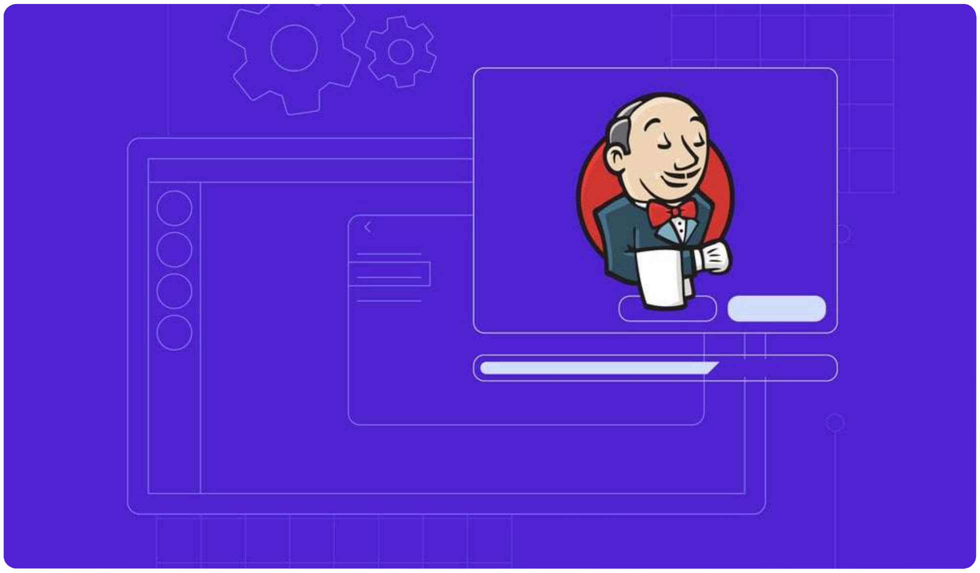
VPS Jun 26, 2024 Ignas R. 4min Read

How to Install Jenkins on Ubuntu in 2024



Typically, software development presents its own set of challenges. One of them is ensuring that software is built, tested, and deployed in a timely manner and that any errors are fixed prior to the production phase.

Jenkins is an open-source automation server for continuous integration (CI) and continuous delivery (CD) models. In other words, it creates, tests, and deploys software projects.

This tutorial will demonstrate two methods for installing Jenkins and any configuration that comes with it on Ubuntu 22.04.

A Brief Overview of Installing Jenkins on Ubuntu:

Required Knowledge	Basic Ubuntu server management, SSH access, Java Development Kit
Privileges Required	Root or sudo user
Difficulty	Intermediate
Main Goal	Installing Jenkins for CI/CD, configuring Java and Ubuntu firewall

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What Is Jenkins Used For

To understand Jenkins, users must have an understanding of continuous integration (CI) and continuous delivery (CD) models and their purpose:

- **Continuous integration (CI)** – a practice of constantly merging development work with the main branch.
- **Continuous delivery (CD)** – a continual delivery of code to an environment once the code is ready to ship, applicable for both staging and production environments. The product is then delivered to quality assurance specialists or customers for review and inspection.

Developers regularly update their code using shared repositories, such as **GitHub** or **Team Foundation Server (TFS)**, now known as **Azure DevOps Server**. Therefore, Jenkins is exceptionally helpful when it comes to daily builds.

As soon as a developer commits any change to the shared repository, Jenkins will immediately trigger a build and immediately notify users in case of an error, which is an example of **continuous integration**.

With Jenkins, users can also set post-build tests – unit tests, performance tests, and acceptance tests – in an automated manner. Whenever a successful build occurs, Jenkins performs these tests and generates a report, which is an example of **continuous delivery**.

Other than that, the main advantages of Jenkins are as follows:

- **Ease of use** – its user interface is simple, intuitive, and visually appealing.
- **Great extensibility** – Jenkins is highly flexible and easy to adapt to one's preferences. There are thousands of open-source plugins available for the automation server, each with different functionalities and features.
- **All-around support –** users receive additional assistance for different version control systems, code quality metrics, build notifiers, and UI customization.

How to Install Jenkins on Ubuntu

Installing Jenkins is as easy as using the integrated APT package manager of Ubuntu. However, keep in mind that some requirements must be met for a VPS-based system before proceeding with the installation.

Your virtual hosting server, your rules

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Prerequisites for Jenkins Installation

- Ubuntu server with 22.04 version and SSH access
- A non-root sudo user
- 256 MB of RAM and 1 GB of drive space for solo use. However, no less than 10 GB is recommended if Jenkins runs inside a **Docker container**
- 4+ GB of RAM and 50+ GB of drive space for group use
- Oracle JDK 8 or 11
- A web server running **Apache or Nginx**

1. Install Java Development Kit

Jenkins supports Java 8 and Java 11. However, in this tutorial, we will use Java Runtime Environment 11.

First, update the default Ubuntu packages lists for upgrades with the following command:

```
sudo apt-get update
```

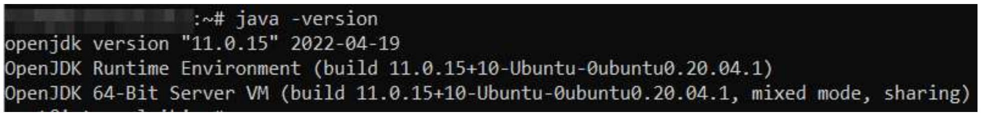
Then, run the following command to install JDK 11:

```
sudo apt-get install openjdk-11-jdk
```

To test if Java has been installed successfully, run this command:

```
java -version
```

It should look something like this:



```
[redacted]:~# java -version
openjdk version "11.0.15" 2022-04-19
OpenJDK Runtime Environment (build 11.0.15+10-Ubuntu-0ubuntu0.20.04.1)
OpenJDK 64-Bit Server VM (build 11.0.15+10-Ubuntu-0ubuntu0.20.04.1, mixed mode, sharing)
```

Sugested Reading

Check out our guide to learn **how to install Java on Ubuntu**.

2. Install Jenkins

Now, we will install Jenkins itself. Issue the following four commands in sequence to initiate the installation from the Jenkins repository:

```
echo deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc] \
  https://pkg.jenkins.io/debian-stable binary/ | sudo tee \
  /etc/apt/sources.list.d/jenkins.list > /dev/null

sudo apt-get update

sudo apt-get install jenkins
```

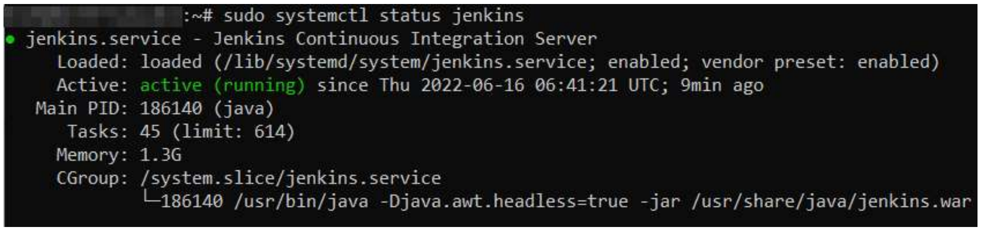
Once that's done, start the Jenkins service with the following command:

```
sudo systemctl start jenkins.service
```

To confirm its status, use:

```
sudo systemctl status jenkins
```

If it's working correctly, the terminal window will look like this:



```
[redacted]:~# sudo systemctl status jenkins
● jenkins.service - Jenkins Continuous Integration Server
     Loaded: loaded (/lib/systemd/system/jenkins.service; enabled; vendor preset: enabled)
     Active: active (running) since Thu 2022-06-16 06:41:21 UTC; 9min ago
   Main PID: 186140 (java)
      Tasks: 45 (limit: 614)
     Memory: 1.3G
     CGroup: /system.slice/jenkins.service
             └─186140 /usr/bin/java -Djava.awt.headless=true -jar /usr/share/java/jenkins.war
```

3. Adjust Firewall and Configuring Jenkins

With Jenkins installed, we can proceed with adjusting the firewall settings. By default, Jenkins will run on port **8080**.

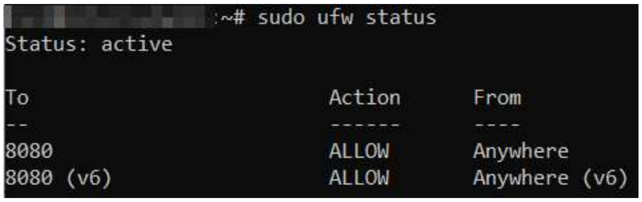
In order to ensure that this port is accessible, we will need to configure the built-in **Ubuntu firewall** (ufw). To open the 8080 port and enable the firewall, use the following commands:

```
sudo ufw allow 8080
```

```
sudo ufw enable
```

Once done, test whether the firewall is active using this command:

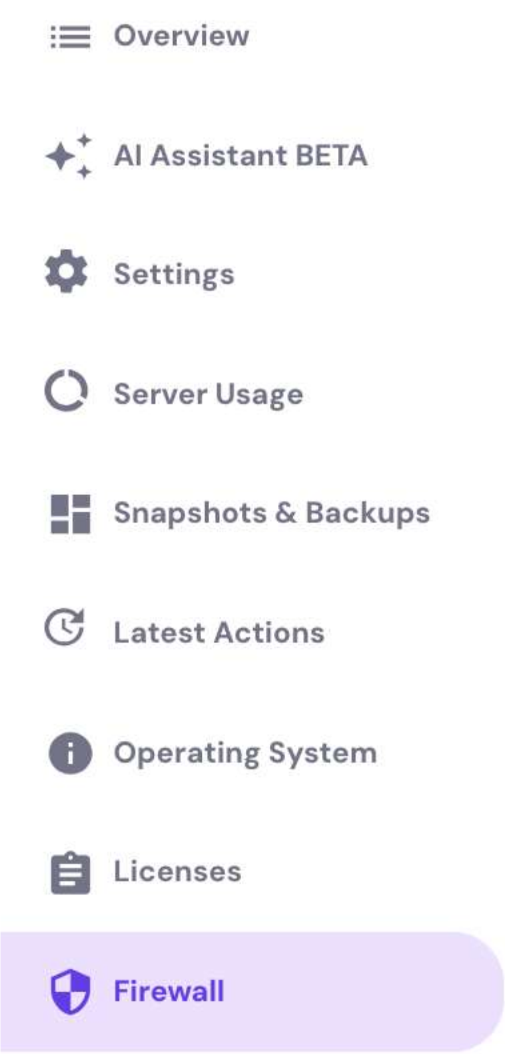
```
sudo ufw status
```



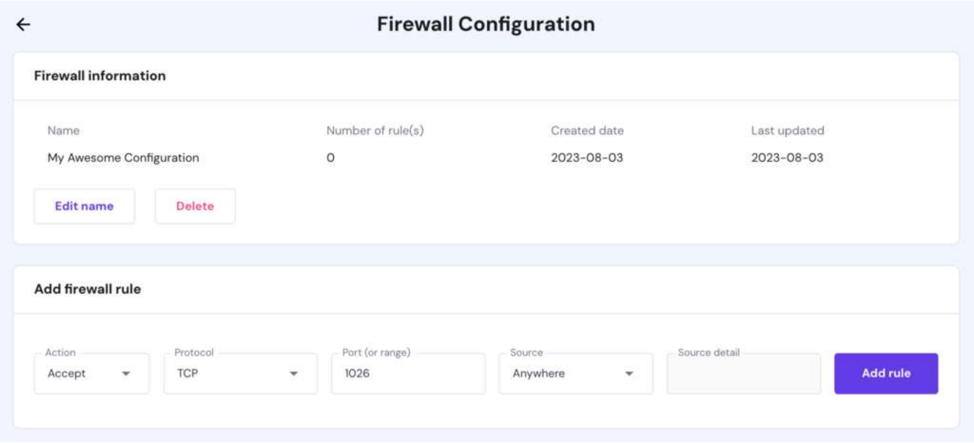
```
[redacted]:~# sudo ufw status
Status: active

To                         Action      From
--                         ------      ----
8080                       ALLOW       Anywhere
8080 (v6)                  ALLOW       Anywhere (v6)
```

Pro Tip

As an alternative, you can also set up a firewall via hPanel. Select your VPS and click on the **Firewall** button:



Then, create a new firewall configuration and give it a name. Once done, you will be able to edit the configuration and add any preferred firewall rules:



Firewall Configuration

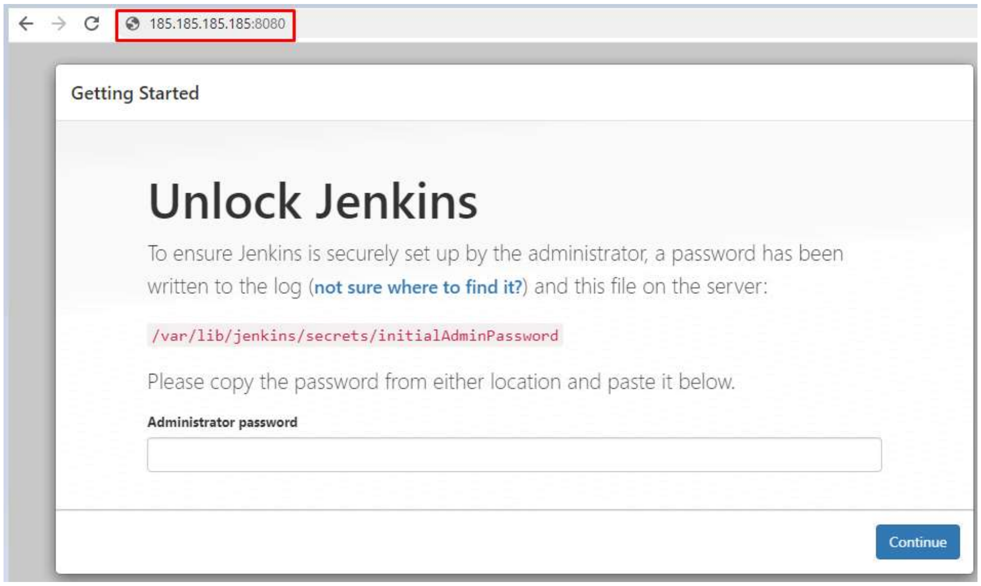
Firewall information

Name	Number of rule(s)	Created date	Last updated
My Awesome Configuration	0	2023-08-03	2023-08-03

Add firewall rule

Action	Protocol	Port (or range)	Source	Source detail
Accept	TCP	1026	Anywhere	

number. The Jenkins setup wizard will be similar to the example below:



185.185.185.185:8080

Getting Started

Unlock 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:

/var/lib/jenkins/secrets/initialAdminPassword

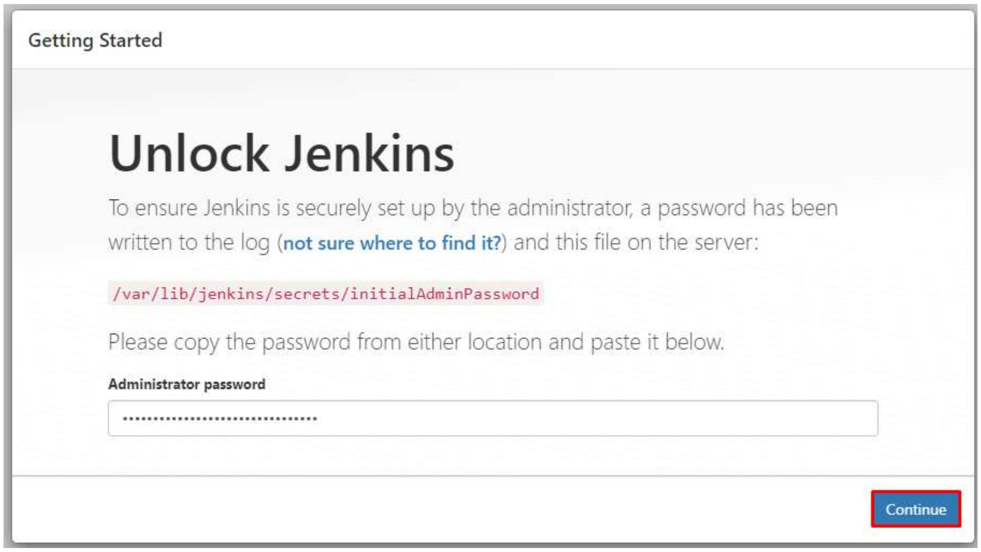
Please copy the password from either location and paste it below.

Administrator password

Just make sure to replace **185.185.185.185** with an actual IP. An administrator password will be needed to proceed with the configuration. It can be easily found inside the **/var/lib/jenkins/secrets/initialAdminPassword** file. To check the initial password, use the **cat command** as indicated below:

```
sudo cat /var/lib/jenkins/secrets/initialAdminPassword
```

Copy the password, go back to the setup wizard, paste it and click **Continue**.



Getting Started

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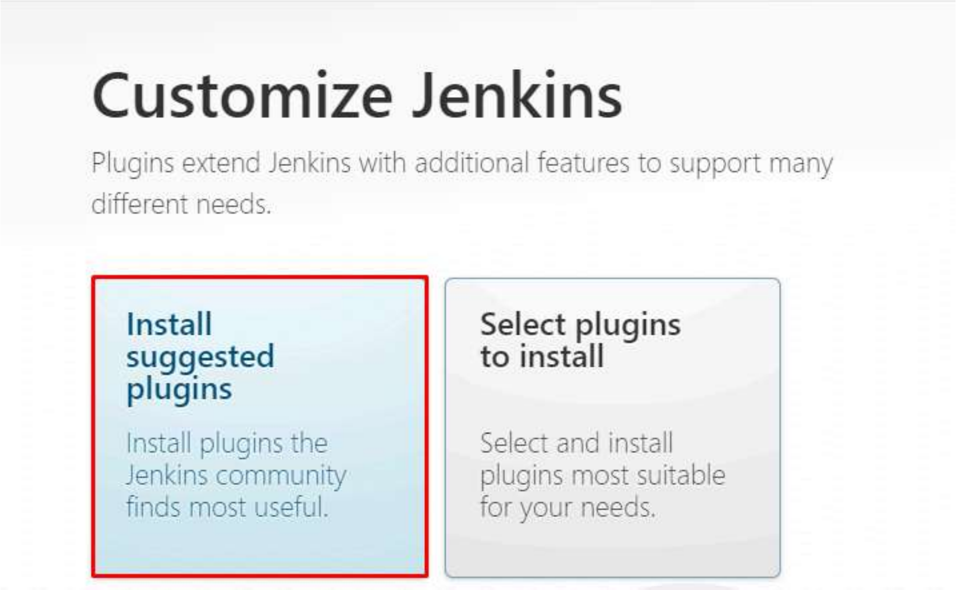
/var/lib/jenkins/secrets/initialAdminPassword

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

Administrator password

••••••••••••••••••••••••••••••••

Next, the **Customize Jenkins** window will appear. We recommend simply selecting the **Install suggested plugins** option for this step.

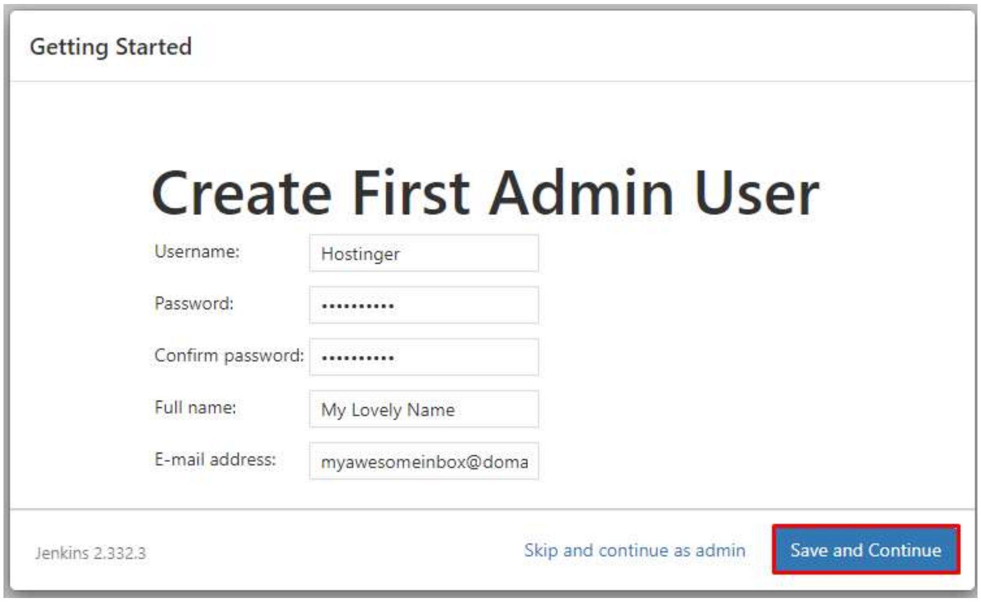


Customize Jenkins

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.

Give it a couple of minutes for the installation process to complete. Once it's done, specify your username, password, full name, and email address, and click on **Save and Continue** to create an admin user.



Getting Started

Create First Admin User

Username: Hostinger

Password: ••••••••••

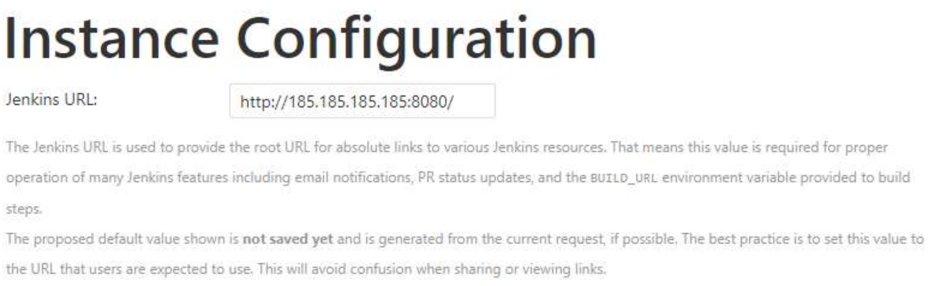
Confirm password: ••••••••••

Full name: My Lovely Name

E-mail address: myawesomeinbox@doma

Jenkins 2.332.3

Then specify the preferred **Jenkins URL** and finish the configuration process.



Instance Configuration

Jenkins URL: http://185.185.185.185:8080/

The Jenkins URL is used to provide the root URL for absolute links to various Jenkins resources. That means this value is required for proper operation of many Jenkins features including email notifications, PR status updates, and the `BUILD_URL` environment variable provided to build steps.

The proposed default value shown is **not saved yet** and is generated from the current request, if possible. The best practice is to set this value to the URL that users are expected to use. This will avoid confusion when sharing or viewing links.

After configuration, the Jenkins dashboard will appear, meaning the Jenkins server installation and initial setup were successful.