Jawahar education society's

A.C.Patil college of Engineering,Kharghar,Navi Mumbai

Artificial Intelligence and Data Science Department

Class: TE AI-DS Sem: VI Academic Year: 2023-24

Subject: Software Engineering and Project Management Lab

Roll no: 18 Batch: T1

PRN number: 221102002

Name of Student: Parthivi Gaikwad

Experiment No: 04

Aim: To understand Continuous Integration, install and configure Jenkins with Maven/Ant/ Gradle to setup a build Job

Date of Performance :

Rubrics	**Marks obtained**	**Signature of faculty with date**
Lab Performance (3 Marks)		
Punctuality (3 Marks)		
Topic Knowledge (3 Marks)		
Attainment Level (9 Marks)		

SEPM EXPERIMENT 4

Aim: To understand Continuous Integration, install and configure Jenkins with Maven/Ant/ Gradle to setup a build Job

Theory :

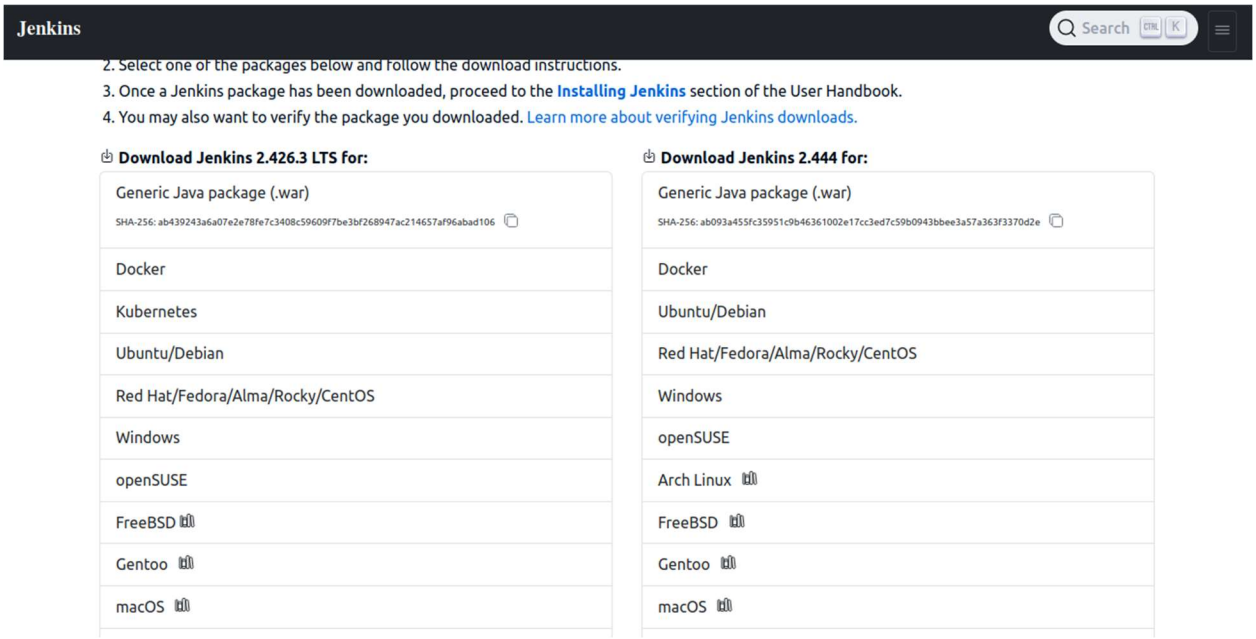
Continuous Integration

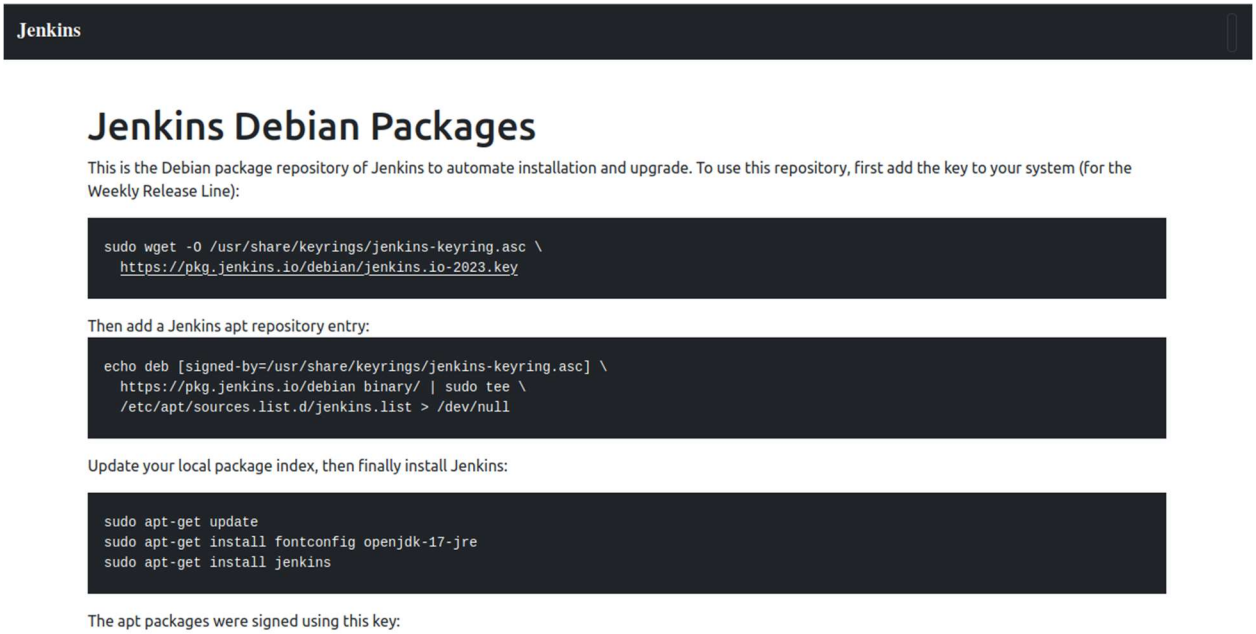
a) Continuous Integration (CI) in software engineering is a development practice where team members integrate their code changes into a shared repository frequently, typically multiple times a day. Each integration is verified by an automated build and automated tests to detect integration errors early in the development process.
b) The goal of CI is to improve collaboration among team members, detect and fix integration issues quickly, and ensure that the software is always in a working state.
c) It helps streamline the development process, reduce integration problems, and deliver high-quality software more efficiently.

Jenkins

a) Jenkins is an open-source automation server that is used to automate various tasks involved in the software development process, such as building, testing, and deploying software.
b) It allows developers to automate the continuous integration and continuous delivery (CI/CD) pipelines by defining a series of steps or jobs that Jenkins executes automatically.
c) Jenkins supports integration with a wide range of tools and technologies, making it a popular choice for automating software development workflows.
d) It helps teams improve productivity, increase efficiency, and ensure the quality of software releases through automation and continuous integration practices.

Output :


Jenkins
Search CTRL K
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 2.426.3 LTS for:
Generic Java package (.war)
SHA-256: ab439243a6a07e2e78fe7c3408c59609f7be3bf268947ac214657af96abad106
Docker
Kubernetes
Ubuntu/Debian
Red Hat/Fedora/Alma/Rocky/CentOS
Windows
openSUSE
FreeBSD
Gentoo
macOS
Download Jenkins 2.444 for:
Generic Java package (.war)
SHA-256: ab093a455fc35951c9b46361002e17cc3ed7c59b0943bbee3a57a363f3370d2e
Docker
Ubuntu/Debian
Red Hat/Fedora/Alma/Rocky/CentOS
Windows
openSUSE
Arch Linux
FreeBSD
Gentoo
macOS


Jenkins
Jenkins Debian Packages
This is the Debian package repository of Jenkins to automate installation and upgrade. To use this repository, first add the key to your system (for the Weekly Release Line):
sudo wget -O /usr/share/keyrings/jenkins-keyring.asc \
https://pkg.jenkins.io/debian/jenkins.io-2023.key
Then add a Jenkins apt repository entry:
echo deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc] \
https://pkg.jenkins.io/debian binary/ | sudo tee \
/etc/apt/sources.list.d/jenkins.list > /dev/null
Update your local package index, then finally install Jenkins:
sudo apt-get update
sudo apt-get install fontconfig openjdk-17-jre
sudo apt-get install jenkins
The apt packages were signed using this key:

```
student@acpce-ThinkCentre-M70s:~$   sudo wget -O /usr/share/keyrings/jenkins-keyring.asc \
>     https://pkg.jenkins.io/debian/jenkins.io-2023.key
[sudo] password for student:
Sorry, try again.
[sudo] password for student:
--2024-02-13 11:55:49--  https://pkg.jenkins.io/debian/jenkins.io-2023.key
Resolving pkg.jenkins.io (pkg.jenkins.io)... 151.101.194.133, 151.101.130.133, 151.101.66.133, ...
Connecting to pkg.jenkins.io (pkg.jenkins.io)|151.101.194.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 3175 (3.1K) [application/pgp-keys]
Saving to: '/usr/share/keyrings/jenkins-keyring.asc'

/usr/share/keyrings 100%[===================>]   3.10K  --.-KB/s    in 0s

2024-02-13 11:55:51 (17.4 MB/s) - '/usr/share/keyrings/jenkins-keyring.asc' saved [3175/3175]
```

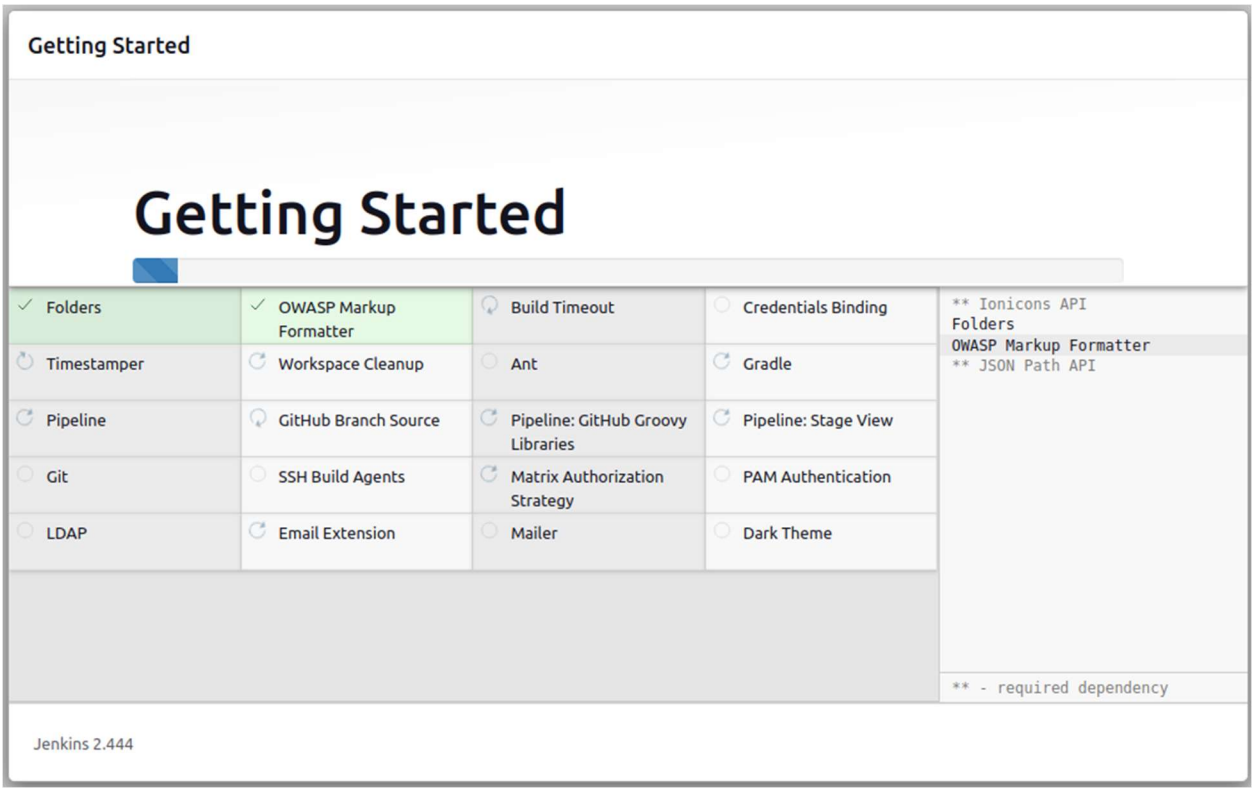
```
student@acpce-ThinkCentre-M70s:~$ cat /etc/os-release
NAME="Ubuntu"
VERSION="20.04.5 LTS (Focal Fossa)"
ID=ubuntu
ID_LIKE=debian
PRETTY_NAME="Ubuntu 20.04.5 LTS"
VERSION_ID="20.04"
HOME_URL="https://www.ubuntu.com/"
SUPPORT_URL="https://help.ubuntu.com/"
BUG_REPORT_URL="https://bugs.launchpad.net/ubuntu/"
PRIVACY_POLICY_URL="https://www.ubuntu.com/legal/terms-and-policies/privacy-policy"
VERSION_CODENAME=focal
UBUNTU_CODENAME=focal
student@acpce-ThinkCentre-M70s:~$ java --version
openjdk 11.0.21 2023-10-17
OpenJDK Runtime Environment (build 11.0.21+9-post-Ubuntu-0ubuntu120.04)
OpenJDK 64-Bit Server VM (build 11.0.21+9-post-Ubuntu-0ubuntu120.04, mixed mode, sharing)
student@acpce-ThinkCentre-M70s:~$
```

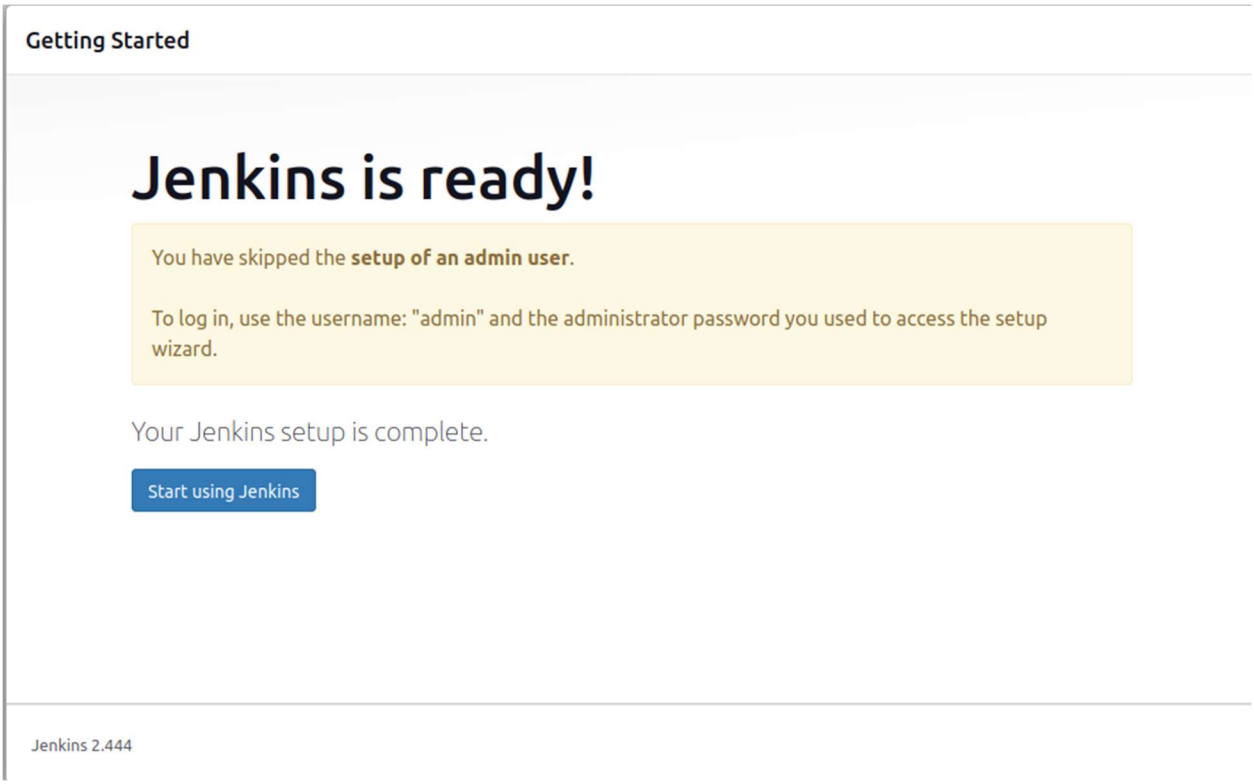
```
student@acpce-ThinkCentre-M70s:~$   echo deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc] \
>     https://pkg.jenkins.io/debian binary/ | sudo tee \
>     /etc/apt/sources.list.d/jenkins.list > /dev/null
student@acpce-ThinkCentre-M70s:~$ sudo apt-get update
Ign:1 https://pkg.jenkins.io/debian binary/ InRelease
```

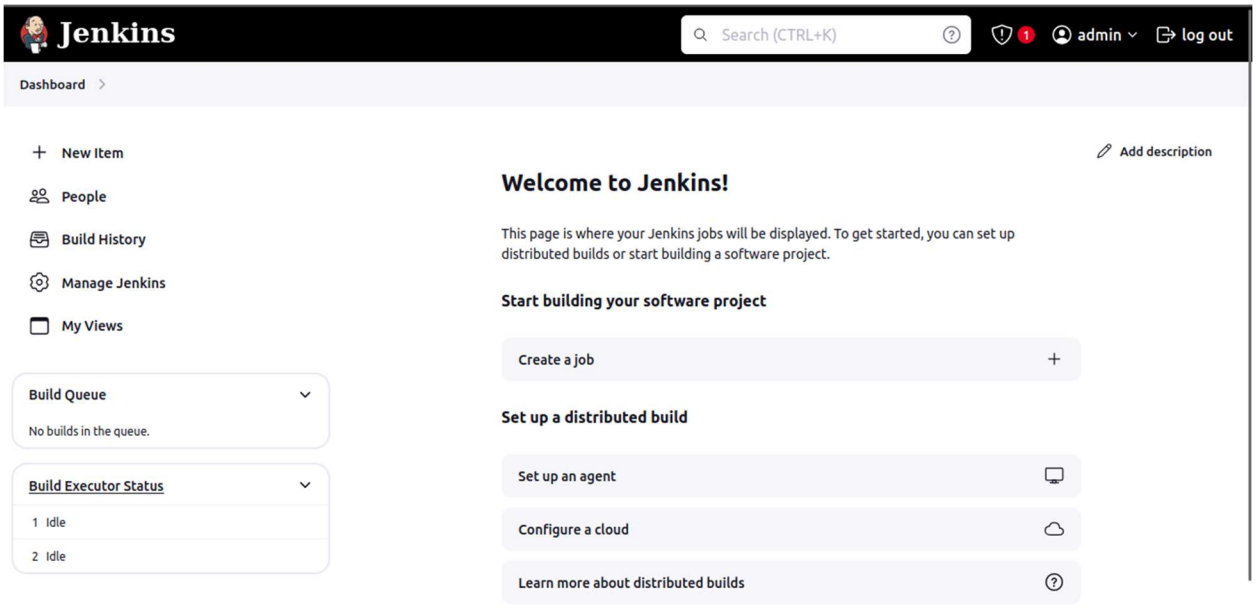
```
student@acpce-ThinkCentre-M70s:~$   sudo apt-get install fontconfig openjdk-17-jre
Reading package lists... Done
student@acpce-ThinkCentre-M70s:~$ sudo apt-get install jenkins
Reading package lists... Done
Building dependency tree
```

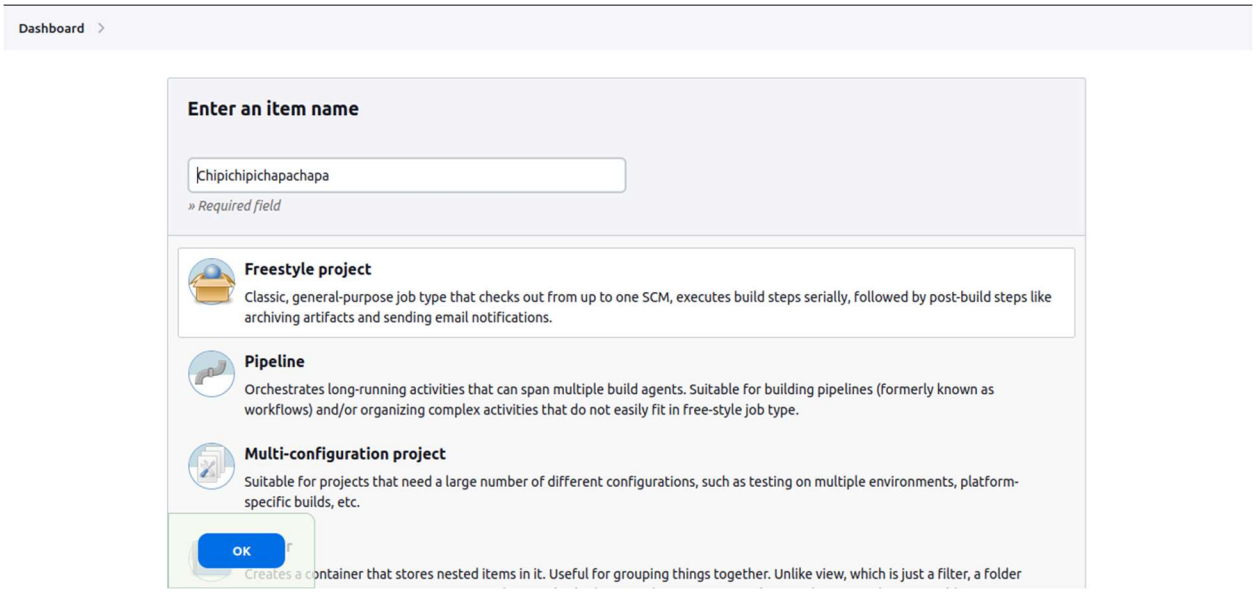
```
student@acpce-ThinkCentre-M70s:~$ sudo systemctl start jenkins
student@acpce-ThinkCentre-M70s:~$ sudo systemctl status jenkins
```

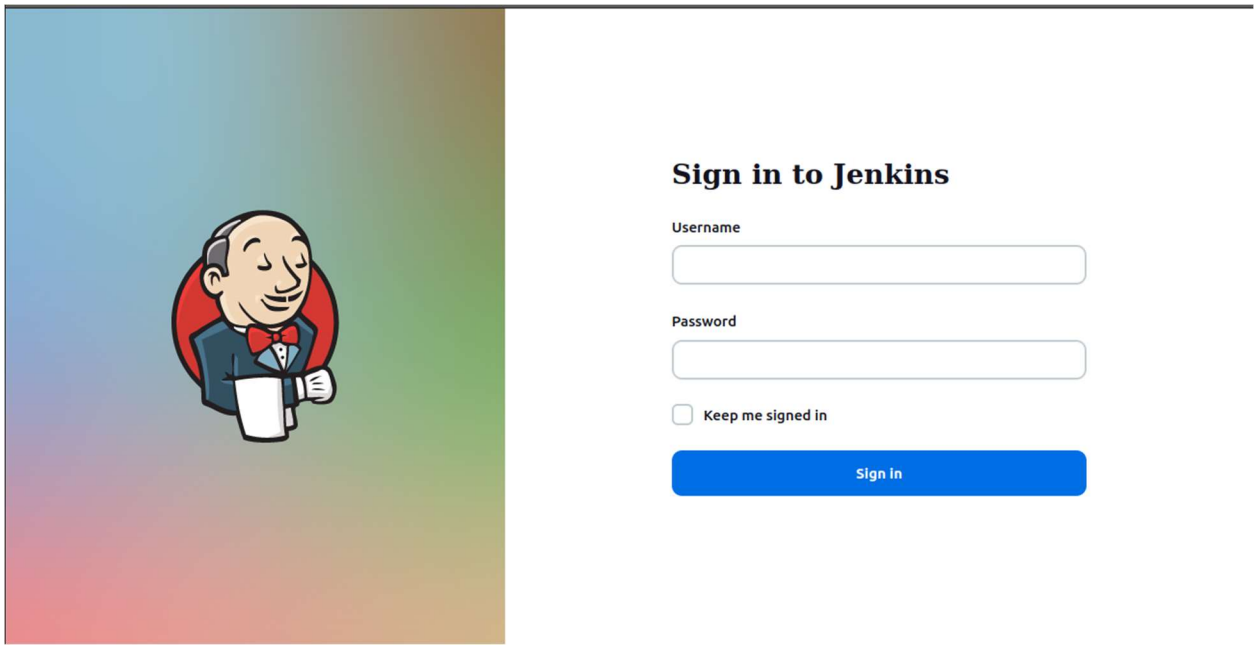
```
Feb 13 12:06:22 acpce-ThinkCentre-M70s jenkins[18043]: 6915235bae834c4dbff58b90ed28aca2
Feb 13 12:06:22 acpce-ThinkCentre-M70s jenkins[18043]: This may also be found at: /var/lib/jenkins/secrets/initialAdminPassword
Feb 13 12:06:22 acpce-ThinkCentre-M70s jenkins[18043]: ************************************************************
Feb 13 12:06:22 acpce-ThinkCentre-M70s jenkins[18043]: ************************************************************
Feb 13 12:06:22 acpce-ThinkCentre-M70s jenkins[18043]: ************************************************************
```

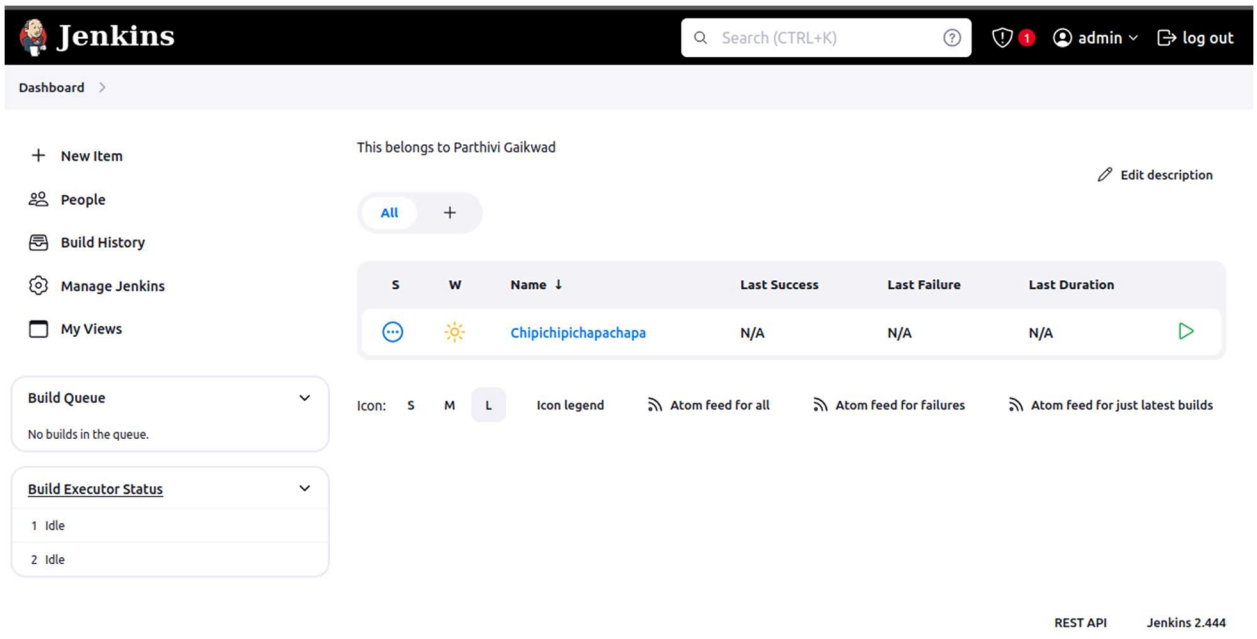

Getting Started
Getting Started
Folders
OWASP Markup Formatter
Build Timeout
Credentials Binding
Timestamper
Workspace Cleanup
Ant
Gradle
Pipeline
GitHub Branch Source
Pipeline: GitHub Groovy Libraries
Pipeline: Stage View
Git
SSH Build Agents
Matrix Authorization Strategy
PAM Authentication
LDAP
Email Extension
Mailer
Dark Theme
** Ionicons API
Folders
OWASP Markup Formatter
** JSON Path API
** - required dependency
Jenkins 2.444


Getting Started
Jenkins is ready!
You have skipped the setup of an admin user.
To log in, use the username: "admin" and the administrator password you used to access the setup wizard.
Your Jenkins setup is complete.
Start using Jenkins
Jenkins 2.444


Jenkins
Search (CTRL+K)
admin
log out
Dashboard
New Item
People
Build History
Manage Jenkins
My Views
Build Queue
No builds in the queue.
Build Executor Status
1 Idle
2 Idle
Add description
Welcome to Jenkins!
This page is where your Jenkins jobs will be displayed. To get started, you can set up distributed builds or start building a software project.
Start building your software project
Create a job
Set up a distributed build
Set up an agent
Configure a cloud
Learn more about distributed builds


Dashboard
Enter an item name
Chipichipichapachapa
» Required field
Freestyle project
Classic, general-purpose job type that checks out from up to one SCM, executes build steps serially, followed by post-build steps like archiving artifacts and sending email notifications.
Pipeline
Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.
Multi-configuration project
Suitable for projects that need a large number of different configurations, such as testing on multiple environments, platform-specific builds, etc.
OK
Creates a container that stores nested items in it. Useful for grouping things together. Unlike view, which is just a filter, a folder





Conclusion : We have successfully implemented Jenkins with Maven, Ant, or Gradle, enabling automated build jobs and streamlined Continuous Integration (CI) processes.