

Experiment No.

04

To Build the pipeline of jobs using Maven / Gradle / Ant in Jenkins, create a pipeline script to Test and deploy an application over the tomcat server and to understand Jenkins Master-Slave Architecture and scale your Jenkins standalone implementation by implementing slave nodes.

Experiment No. 04

Aim: To Build the pipeline of jobs using Maven / Gradle / Ant in Jenkins, create a pipeline script to Test and deploy an application over the tomcat server and to understand Jenkins Master-Slave Architecture and scale your Jenkins standalone implementation by implementing slave nodes.

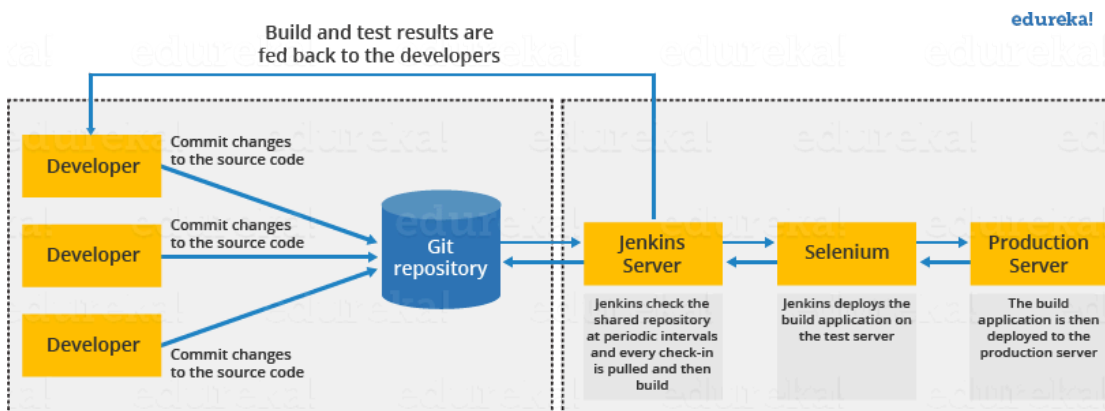
Lab Outcome No.: ITL503.3

Lab Outcome: To understand the importance of Jenkins to Build and deploy Software Applications on server environment.

Theory:

Jenkins Pipeline (or simply "Pipeline") is a suite of plugins which supports implementing and integrating continuous delivery pipelines into Jenkins. A continuous delivery pipeline is an automated expression of your process for getting software from version control right through to your users and customers.

Jenkins Architecture



This single Jenkins server was not enough to meet certain requirements like:

Sometimes you might need several different environments to test your builds. This cannot be done by a single Jenkins server.

If larger and heavier projects get built on a regular basis then a single Jenkins server cannot simply handle the entire load.

To address the above-stated needs, Jenkins distributed architecture came into the picture.

Tomcat:

It is an open-source Java servlet container that implements many Java Enterprise Specs such as the Websites API, Java-Server Pages and last but not least, the Java Servlet.

The complete name of Tomcat is "Apache Tomcat" ; it was developed in an open, participatory environment and released in 1998 for the very first time. It began as the reference implementation for the very first Java-Server Pages and the Java Servlet API. However, it no longer works as the reference implementation for both of these technologies, but it is considered as the first choice among the users even after that. It is still one of the most widely used java-server due to several capabilities such as good extensibility, proven core engine, and well-test and durable. Here we used the term "servlet" many times, so what is java servlet; it is a kind of software that enables the webserver to handle the dynamic(java-based) content using the Http protocols.

Jenkins Distributed Architecture

Jenkins uses a Master-Slave architecture to manage distributed builds. In this architecture, Master and Slave communicate through TCP/IP protocol.

Jenkins Master

Your main Jenkins server is the Master. The Master's job is to handle:

- Scheduling build jobs.

- Dispatching builds to the slaves for the actual execution.

- Monitor the slaves (possibly taking them online and offline as required).

- Recording and presenting the build results.

- A Master instance of Jenkins can also execute build jobs directly.

Jenkins Slave

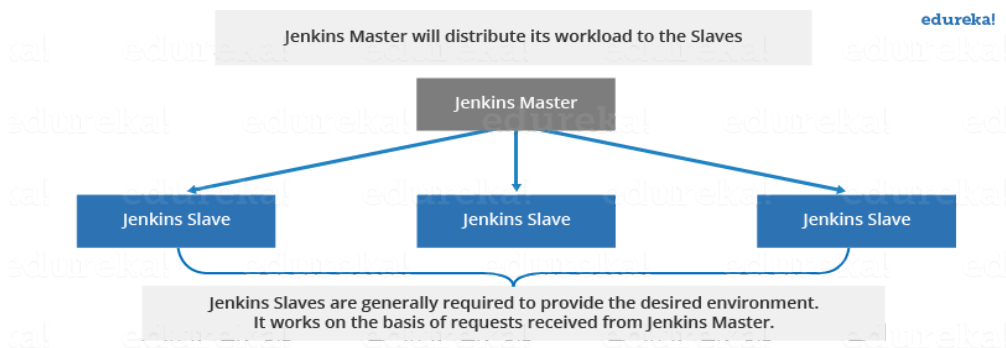
A Slave is a Java executable that runs on a remote machine. Following are the characteristics of Jenkins Slaves:

- It hears requests from the Jenkins Master instance.

- Slaves can run on a variety of operating systems.

- The job of a Slave is to do as they are told to, which involves executing build jobs dispatched by the Master.

- You can configure a project to always run on a particular Slave machine or a particular type of Slave machine, or simply let Jenkins pick the next available Slave.



Steps to download and install the Tomcat:

Open the Google Chrome or any of your web browser and type "download Tomcat for windows" in the search box. You can also go directly on Tomcat's website by clicking on this <https://tomcat.apache.org/download-90.cgi#9.0.38> .

Download 32/64 bit Windows Service installer(pgp,sha512)

Tomcat 9

Tomcat 8

Tomcat Migration Tool for Jakarta EE

Tomcat Connectors

Tomcat Native

Taglibs

Archives

Documentation

Tomcat 10.1 (alpha)

Tomcat 10.0

Tomcat 9.0

Tomcat 8.5

Tomcat Connectors

Tomcat Native

Wiki

Migration Guide

Presentations

Specifications

Problems?

Security Reports

Find help

FAQ

Mailing Lists

Bug Database

IRC

Get Involved

Overview

Source code

Buildbot

Translations

Tools

Media

Twitter

YouTube

Blog

keys of Tomcat's Release Managers. We also provide SHA-512 checksums for every release file. After you download the file, you should calculate a checksum for your download, and make sure it is the same as ours.

Mirrors

You are currently using <https://d1cdn.apache.org/>. If you encounter a problem with this mirror, please select another mirror. If all mirrors are failing, there are *backup* mirrors (at the end of the mirrors list) that should be available.

Other mirrors:

9.0.53

Please see the [README](#) file for packaging information. It explains what every distribution contains.

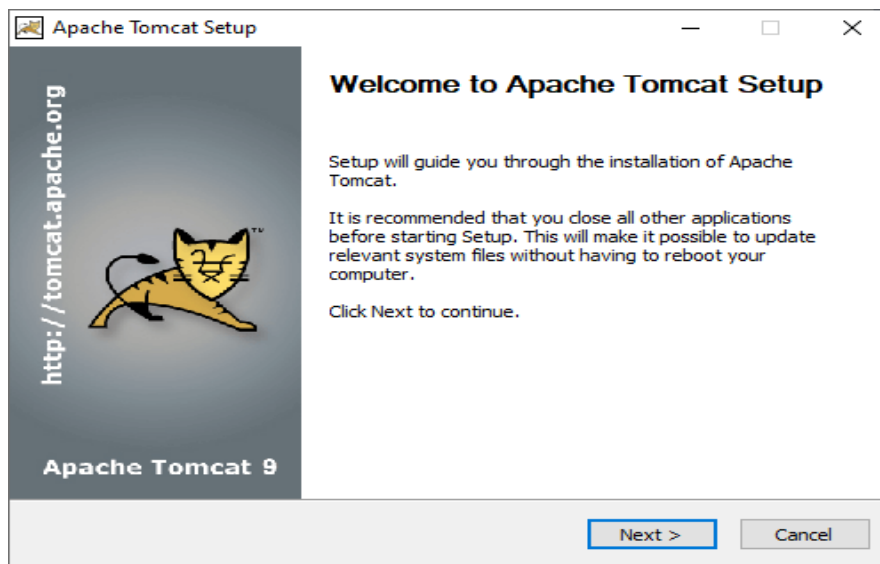
Binary Distributions

- Core:
 - [zip \(pgp, sha512\)](#)
 - [tar.gz \(pgp, sha512\)](#)
 - [32-bit Windows.zip \(pgp, sha512\)](#)
 - [64-bit Windows.zip \(pgp, sha512\)](#)
 - [32-bit/64-bit Windows Service Installer \(pgp, sha512\)](#)
- Full documentation:
 - [tar.gz \(pgp, sha512\)](#)
- Deployer:
 - [zip \(pgp, sha512\)](#)
 - [tar.gz \(pgp, sha512\)](#)
- Embedded:
 - [tar.gz \(pgp, sha512\)](#)
 - [zip \(pgp, sha512\)](#)

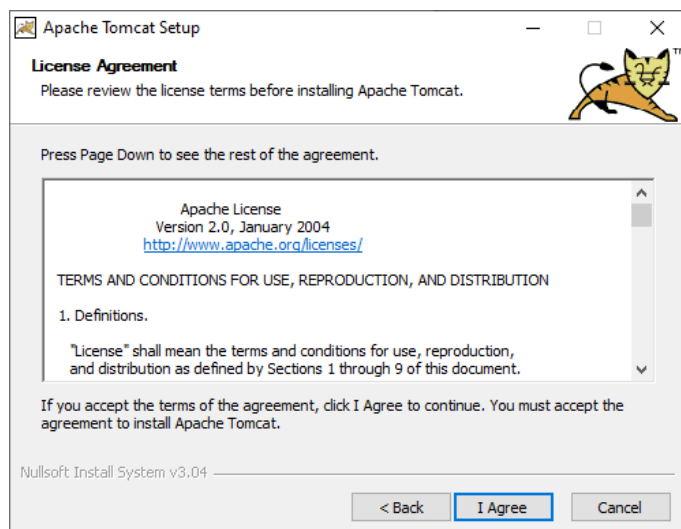
Source Code Distributions

- [tar.gz \(pgp, sha512\)](#)
- [zip \(pgp, sha512\)](#)

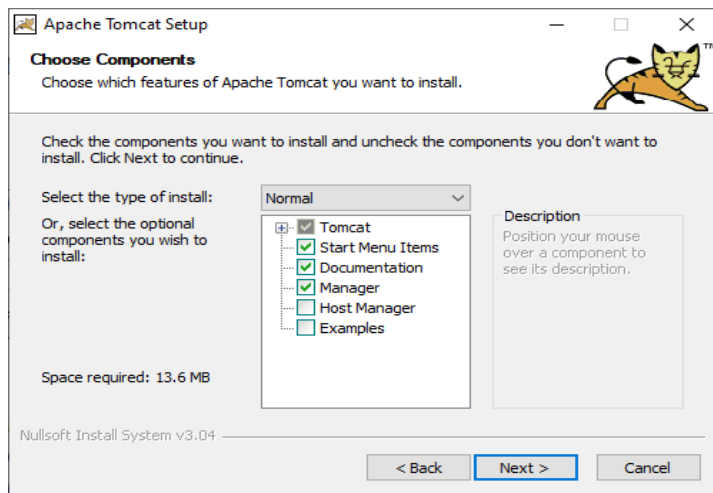
Go to Download and click on the downloaded file and wait for a little while until the installation process starts. Once the installation process gets started, click on the "Next" button, as shown below:



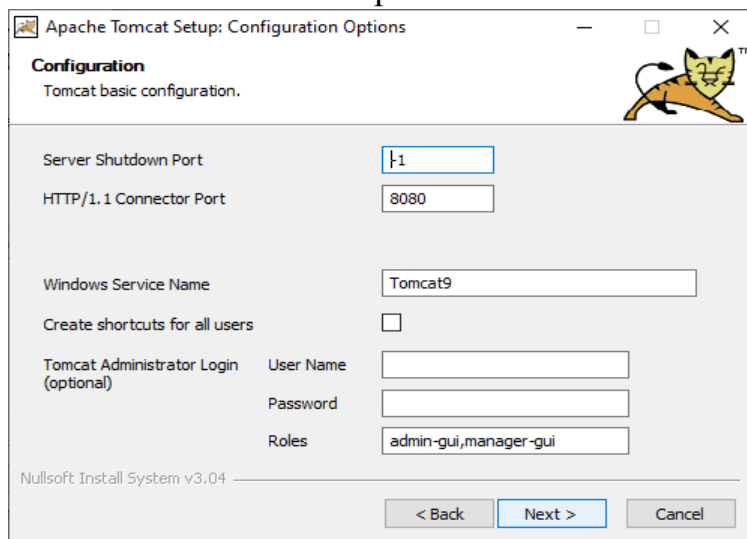
Click on the button labeled as "I Agree."



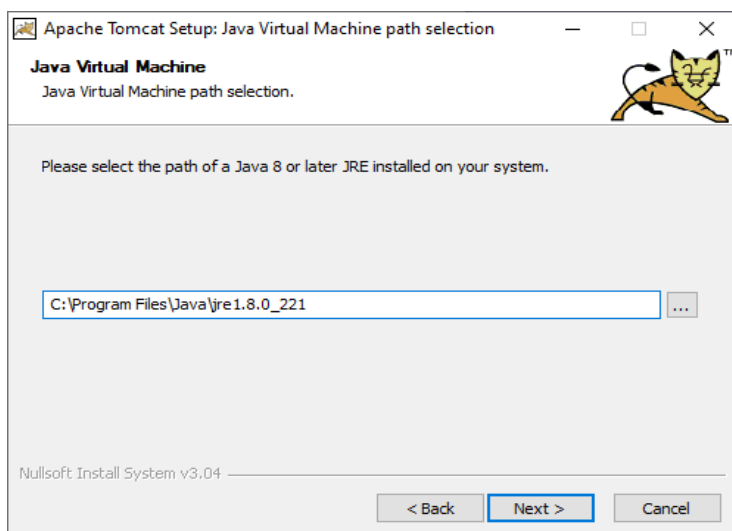
Click on the "Next" button.



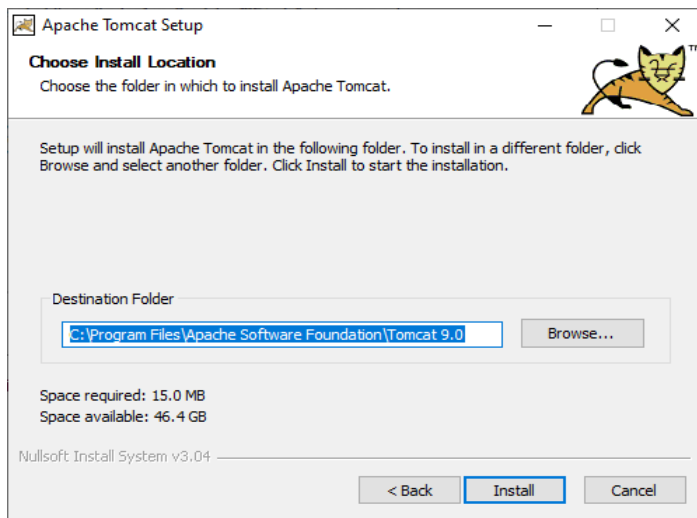
Enter the user name and password and click on the " Next" button, as shown below:



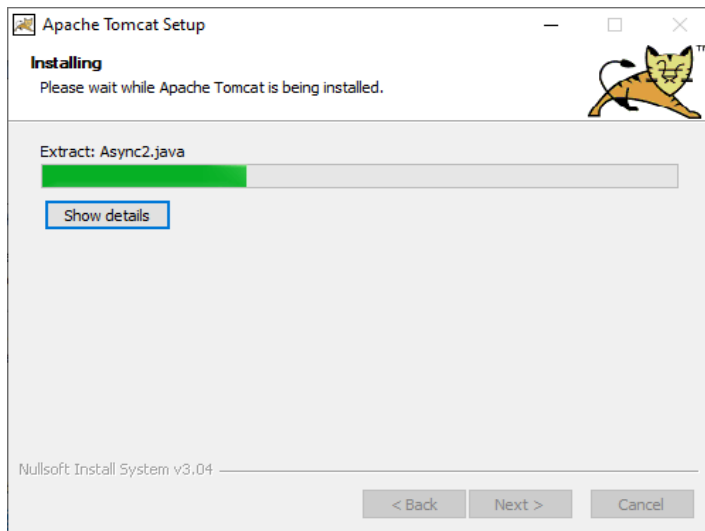
Then click on the "Next" button again



- Now click on the "Install" button.



- Wait for some time until the Tomcat gets installed



- Integrate Tomcat with Jenkins:

To download jenkins click on <https://www.jenkins.io/download/>

You will find two options:

- 1) Download Jenkins 2.452.3 LTS for:
- 2) Download Jenkins 2.469 for:

Under the first option **Download Jenkins 2.452.3 LTS for:** Double click on Generic java Package(.war). Jenkins.war file will be downloaded.

To use tomcat with Jenkins we need to add a Jenkins.war file in tomcat. To do that go to tomcat folder click on webapps and paste the Jenkins.war file in that folder then go back and open the bin folder and double click on startup.bat file. This file will open the cmd and configure the Jenkins.

Tomcat 8.5 > webapps

Search webapps

Name	Date modified	Type
docs	11-10-2021 12:03	File folder
examples	11-10-2021 12:03	File folder
host-manager	11-10-2021 12:03	File folder
jenkins	11-10-2021 12:06	File folder
manager	11-10-2021 12:03	File folder
ROOT	11-10-2021 12:03	File folder
jenkins.war	14-09-2021 23:07	WAR File

Open up a terminal/command prompt window to the download directory

Run the command `java -jar jenkins.war`

If you are getting error `java.io.IOException: Failed to start Jetty`

Use following command

`java -jar jenkins.war --httpPort=8081`

```

Command Prompt - java -jar jenkins.war
ed
2023-07-31 10:17:29.046+0000 [id=85] INFO hudson.util.Retrier#start: Attempt #1 to do the action check updates se
ver
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by org.codehaus.groovy.vmplugin.v7.Java7$1 (file:/C:/Users/Student/.jenkins/war/WEB-
INF/lib/groovy-all-2.4.21.jar) to constructor java.lang.invoke.MethodHandles$Lookup(java.lang.Class,int)
WARNING: Please consider reporting this to the maintainers of org.codehaus.groovy.vmplugin.v7.Java7$1
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
2023-07-31 10:17:29.265+0000 [id=64] INFO jenkins.install.SetupWizard#init:

*****
*****
*****

Jenkins initial setup is required. An admin user has been created and a password generated.
Please use the following password to proceed to installation:

5e07c680b1f8418ebca42cdf71039657

This may also be found at: C:\Users\Student\.jenkins\secrets\initialAdminPassword

*****
*****
*****

2023-07-31 10:17:43.909+0000 [id=64] INFO jenkins.InitReactorRunner$1#onAttained: Completed initialization
2023-07-31 10:17:43.924+0000 [id=33] INFO hudson.lifecycle.Lifecycle#onReady: Jenkins is fully up and running
2023-07-31 10:17:44.768+0000 [id=85] INFO h.m.DownloadService$Downloadable#load: Obtained the updated data file f
r hudson.tasks.Maven.MavenInstaller

```



```

Tomcat
of web application directory [C:\Program Files\Apache Software Foundation\Tomcat 8.5\webapps\manager] has finished in 8] ms
11-Oct-2021 12:07:13.386 INFO [localhost-startStop-1] org.apache.catalina.startup.HostConfig.deployDirectory Deploying
web application directory [C:\Program Files\Apache Software Foundation\Tomcat 8.5\webapps\ROOT]
11-Oct-2021 12:07:13.451 INFO [localhost-startStop-1] org.apache.catalina.startup.HostConfig.deployDirectory Deploying
of web application directory [C:\Program Files\Apache Software Foundation\Tomcat 8.5\webapps\ROOT] has finished in 6]
ms
11-Oct-2021 12:07:13.455 INFO [main] org.apache.catalina.startup.Catalina.start Server startup in 31006 ms
11-Oct-2021 12:07:35.497 INFO [pool-6-thread-6] jenkins.InitReactorRunner$1.onAttained Listed all plugins
11-Oct-2021 12:07:56.443 INFO [pool-6-thread-7] jenkins.InitReactorRunner$1.onAttained Prepared all plugins
11-Oct-2021 12:07:56.580 INFO [pool-6-thread-8] jenkins.InitReactorRunner$1.onAttained Started all plugins
11-Oct-2021 12:07:56.679 INFO [pool-6-thread-2] jenkins.InitReactorRunner$1.onAttained Augmented all extensions
11-Oct-2021 12:08:00.931 INFO [pool-6-thread-1] jenkins.InitReactorRunner$1.onAttained System config loaded
11-Oct-2021 12:08:00.932 INFO [pool-6-thread-1] jenkins.InitReactorRunner$1.onAttained System config adapted
11-Oct-2021 12:08:02.019 INFO [pool-6-thread-6] jenkins.InitReactorRunner$1.onAttained Loaded all jobs
11-Oct-2021 12:08:02.019 INFO [pool-6-thread-5] jenkins.InitReactorRunner$1.onAttained Configuration for all jobs upda
id
11-Oct-2021 12:08:02.090 INFO [Download metadata thread] hudson.model.AsyncPeriodicWork.lambda$doRun$0 Started Downloa
metadata
11-Oct-2021 12:08:02.211 INFO [Download metadata thread] hudson.model.AsyncPeriodicWork.lambda$doRun$0 Finished Downlo
metadata. 91 ms
11-Oct-2021 12:08:02.372 INFO [pool-6-thread-3] jenkins.InitReactorRunner$1.onAttained Completed initialization
11-Oct-2021 12:08:02.440 INFO [Jenkins initialization thread] hudson.WebAppMain$3.run Jenkins is fully up and running

```

Now to check the tomcat is installed properly in our system and Jenkins is running or not go to <http://localhost:8080/> it will show like this

Getting Started

Getting Started

✓ Folders	Workspace Cleanup	Ant	Gradle	Folders
Timestamper	Workspace Cleanup	Ant	Gradle	** bouncycastle API
Pipeline	GitHub Branch Source	Pipeline: GitHub Groovy Libraries	Pipeline: Stage View	** Instance Identity
Git	SSH Build Agents	Matrix Authorization Strategy	PAM Authentication	** JavaBeans Activation Framework (JAF) API
LDAP	Email Extension	Mailer		

Jenkins 2.416

28°C Mostly cloudy 3:34 AM 7/31/2023

Getting Started

✓ Folders	✓ OWASP Markup Formatter	✓ Build Timeout	✓ Credentials Binding	Timestampers ** 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 Ant ** Durable Task ** - required dependency
✓ 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		

Jenkins 2.401.3

 Activate V
 Go to Settings

[Home](#)
[Documentation](#)
[Configuration](#)
[Examples](#)
[Wiki](#)
[Mailing Lists](#)
[Find Help](#)

Apache Tomcat/8.5.72



If you're seeing this, you've successfully installed Tomcat.
Congratulations!



Recommended Reading:

[Security Considerations How-To](#)
[Manager Application How-To](#)
[Clustering/Session Replication How-To](#)

[Server Status](#)
[Manager App](#)
[Host Manager](#)

Developer Quick Start

[Tomcat Setup](#)
[Realms & AAA](#)
[Examples](#)
[Servlet Specifications](#)
[First Web Application](#)
[JDBC DataSources](#)
[Tomcat Versions](#)

Build and Run a Job on Jenkins

1. Select a new item (Name - Jenkins_demo). Choose a freestyle project and click Ok.
2. Under the General tab, give a description like "This is my first Jenkins job." Under the "Build Triggers" tab, select add build step and then click on the "Execute Windows" batch command.
3. In the command box, type the following: echo "Hello... This is my first Jenkins Demo:

%date%: %time% ". Click on apply and then save.

4. Select build now. You can see a building history has been created. Click on that. In the console output, you can see the output of the first Jenkins job with time and date.

Creating pipeline in Jenkins:

To create a simple pipeline from the Jenkins interface, perform the following steps:

1. Click New Item on your Jenkins home page, enter a name for your (pipeline) job, select Pipeline, and click OK.
2. In the Script text area of the configuration screen, enter your pipeline syntax. If you are new to pipeline creation, you might want to start by opening the Snippet Generator and selecting the “Hello World” snippet. Note: Pipelines are written as Groovy scripts that tell Jenkins what to do when they are run, but because relevant bits of syntax are introduced as needed, you do not need to be a Groovy expert to create them, although basic understanding of Groovy is helpful.
3. Check the Use Groovy Sandbox option below the Script text area. Note: If you are a Jenkins administrator (in other words, authorized to approve your own scripts), sandboxing is optional but efficient, because it lets scripts run without approval as long as they limit themselves to operations that Jenkins considers inherently safe.
4. Click Save.
5. Click Build Now to create the pipeline.
6. Click ▼ and select Console Output to see the output.

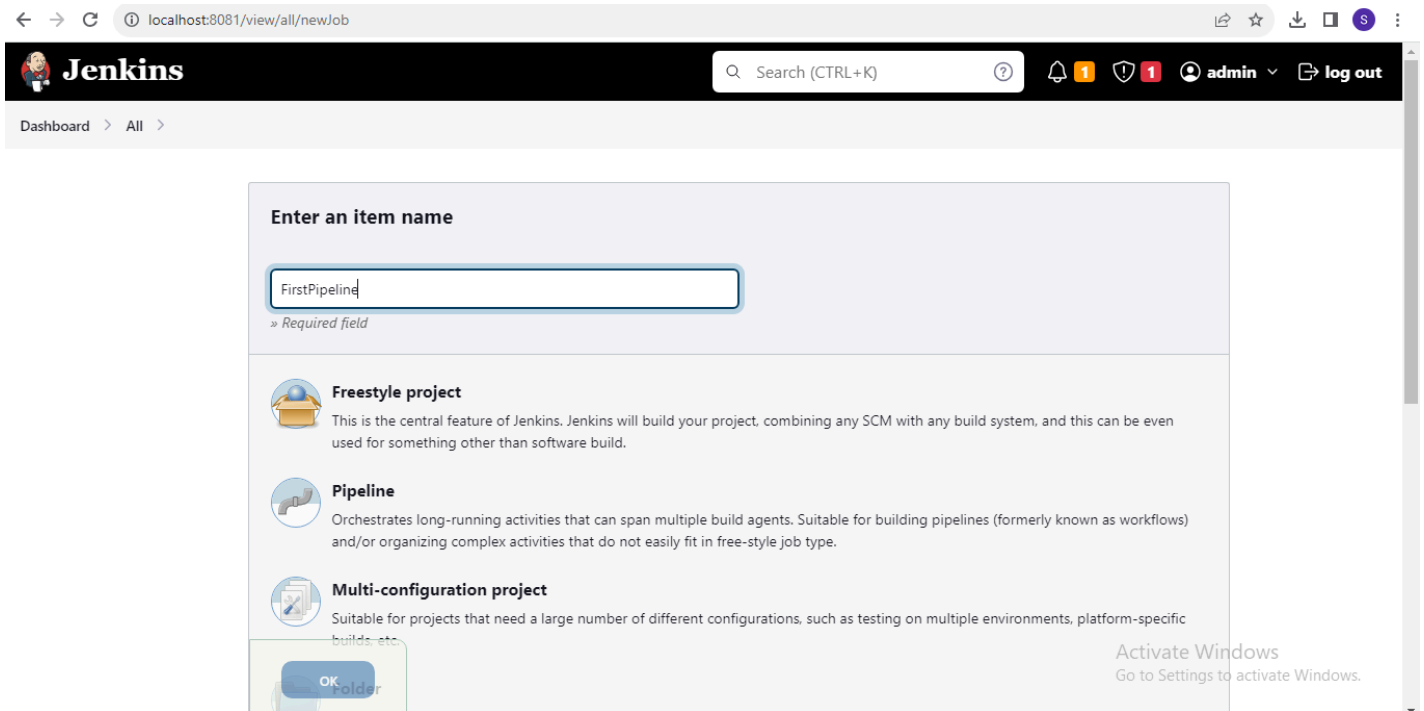
Example

Step1 Click on New Item

The screenshot shows the Jenkins dashboard interface. At the top, there's a navigation bar with the Jenkins logo, a search bar, and user information (admin). Below the navigation bar, the main content area displays a table of jobs. The table has columns for status (S), warnings (W), name, last success, last failure, and last duration. A single job named 'first pipeline' is listed with a success status, a warning icon, a duration of 2 min 36 sec, and a last failure of N/A. To the left of the table, there's a sidebar with links to 'New Item', 'People', 'Build History', 'Manage Jenkins', and 'My Views'. Below the table, there's a section for 'Build Queue' showing 'No builds in the queue.' and a section for 'Build Executor Status' showing two idle executors. At the bottom right, there's a footer with 'Activate Windows' and 'Jenkins 2.401.3'.

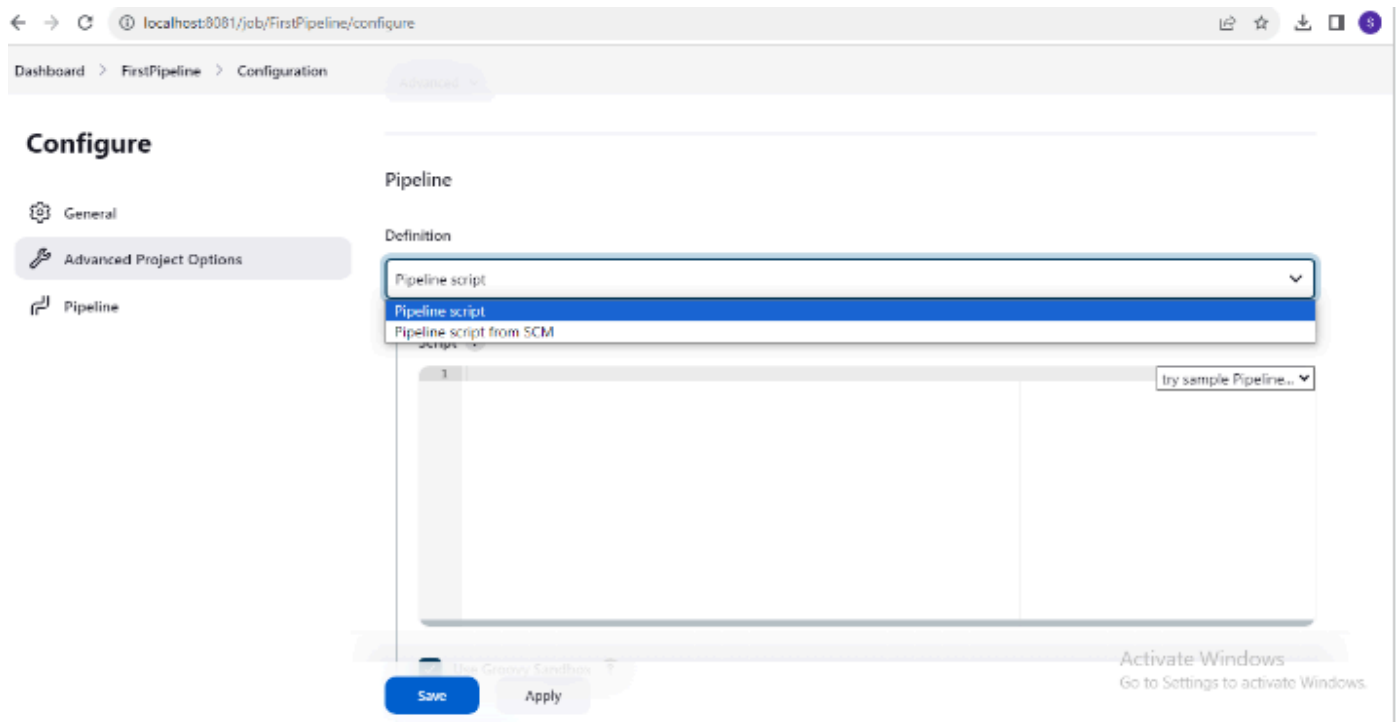
S	W	Name	Last Success	Last Failure	Last Duration
✓	⚠	first pipeline	2 min 36 sec #1	N/A	8.8 sec

Step2: Enter name of the pipeline and select pipeline option. Click ok

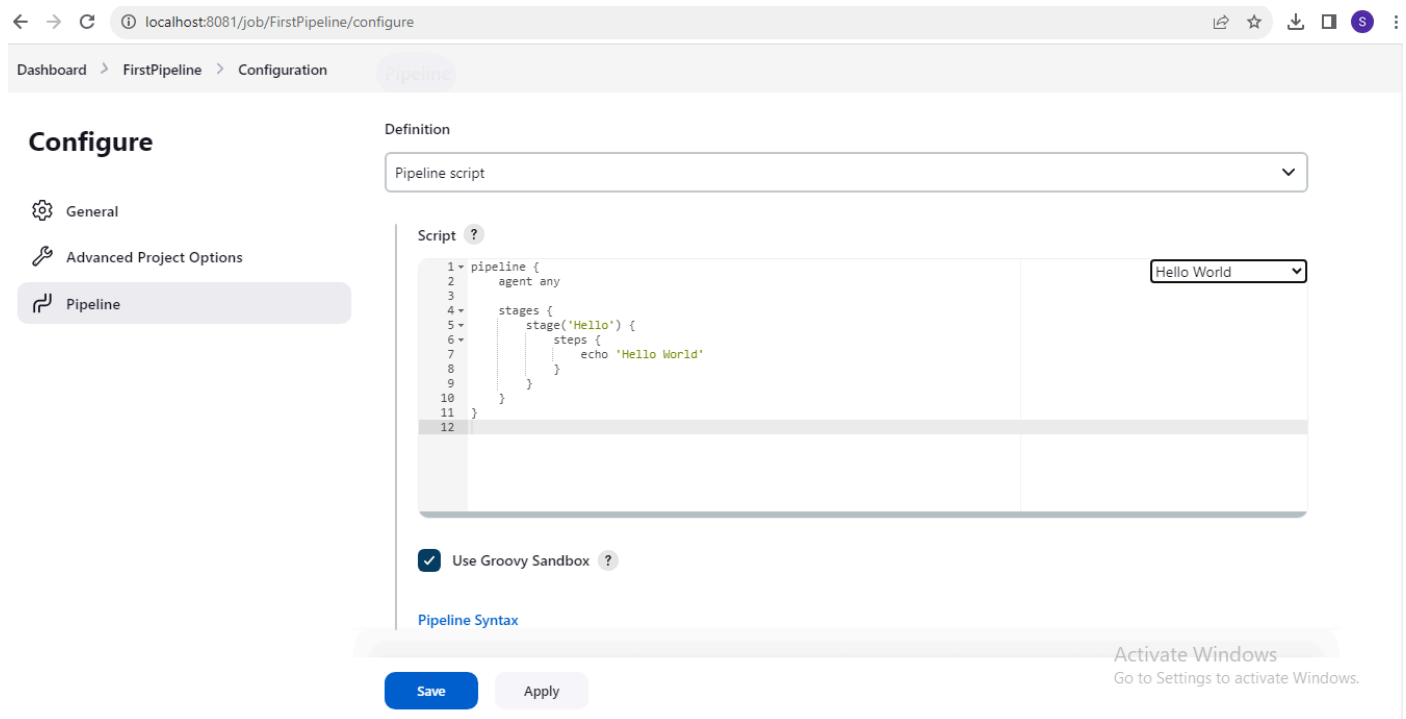


Step 3: There are 2 ways to create pipeline definition. **1)Using Pipeline Script, 2) Using Pipeline Script from SCM.**

Step 4: Using Pipeline Script:



Step 5: Write script for pipeline. Click on Apply and Save

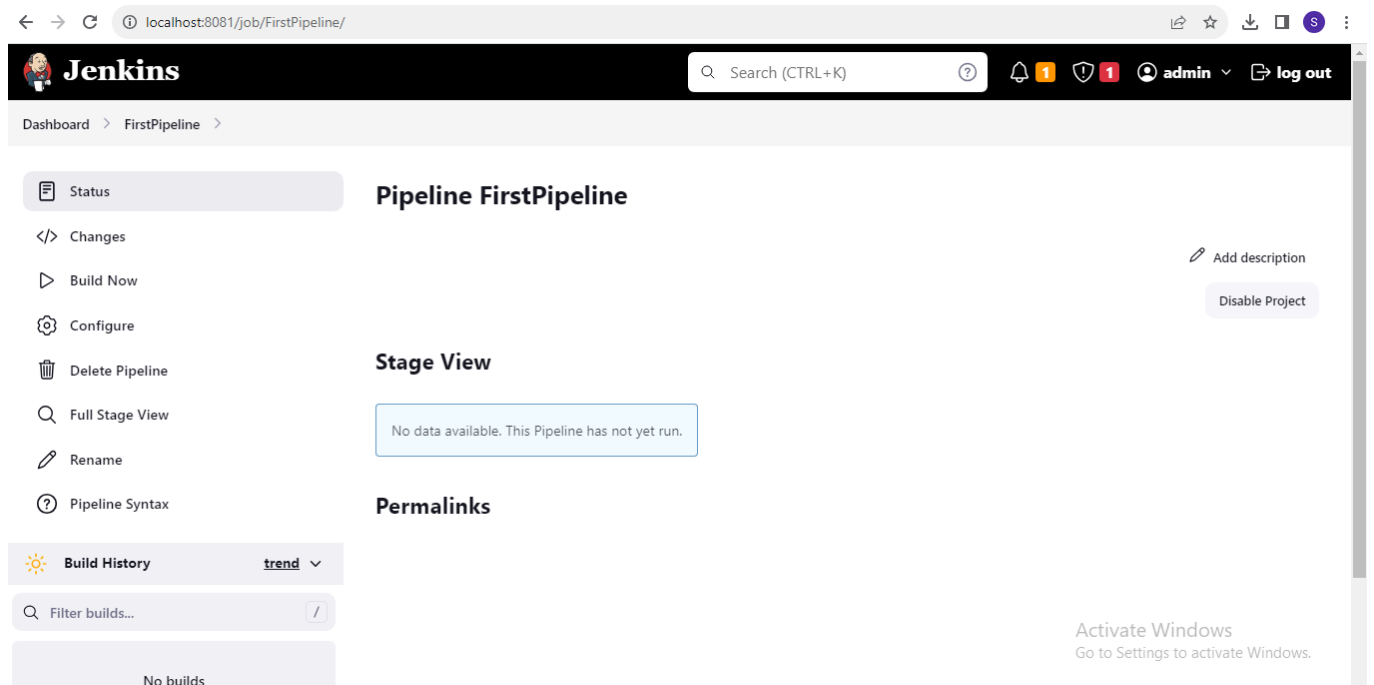


The screenshot shows the Jenkins web interface at `localhost:8081/job/FirstPipeline/configure`. The breadcrumb navigation is `Dashboard > FirstPipeline > Configuration`. On the left, the **Configure** section has three tabs: `General`, `Advanced Project Options`, and `Pipeline` (which is selected). The main area is titled **Definition** and contains a dropdown menu set to `Pipeline script`. Below this is a **Script** editor with a Groovy script:

```
1 pipeline {  
2   agent any  
3  
4   stages {  
5     stage('Hello') {  
6       steps {  
7         echo 'Hello World'  
8       }  
9     }  
10  }  
11 }  
12
```

Line numbers 1 through 12 are visible on the left of the script editor. A dropdown menu on the right of the script editor is set to `Hello World`. Below the script editor, there is a checkbox labeled `Use Groovy Sandbox` which is checked. At the bottom of the configuration area are `Save` and `Apply` buttons. A `Pipeline Syntax` link is also present. An `Activate Windows` watermark is visible in the bottom right corner.

Step 6: Click on Build Now to run pipeline



The screenshot shows the Jenkins web interface at `localhost:8081/job/FirstPipeline/`. The breadcrumb navigation is `Dashboard > FirstPipeline`. The top navigation bar includes the Jenkins logo, a search bar, and user information (`admin` and `log out`). The left sidebar contains a list of actions: `Status` (selected), `Changes`, `Build Now`, `Configure`, `Delete Pipeline`, `Full Stage View`, `Rename`, and `Pipeline Syntax`. The main area is titled **Pipeline FirstPipeline** and contains a `Add description` link and a `Disable Project` button. Below this is the **Stage View** section, which displays a message: `No data available. This Pipeline has not yet run.` At the bottom, there is a **Permalinks** section. A `Build History` section is also visible, showing `Filter builds...` and `No builds`. An `Activate Windows` watermark is visible in the bottom right corner.

Step 7: You can see Stage view and log also

The top screenshot shows the Jenkins 'Stage Logs (Hello)' view. It includes a 'Print Message -- Hello World' step with a self time of 82ms. The 'Stage View' section displays a bar chart for the 'Hello' stage, showing an average stage time of 604ms. The bottom screenshot shows the Jenkins 'Console Output' for the same pipeline, displaying the execution log from the user 'admin'. The log shows the pipeline starting, running on Jenkins, and successfully completing the 'Hello World' message.

Creating a java project through github and building it as a job in Jenkins environment:

Step 1: Create a Local repository in git and add a java file in it. Push this repository in GitHub environment

Or

Create a remote repository in GitHub environment and add a java file in it.

```
Temp.txt

nothing added to commit but untracked files present (use "git add" to track)
ACPCE-IT@DESKTOP-U47DAJK MINGW64 ~/Devops (master)
$ git add "Hello.java"

ACPCE-IT@DESKTOP-U47DAJK MINGW64 ~/Devops (master)
$ git status
On branch master
Your branch is up to date with 'origin/master'.

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        new file:   Hello.java

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        New Text Document.txt
        Temp.txt

ACPCE-IT@DESKTOP-U47DAJK MINGW64 ~/Devops (master)
$ |
```

```
ACPCE-IT@DESKTOP-U47DAJK MINGW64 ~/Devops (master)
$ git status
On branch master
Your branch is up to date with 'origin/master'.

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        new file:   Hello.java

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        New Text Document.txt
        Temp.txt

ACPCE-IT@DESKTOP-U47DAJK MINGW64 ~/Devops (master)
$ git commit -m "JAVA file added"
[master 5f84824] JAVA file added
1 file changed, 7 insertions(+)
create mode 100644 Hello.java

ACPCE-IT@DESKTOP-U47DAJK MINGW64 ~/Devops (master)
```

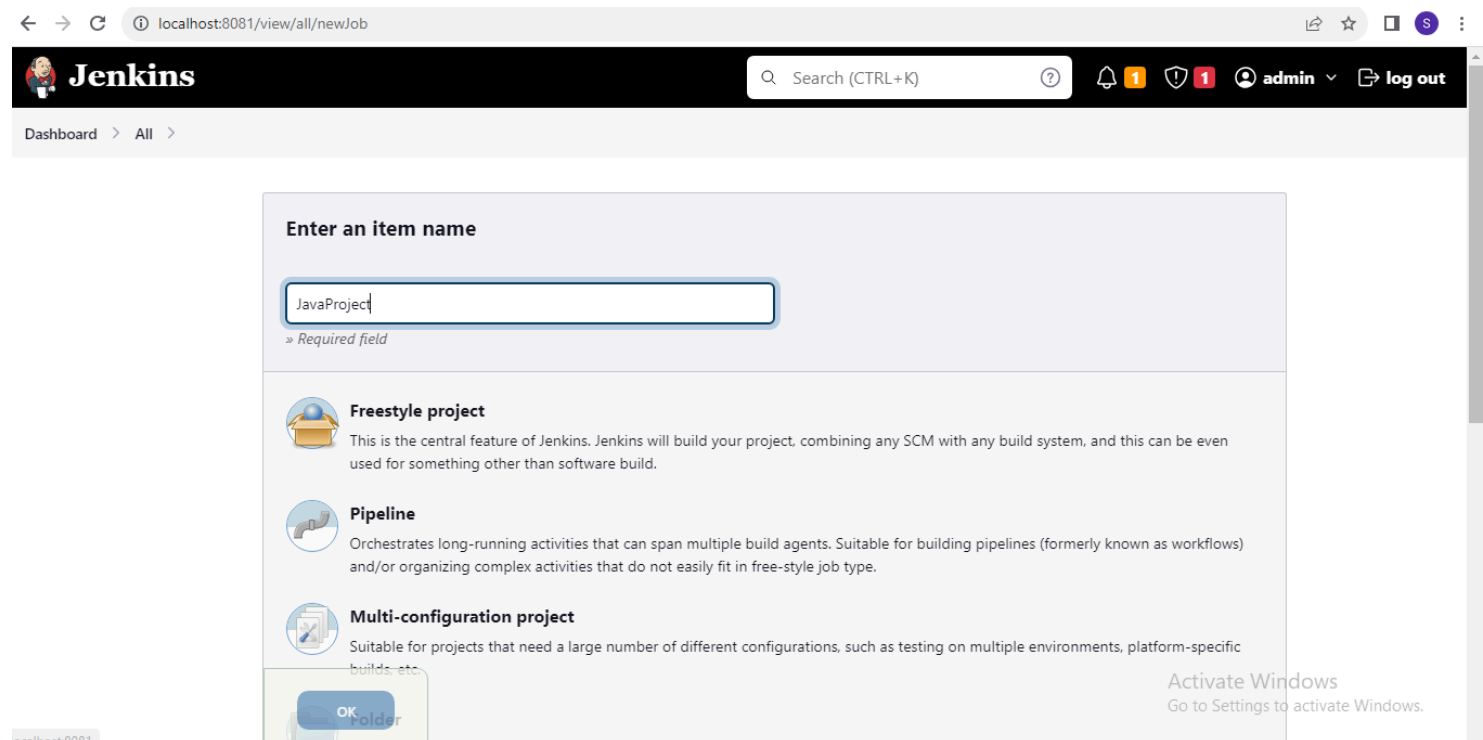
```
MINGW64:/c/Users/ACPCE-IT/Devops
New Text Document.txt
Temp.txt

ACPCE-IT@DESKTOP-U47DAJK MINGW64 ~/Devops (master)
$ git commit -m "JAVA file added"
[master 5f84824] JAVA file added
1 file changed, 7 insertions(+)
 create mode 100644 Hello.java

ACPCE-IT@DESKTOP-U47DAJK MINGW64 ~/Devops (master)
$ git push -u origin master
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 4 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 384 bytes | 384.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/ShailaP11/My-first-Project.git
 4ef8ce4..5f84824 master -> master
branch 'master' set up to track 'origin/master'.

ACPCE-IT@DESKTOP-U47DAJK MINGW64 ~/Devops (master)
$
```

Step-2:- Give suitable name and select **Freestyle project**. Click on ok



Select Build Trigger as **Poll SCM** and set schedule time e. g. *** * * * *** means build every minute

← → ↻ ⓘ localhost:8081/job/JavaProject/configure

Dashboard > JavaProject > Configuration

Configure

- General
- Source Code Management
- Build Triggers**
- Build Environment
- Build Steps
- Post-build Actions

☐ Trigger builds remotely (e.g., from scripts) ?

☐ Build after other projects are built ?

☐ Build periodically ?

☐ GitHub hook trigger for GITScm polling ?

☒ Poll SCM ?

Schedule ?

⚠ Do you really mean "every minute" when you say "*****"? Perhaps you meant "H * * * *" to poll once per hour

Would last have run at Tuesday, August 22, 2023 at 5:07:50 PM Pacific Daylight Time; would next run at Tuesday, August 22, 2023 at 5:07:50 PM Pacific Daylight Time.

☐ Ignore post-commit hooks ?

Save Apply

Activate Windows
Go to Settings to activate Windows.

Add build step to **Execute Windows Batch Command** and save

← → ↻ ⓘ localhost:8081/job/JavaProject/configure

Dashboard > JavaProject > Configuration

Configure

- General
- Source Code Management
- Build Triggers
- Build Environment**
- Build Steps
- Post-build Actions

☐ Use secret text(s) or file(s) ?

☐ Add timestamps to the Console Output

☐ Inspect build log for published build scans

☐ Terminate a build if it's stuck

☐ With Ant ?

Build Steps

Add build step ▾

Post-build Actions

Add post-build action ▾

Save Apply

Activate Windows
Go to Settings to activate Windows.
REST API Jenkins 2.401.3

Then click on Build option. You can see console output after successful Build

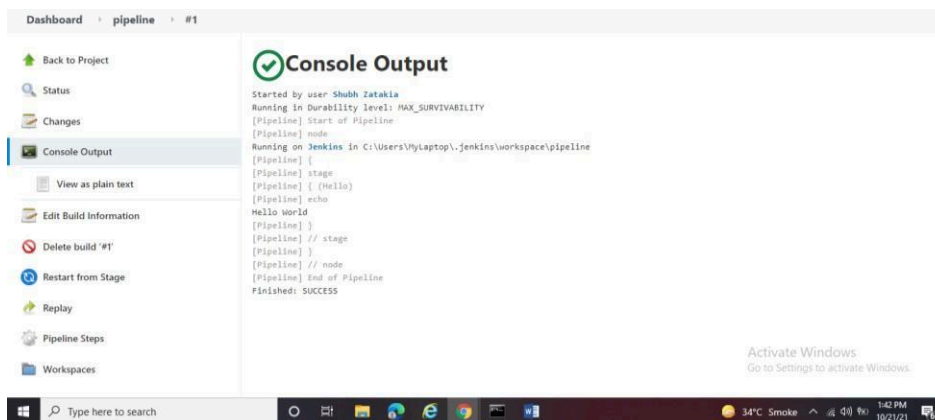
Steps for Creating Master-Slave Architecture:

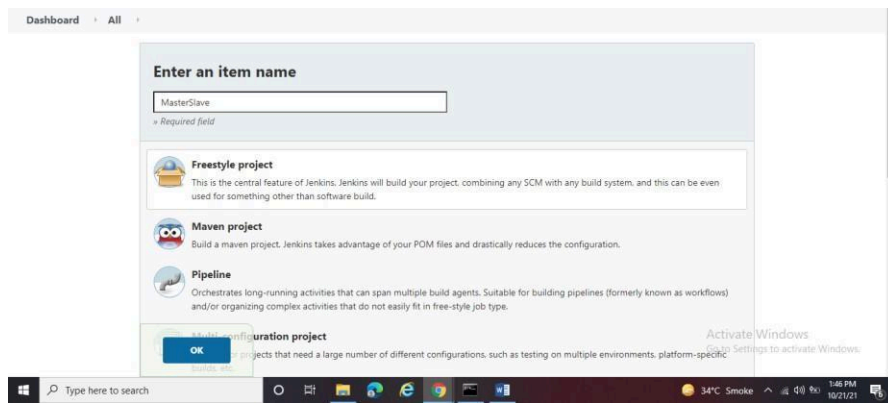
Procedure:

1. Goto Manage Nodes
 - Manage Jenkins --> Manage Nodes and Clouds --> New Node
2. Add the node name as Permanent Agent
3. Provide below information to add Jenkins agent
 - Name: uniquely identifies an agent within this Jenkins installation
 - Description:
 - Number of executors: 2
 - Remote root directory: /home/ec2-user/maven-agent
 - Labels: Labels (or tags) are used to group multiple agents into one logical group.
 - Usage:
 - Use this node as much as possible
 - Only build jobs with label expressions matching this node
4. Launch method:
 - Launch agent by connecting it to the master
 - Launch agent via execution of command on the controller
5. Custom WorkDir path: custom Remoting work directory will be used instead of the Agent Root Directory
 - Use WebSocket [x]
 - Availability:
 - Keep this agent online as much as possible
 - Bring this agent online according to a schedule
 - Bring this agent online when in demand, and take offline when idle

6. Once you save above configuration you will get a command which should be executed in the agent. it contains agent.jar, a secret-file, and a jnlp file
7.

```
echo "secret_key" > secret-file
java -jar agent.jar -jnlpUrl http://<Jenkins_URL>/computer/abc/jenkins-agent.jnlp -secret @secret-file -workDir
"/home/ec2-user"
```
8. Once connected you can create or edit a job to chose this option in the Restrict where this project can be run





1. Then, for creating slave node go to manage Jenkins and then manage nodes and clouds.

S	W	Name	Last Success	Last Failure	Last Duration
✓	☀	first pipeline	1 day 0 hr #1	N/A	8.8 sec
✓	☀	FirstPipeline	1 day 0 hr #1	N/A	5.7 sec
✓	☁	JavaProject	2 hr 56 min #2	22 hr #1	7.4 sec

Build Queue: No builds in the queue.

Build Executor Status: 1 idle, 2 idle.

Manage Jenkins [Jenkins]

localhost:8081/manage/

Jenkins

Search (CTRL+K)

admin

log out

Dashboard > Manage Jenkins

+ New Item

People

Build History

Manage Jenkins

My Views

Build Queue

No builds in the queue.

Build Executor Status

1 Idle

2 Idle

Manage Jenkins

Building on the built-in node can be a security issue. You should set up distributed builds. See [the documentation](#).

Jenkins URL is empty but is required for the proper operation of many Jenkins features like email notifications, PR status update, and environment variables such as BUILD_URL. Please provide an accurate value in [Jenkins configuration](#).

System Configuration

System
Configure global settings and paths.

Tools
Configure tools, their locations and automatic installers.

Plugins
Add, remove, disable or enable plugins that can extend the functionality of Jenkins.

Nodes and Clouds
Add, remove, control and monitor the various nodes that Jenkins runs jobs on.

Install as Windows Service
Installs Jenkins as a Windows service to this system, so that Jenkins starts automatically when the machine boots.

Security

Security

Credentials

Credential Providers

Users

Activate Windows
Go to Settings to activate Windows.

Click on new node

Nodes [Jenkins]

localhost:8081/manage/computer/

Jenkins

Search (CTRL+K)

admin

log out

Dashboard > Manage Jenkins > Nodes

Clouds

Node Monitoring

Build Queue

No builds in the queue.

Build Executor Status

1 Idle

2 Idle

Nodes

+ New Node

S	Name	Architecture	Clock Difference	Free Disk Space	Free Swap Space	Free Temp Space	Response Time
	Built-In Node	Windows 10 (amd64)	In sync	300.70 GB	2.82 GB	300.70 GB	0ms
	Data obtained	50 min	50 min	50 min	50 min	50 min	50 min

Activate Windows
Go to Settings to activate Windows.

REST API Jenkins 2.4

New node

Node name

slave1

Type

☒ Permanent Agent

Adds a plain, permanent agent to Jenkins. This is called "permanent" because Jenkins doesn't provide higher level of integration with these agents, such as dynamic provisioning. Select this type if no other agent types apply — for example such as when you are adding a physical computer, virtual machines managed outside Jenkins, etc.

Create

If you are not able to view master option . goto Manage Jenkins -> security

Manage Jenkins

2 Idle

System
Configure global settings and paths.

Tools
Configure tools, their locations and automatic installers.

Plugins
Add, remove, disable or enable plugins that can extend the functionality of Jenkins.

Nodes and Clouds
Add, remove, control and monitor the various nodes that Jenkins runs jobs on.

Install as Windows Service
Installs Jenkins as a Windows service to this system, so that Jenkins starts automatically when the machine boots.

Security

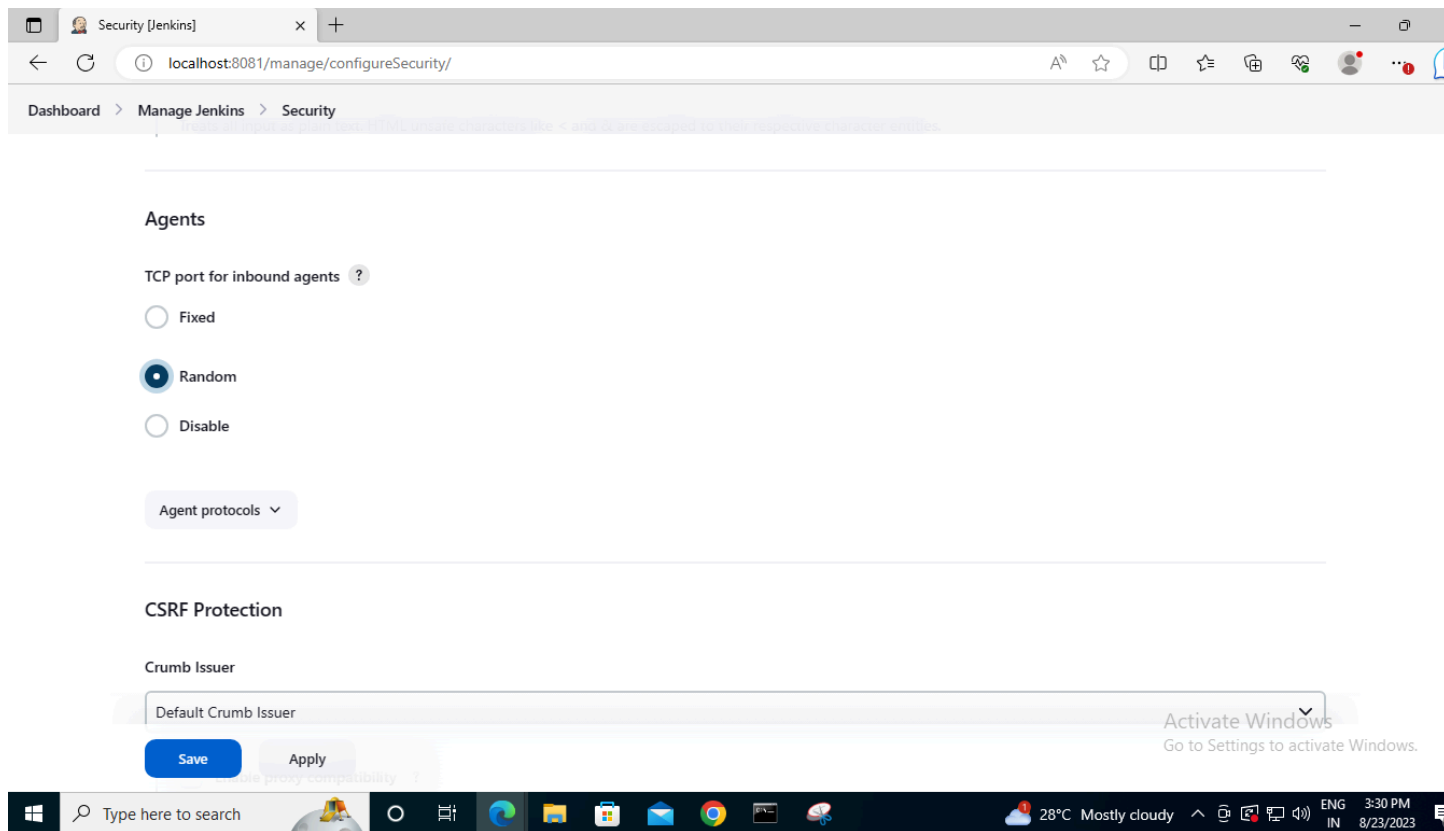
Security
Secure Jenkins; define who is allowed to access/use the system.

Credentials
Configure credentials

Credential Providers
Configure the credential providers and types

Users
Create/delete/modify users that can log in to this Jenkins.

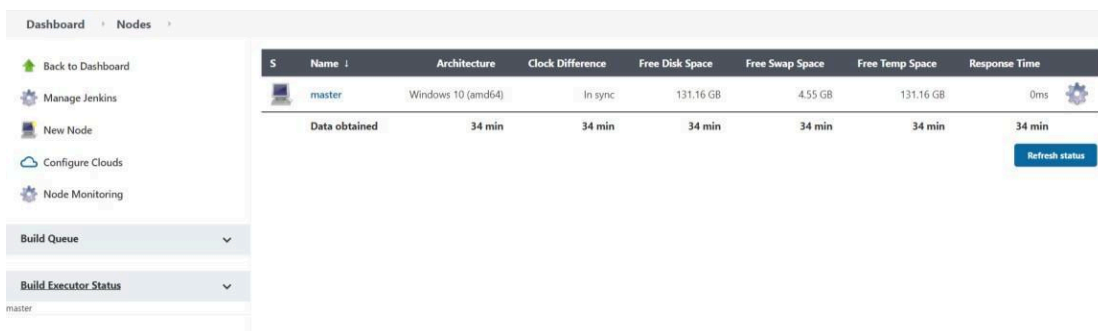
Select random option under agent and save



C:\Users\ACPCE-IT\Desktop\Jenkins Slave1



2. Then on click on New Node.



3. Then give name of the node which you want to create and then click on OK.



4. Enter the details as required and then click on Save.

Dashboard > Nodes >

Back to Dashboard
Manage Jenkins
New Node
Configure Clouds
Node Monitoring

Build Queue
No builds in the queue.

Build Executor Status
1: Idle
2: Idle

Name: Slave

Description: Master Replica

Number of executors: 2

Remote root directory: D:\Shah And Anchor\Sem 5\jenkins\SlaveData

Labels: Slave

Usage: Use this node as much as possible

Activate Windows
Go to Settings to activate Windows.

Dashboard > Nodes >

2: Idle

Usage: Use this node as much as possible

Launch method: Launch agent by connecting it to the master

☐ Disable WorkDir

Custom WorkDir path:

Internal data directory: remoting

☐ Fail if workspace is missing

☒ Use WebSocket

Advanced...

Availability: Keep this agent online as much as possible

Activate Windows
Go to Settings to activate Windows.

5. The node will be created as follows.

Name	Architecture	Clock Difference	Free Disk Space	Free Swap Space	Free Temp Space	Response Time
master	Windows 10 (amd64)	In sync	166.61 GB	3.58 GB	166.61 GB	0ms
Slave		N/A	N/A	N/A	N/A	N/A
Data obtained	2 ms	0 ms	21 min	20 min	20 min	21 min

Refresh status

Activate Windows
Go to Settings to activate Windows.

6. Click on the node which you created. The node which you created is not running now.

Dashboard > Nodes > Slave

Back to List

Status

Delete Agent

Configure

Build History

Load Statistics

Log

Agent Slave (Master Replica) Mark this node temporarily offline

Connect agent to Jenkins one of these ways:

- Java Web Start is not available for the JVM version running Jenkins
- Run from agent command line:

```
java -jar agent.jar -jnlpUrl http://localhost:8080/computer/Slave/jenkins-agent.jnlp -secret 31112707dad8f7198e9641f13e28d119258fda3f05de814d5b51d2313b62da37 -workDir "D:\Shah And Anchor\Sem 5\jenkins\SlaveData"
```

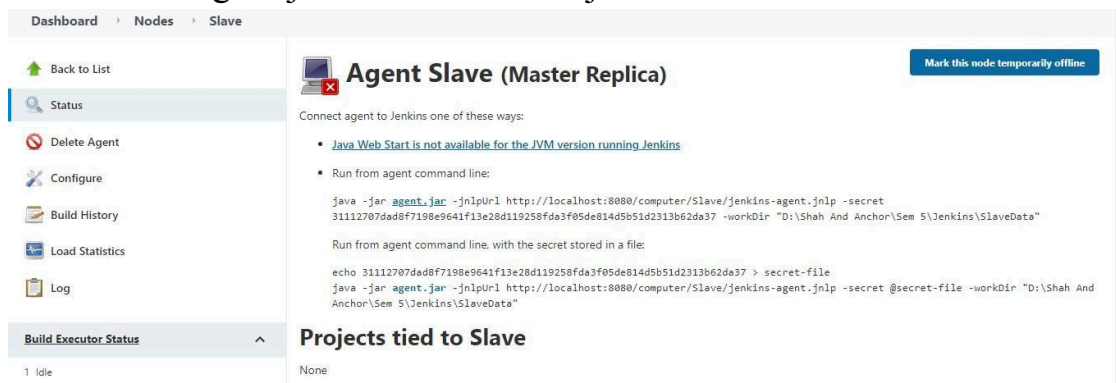
Run from agent command line, with the secret stored in a file:

```
echo 31112707dad8f7198e9641f13e28d119258fda3f05de814d5b51d2313b62da37 > secret-file  
java -jar agent.jar -jnlpUrl http://localhost:8080/computer/Slave/jenkins-agent.jnlp -secret @secret-file -workDir "D:\Shah And Anchor\Sem 5\jenkins\SlaveData"
```

Projects tied to Slave

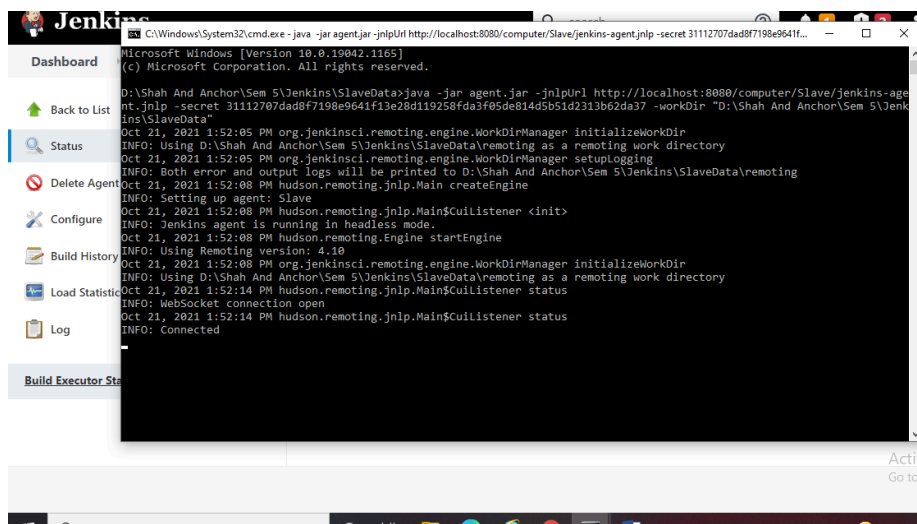
To make the node running we need to follow some more steps

7. Click on the agent-jar to download the jar file.

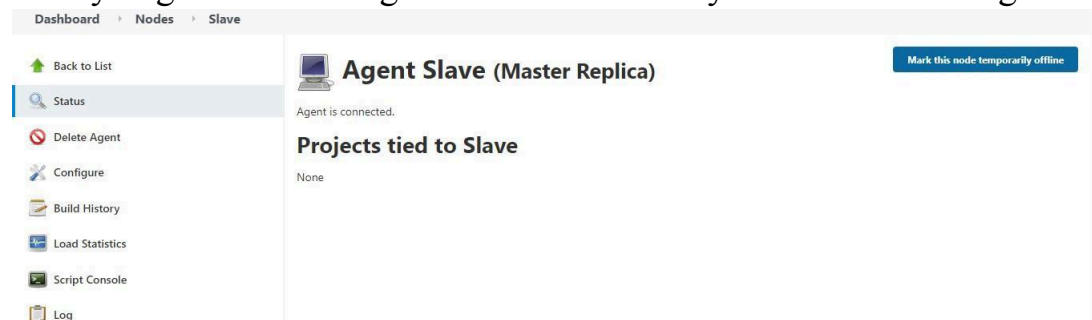


8. Paste this jar file in the path which you provided in previous step.

9. Copy the entire command and paste it in the command prompt. Add path of the jar file before the agent-jar.

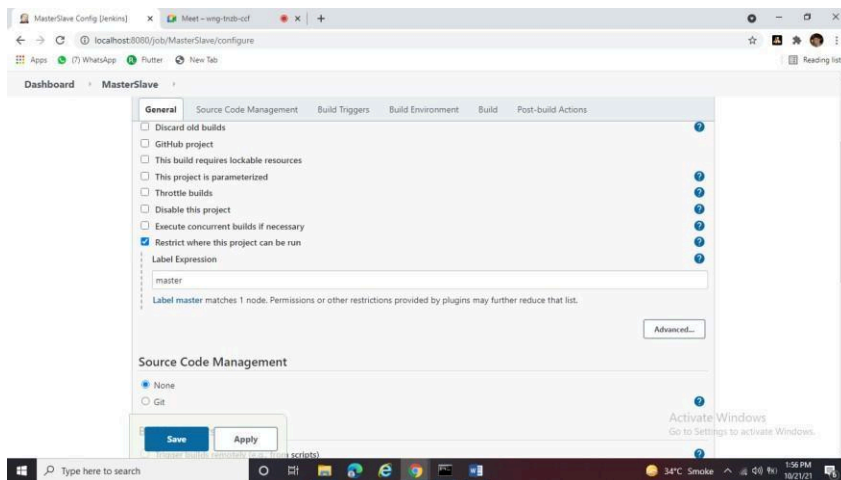


10.If you get final message as Connected then your node is running now.

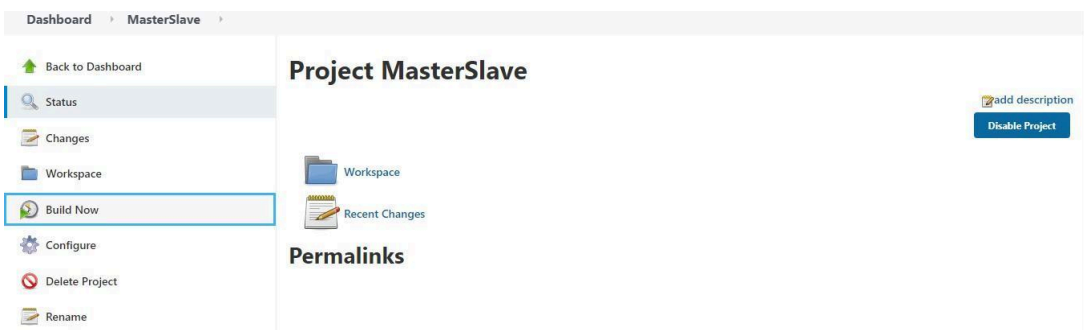


11. To run a job on the node which you created, you need to select any job created and there under Build Environment you need to check the Restrict where the project can be run and

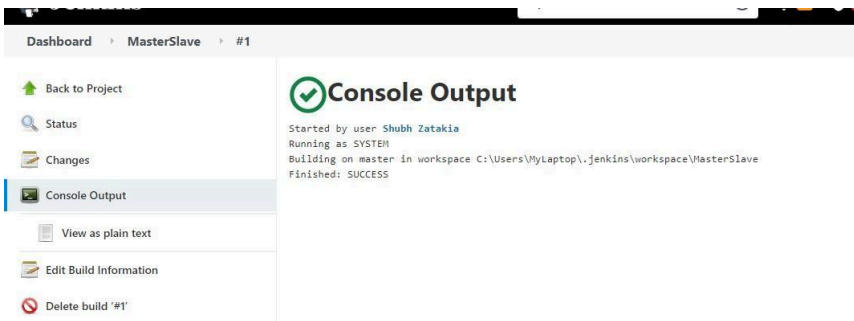
then click on Save.



12. Now Click on Build Now option.



13. For Checking whether the build is successful, click on the Console Output. Here you can see where the job is Build.



Conclusion: Successfully created the pipeline of job in Jenkins and Implemented Master-Slave Architecture using Jenkins.

<https://www.youtube.com/watch?v=ERR7cqW28FY>

<https://www.bing.com/videos/search?q=Jenkins+Master+Slave+Configuration+Windows&&view=detail&mid=C8647A506AA98EBD28B0C8647A506AA98EBD28B0&&FORM=VRDGAR&ru=%2Fvideos%2Fsearch%3F%26q%3DJenkins%2BMaster%2BSlave%2BConfiguration%2BWindows%26FORM%3DVDMHRS>

No changes.

Started by user [admin](#)

Revision:

5f84824b66a337393848770c1db845baf50b197e

Repository:

<https://github.com/ShailaP11/My-first-Project.git>

- refs/remotes/origin/master

```
curl.exe -sO http://localhost:8080/jnlpJars/agent.jar & java -jar agent.jar -jnlpUrl  
http://localhost:8080/computer/testnode1%20slave/jenkins-agent.jnlp -secret  
d5ee0bc0c5c94b59b6d8ca7c2d295f6fa75fb7dd934bc3ab121449000bcaa362 -workDir "C:\Slave"
```