

# Installing Jenkins

Jenkins is an open-source automation server commonly used for building, testing, and deploying software projects. It provides a platform for continuous integration and continuous delivery (CI/CD) processes, helping software development teams automate various aspects of the software development lifecycle.

Key features of Jenkins include:

1. **Automation:** Jenkins allows you to automate the building, testing, and deployment of your software applications. This helps in ensuring that code changes are consistently integrated and tested, leading to more reliable and stable software.
2. **Integration:** Jenkins integrates with a wide variety of tools and plugins, making it highly adaptable to different development environments. It supports version control systems, build tools, testing frameworks, and deployment technologies.
3. **Pipeline Support:** Jenkins supports the creation of pipelines, which are a series of automated steps that define the process of building, testing, and deploying software. This allows for a more structured and repeatable approach to software delivery.
4. **Extensibility:** Jenkins has a large and active plugin ecosystem that allows users to extend its functionality. You can find plugins for various tools and technologies, enabling Jenkins to integrate with your existing development stack.
5. **Monitoring and Notifications:** Jenkins provides monitoring and reporting features, allowing developers and teams to track the status of builds and deployments. It also supports notifications through email, chat, or other messaging services.
6. **Distributed Builds:** Jenkins supports the distribution of build and testing workloads across multiple machines, which can be helpful in scaling the automation process for larger projects.
7. **Community Support:** Being open-source, Jenkins has a vibrant community that contributes to its development, support, and improvement. This community-driven model ensures that Jenkins stays up-to-date with the latest technologies and best practices.

Overall, Jenkins plays a crucial role in the CI/CD pipeline by automating repetitive tasks, improving code quality, and accelerating the software development and release processes. It is widely used in various industries and is considered a standard tool for continuous integration and continuous delivery.

## To begin with the Lab:

1. Log in to AWS Console and launch an EC2 instance which has Ubuntu as its OS.
2. Now select your instance type as t2.small because working on Jenkins requires more power.

▼ Instance type [Info](#) | [Get advice](#)

Instance type

**t2.small**  
 Family: t2 1 vCPU 2 GiB Memory Current generation: true  
 On-Demand Linux base pricing: 0.026 USD per Hour  
 On-Demand RHEL base pricing: 0.086 USD per Hour  
 On-Demand SUSE base pricing: 0.056 USD per Hour  
 On-Demand Windows base pricing: 0.0352 USD per Hour

All generations

[Compare instance types](#)

**Additional costs apply for AMIs with pre-installed software**

3. Then in the Network settings for the Security group, create a new then add a port 8080 which has a source for everywhere on the internet because Jenkins listens on port 8080.

Security group name - *required*

demo-jenkins-sg

This security group will be added to all network interfaces. The name can't be edited after the security group is created. Max length is 255 characters. Valid characters: a-z, A-Z, 0-9, spaces, and .\_-:/()#@[]+=&;!\$^\*

Description - *required* [Info](#)

demo-jenkins-sg

#### Inbound Security Group Rules

▼ Security group rule 1 (TCP, 22, 0.0.0.0/0)			<a href="#">Remove</a>
Type <a href="#">Info</a>	Protocol <a href="#">Info</a>	Port range <a href="#">Info</a>	
ssh	TCP	22	
Source type <a href="#">Info</a>	Source <a href="#">Info</a>	Description - <i>optional</i> <a href="#">Info</a>	
Anywhere	<input type="text" value="Add CIDR, prefix list or security"/> <a href="#">X</a>	e.g. SSH for admin desktop	
▼ Security group rule 2 (TCP, 8080, 0.0.0.0/0)			<a href="#">Remove</a>
Type <a href="#">Info</a>	Protocol <a href="#">Info</a>	Port range <a href="#">Info</a>	
Custom TCP	TCP	8080	
Source type <a href="#">Info</a>	Source <a href="#">Info</a>	Description - <i>optional</i> <a href="#">Info</a>	
Custom	<input type="text" value="Add CIDR, prefix list or security"/> <a href="#">X</a>	e.g. SSH for admin desktop	

4. After that create your instance.
5. After launching the instance when it is in running state. Login to it using putty tool.

**Instances (1/1) [Info](#)**

Find Instance by attribute or tag (case-sensitive)

Any state Refresh instances

Instance ID = i-0c3061aba385aa01a

Clear filters

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Publ
demo-jenkins	i-0c3061aba385aa01a	<span>Running</span>	t2.small	<span>Initializing</span>	<a href="#">View alarms</a>	eu-west-2a	ec2-18-132-52-194.eu...	18.13

**Instance: i-0c3061aba385aa01a (demo-jenkins)**

Details Status and alarms [New](#) Monitoring Security Networking Storage Tags

Instance summary [Info](#)

Instance ID: i-0c3061aba385aa01a (demo-jenkins)

Public IPv4 address: 18.132.52.194 [open address](#)

Private IPv4 addresses: 172.31.17.133

IPv6 address: -

Instance state: Running

Public IPv4 DNS: ec2-18-132-52-194.eu-west-2.compute.amazonaws.com [open address](#)

```

ubuntu@ip-172-31-17-133: ~
login as: ubuntu
Authenticating with public key "imported-openssh-key"
Welcome to Ubuntu 22.04.3 LTS (GNU/Linux 6.2.0-1017-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

System information as of Sat Jan 27 16:54:26 UTC 2024

System load: 0.5537109375      Processes:          100
Usage of /:   20.6% of 7.57GB    Users logged in:    0
Memory usage: 10%                IPv4 address for eth0: 172.31.17.133
Swap usage:   0%
```

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.  
See <https://ubuntu.com/esm> or run: sudo pro status

The list of available updates is more than a week old.  
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;  
the exact distribution terms for each program are described in the  
individual files in /usr/share/doc/\*-/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by  
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo\_root" for details.

ubuntu@ip-172-31-17-133:~\$

6. Now as you have login to your instance, you are required to run a set of commands in order to install Jenkins.
7. Below are the commands which you need to run one by one in order to install JDK and Jenkins on your machine.

```
sudo -i
```

---

```
sudo apt update
```

---

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

---

```
sudo wget -O /usr/share/keyrings/jenkins-keyring.asc \  
https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key
```

---

```
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
```

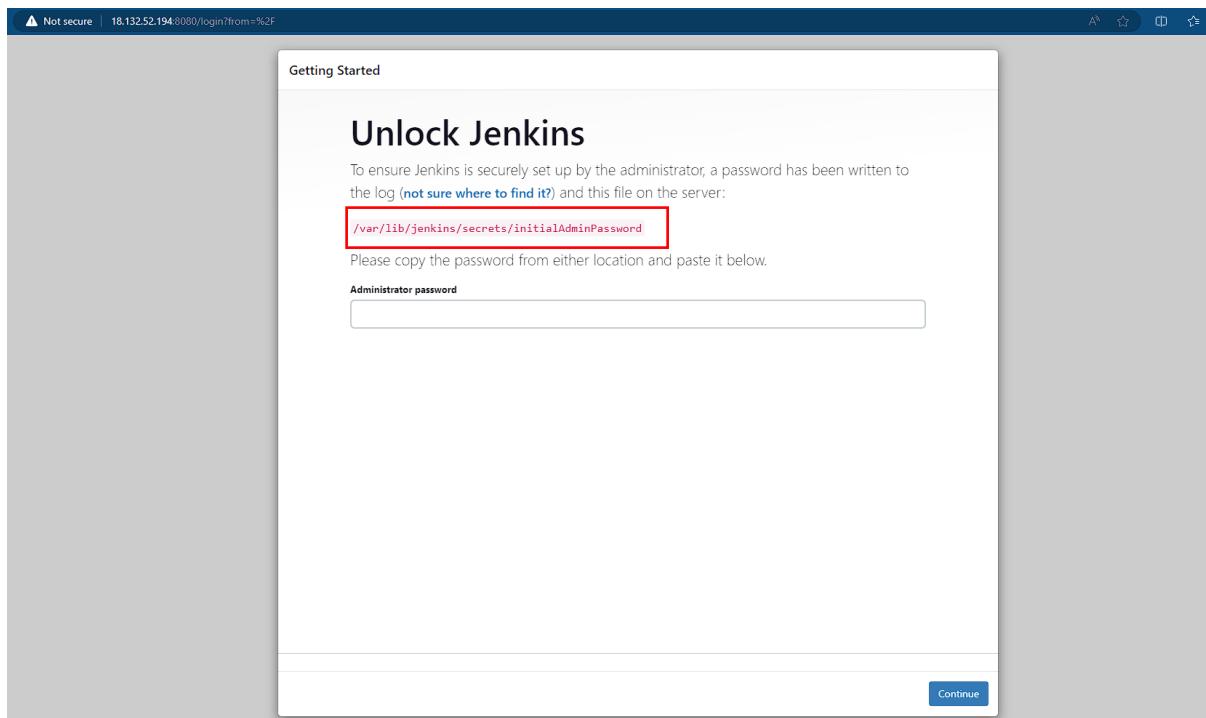
---

```
sudo apt update
```

---

```
sudo apt install jenkins
```

8. Once you have run the above command and install JDK and Jenkins successfully.
9. Now you need to go back to your instance and copy its public IP address. Then paste it in a new tab like this 18.132.52.194:8080
10. You need to mention the port in order to open the Jenkins page on your browser.
11. As you can see it is asking you the administrator password in order to move forward.
12. For that you need to copy the destination path given and paste it in the Putty session.



13. Now add the path following with the command cat.

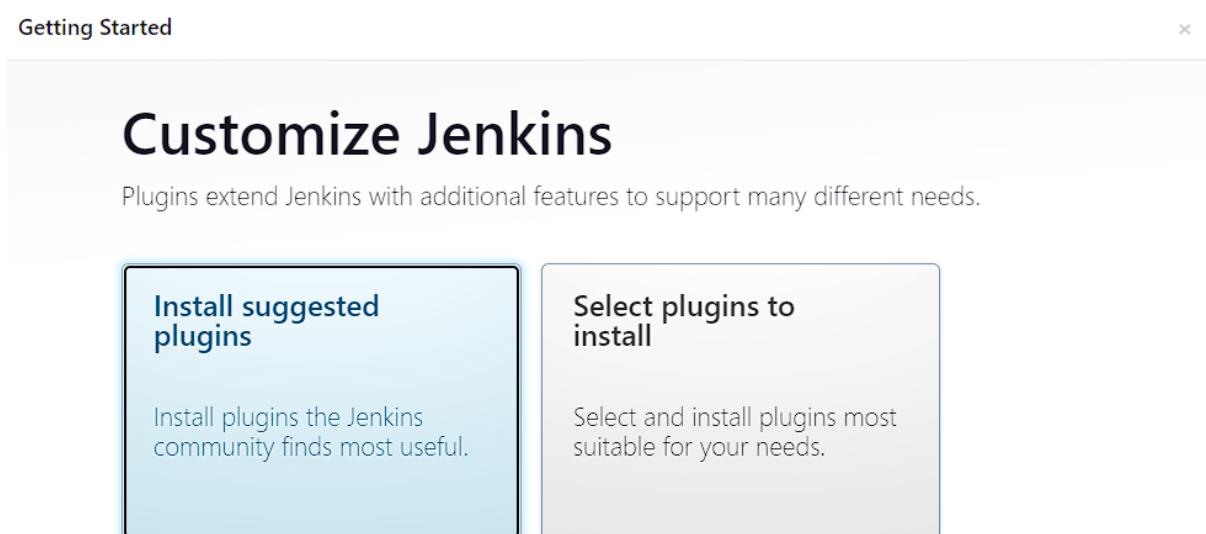
```
cat /var/lib/jenkins/secrets/initialAdminPassword
```

```
root@ip-172-31-17-133: ~
root@ip-172-31-17-133:~# cat /var/lib/jenkins/secrets/initialAdminPassword
0903aff567b24229bfed758646c604fc
```

14. Now copy this password and paste it in the browser and move ahead.

15. Here it is asking you to either install the suggested plugins or you can select the plugins yourself.

16. For now click on select plugins to install and check all the plugin options for yourself.



17. You will see multiple plugins there but you need to scroll down to build tools and uncheck the option for Ant and check the box for NodeJS.

## Build Tools (2/4)

<input type="checkbox"/> <a href="#">Ant</a>	1 >
Adds Apache Ant support to Jenkins	
<input checked="" type="checkbox"/> <a href="#">Gradle</a>	23 >
This plugin allows Jenkins to invoke <b>Gradle</b> build scripts directly.	
<input type="checkbox"/> <a href="#">MSBuild</a>	8 >
This plugin makes it possible to build a Visual Studio project (.proj) and solution files (.sln).	
<input checked="" type="checkbox"/> <a href="#">NodeJS</a>	17 >
NodeJS Plugin executes <b>NodeJS</b> script as a build step.	

18. Now just walk through the plugins and then click on install. Wait for sometime until it is installing all the plugins.

Getting Started

# Getting Started

The Getting Started page provides an overview of Jenkins features and available plugins. It includes a summary table of installed and available plugins, and links to various Jenkins documentation and resources.

Plugin Status	Plugin Name	Description	Plugin Status	Plugin Name	Description
✓	Folders	✓ OWASP Markup Formatter	✓	Build Timeout	✓ Credentials Binding
✓	Timestamper	✓ Workspace Cleanup	✓	Gradle	✓ Pipeline
⌚	GitHub Branch Source	⌚ Pipeline: GitHub Groovy Libraries	⌚	Pipeline: Stage View	⌚ Git
⌚	SSH Build Agents	⌚ Matrix Authorization Strategy	⌚	PAM Authentication	⌚ LDAP
⌚	Email Extension	✓ Mailer	⌚	NodeJS	

Available Plugins:

- commons-lang3 v3.x Jenkins API
- Timestamper
- Caffeine API
- Script Security
- JAXB
- SnakeYAML API
- Jackson 2 API
- commons-text API
- Pipeline: Supporting APIs
- Plugin Utilities API
- Font Awesome API
- Bootstrap 5 API
- jQuery3 API
- ECharts API
- Display URL API
- Checks API
- JUnit
- Matrix Project
- Resource Disposer
- Workspace Cleanup
- Durable Task
- Pipeline: Nodes and Processes
- Pipeline: SCM Step
- Pipeline: Groovy
- Pipeline: Job
- Jakarta Activation API
- Jakarta Mail API
- Apache HttpComponents Client 4.x API
- Mailer
- Pipeline: Basic Steps
- Gradle
- Pipeline: Milestone Step
- Pipeline: Build Step
- Variant
- required dependency

Jenkins 2.426.3

19. After the installation you will be on a new page which says create first admin user.
20. Just give it some credentials whatever you like. Then click on save and continue.

Getting Started

---

## Create First Admin User

Username

Password

Confirm password

Full name

E-mail address

---

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Skip and continue as admin

Save and Continue

21. Now it will show you the Jenkins URL.

Getting Started

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## Instance Configuration

Jenkins URL:

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.

22. Once you have checked for the URL, on the very next page you can see that your Jenkins is ready, click on Start using Jenkins.

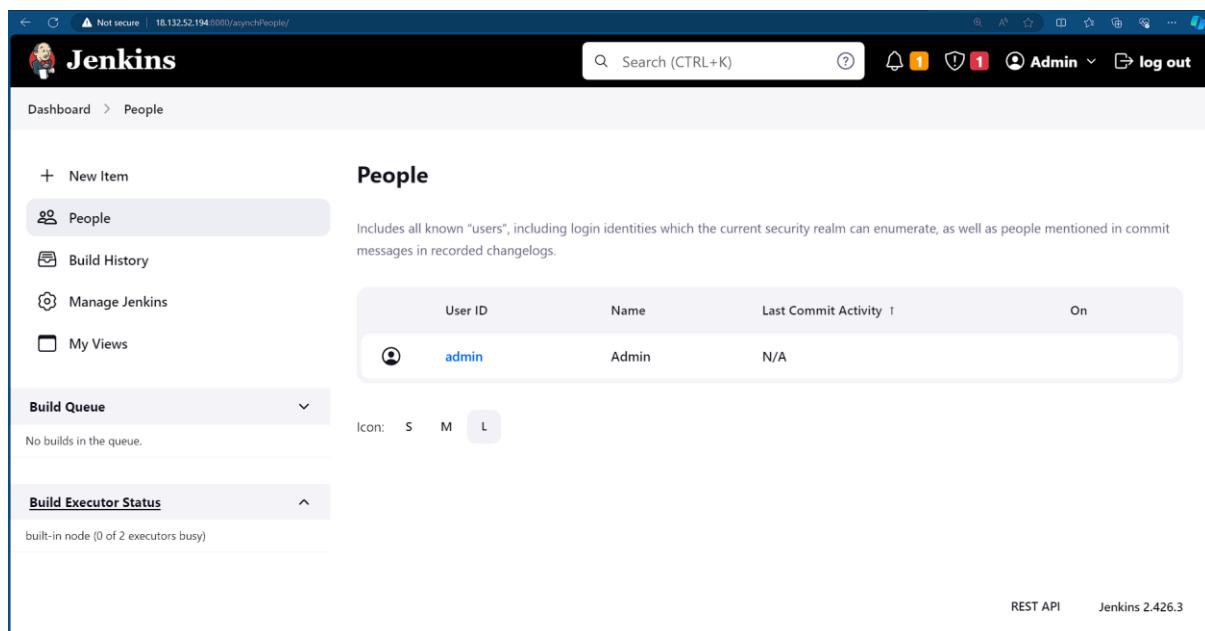
#### Getting Started

# Jenkins is ready!

Your Jenkins setup is complete.

[Start using Jenkins](#)

23. You will be on the homepage for Jenkins.



The screenshot shows the Jenkins dashboard at the URL [18.132.52.194:8080/asyncPeople/](http://18.132.52.194:8080/asyncPeople/). The title bar says "Jenkins". The top navigation bar includes "Not secure", the IP address, a search bar with placeholder "Search (CTRL+K)", a help icon, a bell icon with 1 notification, a shield icon with 1, an "Admin" dropdown, and a "log out" link. Below the navigation is a breadcrumb "Dashboard > People". On the left, there's a sidebar with links: "+ New Item", "People" (which is selected and highlighted in grey), "Build History", "Manage Jenkins", and "My Views". The main content area is titled "People" and contains a table with one row:

User ID	Name	Last Commit Activity	On
admin	Admin	N/A	On

Below the table, there's a "Build Queue" section with the message "No builds in the queue." and a "Build Executor Status" section with the message "built-in node (0 of 2 executors busy)". At the bottom right, there are links for "REST API" and "Jenkins 2.426.3".