



JENKINS



Jenkins is a tool that is used for Automation, and it is an Open-source server that allows all the Developers to Build, Test and Deploy software.

- CONTINUOUS INTEGRATION
- CONTINUOUS DELIVER
- BUILD & TEST
- PLUGINS

HISTORY OF JENKINS

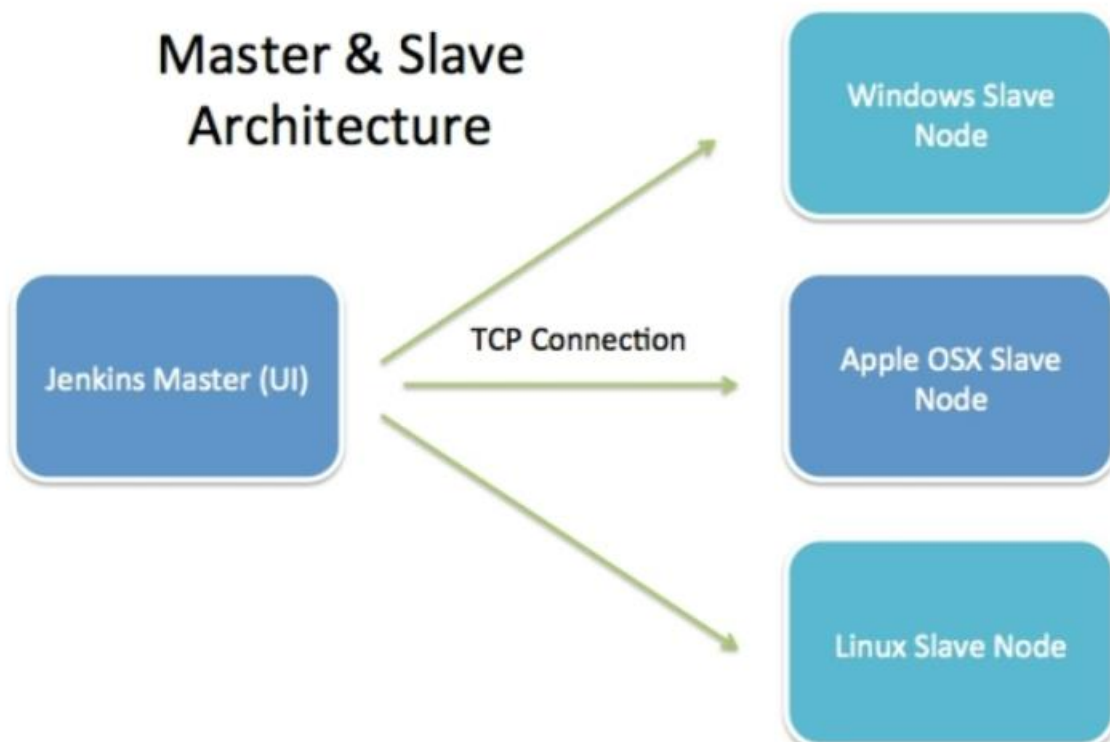
2004, Kohsuke Kawaguchi, Java developer, working at SUN Microsystems created an automation server called **Hudson** that automates build and test task

2011, Oracle who owned Sun Microsystems, Renamed it as **Jenkins**

ADVANTAGES OF JENKINS

- OPEN SOURCE
- EASY INSTALLATION
- 1000 OR MORE PLUGINS
- PORTABLE
- PLATFORM INDEPENDENT
- EASY SUPPORT

MASTER SLAVE ARCHITECTURE



JENKINS MASTER

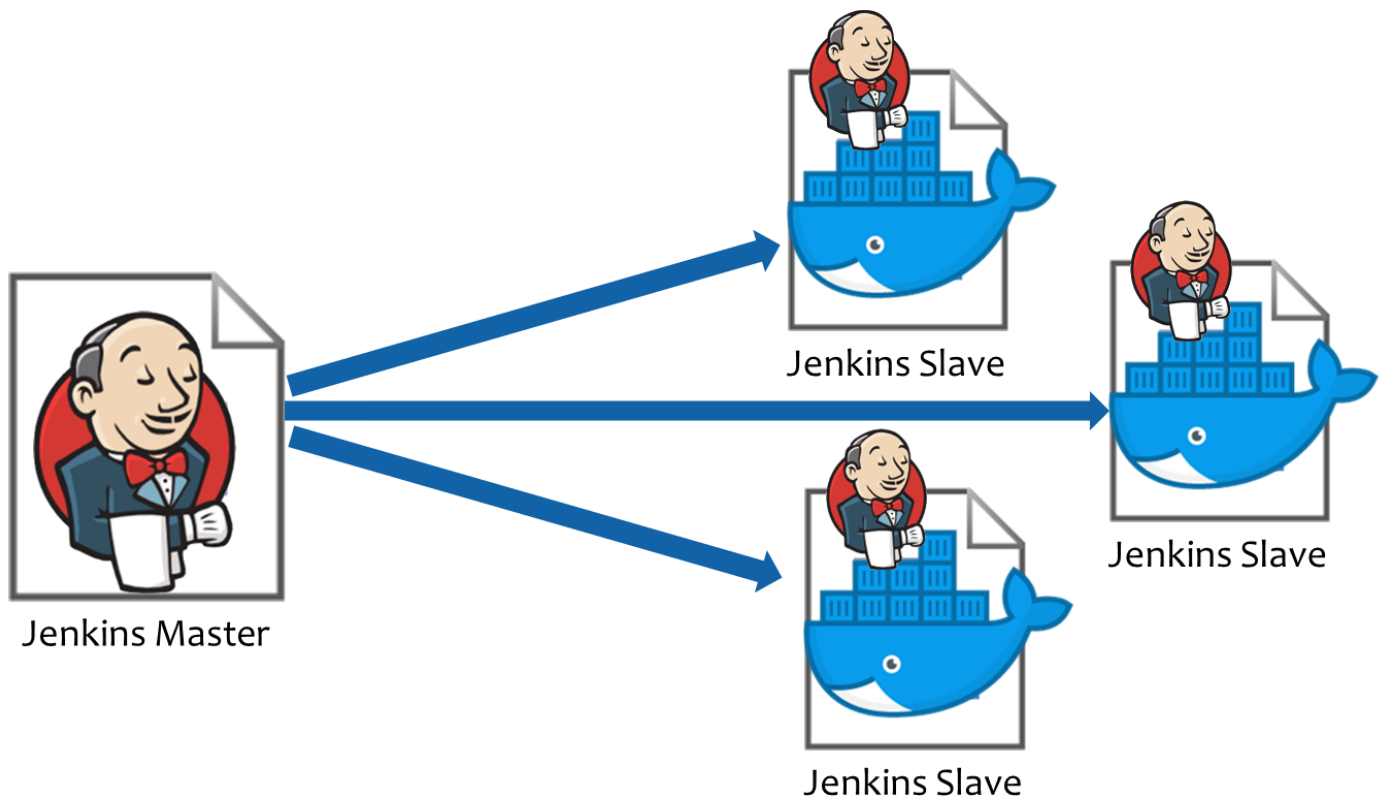
The main server of Jenkins is the Jenkins Master which runs on **8080** Port

- By default, one node (slave) is configured and running in Jenkins server
- can add more nodes using IP address, user name and password
- Scheduling build jobs
- Dispatching builds to the nodes/slaves for the actual execution.
- Monitor the nodes/slaves (possibly taking them online and offline as required).
- Recording and presenting the build results.

JENKINS SLAVE

Jenkins slave is used to execute the build jobs dispatched by the master.

- Configure a project to always run on a particular slave machine, or particular type of slave machine



INSTALLATION OF JENKINS

To install **JENKINS** in **LINUX** server (Example: AMAZON LINUX)

[Java is a pre-requisite for Jenkins, Java to be installed in server before installing Jenkins]

The screenshot shows the Jenkins User Handbook page for 'Installing Jenkins'. The page has a navigation bar at the top with links: '< User Documentation Home', 'User Handbook Overview', 'Index', and 'Docker =>'. On the left, there is a sidebar with a 'User Handbook' section containing a list of links. 'Installing Jenkins' is highlighted, and under it, 'Linux' is also highlighted. The main content area has the title 'Installing Jenkins' in a large font, followed by a sub-header 'The procedures in this chapter are for new installations of Jenkins.' Below this, there are two paragraphs of text. The first paragraph states that Jenkins is typically run as a standalone application in its own process, bundling 'Winstone' and 'Jetty'. The second paragraph mentions that Jenkins can also be run as a servlet in a traditional servlet container like 'Apache Tomcat' or 'WildFly', but this is largely untested. On the right side, there is a 'Chapter Sub-Sections' box with links to 'Docker', 'Kubernetes', 'Linux', 'macOS', 'Windows', 'Other Systems', 'WAR file', 'Other Servlet Containers', 'Offline Installations', and 'Initial Settings'. At the bottom of the page, there is a footer with the same navigation links as the top, and a question 'Was this page helpful?'.

Decide which flavour of Linux to be installed

Linux

Jenkins installers are available for several Linux distributions.

- [Debian/Ubuntu](#)
- [Fedora](#)
- [Red Hat/Alma/Rocky](#)

[Creating below example with Amazon Linux server]

STEP 1: Create a EC2 Instance (Name: Jenkins) with ALL TCP enabled in Security Group

STEP 2: Login as “ec2-user” and enter the below commands

Long Term Support release

A [LTS \(Long-Term Support\) release](#) is chosen every 12 weeks from the stream of regular releases as the stable release for that time period. It can be installed from the [redhat-stable](#) yum repository.

```
sudo wget -O /etc/yum.repos.d/jenkins.repo \
    https://pkg.jenkins.io/redhat-stable/jenkins.repo
sudo rpm --import https://pkg.jenkins.io/redhat-stable/jenkins.io.key
sudo yum upgrade
```

```

[ec2-user@ip-172-31-61-216 ~]$ sudo su - root
[root@ip-172-31-61-216 ~]# sudo wget -O /etc/yum.repos.d/jenkins.repo \
https://pkg.jenkins.io/redhat-stable/jenkins.repo
--2023-03-13 18:25:44-- https://pkg.jenkins.io/redhat-stable/jenkins.repo
Resolving pkg.jenkins.io (pkg.jenkins.io)... 146.75.34.133, 2a04:4e42:78::645
Connecting to pkg.jenkins.io (pkg.jenkins.io)|146.75.34.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 85
Saving to: '/etc/yum.repos.d/jenkins.repo'

100%[=====>] 85          --.-K/s  in 0s

2023-03-13 18:25:44 (5.60 MB/s) - '/etc/yum.repos.d/jenkins.repo' saved [85/85]

```

```
[root@ip-172-31-61-216 ~]# sudo yum upgrade
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
amzn2-core
jenkins
jenkins/primary_db
No packages marked for update
```

```
root@ip-172-31-61-216 ~]# sudo yum install java -y
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
Resolving Dependencies
--> Running transaction check
--> Package java-17-amazon-corretto.x86_64 1:17.0.6+10-1.amzn2.1 will be installed
--> Processing Dependency: java-17-amazon-corretto-headless(x86-64) = 1:17.0.6+10-1.amzn2.1 for package: 1:java-17-amazon-corretto-17.0.6+10-1.amzn2.1.x86_64
--> Processing Dependency: gliblib for package: 1:java-17-amazon-corretto-17.0.6+10-1.amzn2.1.x86_64
--> Processing Dependency: libXtst for package: 1:java-17-amazon-corretto-17.0.6+10-1.amzn2.1.x86_64
--> Processing Dependency: libXrandr for package: 1:java-17-amazon-corretto-17.0.6+10-1.amzn2.1.x86_64
--> Processing Dependency: libXrender for package: 1:java-17-amazon-corretto-17.0.6+10-1.amzn2.1.x86_64
--> Processing Dependency: libXt for package: 1:java-17-amazon-corretto-17.0.6+10-1.amzn2.1.x86_64
--> Processing Dependency: libXinerama for package: 1:java-17-amazon-corretto-17.0.6+10-1.amzn2.1.x86_64
--> Processing Dependency: libXi for package: 1:java-17-amazon-corretto-17.0.6+10-1.amzn2.1.x86_64
--> Processing Dependency: libXll for package: 1:java-17-amazon-corretto-17.0.6+10-1.amzn2.1.x86_64
--> Running transaction check
--> Package gliblib.x86_64 0:4.1.6-9.amzn2.0.2 will be installed
```

```

root@ip-172-31-61-216 ~]# sudo yum install jenkins
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
Resolving Dependencies
--> Running transaction check
--> Package jenkins.noarch 0:2.387.1-1.1 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

=====================================================================================================================================
Package                               Arch                                Version                               Repository                               Size
=====================================================================================================================================
Installing:
jenkins                               noarch                              2.387.1-1.1                          jenkins                                  94 M
Transaction Summary
-----
Install 1 Package

Total download size: 94 M
Installed size: 94 M
Is this ok [y/d/N]: y
Downloading packages:
jenkins-2.387.1-1.1.noarch.rpm                                                | 94 MB  00:00:08
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : jenkins-2.387.1-1.1.noarch                                     1/1
  Verifying  : jenkins-2.387.1-1.1.noarch                                     1/1

Installed:
  jenkins.noarch 0:2.387.1-1.1

Complete!

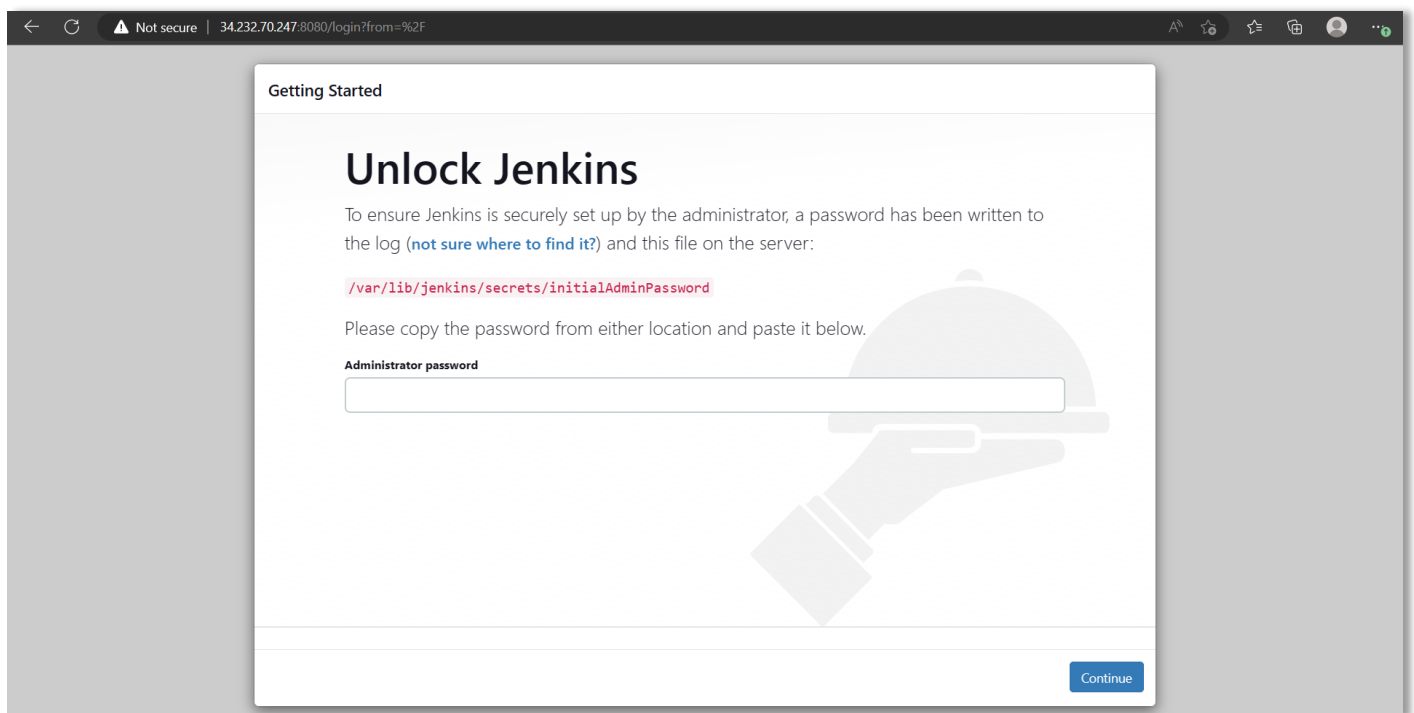
```

STEP 5: Start JENKINS and check the STATUS

```
[root@ip-172-31-61-216 ~]# sudo systemctl enable jenkins
Created symlink from /etc/systemd/system/multi-user.target.wants/jenkins.service to /usr/lib/systemd/system/jenkins.service.
[root@ip-172-31-61-216 ~]# sudo systemctl start jenkins
[root@ip-172-31-61-216 ~]# sudo systemctl status jenkins
• jenkins.service - Jenkins Continuous Integration Server
   Loaded: loaded (/usr/lib/systemd/system/jenkins.service; enabled; vendor preset: disabled)
   Active: active (running) since Mon 2023-03-13 18:30:33 UTC; 24min ago
   Main PID: 4375 (java)
   CGroup: /system.slice/jenkins.service
           └─4375 /usr/bin/java -Djava.awt.headless=true -jar /usr/share/java/jenkins.war --webroot=%C/jenkins/war --httpPort=8080

Mar 13 18:30:05 ip-172-31-61-216.ec2.internal jenkins[4375]: 3a26b0da435141329c8cca72f4c6b0fa
Mar 13 18:30:05 ip-172-31-61-216.ec2.internal jenkins[4375]: This may also be found at: /var/lib/jenkins/secrets/initialAdminPassword
Mar 13 18:30:05 ip-172-31-61-216.ec2.internal jenkins[4375]: *****
Mar 13 18:30:05 ip-172-31-61-216.ec2.internal jenkins[4375]: *****
Mar 13 18:30:33 ip-172-31-61-216.ec2.internal jenkins[4375]: 2023-03-13 18:30:33.187+0000 [id=31] INFO jenkins.InitReactorRunner$1#onA...ization
Mar 13 18:30:33 ip-172-31-61-216.ec2.internal jenkins[4375]: 2023-03-13 18:30:33.213+0000 [id=25] INFO hudson.lifecycle.Lifecycle#onRe...running
Mar 13 18:30:33 ip-172-31-61-216.ec2.internal systemd[1]: Started Jenkins Continuous Integration Server.
Mar 13 18:30:33 ip-172-31-61-216.ec2.internal jenkins[4375]: 2023-03-13 18:30:33.315+0000 [id=47] INFO h.m.DownloadService$Downloadabl...staller
Mar 13 18:30:33 ip-172-31-61-216.ec2.internal jenkins[4375]: 2023-03-13 18:30:33.316+0000 [id=47] INFO hudson.util.Retrier#start: Perf...empt #1
Hint: Some lines were ellipsized, use -l to show in full.
```

STEP 6: Once Jenkins is installed, enter <IPADDRESS>:8080 in the Browser [JENKINS DEFAULT PORT #: 8080]



STEP 7: Enter the InitialAdminPassword from the mentioned path

```
[root@ip-172-31-61-216 ~]# cat /var/lib/jenkins/secrets/initialAdminPassword
3a26b0da435141329c8cca72f4c6b0fa
[root@ip-172-31-61-216 ~]#
```

STEP 8: Select the **PLUGINS** (Select Default options)

Getting Started

Getting Started

✓ Folders Plugin	✓ OWASP Markup Formatter Plugin	✓ Build Timeout	✓ Credentials Binding Plugin
✓ Timestampers	✓ Workspace Cleanup	✓ Ant	✓ 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	

```
-- 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
** Pipeline: Groovy Libraries
** Pipeline: Model API
** Pipeline: Stage Step
** Pipeline: Declarative
Extension Points API
** Branch API
** Pipeline: Multibranch
** Pipeline: Stage Tags Metadata
** Git client
** Pipeline: Input Step
** Pipeline: Declarative
Pipeline
** Java JSON Web Token (JWT)
** OkHttp
** - required dependency
```

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STEP 9: Enter Username & Password as per your convenience

Getting Started

Create First Admin User

Username

admin

Password

.....

Confirm password

.....

Full name

Vivek

E-mail address

vivek23@gmail.com

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[Skip and continue as admin](#)

Save and Continue

STEP 10: Click SAVE and FINISH

Getting Started

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.

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Not now

Save and Finish

JENKINS IS INSTALLED!!!

Jenkins is ready!

Your Jenkins setup is complete.

Start using Jenkins