Jenkins

Continuous Integration :-

Importance of Continuous Integration :-

1.**Improves Quality :-**

- Improves the quality by running multiple unit tests and analysing various static code

2.**Increases Productivity :-**

- Automating build of code saves a lot of time, there by increasing productivity

3.**Reduces Risk :-**

- Elimanate the risk of Potential human errors by automating test

Introduction to Jenkins

Features of Jenkins :-

- Easy Installation process
- Provides advance security
- Optimized performance
- Upgrades are easily available
- Light weight containers support
- Distributed team management

What is continuous Integration ?

- It is the process of automating the building and testing of code , each time one of the team member commits changes to version control

CI&CD → Continuous Deployment & also Delivery
Continous Integration

Popular Continuous Integration Tools :-

- Gitlab CI
- Code ship
- Bamboo
- Jenkins
- Team city
- Travis CI

In AWS Cloud perform CI&CD there are various services like code commit , code display , code build , code pipeline , code deploy & code guru

From AZURE Cloud we have AZURE DevOps :-

Azure Boards , Azure Repos , Azure Piplines , Azure testplans , Azure artifacts

What is Jenkins ?

- A Continous Integration Server which manages and control process such as plan , code , build , test , deploy , operate and monitor in DevOps Environment .

Jenkins :-

Plan , Code , Build , Test , Deploy , Operate , Monitor

Why Jenkins is So Popular ?

Jenkins :-

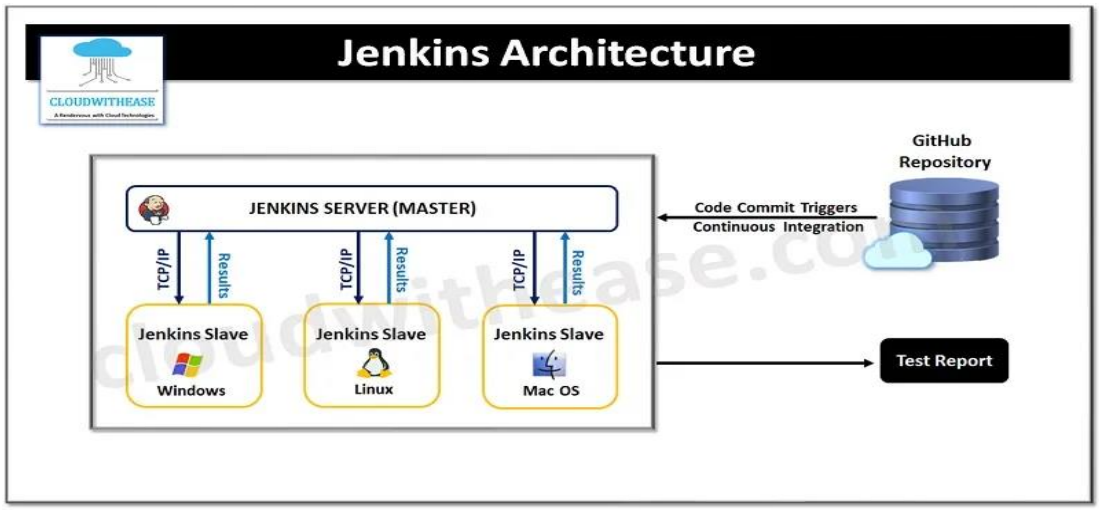
- Open Source
- Good Plugin support
- Good community support
- Fast and Reliable
- Good OS support
- Scripted Builds

Topics :-

- Jenkins Architecture
- Plugin Management in Jenkins
- Jenkins security Management
- Notification in Jenkins
- Jenkins Master slave Architecture
- Jenkins Delivery Pipeline
- Jenkins Declarative Pipeline

Jenkins Architecture :-

Source Control Management :-



Tabs :-

Update :-

- Shows updates to plugins already installed

Available :-

- Shows Plugins that are available for installation

Installed :-

- Displays Plugins Installed that have no updates

Advanced :-

- Lists Configuration of Http Proxy , allows manual upload of plugin and URL of Plugin site

In real time we can't install the plugins as simple as reason being the might be Challengs with proxy settings as well as vpn in order to avoid this we should configuration , http proxiy in Jankins , Plugin of advance tab

How To Install Jenkins On Windows ?

- **Installing Jenkins**
    - Docker
    - Kubernetes
    - Linux
    - macOS
    - **Windows**
    - Other Systems
    - WAR file

- Other Servlet Containers
- Offline Installations
- Initial Settings

Prerequisites

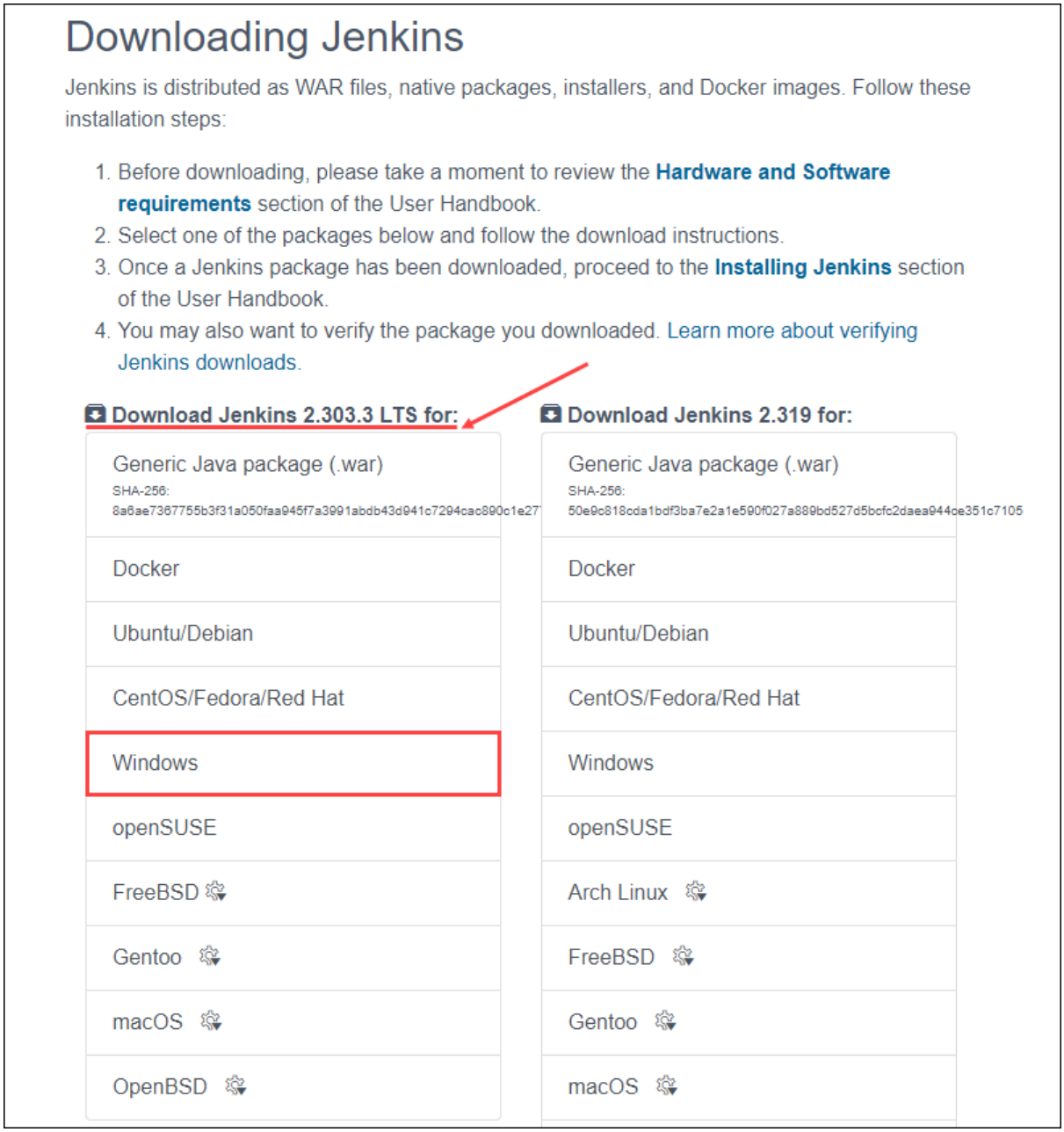
- 256 MB of RAM
- 1 GB of drive space (although 10 GB is a recommended minimum if running Jenkins as a Docker container)
- 4 GB+ of RAM
- 50 GB+ of drive space

Jenkins Tool is developed on Javacode

Prerequisites

- A system running Windows 10
- The latest copy of Java Development Kit or Java Runtime Environment installed
- Access to an account with administrator privileges

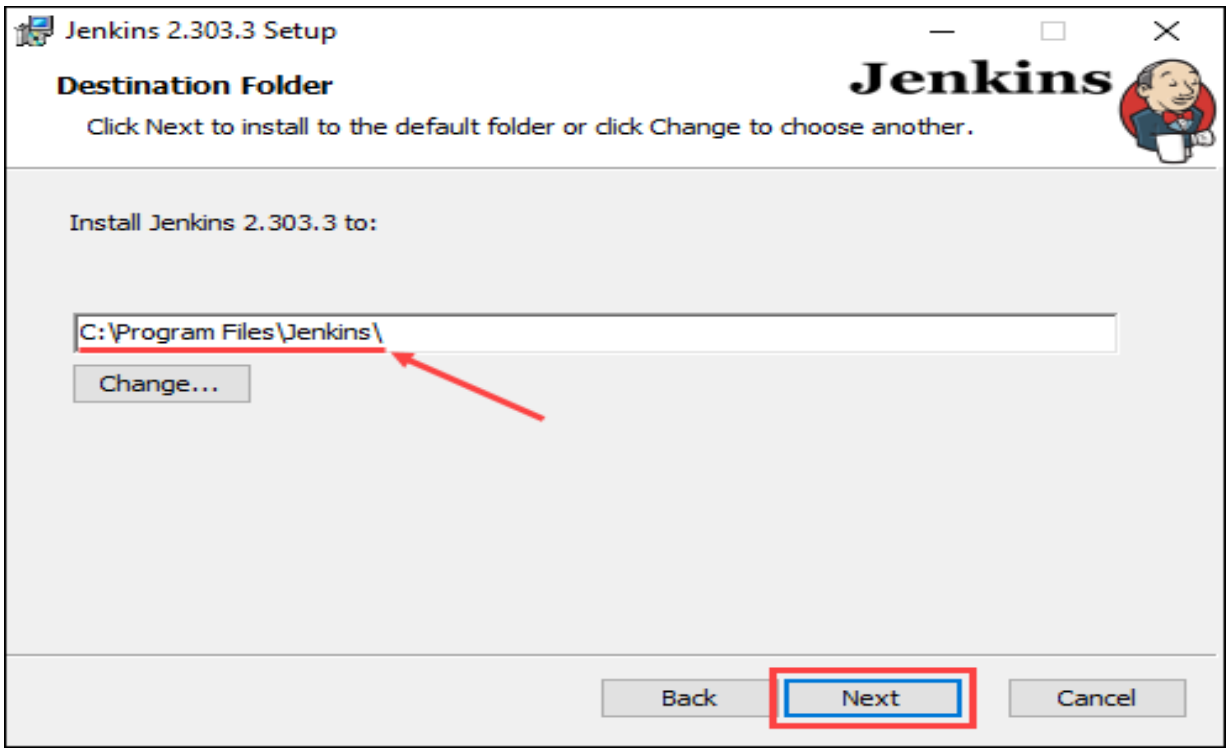
Browse to the **official Jenkins download page**. Under the **Downloading Jenkins** section is a list of installers for the long-term support (LTS) version of Jenkins. Click the **Windows** link to begin the download.



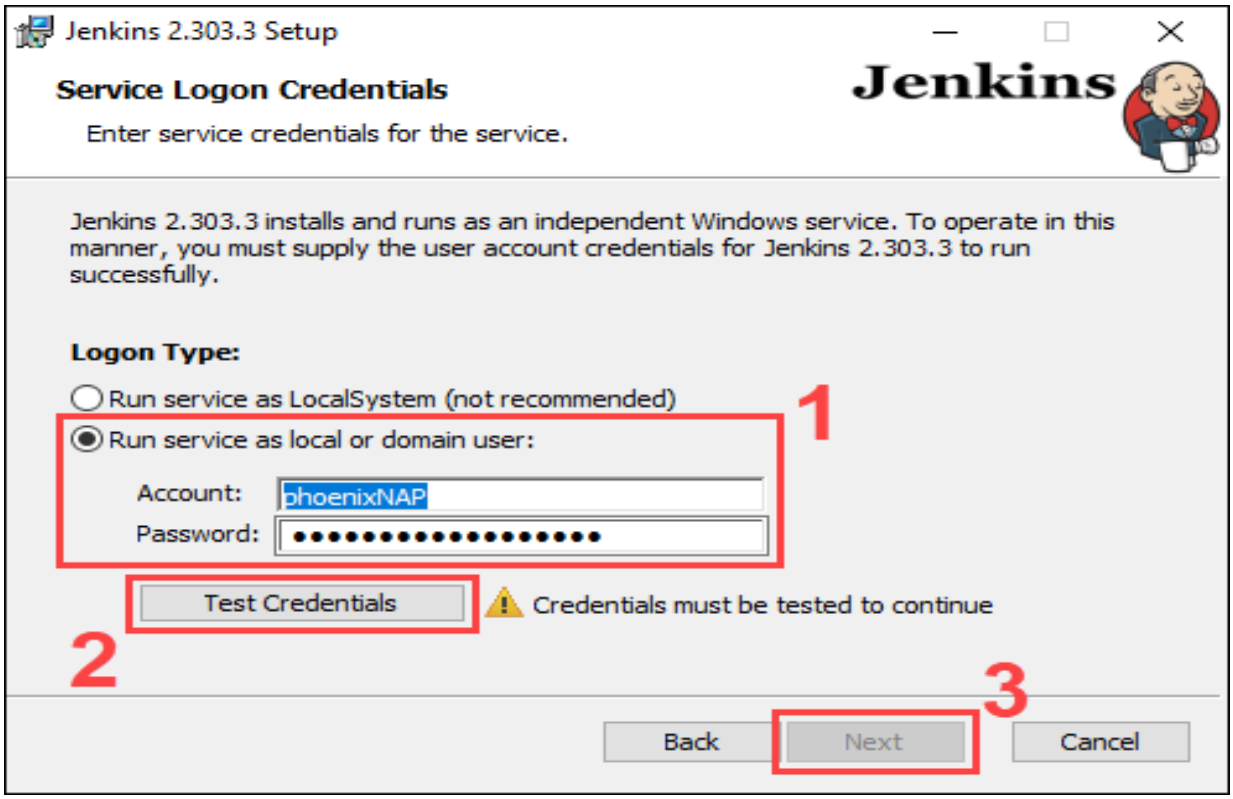
2. Once the download is complete, run the **jenkins.msi** installation file.

3. The setup wizard starts. Click **Next** to proceed.

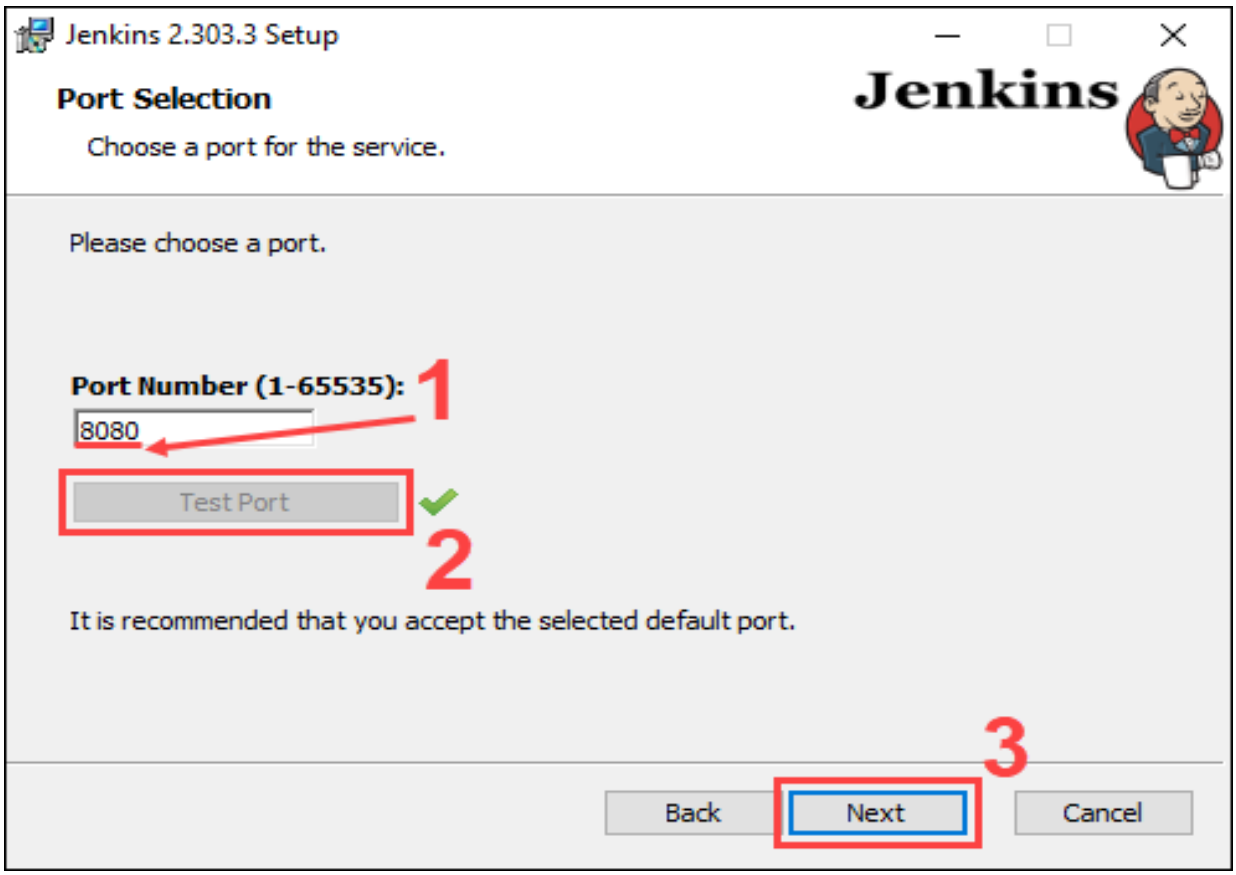
4. Select the install destination folder and click **Next** to continue.



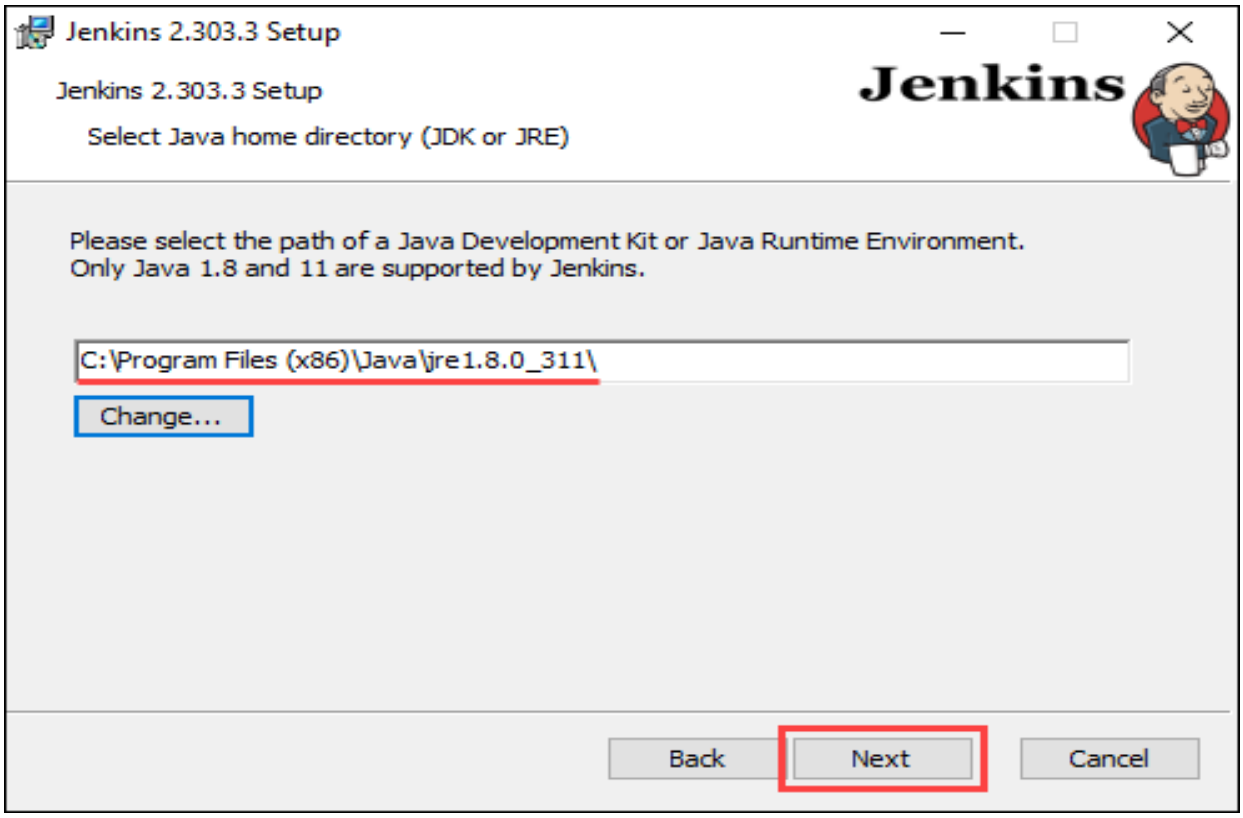
5. Under the **Run service as a local or domain user** option, enter the **domain** username and password for the user account you want to run Jenkins with. Click **Test Credentials** to verify the login data, then click **Next** to proceed.



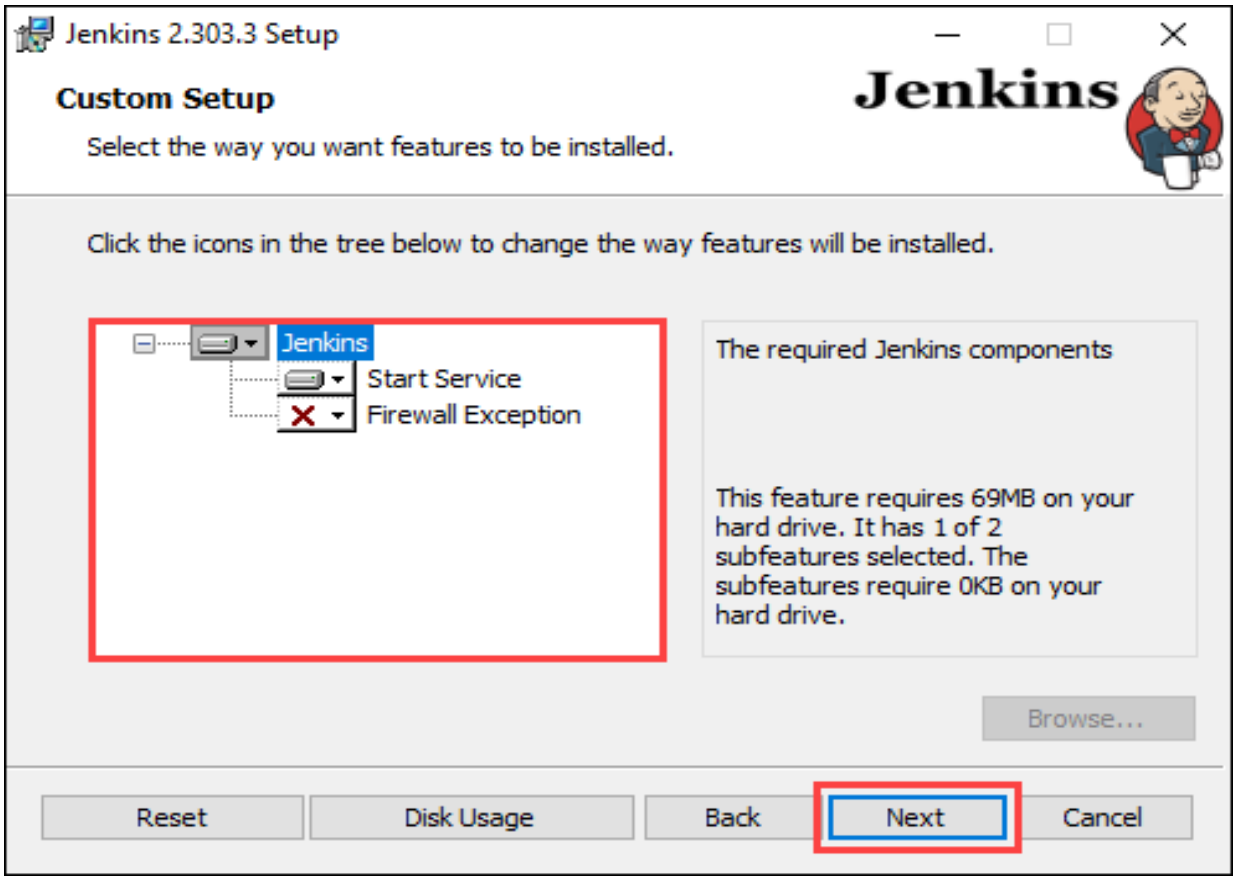
6. Enter the port number you want Jenkins to run on.
Click **Test Port** to check if the selected port is available, then click **Next** to continue.



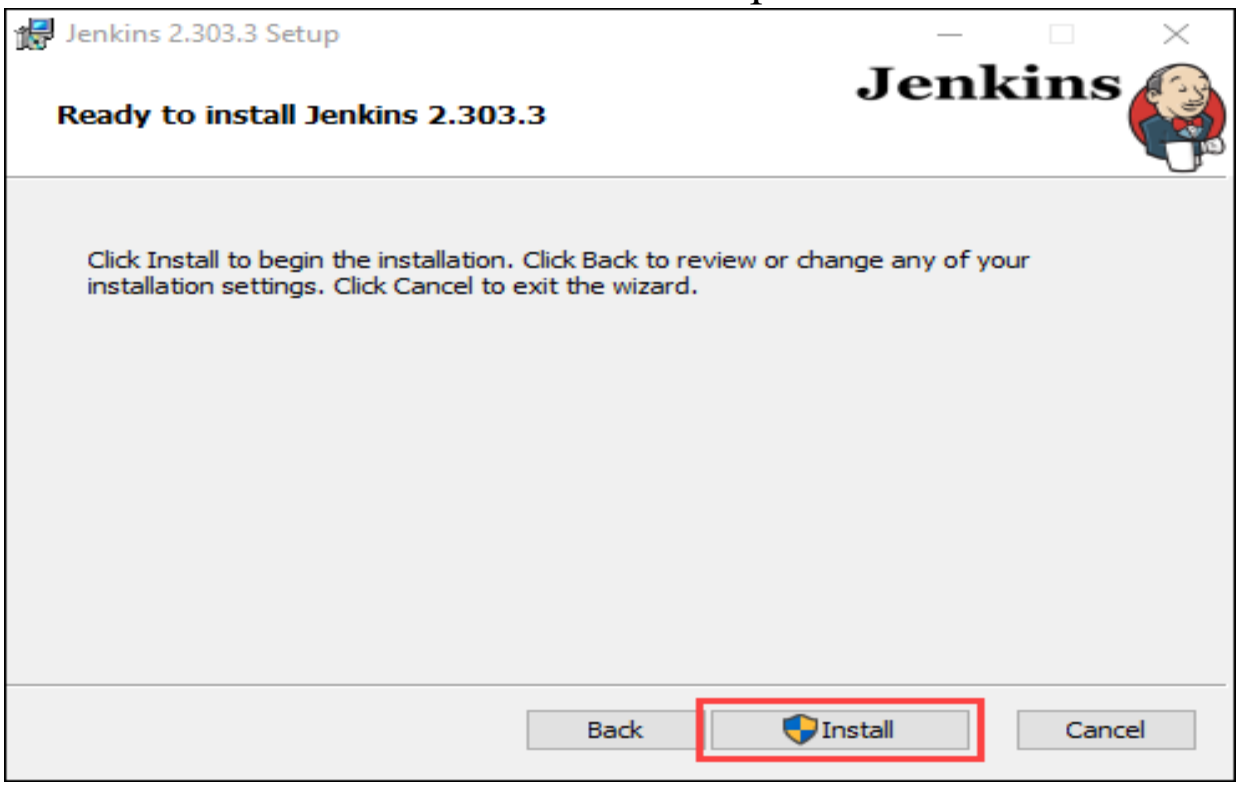
7. Select the directory where **Java is installed** on your system and click **Next** to proceed.



8. Select the features you want to install with Jenkins and click **Next** to continue.



9. Click **Install** to start the installation process.



10. Once the installation is complete, click **Finish** to exit the install wizard.

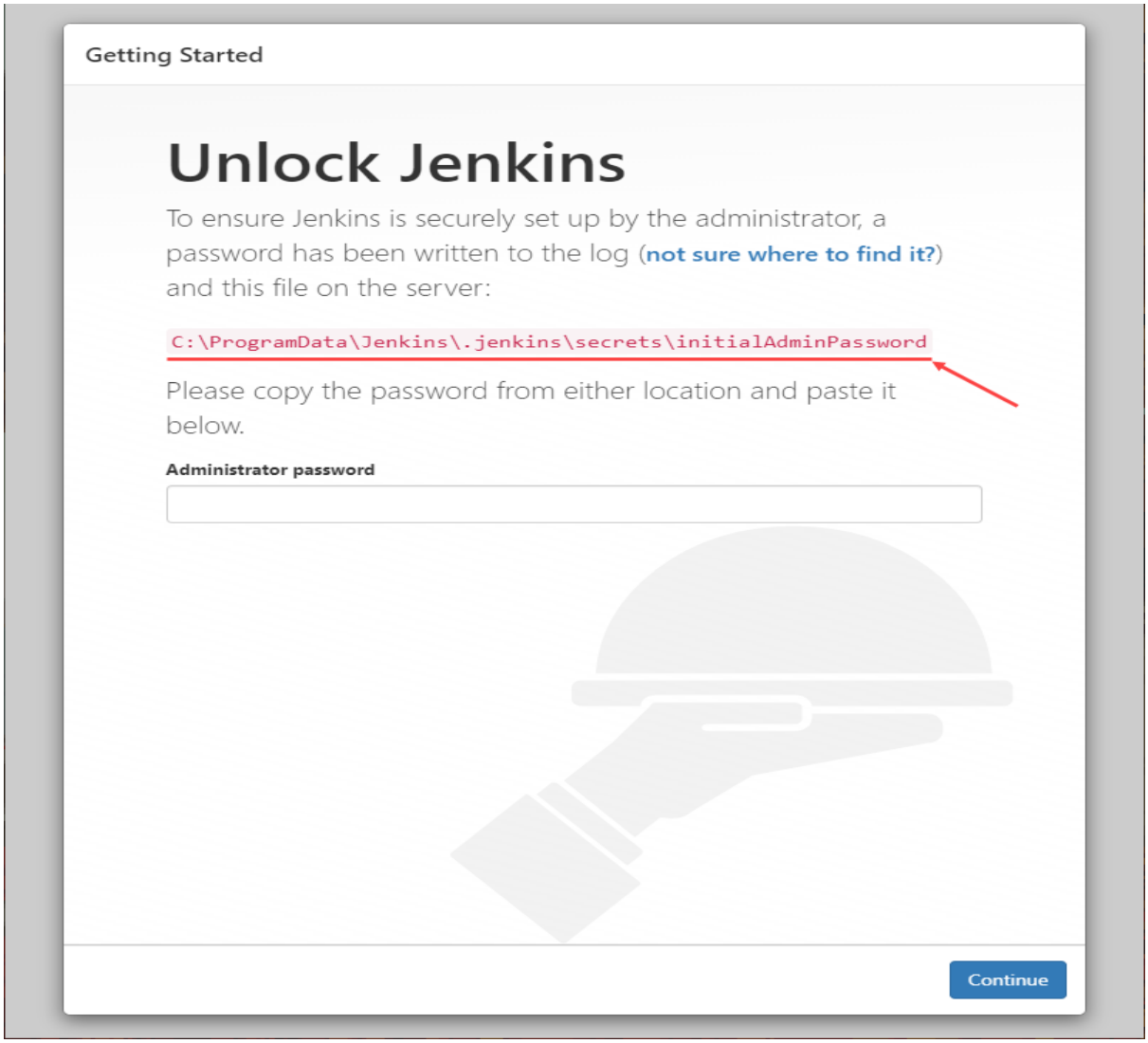
How to Configure Jenkins :-

- After completing the installation process, you have to unblock Jenkins before you can customize and start using it.

1.Browser, navigate to the port number you selected during the installation using the following address:

- http://localhost:[port number]
- ex :- http://localhost:[8080]
- 127.0.0.1:8080

2.Navigate to the location on your system specified by the Unblock Jenkins page.

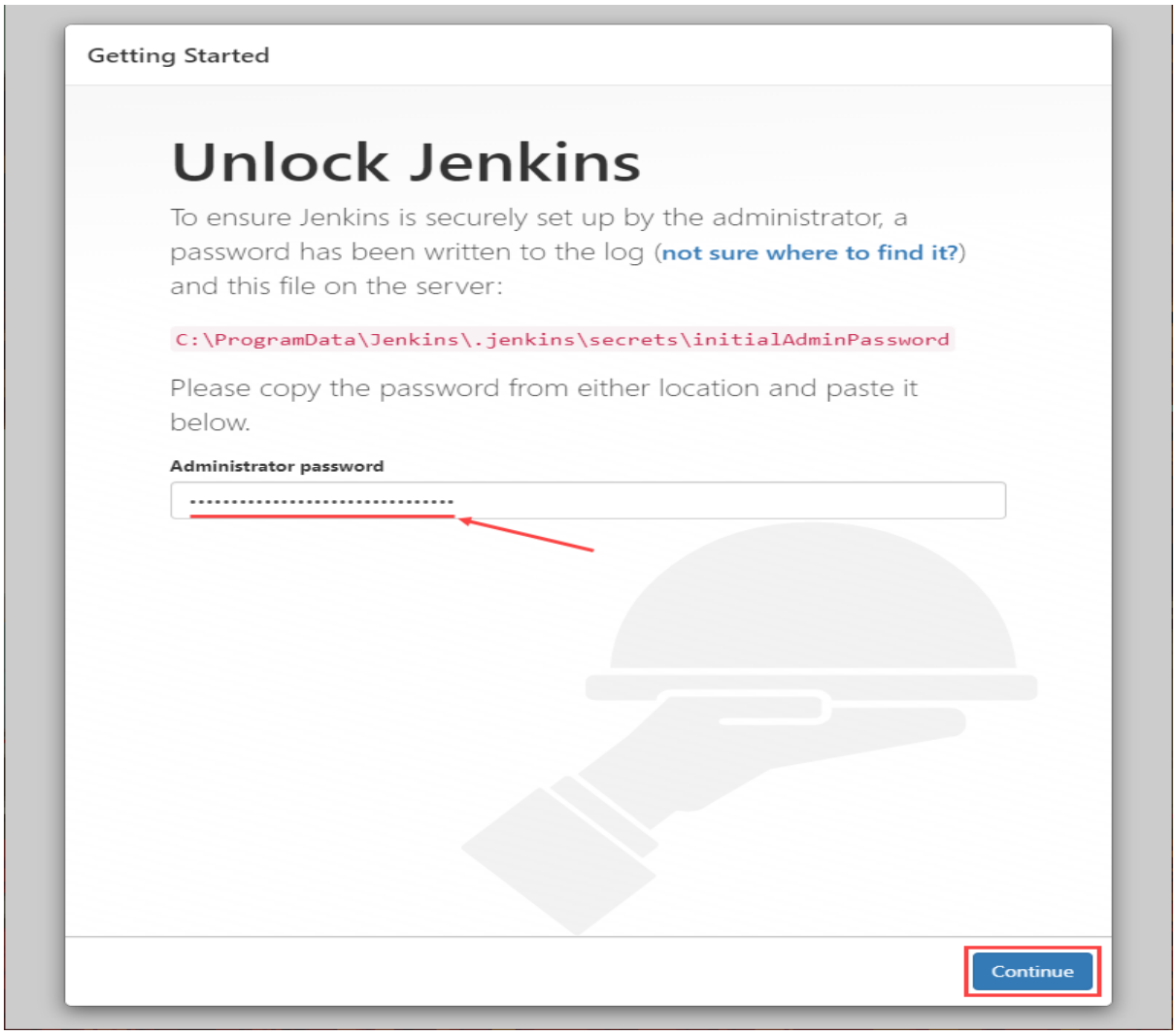


3.Open the **initialAdminPassword** file using a text editor such

as Notepad.

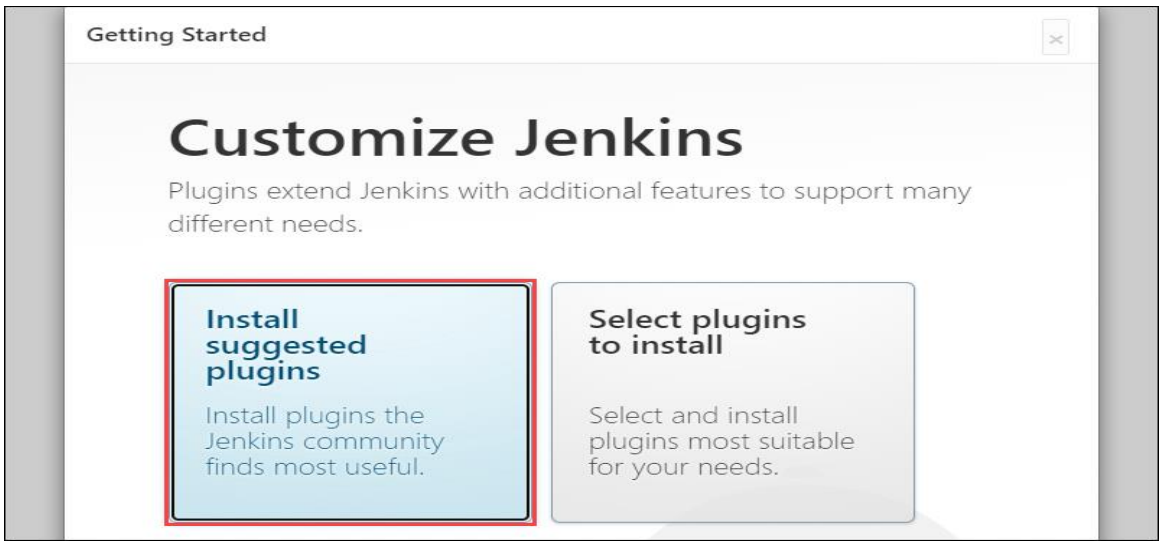
4. Copy the password from the **initialAdminPassword** file.

5. Paste the password in the **Administrator password** field on the Unblock Jenkins page and click **Continue** to proceed.

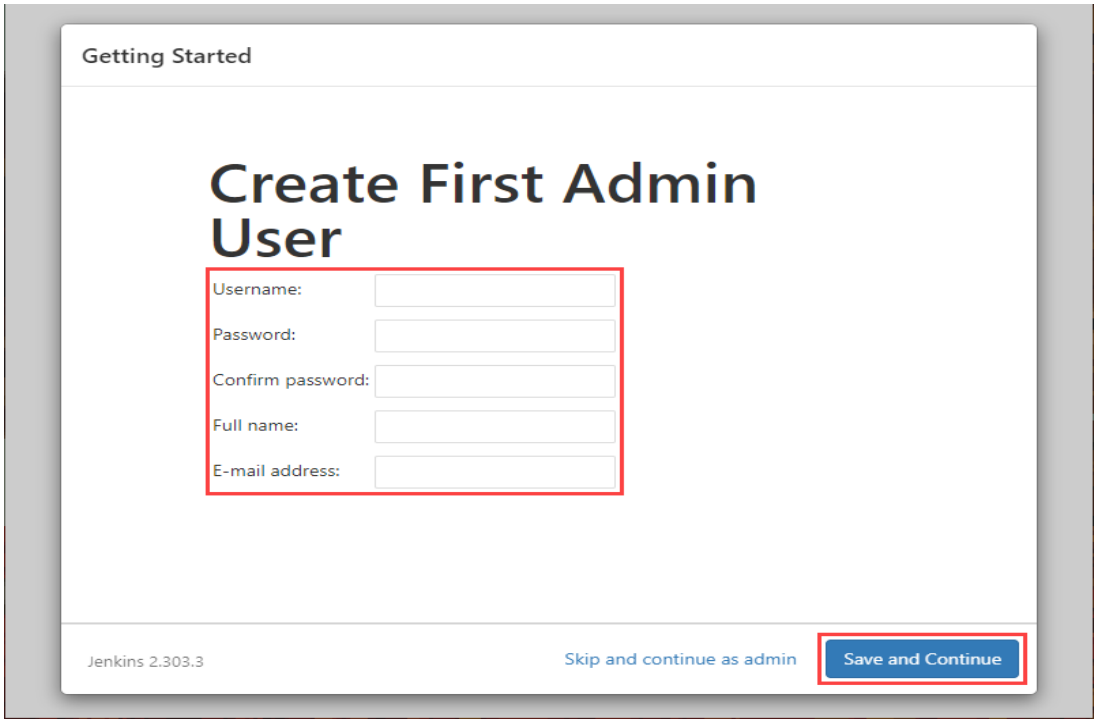


Customize Jenkins :-

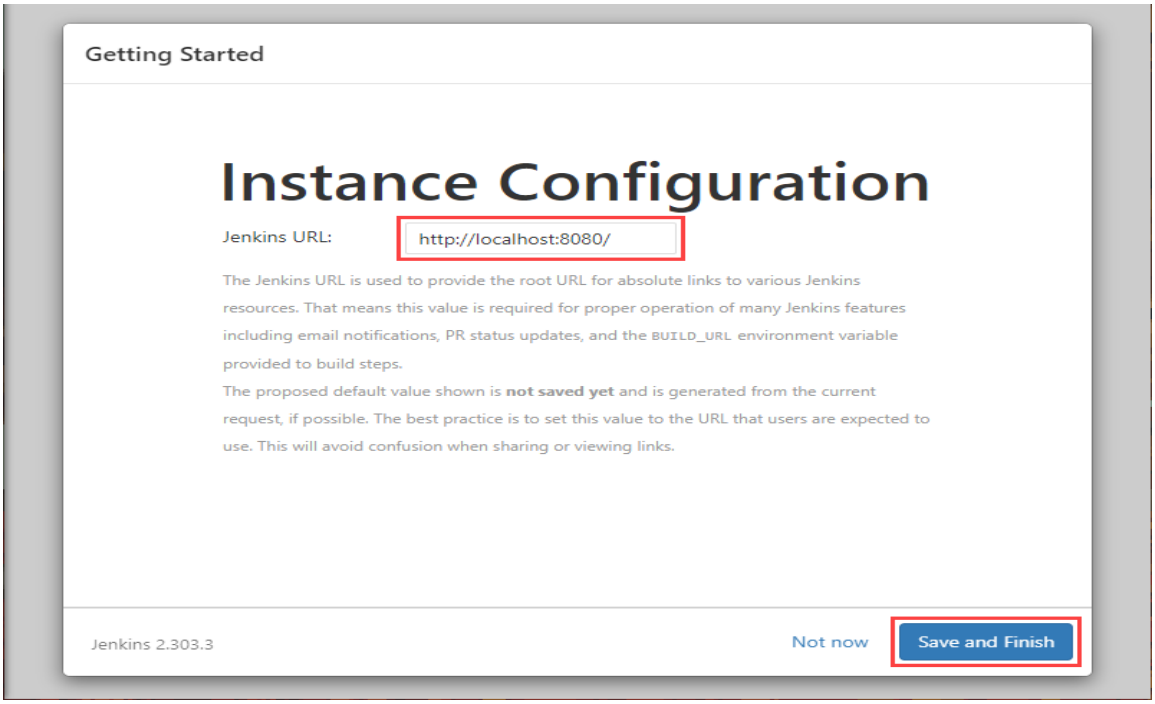
1. Click the Install suggested plugins button to have Jenkins automatically install the most frequently used plugins.



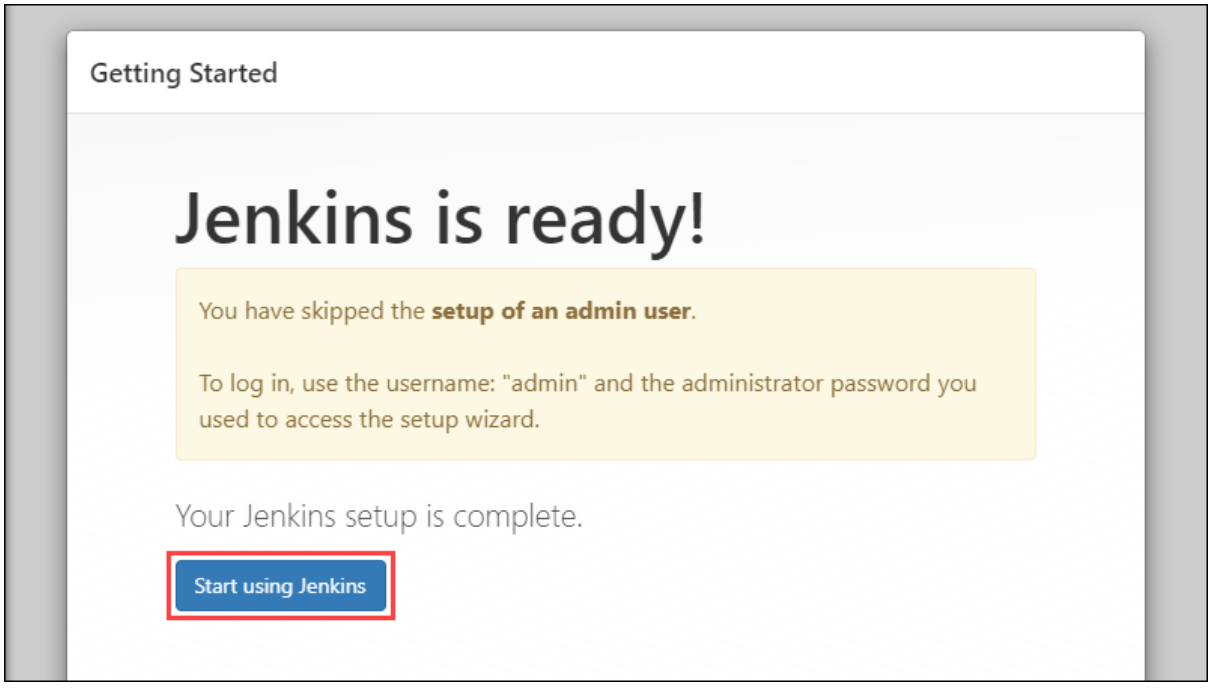
2. After Jenkins finishes installing the plugins, enter the required information on the **Create First Admin User** page. Click **Save and Continue** to proceed.



3. On the **Instance Configuration** page, confirm the port number you want Jenkins to use and click **Save and Finish** to finish the initial customization.



4. Click the **Start using Jenkins** button to move to the Jenkins dashboard.



How to Stop Jenkins server in windows :-

- In windows search for services & select (or) search for J
- Click on this stop (or) restart button

How to Restart the Jenkins :-

- If we go to URL http://localhost:8080/safeRestart
- Jenkins will try to pause jobs and restart once all running jobs are either finished or paused

Other way :-

- Localhost:8080/restart (don’t use)