPLOYMENT LAB**

**Lab File
(2023-2024)**

for

5th Semester

Submitted To

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EXPERIMENT 1

Setting Up a Jenkins Job for Maven Build

Aim

Create a Jenkins job that builds a Maven project using Jenkins and triggers the build on changes in the version control repository.

Steps

1. Create a maven project

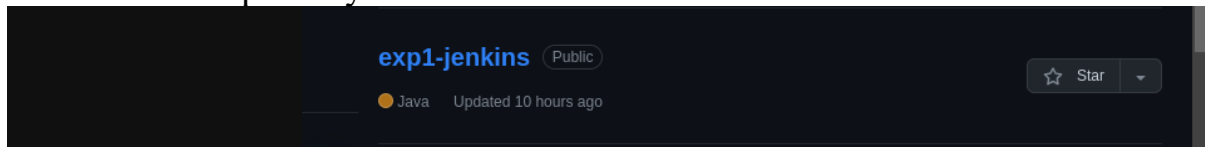
a. Create the project

```
[INFO] --- surefire:3.1.2:test (default-test) @ cicd_Lab_1 ---
[INFO]
[INFO] --- jar:3.1.0:jar (default-jar) @ cicd_Lab_1 ---
[INFO]
[INFO] --- install:3.1.1:install (default-install) @ cicd_Lab_1 ---
[INFO] Installing C:\Users\hp\eclipse-workspace\cicd_Lab_1\pom.xml to C:\Users\hp\.m2\repository\DevOps_B3_Cicd\cicd_Lab_1\0.0.1-SNAPSHOT\cic
[INFO] Installing C:\Users\hp\eclipse-workspace\cicd_Lab_1\target\mycal.jar to C:\Users\hp\.m2\repository\DevOps_B3_Cicd\cicd_Lab_1\0.0.1-SNA
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 2.845 s
[INFO] Finished at: 2023-12-01T01:20:55+05:30
[INFO] -----
```

b. Create a package mypkg inside src/main/java/ and add myCalculator.java file

```
mycal.java × cicd_Lab_1/pom.xml cicd.lab3/pom.xml
1 package cicd_Lab_1;
2
3 public class mycal {
4     public int sum(int a,int b)
5     {
6         return (a+b);
7     }
8     public int diff(int a, int b)
9     {
10        return (a-b);
11    }
12    public int mul(int a, int b)
13    {
14        return (a*b);
15    }
16    public int div(int a,int b)
17    {
18        return (a/b);
19    }
20
21    public static void main(String[] args) {
22        System.out.println("hello");
23        mycal ob = new mycal();
24        System.out.println(ob.sum(21,4));
25        System.out.println(ob.diff(21,4));
26        System.out.println(ob.mul(21,4));
27        System.out.println(ob.div(21,4));
28
29    }
30
```

2. Push the project on GitHub
 - a. Create a repository on GitHub



- b. In the project run git init command

```
+ exp1-jenkins git init
hint: Using 'master' as the name for the initial branch. This default branch name
hint: is subject to change. To configure the initial branch name to use in all
hint: of your new repositories, which will suppress this warning, call:
hint:
hint:   git config --global init.defaultBranch <name>
hint:
hint: Names commonly chosen instead of 'master' are 'main', 'trunk' and
hint: 'development'. The just-created branch can be renamed via this command:
hint:
hint:   git branch -m <name>
Initialized empty Git repository in /home/ayroid/Documents/Work/College/SEM5/Subjects/cicd/lab/HiteshSir/exp1/exp1-jenkins/.git/
+ exp1-jenkins git:(master) x
```

- c. Link the local repository and the remote repository

```
+ exp1-jenkins git:(master) x git remote add origin https://github.com/Ayroid/exp1-jenkins.git
+ exp1-jenkins git:(master) x
```

- d. Add, Commit and Push the project

```
+ exp1-jenkins git:(master) x git add .
```

3. Install and start Jenkins

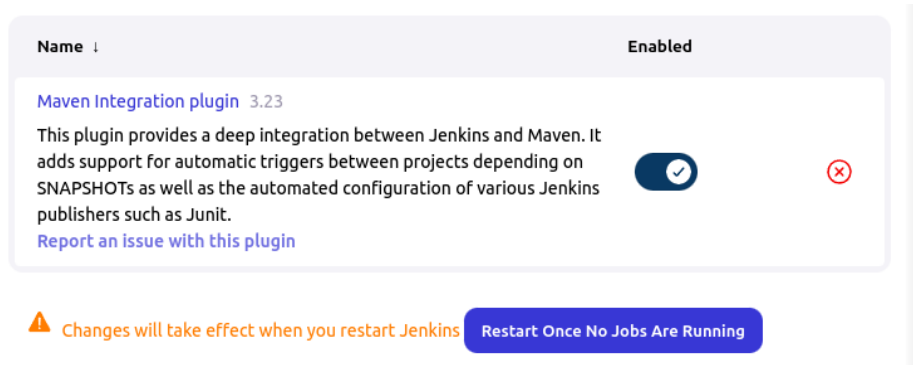
```
+ exp1-jenkins git:(master) jenkins --version
2.414.1
+ exp1-jenkins git:(master)
```

4. Create Jenkins job to clone GitHub project and make a build

- a. Creating a maven project pipeline named CICDLAB-1



- b. Installing maven integration plugin - Dashboard > Manage Jenkins > Plugins > Available plugins > Maven Integration plugin



c. Configuring the pipeline

i. Provide GitHub repository url in Dashboard > CICDLAB-1 > Configuration > Source Code Management > Git > Repositories > Repository URL



The screenshot shows the 'GitHub project' configuration section. It includes a checked checkbox for 'GitHub project', a 'Project url' field with a help icon, and a text input containing 'https://github.com/ArpitGoyal8811/cicd_lab1.git'. Below the input is an 'Advanced' dropdown menu.

ii. Specify the branch in Dashboard > CICDLAB-1 > Configuration > Source Code Management > Git > Branches to build > Branch Specifier



The screenshot shows the 'Branches to build' configuration section. It includes a 'Branch Specifier (blank for 'any')' field with a help icon and a red 'X' icon. The text input contains '*/master'.

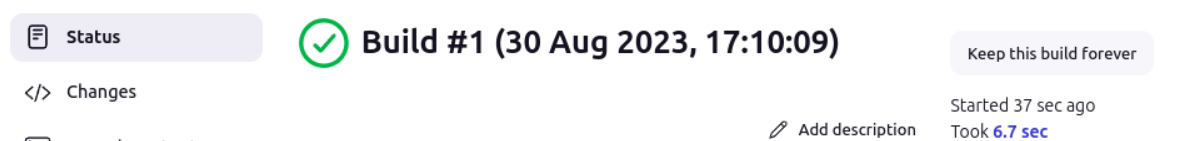
iii. Specify Build Goal in Dashboard > CICDLAB-1 > Configuration > Build > Goals and options



The screenshot shows the 'Goals and options' configuration section. It includes a 'Goals and options' field with a help icon and a text input containing 'Install'.

iv. Save the changes

5. Execute the build



The screenshot shows the 'Build #1 (30 Aug 2023, 17:10:09)' status interface. It includes a 'Status' tab, a green checkmark icon, a 'Keep this build forever' button, a 'Changes' link, an 'Add description' link, and a 'Started 37 sec ago' status. The build took 6.7 sec.

6. Add Build Trigger for automated builds by scheduling them in Dashboard > CICDLAB-1 > Configuration > Build Triggers > Poll SCM > Schedule



The screenshot shows the 'Poll SCM' configuration section. It includes a checked checkbox for 'Poll SCM', a 'Schedule' field with a help icon, and a text input containing '*****'.

7. Make changes to the project

```
public static int power(int a, int b) {  
    int result = 1;  
    for (int i = 0; i < b; i++) {  
        result *= a;  
    }  
    return result;  
}
```

8. Commit and Push the changes

```
+ exp1-jenkins git:(master) x git add .  
+ exp1-jenkins git:(master) x git commit -m "Added power calculation method"  
[master 00ccf4d] Added power calculation method  
2 files changed, 9 insertions(+)  
+ exp1-jenkins git:(master) git push  
Username for 'https://github.com': Ayroid  
Password for 'https://Ayroid@github.com':  
Enumerating objects: 21, done.  
Counting objects: 100% (21/21), done.  
Delta compression using up to 12 threads  
Compressing objects: 100% (6/6), done.  
Writing objects: 100% (11/11), 1.25 KiB | 1.25 MiB/s, done.  
Total 11 (delta 3), reused 0 (delta 0), pack-reused 0  
remote: Resolving deltas: 100% (3/3), completed with 3 local objects.  
To https://github.com/Ayroid/exp1-jenkins.git  
165bb98..00ccf4d master -> master  
+ exp1-jenkins git:(master) ☐
```

9. An automated build is triggered

Dashboard > CICDLAB-1 > #2

Status

</> Changes

Console Output

Edit Build Information

Delete build '#2'

Polling Log


Git Build Data


Test Result


Redeploy Artifacts

See Fingerprints


Previous Build


 **Build #2 (30 Aug 2023, 17:20:12)**


 Add description

 Changes


1. Added power calculation method ([details](#) / [githubweb](#))

 [Started by an SCM change](#)

 Revision: 00ccf4d6f3c7462831f08a1e5739b21aaaf94da8
Repository: <https://github.com/Ayroid/exp1-jenkins.git>
• refs/remotes/origin/master

 [Test Result](#) (no failures)

Module Builds

 exp1-jenkins 2.9 sec

Keep this build forever

Started 25 sec ago
Took **6.4 sec**