

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 :-

- Eliminate 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
Continuous 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 Pipelines , Azure testplans , Azure artifacts

What is Jenkins ?

- A Continuous 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 :-

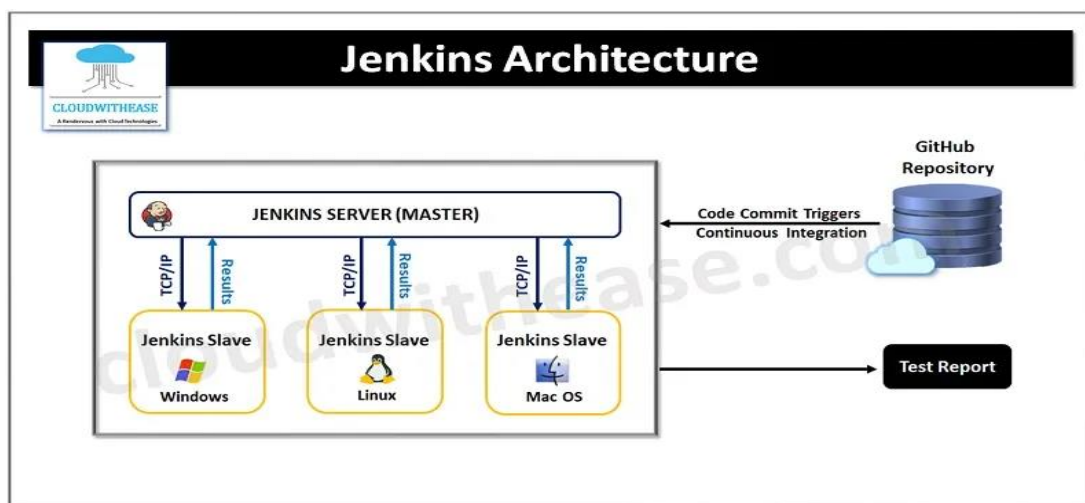
- Open Source
- Good Plugin support
- Good community support
- Fast and Reliable
- Good OS support
- Scripted Builds

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 there might be Challenges with proxy settings as well as vpn in order to avoid this we should configuration , http proxy in Jenkins , 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.

Downloading Jenkins

Jenkins is distributed as WAR files, native packages, installers, and Docker images. Follow these installation steps:

1. Before downloading, please take a moment to review the [Hardware and Software requirements](#) section of the User Handbook.
2. Select one of the packages below and follow the download instructions.
3. Once a Jenkins package has been downloaded, proceed to the [Installing Jenkins](#) section of the User Handbook.
4. You may also want to verify the package you downloaded. [Learn more about verifying Jenkins downloads.](#)

Download Jenkins 2.303.3 LTS for:

Generic Java package (.war) SHA-256: 8a8ae7387755b3f31a050faa945f7a3991abdb43d941c7294cac890c1e27
Docker
Ubuntu/Debian
CentOS/Fedora/Red Hat
Windows
openSUSE
FreeBSD
Gentoo
macOS
OpenBSD

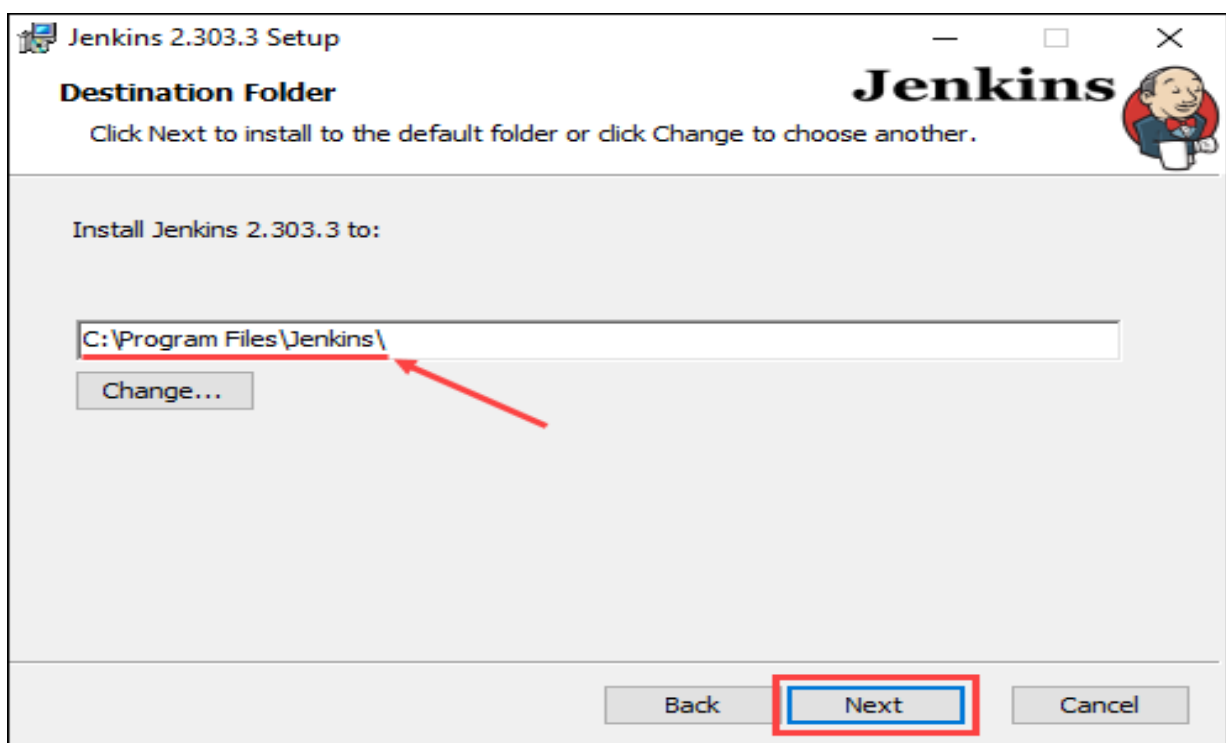
Download Jenkins 2.319 for:

Generic Java package (.war) SHA-256: 50e9c818cda1bdf3ba7e2a1e590f027a889bd527d5bcfc2daaa9440e351c7105
Docker
Ubuntu/Debian
CentOS/Fedora/Red Hat
Windows
openSUSE
Arch Linux
FreeBSD
Gentoo
macOS

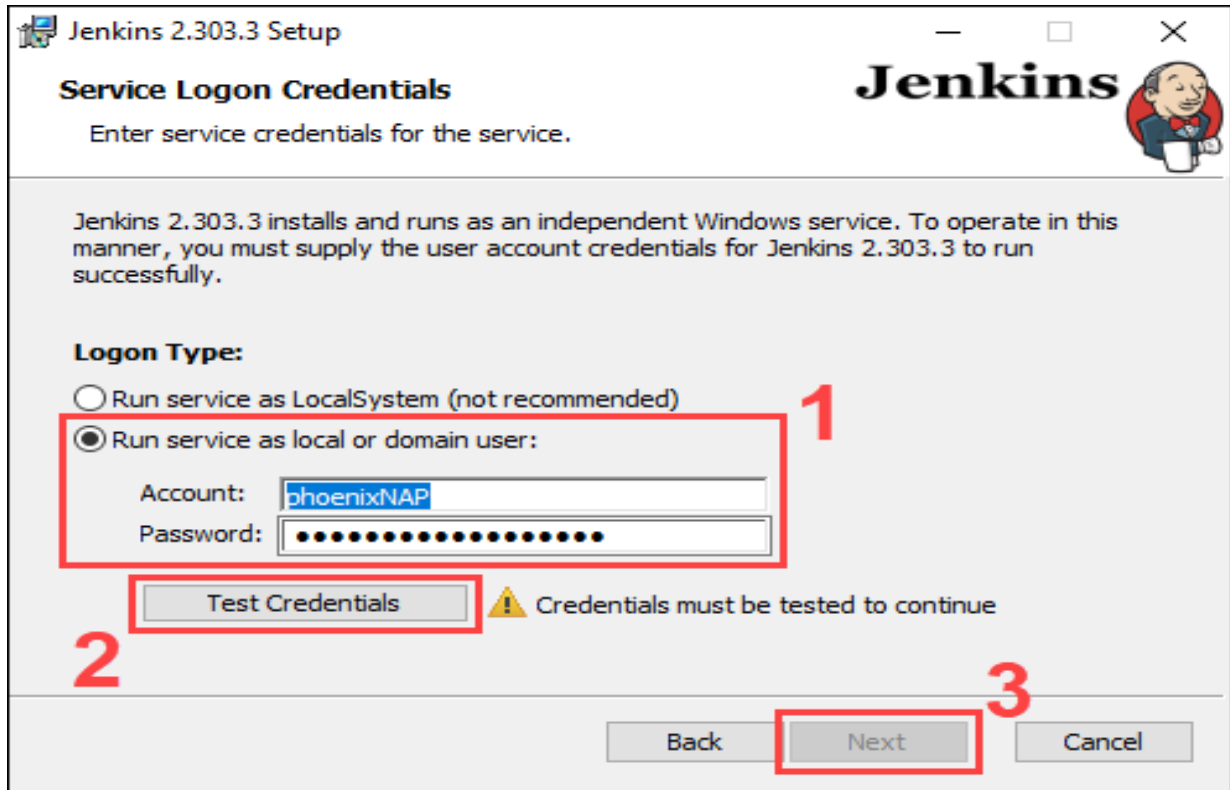
2. Once the download is complete, run the **jenkins.msi** installation file.
3. The setup wizard starts. Click **Next** to proceed.



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.



The image shows the 'Jenkins 2.303.3 Setup' window, specifically the 'Service Logon Credentials' tab. The window title bar includes the Jenkins logo and standard window controls. The main heading is 'Service Logon Credentials' with a sub-instruction: 'Enter service credentials for the service.' Below this, a paragraph explains that Jenkins 2.303.3 runs as an independent Windows service and requires user account credentials. The 'Logon Type:' section has two radio buttons: 'Run service as LocalSystem (not recommended)' and 'Run service as local or domain user:'. The second option is selected and highlighted with a red box and a red number '1'. Below this, the 'Account:' field contains 'phoenixNAP' and the 'Password:' field is masked with dots. A red box and red number '2' highlight the 'Test Credentials' button. To the right of this button is a warning icon and the text 'Credentials must be tested to continue'. At the bottom, there are three buttons: 'Back', 'Next', and 'Cancel'. The 'Next' button is highlighted with a red box and a red number '3'.

Jenkins 2.303.3 Setup

Service Logon Credentials

Enter service credentials for the service.

Jenkins 2.303.3 installs and runs as an independent Windows service. To operate in this manner, you must supply the user account credentials for Jenkins 2.303.3 to run successfully.


Logon Type:

☐ Run service as LocalSystem (not recommended)

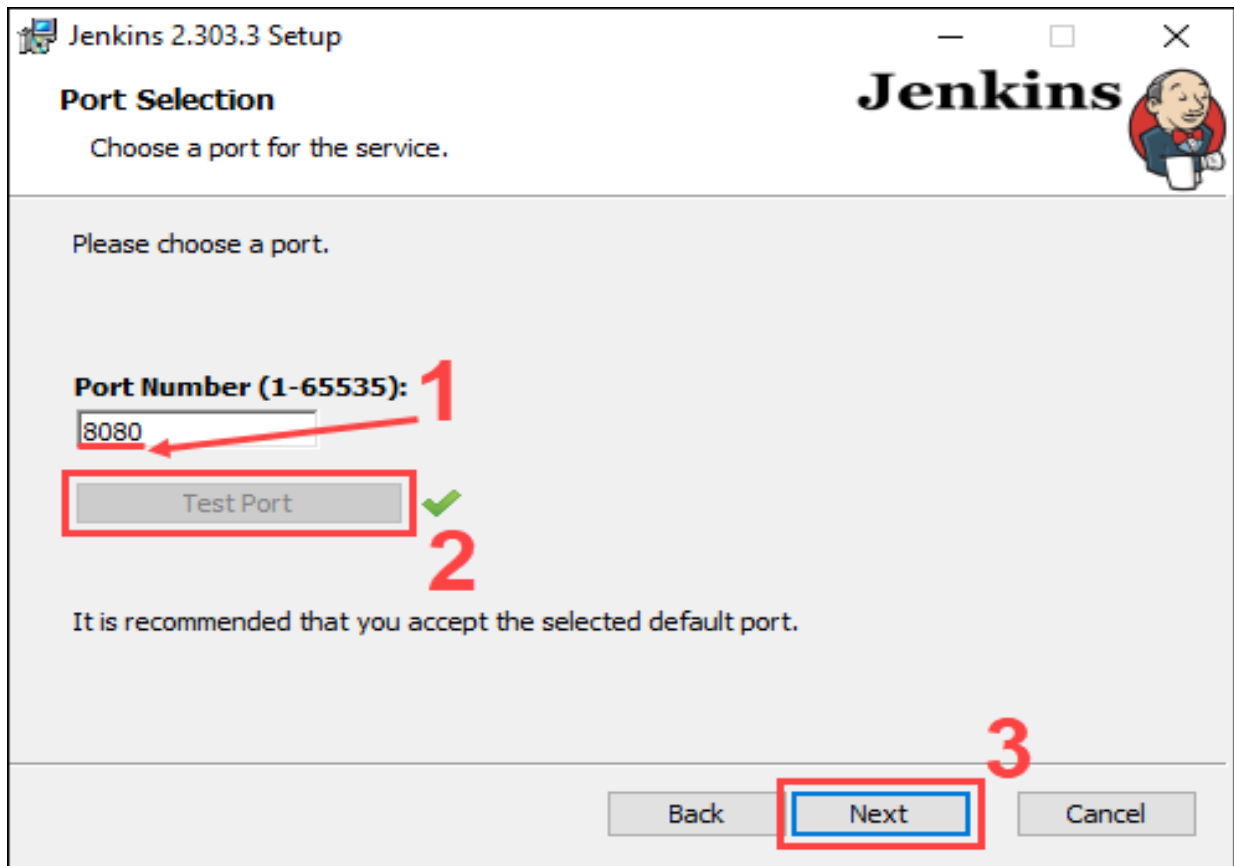
☒ Run service as local or domain user:

Account:

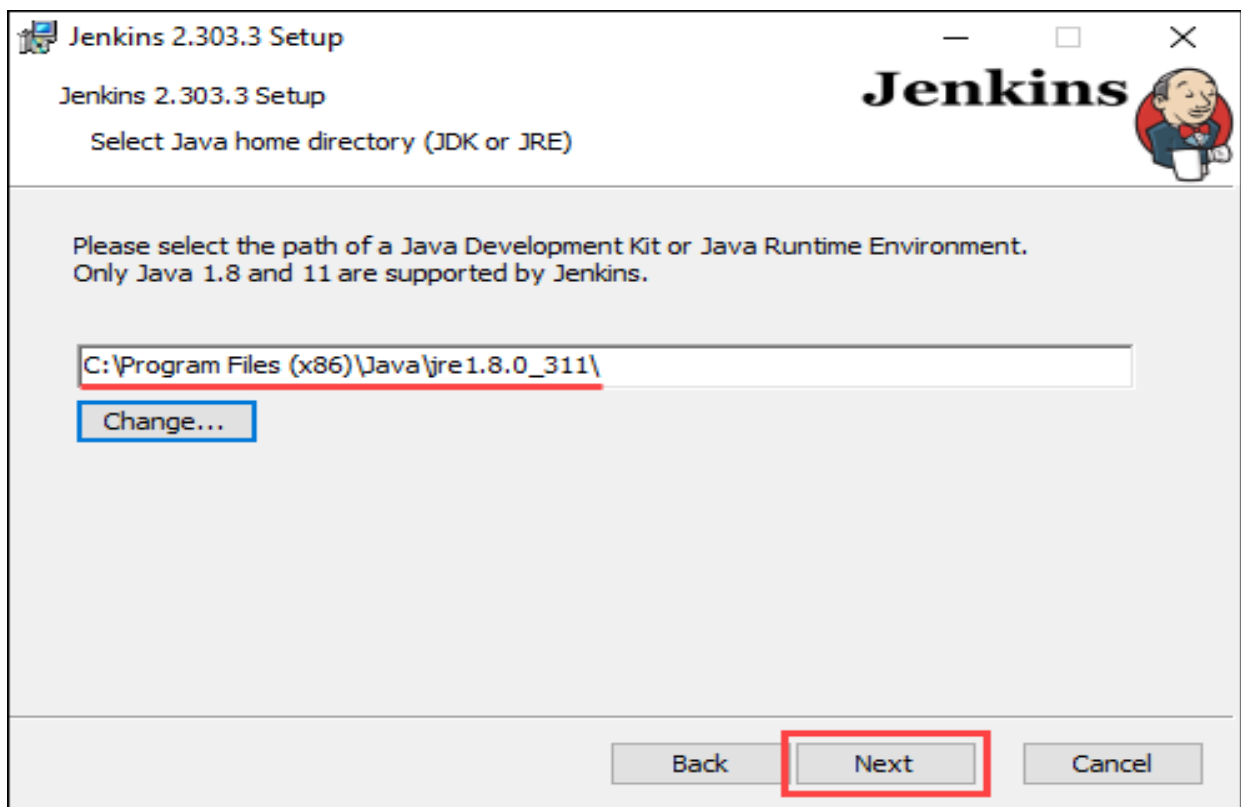
Password:

 Credentials must be tested to continue

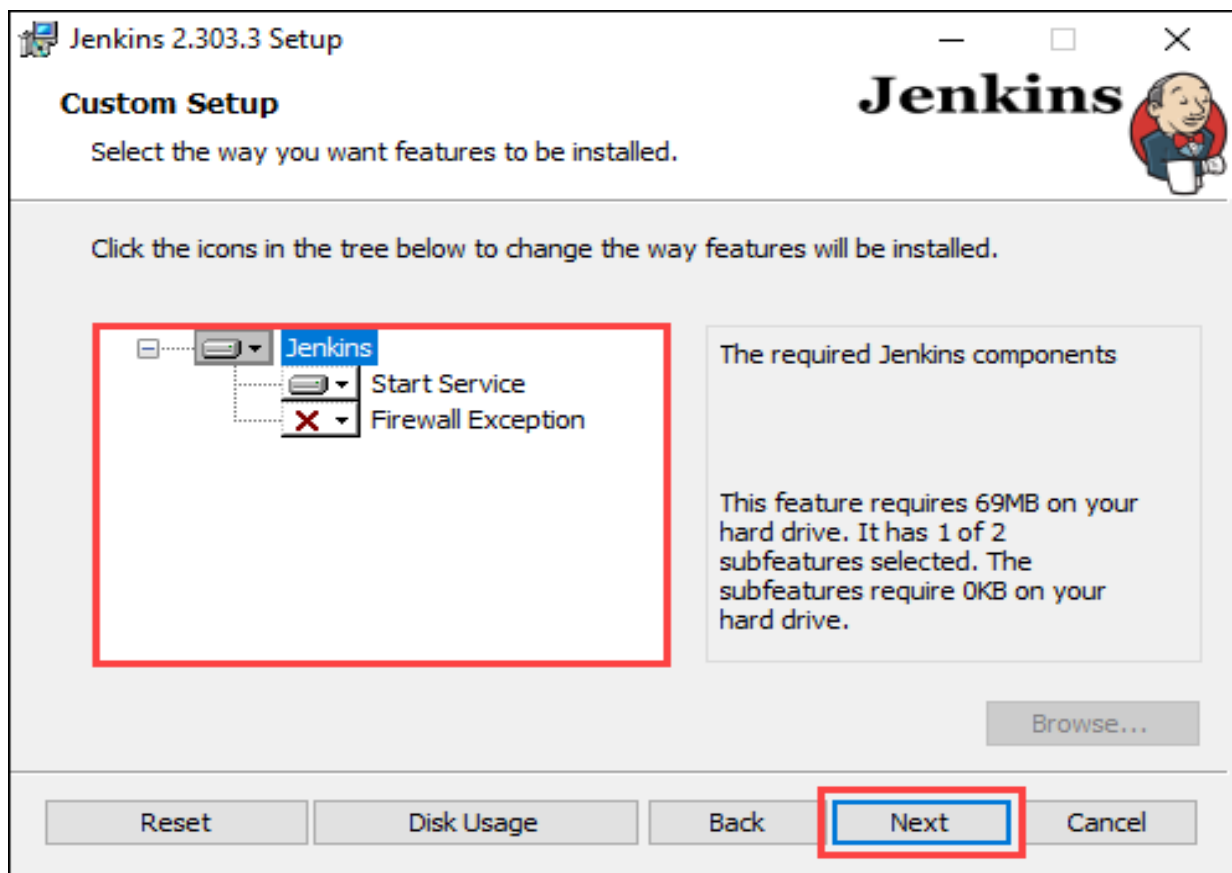
6. Enter the port number you want Jenkins to run on. Click **Test Port** to check if the selected port is available, then click **Next** to continue.



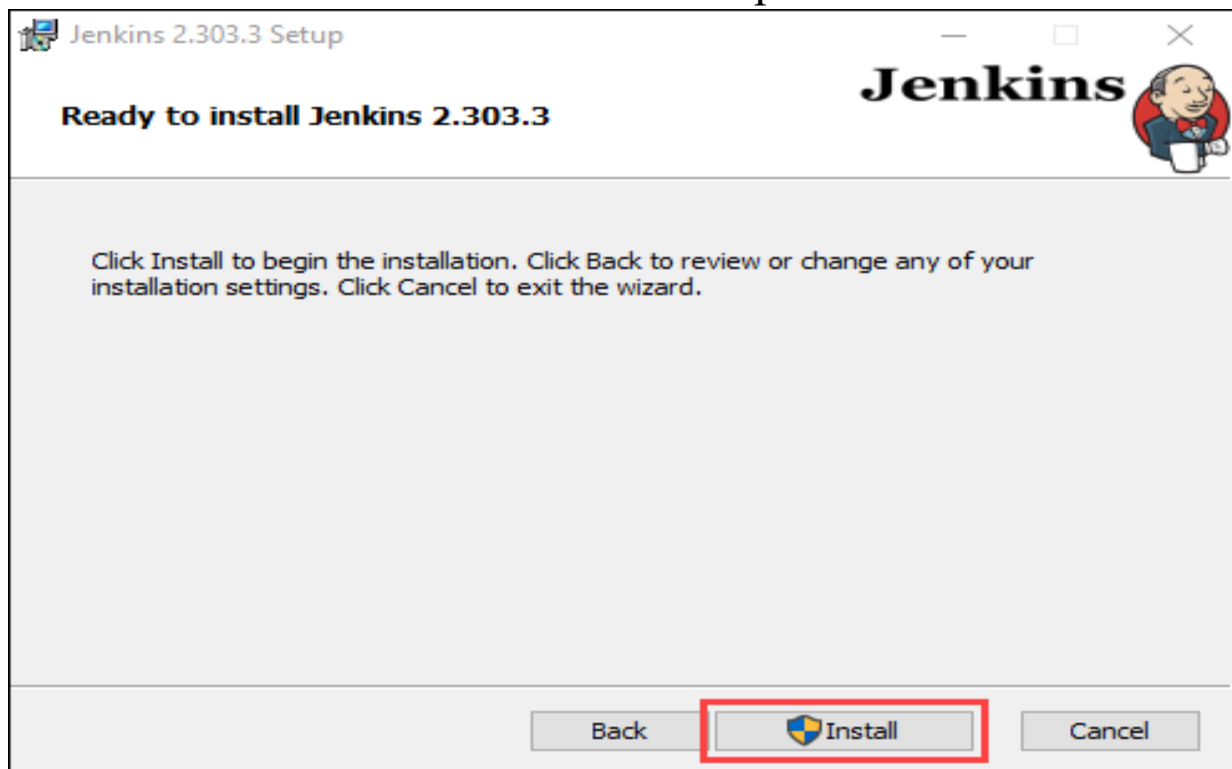
7. Select the directory where **Java is installed** on your system and click **Next** to proceed.



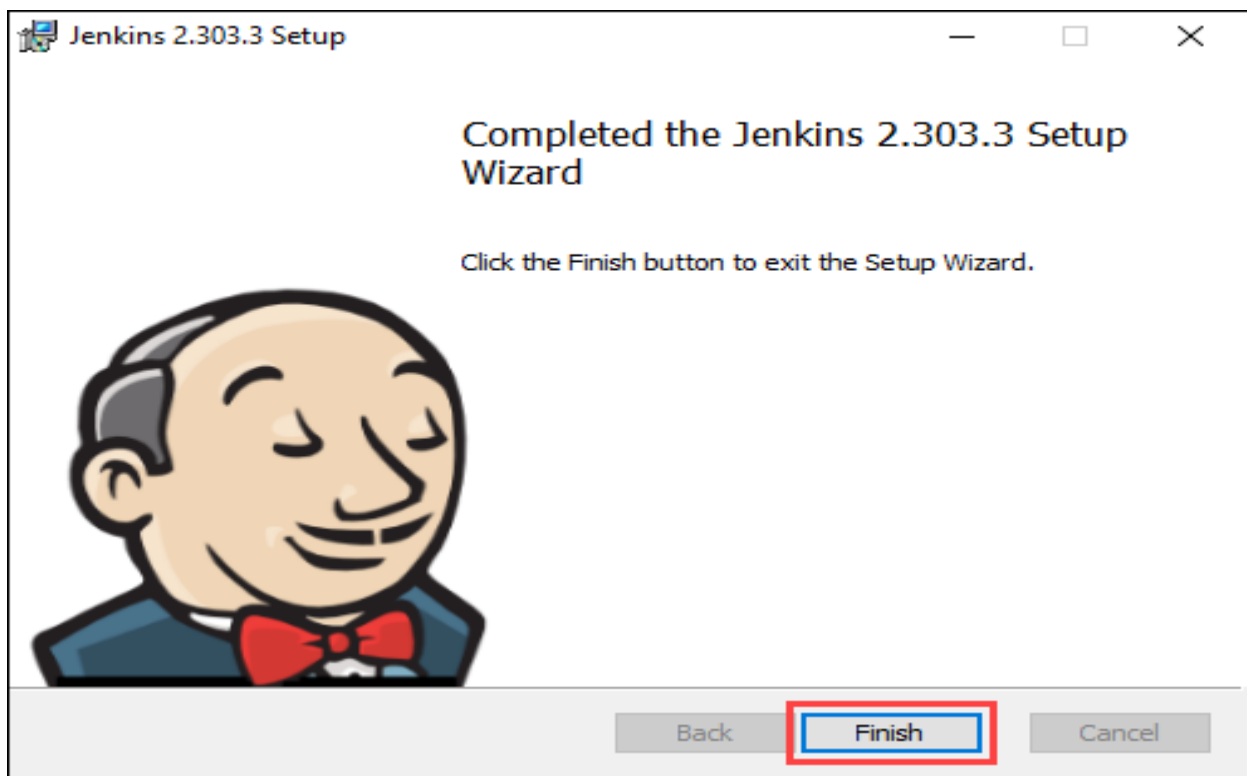
8. Select the features you want to install with Jenkins and click **Next** to continue.



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



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



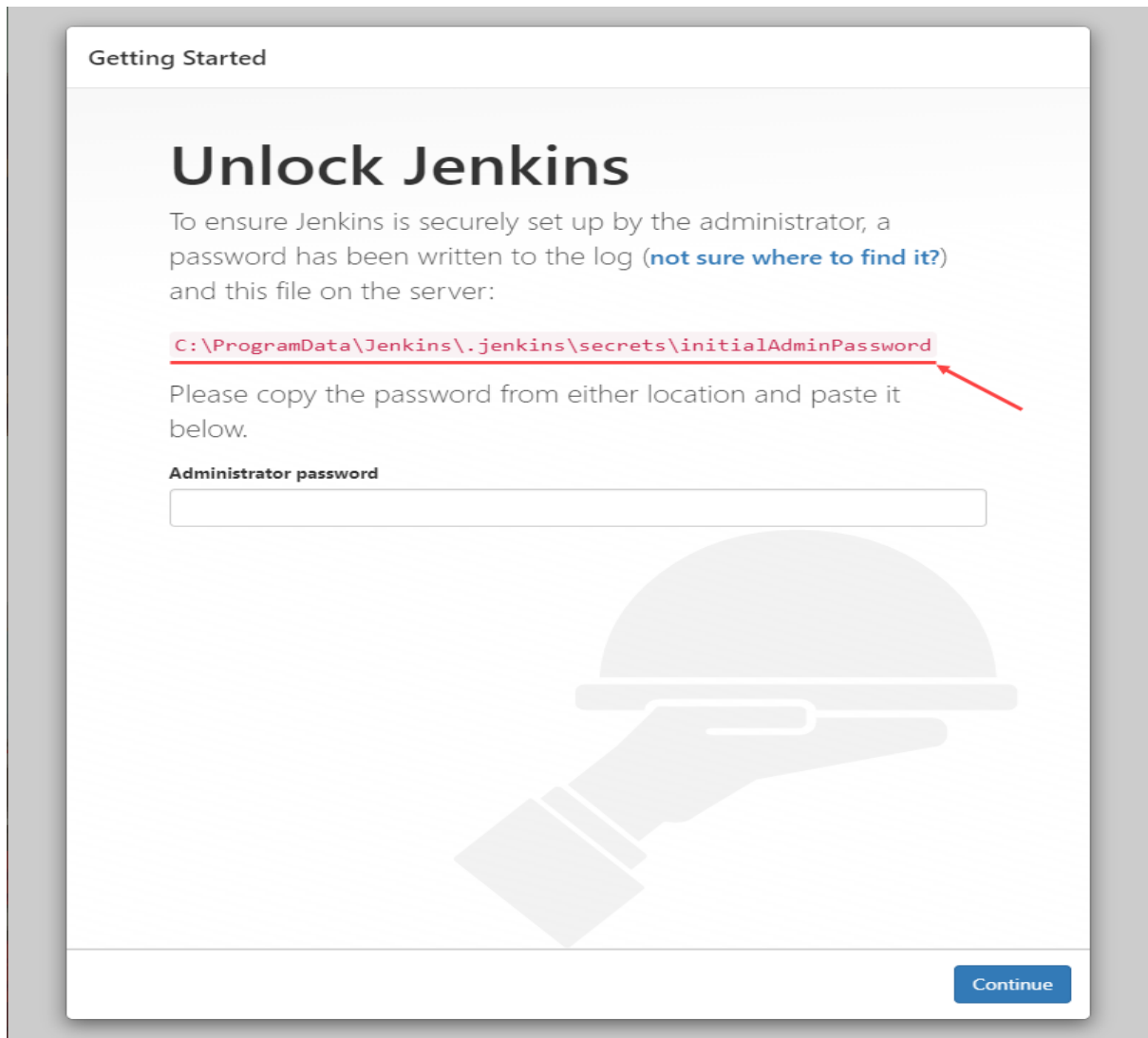
How to Configure Jenkins :-

- 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:\[port number\]](http://localhost:[port number])
- ex :- <http://localhost:8080>
- 127.0.0.1:8080

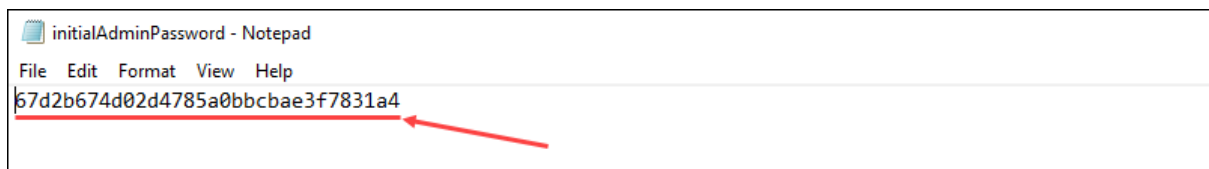
2. Navigate to the location on your system specified by the Unblock Jenkins page.



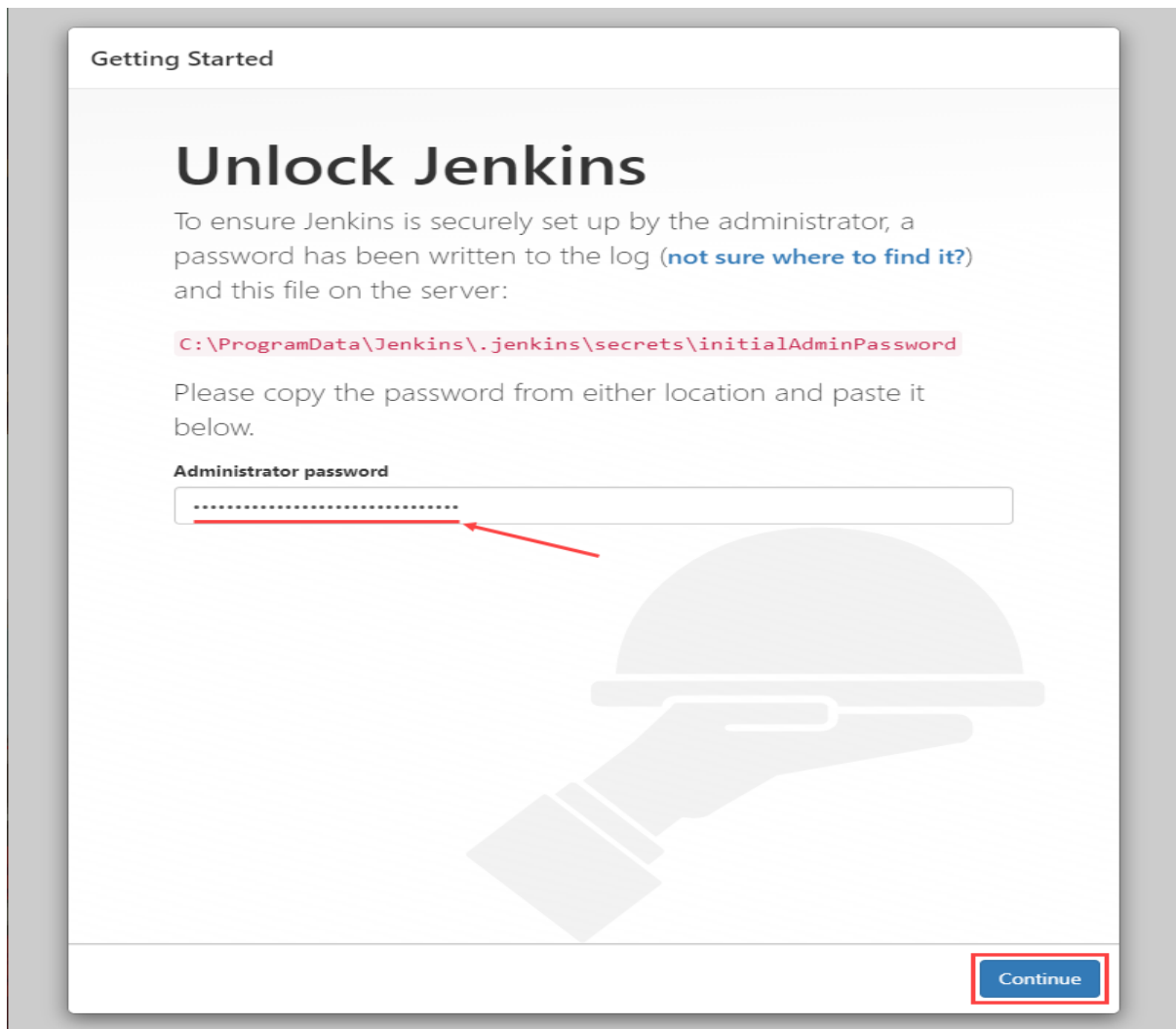
3. Open the **initialAdminPassword** file using a text editor such

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.



Getting Started

Unblock Jenkins

To ensure Jenkins is securely set up by the administrator, a password has been written to the log ([not sure where to find it?](#)) and this file on the server:

```
C:\ProgramData\Jenkins\.jenkins\secrets\initialAdminPassword
```

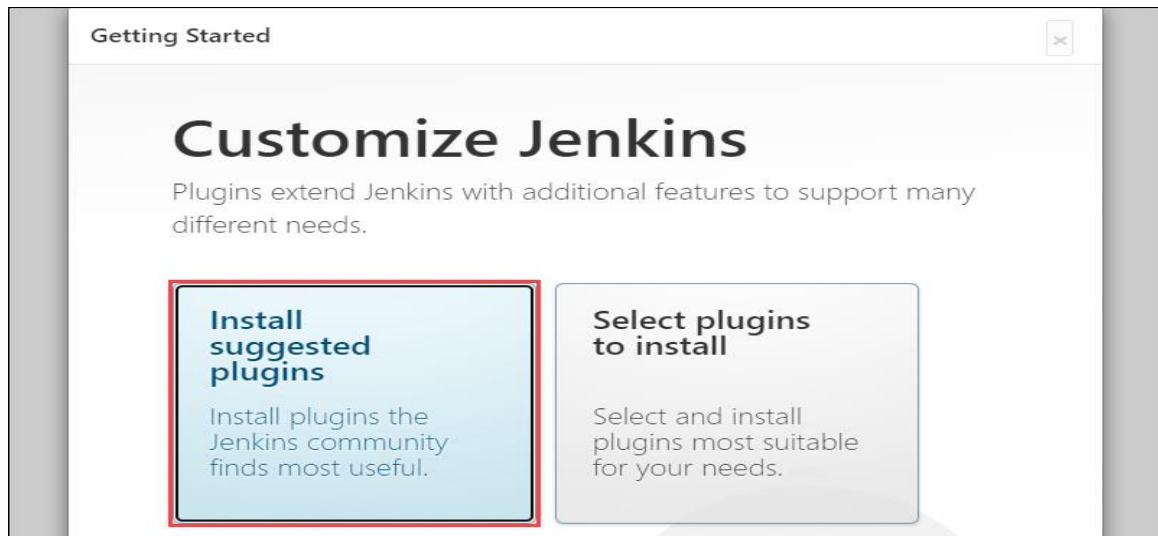
Please copy the password from either location and paste it below.

Administrator password

[Continue](#)

Customize Jenkins :-

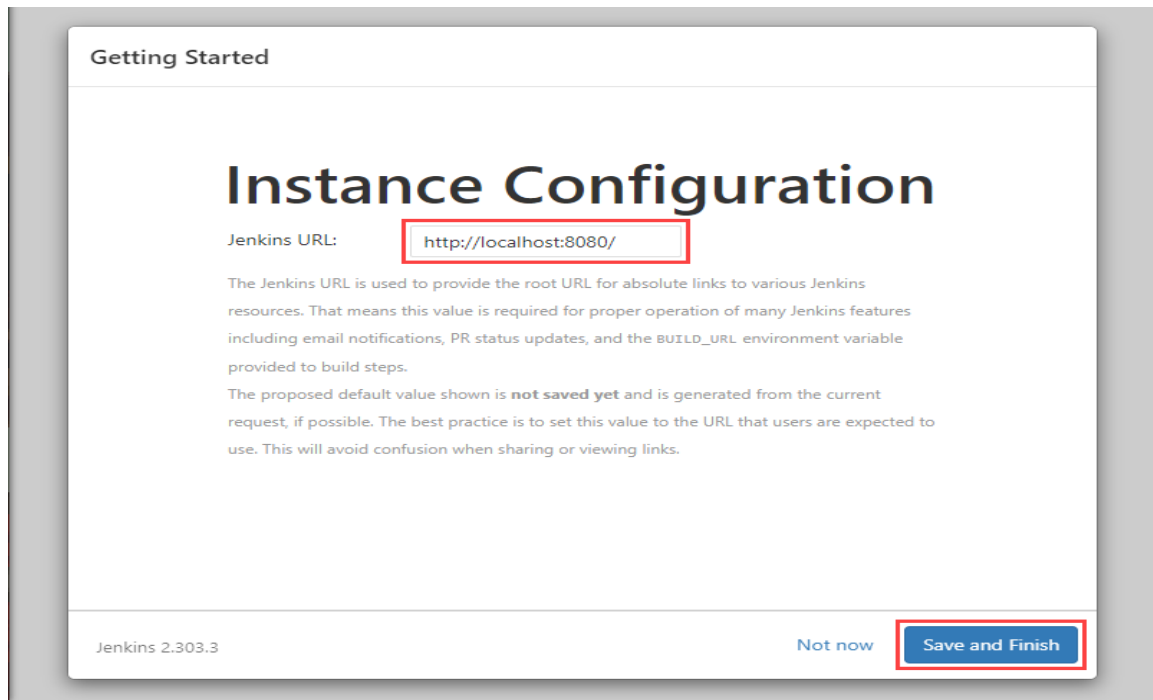
1. Click the Install suggested plugins button to have Jenkins automatically install the most frequently used plugins.



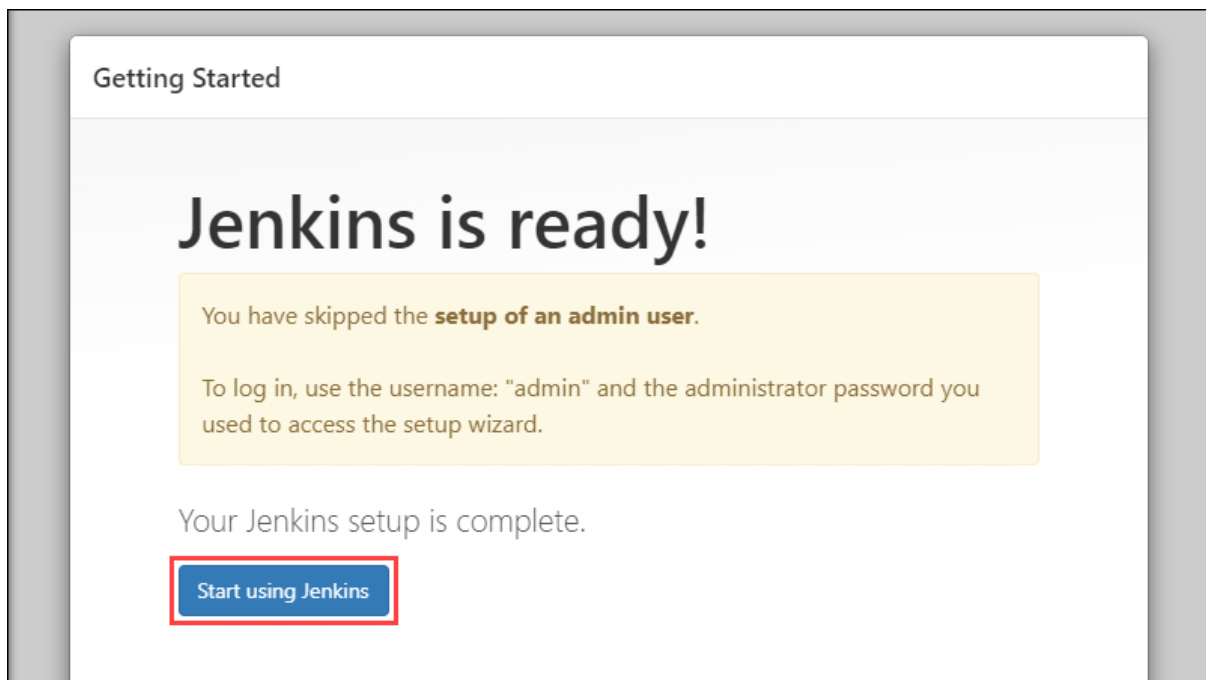
2. After Jenkins finishes installing the plugins, enter the required information on the **Create First Admin User** page. Click **Save and Continue** to proceed.

This screenshot shows the 'Create First Admin User' window in the Jenkins installation process. The window has a title bar 'Getting Started'. The main heading is 'Create First Admin User'. Below the heading, there is a form with five input fields: 'Username:', 'Password:', 'Confirm password:', 'Full name:', and 'E-mail address:'. The entire form is highlighted with a red box. At the bottom of the window, there is a footer area containing 'Jenkins 2.303.3', a link 'Skip and continue as admin', and a blue button 'Save and Continue' which is also highlighted with a red box.

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)