

Aim : To understand continuous integration, install and configure jenkins with maven to setup a build job.

pre-requisites :

- 1) Basic understanding of software development and version control system.
- 2) JDT installed on the server
- 3) git bash installed on system.
- 4) Access to code repository from git.

Introduction:

continuous integration is a development practice that involve automatically building testing and integration - code into a share repository makes sure that software remains in working state.
Jenkins is a widely used CI/CD tool that, automation the process.

Theory:

- i) CI aims to detect and address integration issues early in a development cycle.
 - ii) CI pipelines build and test those changes automatically.
- Jenkins - Jenkins is an open source automate that facilitates CI/CD.

1) create dev tool folder in c drive

Extract Compressed (Zipped) Folders

Select a Destination and Extract Files

Files will be extracted to this folder:

C:\Dev_Tools

Show extracted files when complete

step 2) check for Java version, it should be 17

```
C:\Users\student>java --version
java 17.0.6 2023-01-17 LTS
Java(TM) SE Runtime Environment (build 17.0.6+9-LTS-190)
Java HotSpot(TM) 64-Bit Server VM (build 17.0.6+9-LTS-190, mixed mode, sharing)
```

step 3) check for Git version

```
C:\Users\student>git --version
git version 2.41.0.windows.3
```

Step 4) check for Java home folder

```
C:\Users\student>echo %JAVA_HOME%
C:\Program Files\Java\jdk-17
```

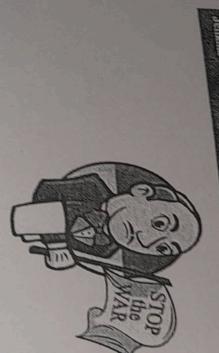
Step 5) check for m2 - Home folder

```
C:\Users\student>echo %M2_HOME%
C:\Dev_Tools\apache-maven-3.9.4
```

Step 6) check for maven version

```
C:\Users\student>mvn --version
Apache Maven 3.9.4 (dfb3244dd47c8fb0bf182a6d91b0ae20e312dd9)
Maven home: C:\Dev_Tools\apache-maven-3.9.4
Java version: 17.0.6, vendor: Oracle Corporation, runtime: C:\Program Files\Java\jdk-17
Default locale: en_US, platform encoding: Cp1252
OS name: "windows 11", version: "10.0", arch: "amd64", family: "windows"
```

Step 7) open the Jenkins website



Jenkins

Build great things at any scale

The leading open-source automation server.

Jenkins provides hundreds of plugins to support building, deploying and automating any project.

We stand with the people of Ukraine. Please assist humanitarian efforts for the Ukrainian people and those affected by the military invasion of Ukraine by supporting international aid organizations, including the International Committee of the Red Cross.

Download Jenkins

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Step 8) download Jenkins

Install Jenkins

Download Jenkins

Download Jenkins 2.401.3

Download

Step 10) click

Jenkins 2.401.3
Destination Fo
Click Next to ne

Install Jenkins 2.
C:\ProgramFile
Change...

Step 11) selec

Jenkins 2.401.3
Service Logon
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successfully.

Logon Type:
 Run service
ACCOUNT:
Password:
Test

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Jenkins 2.401.3 Setup

Welcome to the Jenkins 2.401.3 Setup
Wizard

The Setup Wizard will install Jenkins 2.401.3 on your computer. Click Next to continue or Cancel to exit the setup.

It is recommend

Port Number
8080
TCP

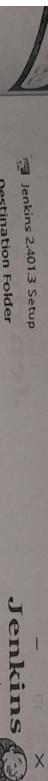
Please choose a port

Next

Cancel

Back

Step 10) Click on next



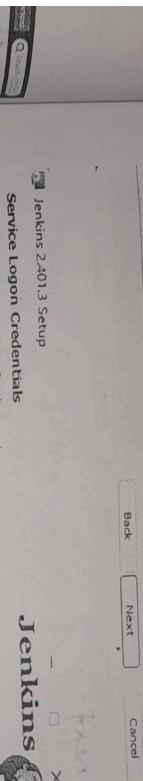
Click Next to install to the default folder or click Change to choose another.

Install Jenkins 2.40.1.3 to:

C:\Program Files\Jenkins\

Change...

Step 11) Select run services local system



Jenkins 2.40.1.3 installs and runs as an independent Windows service. To operate in this manner, you must supply the user account credentials for Jenkins 2.40.1.3 to run successfully.

Logon Type:

Run service as LocalSystem (not recommended)

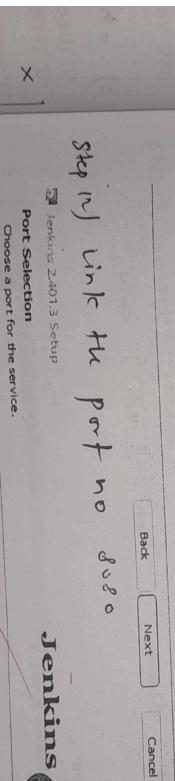
Run service as local or domain user:

Account: [redacted]

Password: [redacted]

Test Credentials

Step 12) Link the port no 8080



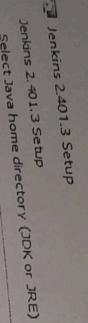
Please choose a port.

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e Setup

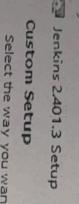
It is recommended that you accept the selected default port.

Step 13) Select JDK path & click next

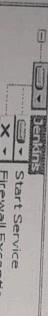


C:\Program Files\Java\Jdk-17\
Change...

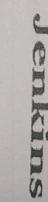
Step 14) click next



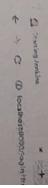
Click the icons in the tree below to change the way features will be installed.



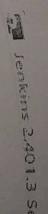
This feature requires 9.4MB on your hard drive. If it has 1 of 2 subfeatures selected. The subfeatures require 0KB on your hard drive.



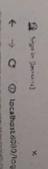
Step 15) Jenkins



Step 16) Jenkins



Step 17) Jenkins



Step 16) Jenkins installation completed



Jenkins 2.401.3 Setup

Completed the Jenkins 2.401.3 Setup Wizard

Click the Finish button to exit the Setup Wizard.



Step 17) Jenkins is getting ready to work

Finish

Cancel

Back

Step 18) unlock Jenkins

Please wait while Jenkins is getting ready to work



Unlock Jenkins

To ensure Jenkins is securely set up, the administrator password has been written to the log (not sure where to find it? See the file at [this link](#)).
Please enter the password you chose when prompted.
Please copy it & paste it here and press i

Administrator password



Step 19) Go to Jenkins folder & get secret

Step 20) Click on instance

The screenshot shows a file explorer window with the path: C:\ProgramData\Jenkins\jenkins\secrets. The folder contains four files:

Name	Date modified	Type	Size
initialAdminPassword	8/21/2023 4:05 PM	File	
jenkins.model\jenkins.crumbSalt	8/21/2023 4:05 PM	CRUMB3ALT file	
masterKey	8/21/2023 4:05 PM	KEYFILE	

Step 20) Get the admin password

initialAdminPassword

Getting Started

Customize

Plugins extend Jenkins with:

- Install suggested plugins
- Install plugins the Jenkins community finds most useful

8489292554b94b34a777f67641c3cb9c|

In 1, Col 33 100% Windows (CRLF) UTF-8

Step 21) Write the password in Administrator's password

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Step 22) Create Admin

The screenshot shows the Jenkins 'Create' form under 'Getting Started'.

Create Fi

Unlock Jenkins

To ensure Jenkins is securely configured by the administrator, a password has been written to the log. Not sure where to find it? See the file on the server: <http://jenkins:8080/secrets>.

Please enter the password from either location and follow the instructions below.

Administrator password

Username:

Password:

Confirm password:

First name:

Last name:

Step 2) Click on install suggested packages

Getting Started

Customize Jenkins
Plugins extend Jenkins with additional features to support many different needs.

Install suggested plugins
Install plugins the Jenkins community finds most useful.

Select plugins to install
Select and install plugins most suitable for your needs.

http://jenkins:20313
Getting Started

Instance Configuration

Jenkins

http://jenkins:8080

The Jenkins UI is used to provide an easy-to-use interface to manage your Jenkins project. New Jenkins users often find it useful to learn how to use the UI.

The configuration screen allows you to change the basic configuration of your Jenkins instance.

Use Jenkins to build your application's source code, or to run automated tests.

http://jenkins:20313
Getting Started

Skip by create Admin user

Create First Admin User

User Name:

Common Password:

Re-enter Password:

Enter admin user

Save and Finish

Step 27) Jenkins is ready to use

Getting Started

Jenkins is ready!

Your Jenkins setup is complete.

Start using Jenkins

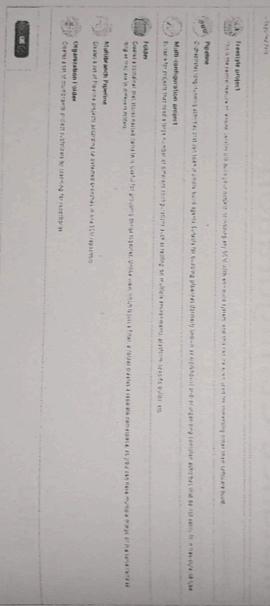
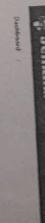
Configure

- ⑨ Create a new job
- ⑩ Import Code Management
- ⑪ Build Trigger
- ⑫ Build Environment
- ⑬ Build Step
- ⑭ Edit build actions
- ⑮ Add post-build actions
- ⑯ Add post-build scripts
- ⑰ Add post-build emails

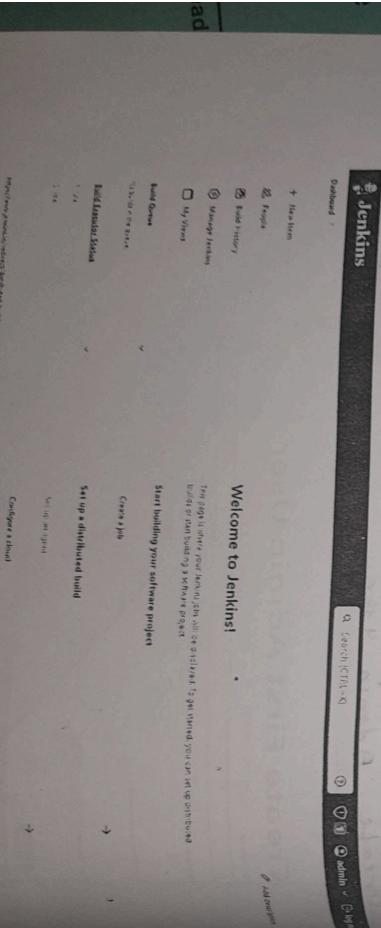
Step 28) Create a project



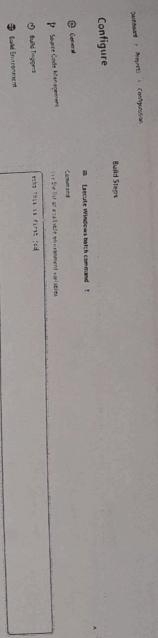
Step 29) Build



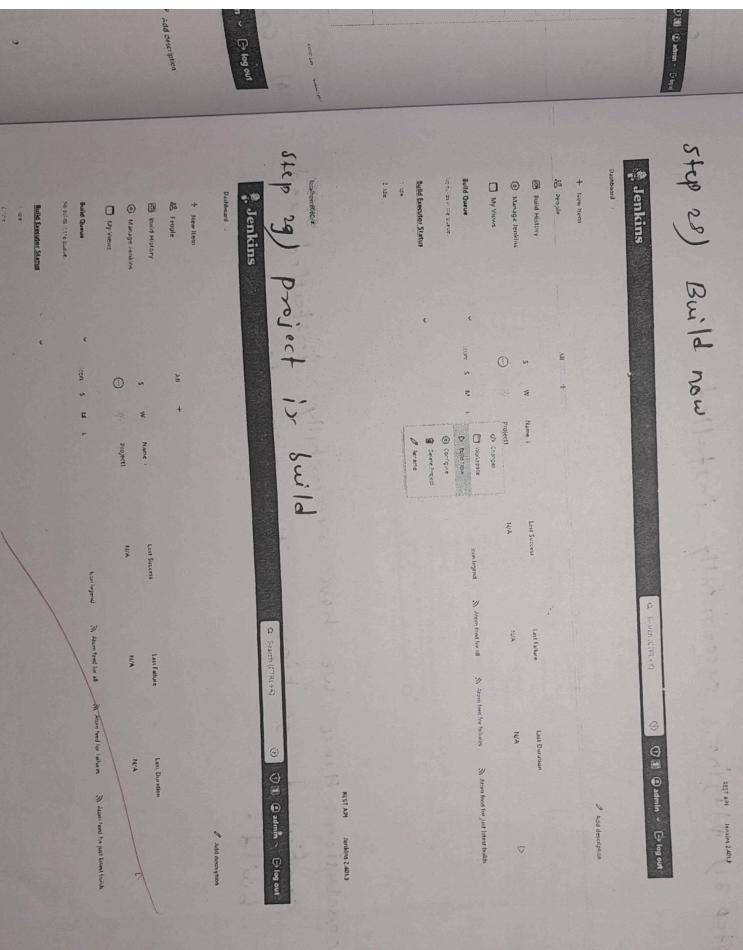
Step 30) Project



Step 27) Go to configuration



Step 28) Build now



Step 3) installing plugins

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No: 03

The screenshot shows the Jenkins interface with the title "Manage Jenkins > Plugins". Under the "Available" tab, there is a single listed plugin: "Maven Integration". It has a status of "Installed" and a "Version" of "1.22". A link to "View changelog" is provided. Below the list, a note states: "This plugin provides a clean integration between Jenkins and Maven. It adds support for automatic triggering of builds from Maven projects depending on SCM and a more automated configuration of various Jenkins pipelines with M2Build".

The screenshot shows the Jenkins Pipeline history for a job named "maven". The last build was successful, indicated by a green bar. The log output shows: "Pipeline finished successfully". Below the log, there is a "Download now and install this plugin" button.

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Theory -

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conclusion: Hence we have successfully installed a CI
confused Jenkins with maven to setup a
build.

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