

## EXPERIMENT-04

**Aim:** To understand Continuous Integration, install and configure Jenkins with Maven/Ant/Gradle to setup a build Job .

### **Theory:**

Jenkins is an open source continuous integration/continuous delivery and deployment (CI/CD) automation software DevOps tool written in the Java programming language. It is used to implement CI/CD workflows, called pipelines.

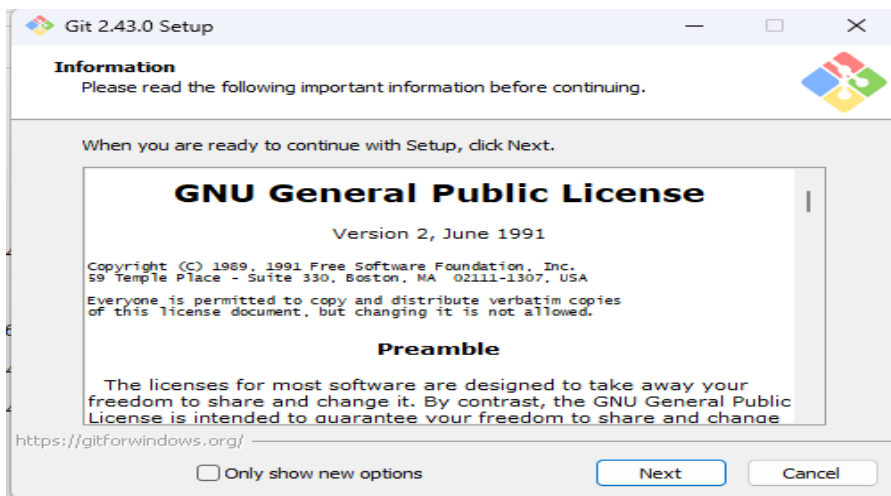
To install Jenkins following software packages are required

- 1) GIT ([git-scm.com](https://git-scm.com))
- 2) Notepad++ (<https://notepad-plus-plus.org/downloads/>)
- 3) Latest Java development kit (JDK)
- 4) Jenkins
- 5) Apache Maven (Optional)

Step 1 -: Install GIT
Step 2 -: Install Notepad++
Step 3 -: Install Java
Step 4 -: Install Jenkins
Step 5 -: Install Maven

Pipelines automate testing and reporting on isolated changes in a larger code base in real time and facilitates the integration of disparate branches of the code into a main branch. They also rapidly detect defects in a code base, build the software, automate testing of their builds, prepare the code base for deployment (delivery), and ultimately deploy code to containers and virtual machines, as well as bare metal and cloud servers. There are several commercial versions of Jenkins. This definition only describes the upstream Open Source project.

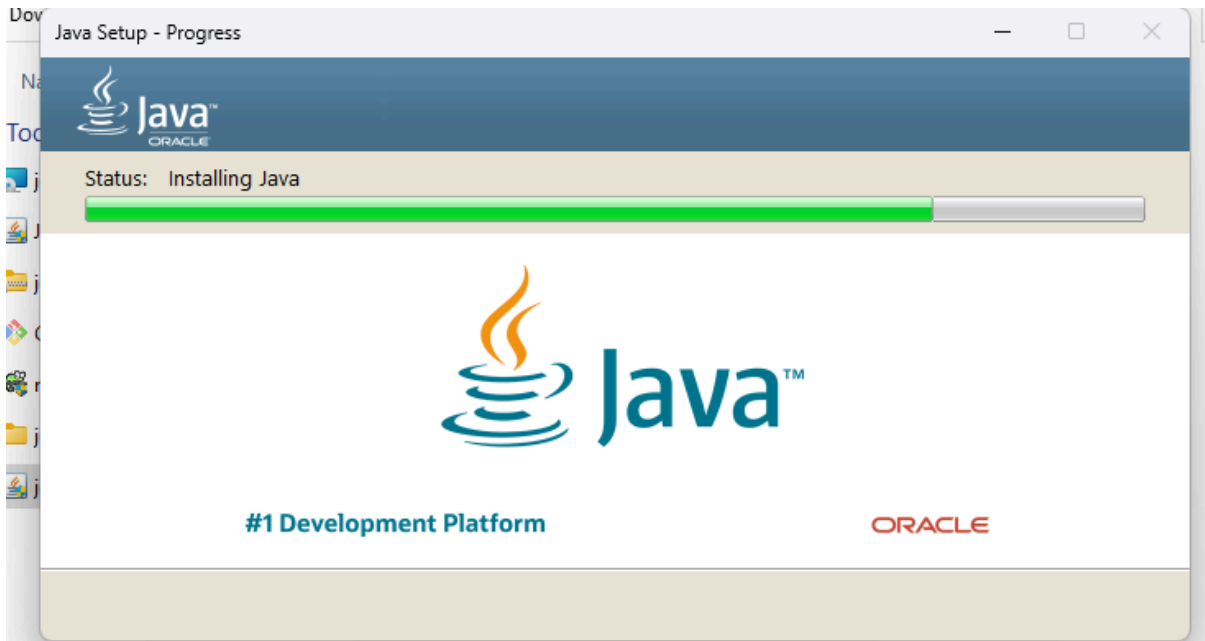
## Step-1: Install Git from Browser



## Step-2: Install Notepad++ from Browser

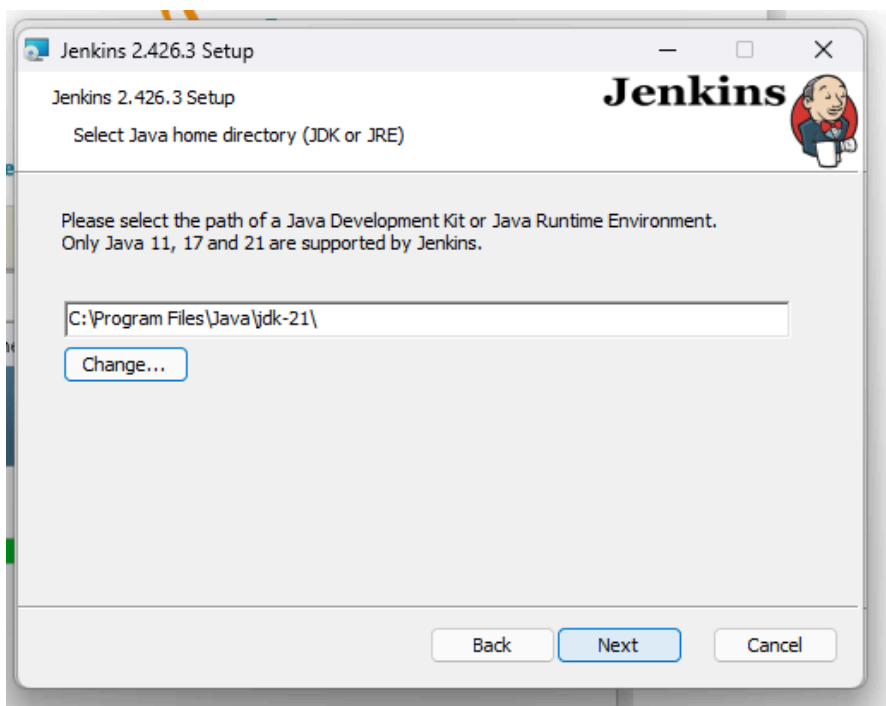


### Step-3: Install Java(JDK 21.0.1) from Browser

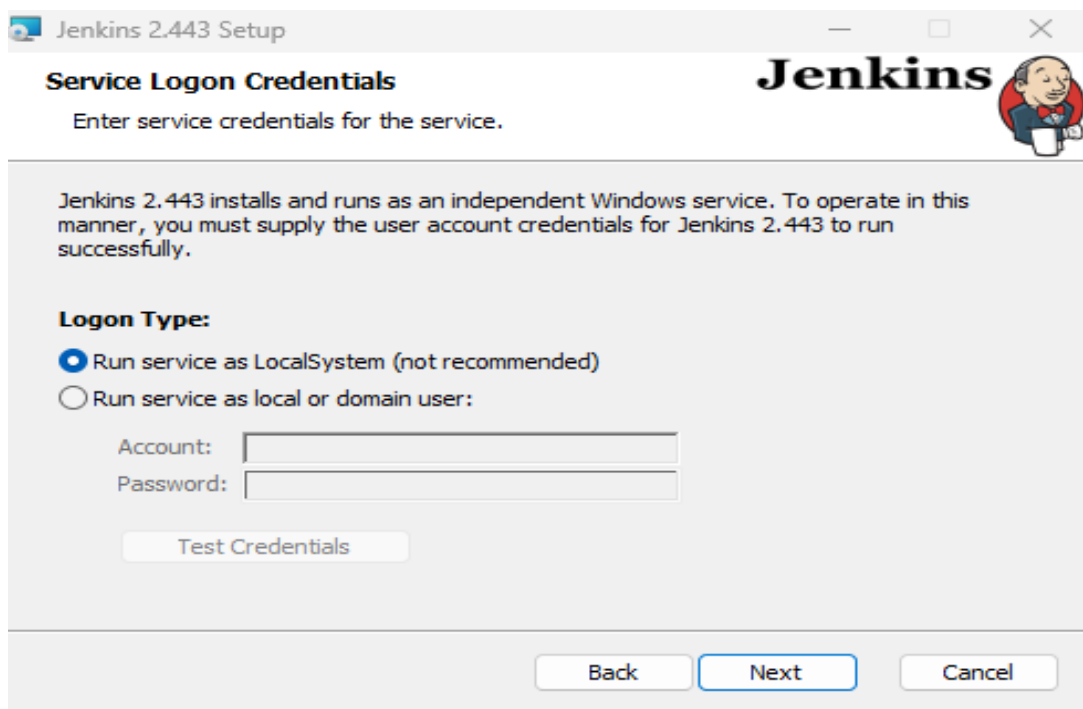


### Step-4: Installation Steps for Jenkins on Windows

#### 1)-Install Jenkins from Browser



## 2)-Enter Service Credentials



**Jenkins 2.443 Setup**

### Service Logon Credentials

Enter service credentials for the service.

Jenkins 2.443 installs and runs as an independent Windows service. To operate in this manner, you must supply the user account credentials for Jenkins 2.443 to run successfully.

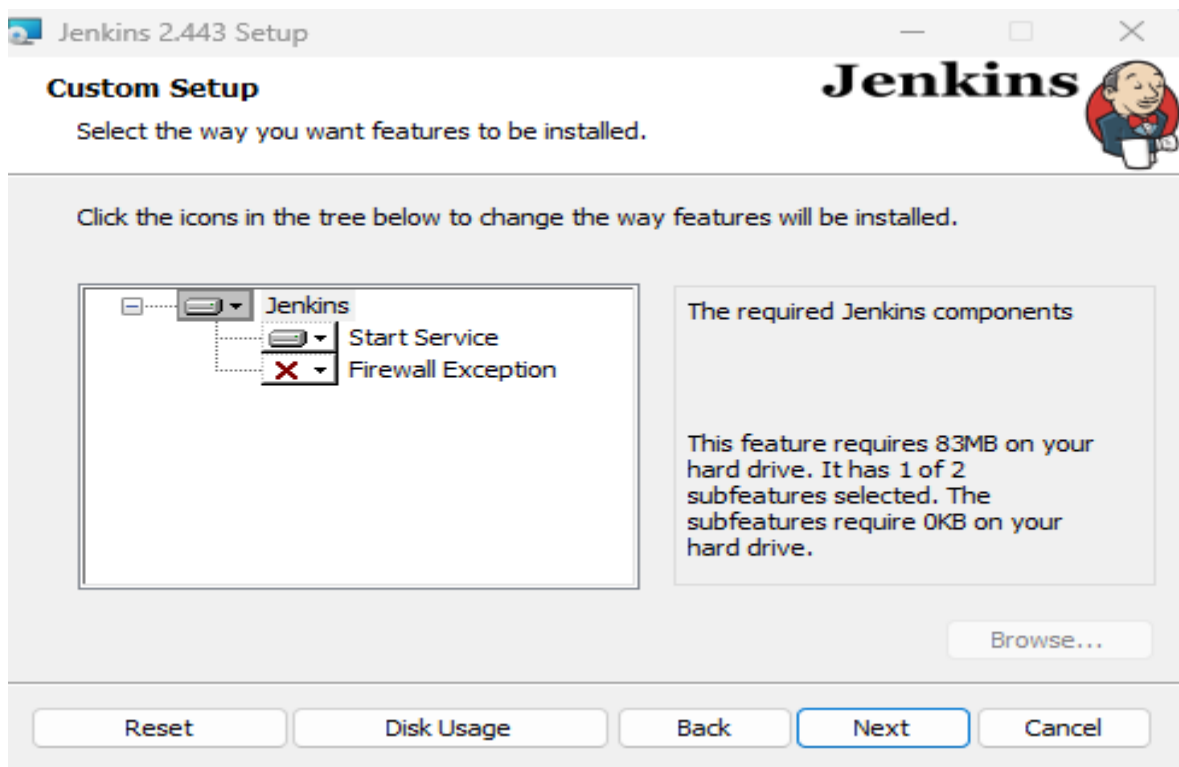
**Logon Type:**

☒ Run service as LocalSystem (not recommended)

☐ Run service as local or domain user:

Account:

Password:



**Jenkins 2.443 Setup**

### Custom Setup

Select the way you want features to be installed.

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

[-]

[+]

Jenkins

[+]

Start Service

[X]

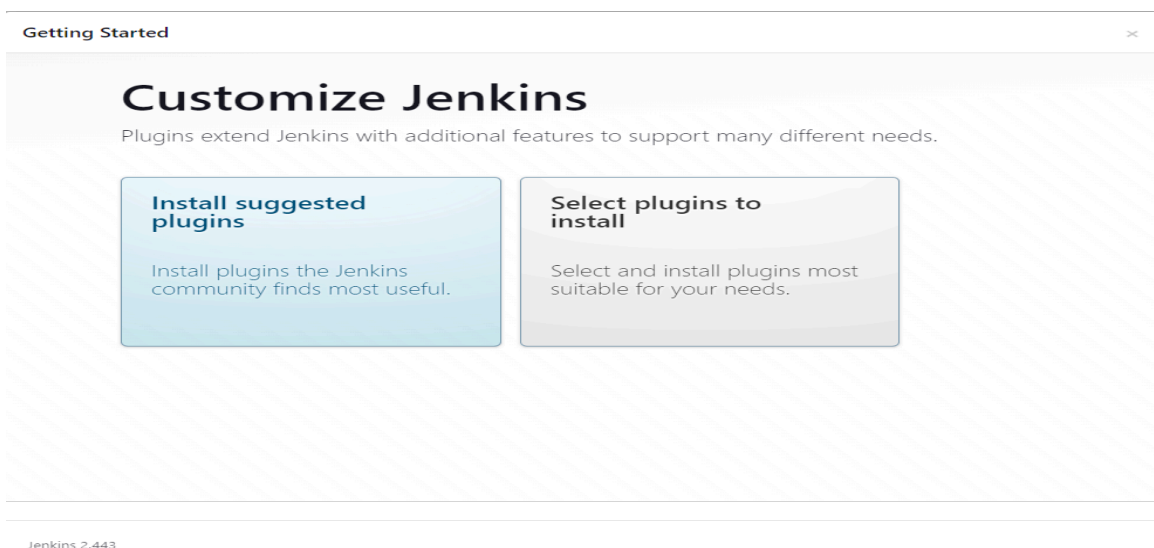
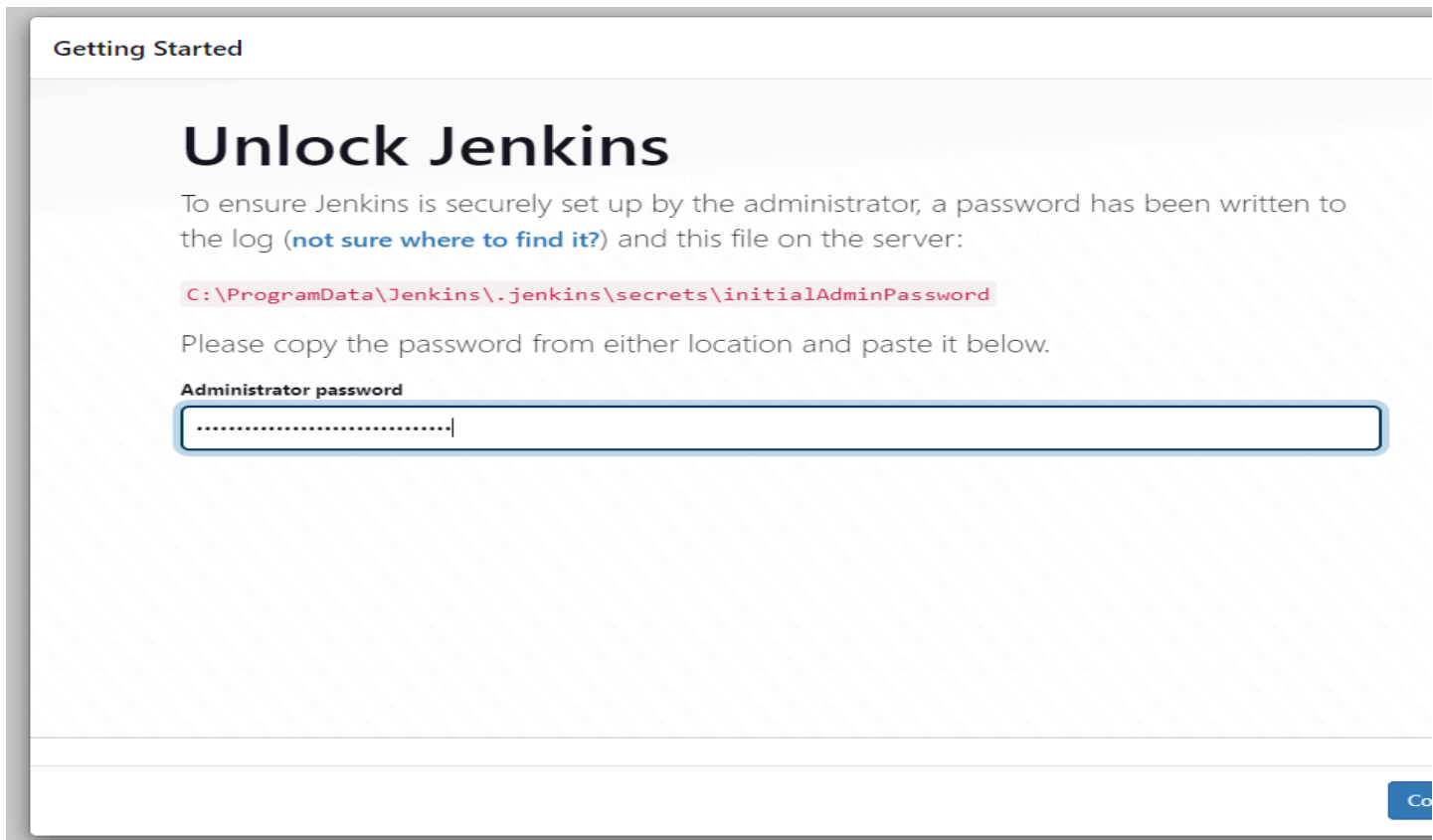
Firewall Exception

The required Jenkins components

This feature requires 83MB on your hard drive. It has 1 of 2 subfeatures selected. The subfeatures require 0KB on your hard drive.

### 3)-Unlock Jenkins using Administrator password

Once Installation is done, you can test the jenkins on <http://localhost:8080> on the browser. First time, when you open jenkins portal it will ask to put admin default password which is stored in `/var/lib/jenkins/secrets/initialAdminPassword` file.



#### 4)-Create Your first admin user

Getting Started

## Create First Admin User

Username

Baldeo07

Password

.....

Confirm password

.....

Full name

Baldeo Verma

E-mail address

baldeoverma50@gmail.com

Jenkins 2.426.3

[Skip and continue as admin](#)

Save and Continue



### Sign in to Jenkins

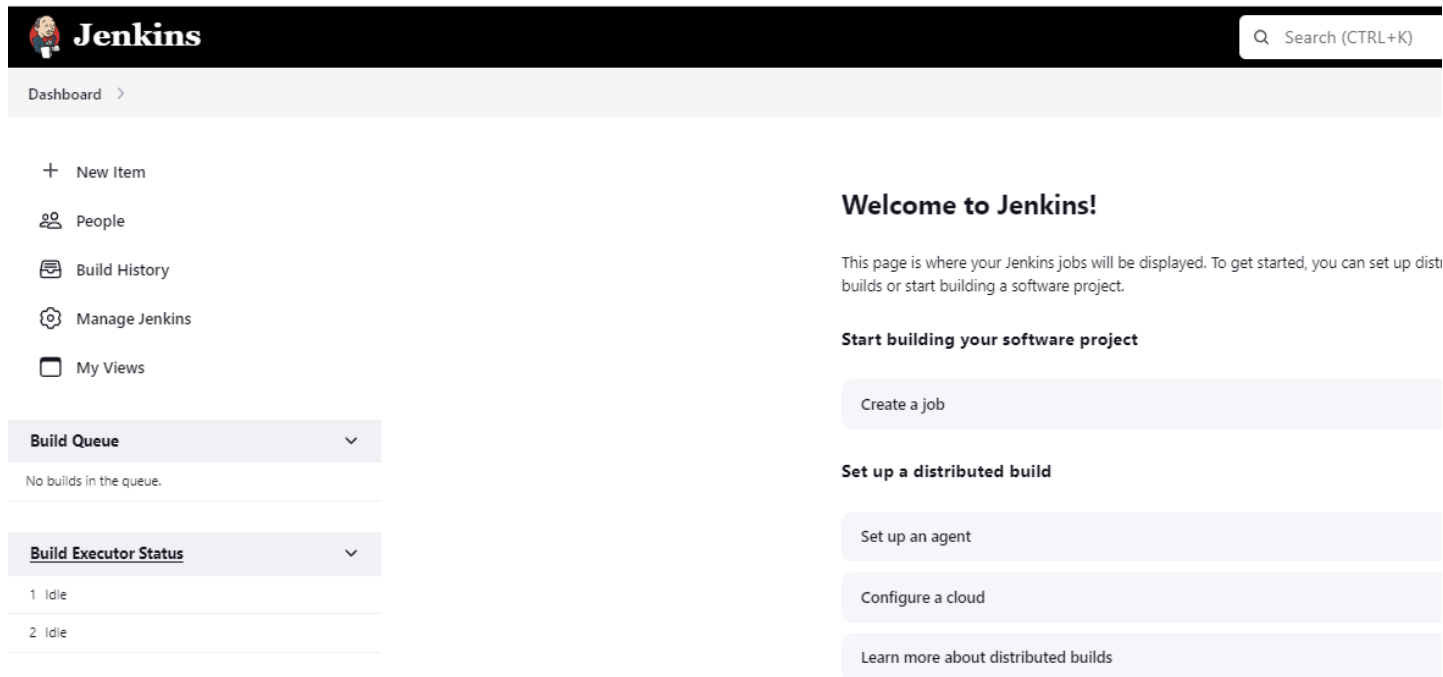
Username

Password

☐ Keep me signed in

Sign in

5)-Once installation is done, open Jenkins dashboard using <http://localhost:8080> address.



The screenshot shows the Jenkins dashboard. At the top is a black header with the Jenkins logo and name on the left, and a search bar on the right. Below the header is a light gray navigation bar with the text "Dashboard >". On the left side, there is a sidebar with several menu items: "+ New Item", "People", "Build History", "Manage Jenkins", and "My Views". Below the sidebar, there are two expandable sections. The first is "Build Queue" which shows "No builds in the queue." The second is "Build Executor Status" which shows two executors, both in an "Idle" state. On the right side of the dashboard, there is a "Welcome to Jenkins!" message, followed by a paragraph explaining the page's purpose. Below this, there are two main sections: "Start building your software project" with a "Create a job" button, and "Set up a distributed build" with buttons for "Set up an agent", "Configure a cloud", and a link to "Learn more about distributed builds".

**Conclusion:** We have successfully installed and configured Jenkins with Maven/Ant/Gradle to setup a build Job and learnt about the implementation of Jenkins in open source continuous integration.