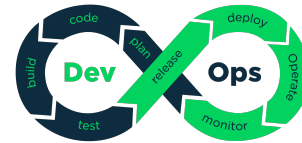


# DEVOPS



## GIT:-

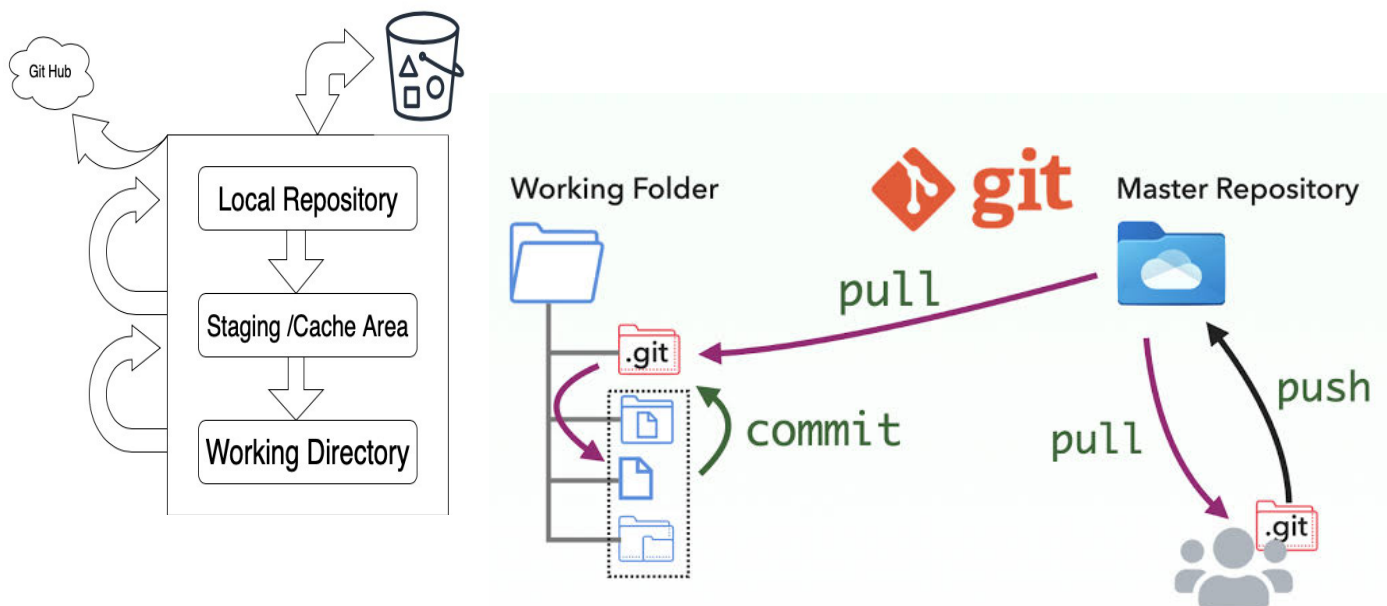
Git is a distributed version-control system for tracking changes in source code during software development. It is designed for coordinating work among programmers, but it can be used to track changes in any set of files. Its goals include speed, data integrity, and support for distributed, non-linear workflows.

Git was created by Linus Torvalds in 2005 for development of the Linux kernel, with other kernel developers contributing to its initial development. Its current maintainer since 2005 is Junio Hamano. As with most other distributed version-control systems, and unlike most client-server systems, every Git directory on every computer is a full-fledged repository with complete history and full version-tracking abilities, independent of network access or a central server.

## Install git:-

- You should be running a server with any Ubuntu 16.04 LTS release.
- You will need to log in to SSH via the root user.

First, as always, we should start out by running general OS and package updates. On Ubuntu we'll do this by running:



```
>> apt-get update
```

```
>> apt-get install git-core
```

```
>> git --version
```

Installing GIT - apt-get install git

Telling the GIT to track this folder - git init

Colors – Red color = Files in working directory

Green color = Files in staging / cache Area

Status Check – git status (for checking the tracking of files)

Commit Id's – generally called as SHA1 number

## Git init: -

To track the particular folder and git will only take care about the files but not folders For checking whether it is installed or not check the hidden files

```
>> ls -a (or) ls -al
```

```
>> git config --global user.name "XXnameXX"
```

```
>> git config --global user.email "XXemail IDXX"
```

```
>> git add filename (or) .[for adding complete files]
```

```
>> git commit -m "message for that task"
```

```
>> git commit -am "message for the task"
```

```
>> git log - -oneline
```

```
>> git show commitid
```

```
>> vi .gitignore
```

```
*.html
```

```
*.jpg
```



```
! filename.html  
>> "git add -f filename"  
>> "git checkout filename"
```

## Git SERVER:-

Development of the GitHub platform began on October 19, 2007.[55][56]  
[57] The site was launched in April 2008 by Tom Preston-Werner, Chris Wanstrath, P. J. Hyett and Scott Chacon after it had been made available for a few months prior as a beta release.[58]

Projects on GitHub can be accessed and manipulated using the standard Git command-line interface and all of the standard Git commands work with it. GitHub also allows registered and unregistered users to browse public repositories on the site. Multiple desktop clients and Git plugins have also been created by GitHub and other third parties that integrate with the platform.

The site provides social networking-like functions such as feeds, followers, wikis (using wiki software called Gollum) and a social network graph to display how developers work on their versions ("forks") of a repository and what fork (and branch within that fork) is newest.

A user must create an account in order to contribute content to the site, but public repositories can be browsed and downloaded by anyone. With a registered user account, users are able to have discussions, manage repositories, submit contributions to others' repositories, and review changes to code. GitHub began offering unlimited private repositories at no cost in January 2019 (limited to three contributors per project). Previously, only public repositories were free.

## Installation :-

```
>> JAVA 8 version need to be installed  
>> Terminal should be updated  
>> Should have gitbucket .war should be downloaded  
>> IP Address should be Reserved and should fix manually  
>> Change to Root user - sudo su -root  
>> Install the Vim software – apt-get install vim
```

```
>> apt-get install software-properties-common
>> apt-get update
>> apt-get install default-jre
>> apt-get install default-jdk
>> add-apt-repository -y rppa:webupdsteam/java
>> apt-get update
>> apt-get install oracle-java8-installer
>> java --version
>> Download Gitbucket.war
>> Go to the path where the gitbucket.war file was situated
>> Java -jar gitbucket.war
>> java -jar gitbucket.war --port =8018
>> apt-get install git
```

## Using local Git bucket :-

```
>> mkdir myproject - Create a directory
>> cd myproject - navigate to directory
>> git init - initialize the git
>> touch tarun - create a file in myproject
>> git status
>> git add tarun
>> git commit -m 'commit message'
>> git log
>> gitbucket - sign in - root/root (username & password)
>> Goto system Administration - New user - Create user with credentials - sign out - sign in with newly created user
>> New repository - Create a repository
>> git remote add origin URL
>> git push -u origin master
>> View the file called ".gitbucket" (hidden folder)
>> Give the command "- tree .gitbucket" to view the files in the repository
```

## Git Branches:-

Branching, in version control and software configuration management, is the duplication of an object under version control (such as a source code file or

a directory tree) so that modifications can occur in parallel along multiple branches.

Branches are also known as trees, streams or codelines. The originating branch is sometimes called the parent branch, the upstream branch (or simply upstream, especially if the branches are maintained by different organizations or individuals), or the backing stream. Child branches are branches that have a parent; a branch without a parent is referred to as the trunk or the mainline.

```
>> git branch
>> git branch newbranchname
>> git checkout branchtochange
>> git merge branchnametomerge
>> git checkout master
>> git branch -D branchname
>> git push origin --delete branchname
```

## **Stash Area:-**

```
>> git add .
>> git stash save filename
>> git stash list – To view the stashed files
```

Play with data in Stash Area

```
>> Copy + paste = Take a copy from stash area and use it in normally git stash
apply stashID
>> Cut + paste = Move a file from stash and use it normally git stash pop stashID
>> Delete = Remove files from stash Area
>> git stash drop stashID
```

## **Creating Version tags:-**

```
>> git tag versionnumber = Creating a version tag
>> git tag = Wrapping the files and pushing into version
>> git push -u myproject versionnumber = Pushing into github
>> git tag -d versionnumber = Remove versions locally
```

>> git push -u myproject --delete versionnumber = Delete the release in the git hub

Email Notification

>> Whatever happens in the github will be notified through email

>> Steps to activate email notification

>> Login into Git Hub - myproject – Settings – Notifications – Add - Email Address

## **Backup and Restore**

>> For taking the backup of the files of the git bucket .It is a hidden folder.

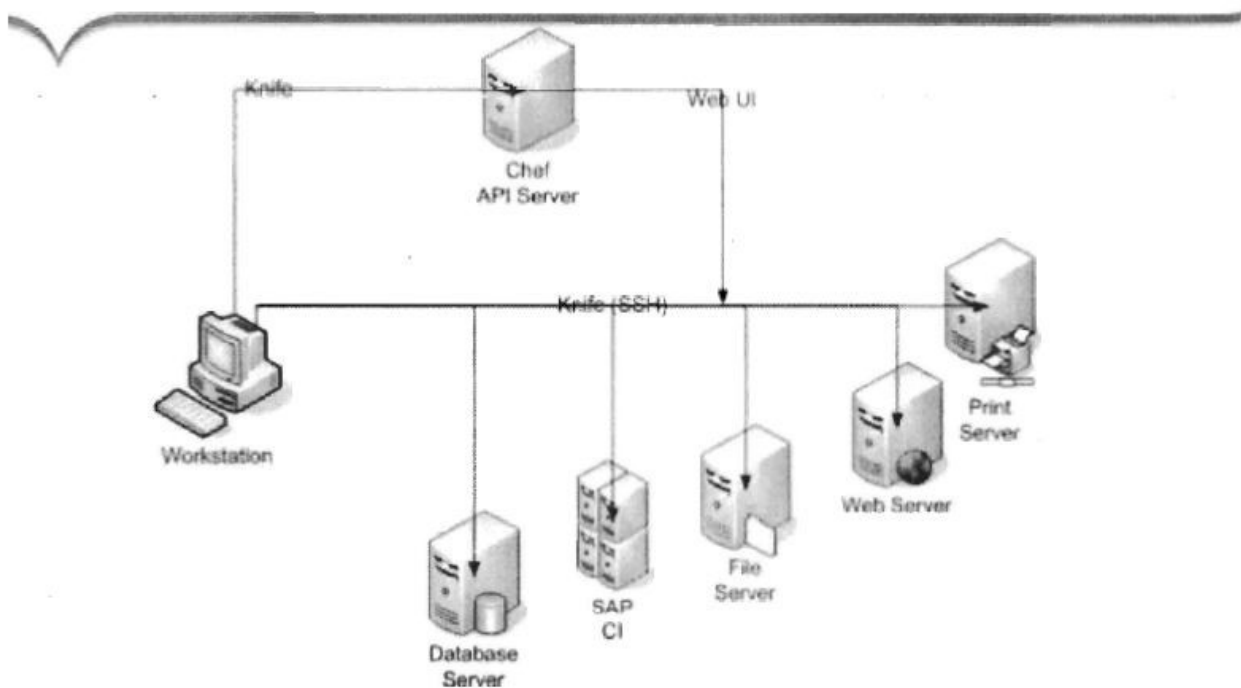
>> ls -a (View hidden files)

>> open the .gitbucket fil

>> There we can see the files which were pushed

**CHEF:-**

# Chef Architecture



Chef is a company and the name of a configuration management tool written in Ruby and Erlang. It uses a pure-Ruby, domain-specific language (DSL) for writing system configuration "recipes". Chef is used to streamline the task of configuring and maintaining a company's servers.

The user writes "recipes" that describe how Chef manages server applications and utilities (such as Apache HTTP Server, MySQL, or Hadoop) and how they are to be configured. These recipes (which can be grouped together as a "cookbook" for easier management) describe a series of resources that should be in a particular state: packages that should be installed, services that should be running, or files that should be written. These various resources can be configured to specific versions of software to run and can ensure that software is installed in the correct order based on dependencies.

Chef can run in client/server mode, or in a standalone configuration named "chef-solo". In client/server mode, the Chef client sends various attributes about the node to the Chef server. The server uses Elasticsearch to index these attributes and provides an API for clients to query this information. Chef recipes

can query these attributes and use the resulting data to help configure the node.

## **Chef-server installation:-**

```
>> hostname -f
>> cd ~
wget https://opscode-omnibus-
packages.s3.amazonaws.com/ubuntu/12.04/x86_64/chef-server_11.0.10-
1.ubuntu.12.04_amd64.deb
>> sudo dpkg -i chef-server*
>> sudo chef-server-ctl reconfigure
>> https://server_domain_or_IP
>> Default Username: admin
>> Default Password: p@ssw0rd1
>> mkdir -p ~/chef-repo/.chef
>> https://server_domain_or_IP
>> #chef-manage-ctl reconfigure
>> #chef-server-ctl user-create student student student "student@pivotal.com"
"redhat" -f student.pem
>> #chef-server-ctl org-create myorg "pivotalsoft" -a student -f myorg-
validator.pem
>> #chef-server-ctl restart (for restart)
>> #chef-server-ctl start (for start)
>> #chef-server-ctl stop (for stop)
```

## **chef node installation:-**

```
>> updat ip & hostadd
>> #dpkg -i chef-client.....
>> mkdir -p /etc/chef
copy both .pem files
>> cd /etc/chef
>> vi client.rb
log_level          :info
log_location       STDOUT
chef_server_url 'https://chefserver.pivotal.com/organizations/myorg'
```



```
validation_client_name 'myorg-validator'
validation_key          '/etc/chef/myorg-validator.pem'
client_key              '/etc/chef/student.pem'
trusted_certs_dir       '/etc/chef/trusted_certs'
```

```
>> knife ssl fetch -s https://chefserver.pivotal.com
>> knife ssl check -s https://chefserver.pivotal.com
>> useradd rishi
>> passwd rishi
>> usermod -aG sudo rishi
>> apt-get install ssh
>> ssh-keygen
```

## **Chef workstation installation:-**

```
>> update ip and host address
>> dpkg -i chef-work.....
>> cd /root/chef-repo/.chef
copy both .pem files into .chef folder
>> ls
>> vi knife.rb
log_level          :info
log_location       STDOUT
node_name          'student'
client_key          '/root/chef-repo/.chef/student.pem'
validation_client_name 'myorg-validator'
validation_key      '/root/chef-repo/.chef/myorg-validator.pem'
chef_server_url     'https://chefserver.pivotal.com/organizations/myorg'
cookbook_path       ['/root/chef-repo/cookbooks']
>> knife ssl fetch / knife ssl fetch -s https://chefserver.pivotal.com
>> knife ssl check / knife ssl check -s https://chefserver.pivotal.com
>> knife bootstrap 192.168.0.221 --ssh-user rishi --sudo --identity-file
~/.ssh/id_rsa --node-name chefnode.pivotal.com
#knife node list
```

## **Chef cookbooks:-**

Writing cookbooks/recipes

**sample cookbooks:-**

```
>> chef generate cookbook sample_file
>> vi /chef/cookbook/sample_file/recipes/default.rb
file "/tmp/test.txt" do
  owner "root"
  group "root"
  mode "0644"
  content "hiiii this is test file"
  action :create
end
>> knife cookbook upload sample_file
>> knife node run_list add chefnode.pivotal.com sample_file
>> go to chefnode add type "chef-client"
```

**Creates the sysadmin group and users:-**

```
users_manage 'sysadmin' do
  group_id 2300
  action [:create]
end
```

Creates the testgroup group, and users

```
users_manage 'testgroup' do
  group_id 3000
  action [:create]
  data_bag 'test_home_dir'
end
```

Creates the nfsgroup group, and users

```
users_manage 'nfsgroup' do
  group_id 4000
  action [:create]
  data_bag 'test_home_dir'
  manage_nfs_home_dirs false
end
```

```
>> knife cookbook upload users
>> knife node run_list add chefnode.pivotal.com sample_file
>> go to chefnode add type "chef-client"
```

### **recipe for apache server:-**

```
>> chef generate cookbook apache
service['apache2'] is defined in the apache2_default_install resource but other
resources are currently unable to reference it. To work around this issue,
define the following helper in your cookbook:
```

```
service 'apache2' do
  extend Apache2::Cookbook::Helpers
  service_name lazy { apache_platform_service_name }
  supports restart: true, status: true, reload: true
  action :nothing
end
```

```
apache2_install 'default_install'
apache2_module 'headers'
apache2_module 'ssl'
```

```
apache2_default_site 'foo' do
  default_site_name 'my_site'
  template_cookbook 'my_cookbook'
  port '443'
  template_source 'my_site.conf.erb'
  action :enable
end
```

```
>> knife cookbook upload sample_file
>> knife node run_list add chefnode.pivotal.com apache
>> go to chefnode add type "chef-client"
```

### **Chef roles:-**

```
>> knife role bulk delete REGE
>> knife role create ROLE_NAME (options)
```

```
>> knife role create role1
>> knife role edit ROLE_NAME

{
  "name": "role1",
  "default_attributes": {
  },
  "json_class": "Chef::Role",
  "run_list": ["recipe[cookbook_name::recipe_name]",
    "role[role_name]"
  ],
  "description": "",
  "chef_type": "role",
  "override_attributes": {
  }
}
>> knife role show ROLE_NAME
>> knife cookbook upload recipe
>> knife node run_list add chefnode.pivotal.com apache
```

### **To uninstall:-**

```
>> chef-server-ctl uninstall
>> chef-manage-ctl cleanse
>> opscode-analytics-ctl uninstall
>> opscode-reporting-ctl uninstall
>> dpkg -P chefdk
>> rpm -qa *chef*
>> yum remove <package>
>> dpkg --list | grep chef # or dpkg --status chef
>> dpkg -P chef
>> sudo rm -rf /opt/chef
>> sudo rm -rf /etc/chef
```

### **Maven:-**

Maven is a build automation tool used primarily for Java projects. Maven can also be used to build and manage projects written in C#, Ruby, Scala, and other languages. The Maven project is hosted by the Apache Software Foundation, where it was formerly part of the Jakarta Project.

Maven addresses two aspects of building software: how software is built, and its dependencies. Unlike earlier tools like Apache Ant, it uses conventions for the build procedure, and only exceptions need to be written down. An XML file describes the software project being built, its dependencies on other external modules and components, the build order, directories, and required plug-ins. It comes with pre-defined targets for performing certain well-defined tasks such as compilation of code and its packaging. Maven dynamically downloads Java libraries and Maven plug-ins from one or more repositories such as the Maven 2 Central Repository, and stores them in a local cache. This local cache of downloaded artifacts can also be updated with artifacts created by local projects. Public repositories can also be updated.

Maven is built using a plugin-based architecture that allows it to make use of any application controllable through standard input.

## **Maven installation:-**

```
>> sudo apt-get update -y
>> sudo apt-get upgrade -y
>> add-apt-repository ppa:webupd8team/java
>> apt-get update -y
>> apt-get install oracle-java8-installer
>> java -version
>> wget http://www-eu.apache.org/dist/maven/maven-
3/3.3.9/binaries/apache-maven-3.3.9-bin.tar.gz
>> tar -xvzf apache-maven-3.3.9-bin.tar.gz
>> mv apache-maven-3.3.9 maven
>> nano /etc/profile.d/mavenenv.sh
export M2_HOME=/opt/maven
export PATH=${M2_HOME}/bin:${PATH}
>> chmod +x /etc/profile.d/mavenenv.sh
>> source /etc/profile.d/mavenenv.sh
>> tar -xvf apache-maven -C /opt/
```

```
>> vi /etc/profile.d/apache-maven.sh
export JAVA_HOME=/usr/lib/jvm/java-8-oracle
export M2_HOME=/opt/apache-maven
export MAVEN_HOME=/opt/apache-maven
export PATH=${M2_HOME}/bin:${PATH}
```

```
>> apt-get install maven
```

```
>> mvn --version
```

```
>> mvn archetype:generate
```

```
>> 1352
```

```
groupid:pivotal
```

```
architect:sample
```

```
Y
```

```
>> tree sample
```

```
>> mvn validate
```

```
>> mvn compile
```

```
>> mvn test
```

```
>> mvn package
```

```
>> tree sample
```

```
>> root@ubuntu:/home/student# mvn --help
```

Options:

-am,--also-make	If project list is specified, also build projects required by the list
-----------------	--

-amd,--also-make-dependents	If project list is specified, also build projects that depend on projects on the list
-----------------------------	---

-B,--batch-mode	Run in non-interactive (batch) mode
-----------------	-------------------------------------

-b,--builder <arg>	The id of the build strategy to use.
--------------------	--------------------------------------

-C,--strict-checksums	Fail the build if checksums don't match
-----------------------	---

-c,--lax-checksums	Warn if checksums don't match
--------------------	-------------------------------

-cpu,--check-plugin-updates	Ineffective, only kept for
-----------------------------	----------------------------

	backward compatibility
-D,--define <arg>	Define a system property
-e,--errors	Produce execution error messages
-emp,--encrypt-master-password <arg>	Encrypt master security password
-ep,--encrypt-password <arg>	Encrypt server password
-f,--file <arg>	Force the use of an alternate POM file (or directory with pom.xml).
-fae,--fail-at-end	Only fail the build afterwards; allow all non-impacted builds to continue
-ff,--fail-fast	Stop at first failure in reactorized builds
-fn,--fail-never	NEVER fail the build, regardless of project result
-gs,--global-settings <arg>	Alternate path for the global settings file
-gt,--global-toolchains <arg>	Alternate path for the global toolchains file
-h,--help	Display help information
-l,--log-file <arg>	Log file where all build output will go.
-llr,--legacy-local-repository	Use Maven 2 Legacy Local Repository behaviour, ie no use of _remote.repositories. Can also be activated by using -Dmaven.legacyLocalRepo=true
-N,--non-recursive	Do not recurse into sub-projects
-npr,--no-plugin-registry	Ineffective, only kept for backward compatibility
-npu,--no-plugin-updates	Ineffective, only kept for backward compatibility
-nsu,--no-snapshot-updates	Suppress SNAPSHOT updates
-o,--offline	Work offline
-P,--activate-profiles <arg>	Comma-delimited list of profiles

	to activate
-pl,--projects <arg>	Comma-delimited list of specified reactor projects to build instead of all projects. A project can be specified by [groupId]:artifactId or by its relative path.
-q,--quiet	Quiet output - only show errors
-rf,--resume-from <arg>	Resume reactor from specified project
-s,--settings <arg>	Alternate path for the user settings file
-t,--toolchains <arg>	Alternate path for the user toolchains file
-T,--threads <arg>	Thread count, for instance 2.0C where C is core multiplied
-U,--update-snapshots	Forces a check for missing releases and updated snapshots on remote repositories
-up,--update-plugins	Ineffective, only kept for backward compatibility
-v,--version	Display version information
-V,--show-version	Display version information WITHOUT stopping build
-X,--debug	Produce execution debug output

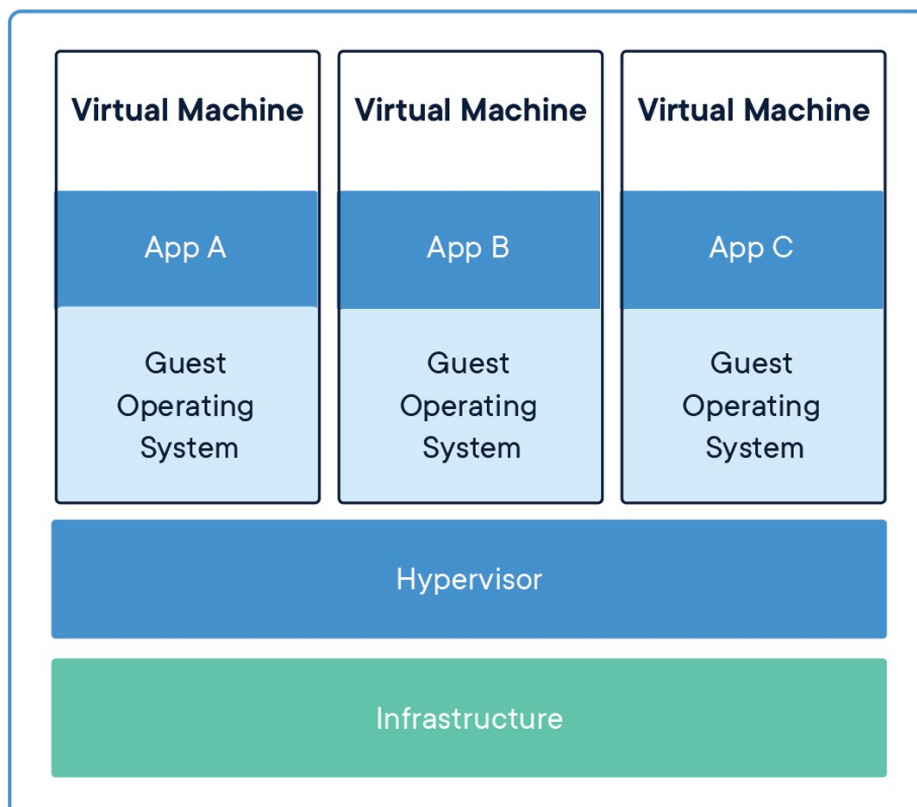
## Docker :-

Docker is a tool designed to make it easier to create, deploy, and run applications by using containers. Containers allow a developer to package up an



application with all of the parts it needs, such as libraries and other dependencies, and ship it all out as one package. By doing so, thanks to the container, the developer can rest assured that the application will run on any other Linux machine regardless of any customized settings that machine might have that could differ from the machine used for writing and testing the code. In a way, Docker is a bit like a virtual machine. But unlike a virtual machine, rather than creating a whole virtual operating system, Docker allows applications to use the same Linux kernel as the system that they're running on and only requires applications be shipped with things not already running on the host computer. This gives a significant performance boost and reduces the size of the application.

And importantly, Docker is open source. This means that anyone can contribute to Docker and extend it to meet their own needs if they need additional features that aren't available out of the box.



```
>> sudo apt-get update -y
>> sudo apt-get upgrade -y
```

```
>> add-apt-repository ppa:webupd8team/java
>> apt-get update -y
>> apt-get install oracle-java8-installer
>> java -version
>> sudo apt update
>> sudo apt-key adv --keyserver hkp://ha.pool.skskeyservers.
net:80 --recv-keys
58118E89F3A912897C070ADB76221572C52609D
>> sudo apt-add-repository "deb
https://apt.dockerproject.org/repo ubuntu-xenial main"
>> sudo apt update
>> sudo apt install docker-engine
>> sudo systemctl start docker
>> docker images
>> docker pull ubuntu
>> root@ubuntu:/home/student# docker --help
Options:
  --config string    Location of client config files (default
                    "/root/.docker")
  -D, --debug        Enable debug mode
  --help            Print usage
  -H, --host list    Daemon socket(s) to connect to
  -l, --log-level string Set the logging level
                    ("debug"|"info"|"warn"|"error"|"fatal")
                    (default "info")
  --tls            Use TLS; implied by --tlsverify
  --tlscacert string Trust certs signed only by this CA (default
                    "/root/.docker/ca.pem")
  --tlscert string  Path to TLS certificate file (default
                    "/root/.docker/cert.pem")
  --tlskey string   Path to TLS key file (default
                    "/root/.docker/key.pem")
  --tlsverify       Use TLS and verify the remote
  -v, --version      Print version information and quit
```

## Management Commands:

container	Manage containers
image	Manage images
network	Manage networks
node	Manage Swarm nodes
plugin	Manage plugins
secret	Manage Docker secrets
service	Manage services
stack	Manage Docker stacks
swarm	Manage Swarm
system	Manage Docker
volume	Manage volumes

## Commands:

attach	Attach local standard input, output, and error streams to a running container
build	Build an image from a Dockerfile
commit	Create a new image from a container's changes
cp	Copy files/folders between a container and the local filesystem
create	Create a new container
diff	Inspect changes to files or directories on a container's filesystem
events	Get real time events from the server
exec	Run a command in a running container
export	Export a container's filesystem as a tar archive
history	Show the history of an image
images	List images
import	Import the contents from a tarball to create a filesystem image
info	Display system-wide information
inspect	Return low-level information on Docker objects
kill	Kill one or more running containers
load	Load an image from a tar archive or STDIN
login	Log in to a Docker registry
logout	Log out from a Docker registry

logs	Fetch the logs of a container
pause	Pause all processes within one or more containers
port	List port mappings or a specific mapping for the container
ps	List containers
pull	Pull an image or a repository from a registry
push	Push an image or a repository to a registry
rename	Rename a container
restart	Restart one or more containers
rm	Remove one or more containers
rmi	Remove one or more images
run	Run a command in a new container
save	Save one or more images to a tar archive (streamed to STDOUT by default)
search	Search the Docker Hub for images
start	Start one or more stopped containers
stats	Display a live stream of container(s) resource usage statistics
stop	Stop one or more running containers
tag	Create a tag TARGET_IMAGE that refers to SOURCE_IMAGE
top	Display the running processes of a container
unpause	Unpause all processes within one or more containers
update	Update configuration of one or more containers
version	Show the Docker version information
wait	Block until one or more containers stop, then print their exit codes

### **To run Images:-**

```
>> docker images
>> docker run -ti --rm ubuntu /bin/bash\
>> docker ps
>> docker ps -a
>> docker run -ti ubuntu /bin/bash
>> docker ps
>> docker ps -a
>> docker exec -ti <container id> /bin/bash
>> docker run -ti --name "ubuntu18" --hostname "pivotal"
ubuntu /bin/bash
```

```
>> docker start <container id>
```

```
>> docker stop <container id>
```

```
>> docker rm <container id>
```

```
>> docker image rm <image id>
```

### **Gitbucket Configuration on Docker:-**

Need to maintain gitbucket.war file and Dockerfile in /root Dir.

```
>> vi Dockerfile
```

```
From java:latest
```

```
MAINTAINER student@pivotal.com
```

```
LABEL evn=production
```

```
ENV apparea /data/app
```

```
Run mkdir -p $apparea
```

```
ADD ./gitbucket.war $apparea
```

```
WORKDIR $apparea
```

```
CMD ["java","-jar","gitbucket.war"]
```

```
:wq!
```

```
>> docker build -t pivotal/git . (to build Dockerfile)
```

```
>> docker images
```

```
>> docker run -d -p 80:8080 pivotal/git (to port forwarding)
```

```
>> ifconfig
```

Open Firefox and give 192.168.0.151:80 to launch gitbucket server

### **Jenkins Configuration on Docker:-**

Need to maintain gitbucket.war file and Dockerfile in /root Dir.

```
>> vi Dockerfile
```

```
From java:latest
```

```
MAINTAINER student@pivotal.com
```

```
LABEL evn=production
```

```
ENV apparea /data/app
```

```
Run mkdir -p $apparea
```

```
ADD ./jenkins.war $apparea
```

WORKDIR \$apparea

CMD ["java","-jar","jenkins.war"]

:wq!

>> docker build -t pivotal/git . (to build Dockerfile)

>> docker images

>> docker run -d -p 80:8080 pivotal/jenkins (to port forwarding)

>> ifconfig

Open Firefox and give 192.168.0.151:80 to launch gitbucket server

## Apache tomcat server:-

Download apache-tomcat app from internet

#tar -xvf apache-tomcat -C /opt/

#cd /opt/apache-tomcat/bin

#./startup.sh

#firefox &

http://192.168.149.159:8080

set user Path-----

#vi /opt/apache-tomcat/conf/tomcat-users.xml

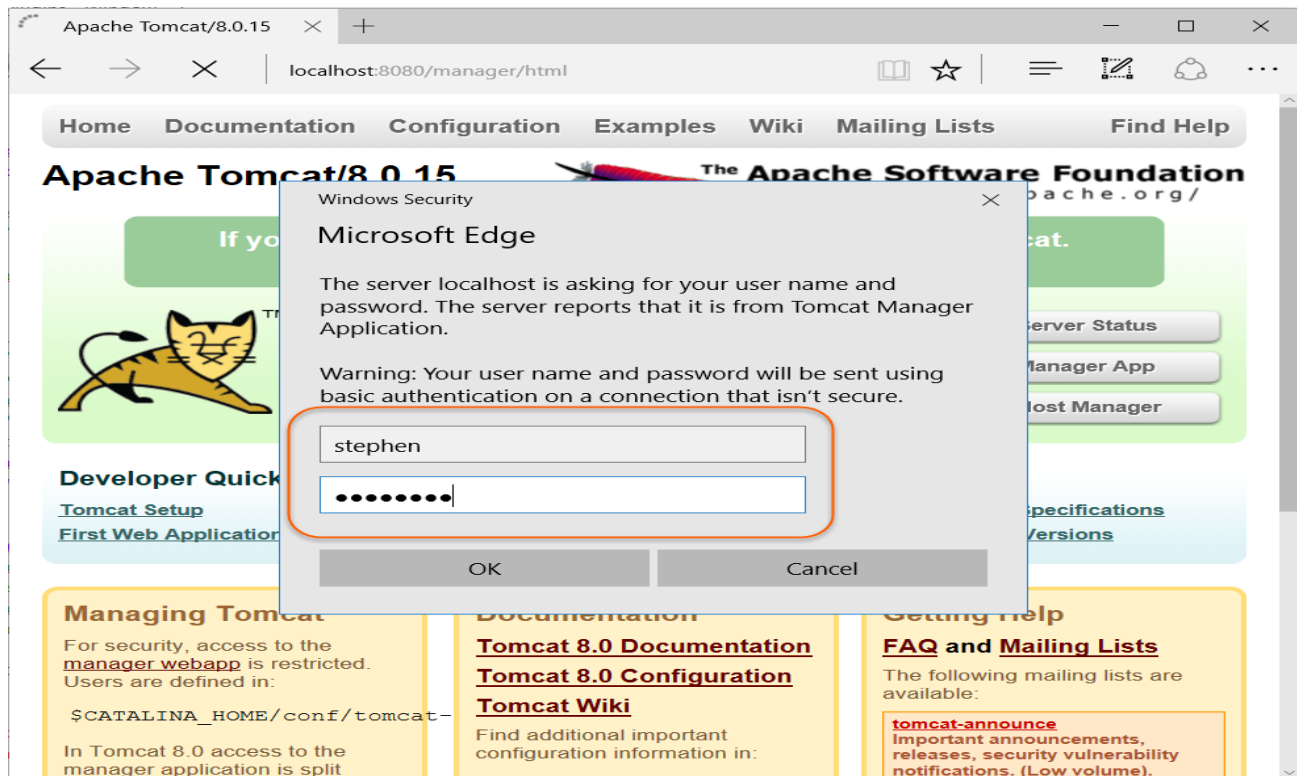
<role rolename="manager-gui"/>

<user username="student" password="redhat" roles="manager-gui"/>

</tomcat-users>

:wq!

http://192.168.149.159:8080



open manager app and deploy .war files  
ex: `http://192.168.159.149:8080/sampleweb/`

### **Install Apache Tomcat 8:-**

```
>> apt-get update
>> apt-get install default-jdk
>> groupadd tomcat
>> useradd -s /bin/false -g tomcat -d /opt/tomcat tomcat
>> cd /tmp
>> curl -O http://apache.mirrors.ionfish.org/tomcat/tomcat-8/v8.5.5/bin/apache-tomcat-8.5.5.tar.gz
>> mkdir /opt/tomcat
>> tar xzvf apache-tomcat-8*.tar.gz -C /opt/tomcat --strip-components=1
>> /opt/tomcat
>> chgrp -R tomcat /opt/tomcat
>> chmod -R g+r conf
>> chmod g+x conf
```

```
>> chown -R tomcat webapps/ work/ temp/ logs/
>> update-java-alternatives -l
>> /usr/lib/jvm/java-1.8.0-openjdk-amd64/jre
>> nano /etc/systemd/system/tomcat.service
[Unit]
Description=Apache Tomcat Web Application Container
After=network.target
```

```
[Service]
Type=forking
```

```
Environment=JAVA_HOME=/usr/lib/jvm/java-1.8.0-openjdk-amd64/jre
Environment=CATALINA_PID=/opt/tomcat/temp/tomcat.pid
Environment=CATALINA_HOME=/opt/tomcat
Environment=CATALINA_BASE=/opt/tomcat
Environment='CATALINA_OPTS=-Xms512M -Xmx1024M -server -XX:
+UseParallelGC'
Environment='JAVA_OPTS=-Djava.awt.headless=true
-Djava.security.egd=file:/dev/./urandom'
```

```
ExecStart=/opt/tomcat/bin/startup.sh
ExecStop=/opt/tomcat/bin/shutdown.sh
```

```
User=tomcat
Group=tomcat
UMask=0007
RestartSec=10
Restart=always
```

```
[Install]
WantedBy=multi-user.target
```

```
>> systemctl daemon-reload
>> systemctl start tomcat
```



```
>> systemctl status tomcat
>> ufw allow 8080
>> http://server_domain_or_IP:8080
>> systemctl enable tomcat
>> nano /opt/tomcat/conf/tomcat-users.xml
<tomcat-users . . .>
    <user username="admin" password="password" roles="manager-gui,admin-
gui"/>
</tomcat-users>
>> nano /opt/tomcat/webapps/manager/META-INF/context.xml
>> nano /opt/tomcat/webapps/host-manager/META-INF/context.xml
>> systemctl restart tomcat
>> http://server_domain_or_IP:8080
```

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

[Find Help](#)

## Apache Tomcat/8.0.33

 The Apache Software Foundation  
<http://www.apache.org/>

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](#)

[http://server\\_domain\\_or\\_IP:8080/manager/html](http://server_domain_or_IP:8080/manager/html)

## Tomcat Web Application Manager

Message: OK

### Manager

[List Applications](#) [HTML Manager Help](#) [Manager Help](#) [Server Status](#)

### Applications

Path	Version	Display Name	Running	Sessions	Commands
/	None specified	Welcome to Tomcat	true	0	Start <input type="button" value="Stop"/> <input type="button" value="Reload"/> <input type="button" value="Undeploy"/> <input type="button" value="Expire sessions"/> with idle ≥ <input type="text" value="30"/> minutes
/docs	None specified	Tomcat Documentation	true	0	Start <input type="button" value="Stop"/> <input type="button" value="Reload"/> <input type="button" value="Undeploy"/> <input type="button" value="Expire sessions"/> with idle ≥ <input type="text" value="30"/> minutes
/examples	None specified	Servlet and JSP Examples	true	0	Start <input type="button" value="Stop"/> <input type="button" value="Reload"/> <input type="button" value="Undeploy"/> <input type="button" value="Expire sessions"/> with idle ≥ <input type="text" value="30"/> minutes
/host-manager	None specified	Tomcat Host Manager Application	true	0	Start <input type="button" value="Stop"/> <input type="button" value="Reload"/> <input type="button" value="Undeploy"/> <input type="button" value="Expire sessions"/> with idle ≥ <input type="text" value="30"/> minutes
/manager	None specified	Tomcat Manager Application	true	1	Start <input type="button" value="Stop"/> <input type="button" value="Reload"/> <input type="button" value="Undeploy"/> <input type="button" value="Expire sessions"/> with idle ≥ <input type="text" value="30"/> minutes

### Deploy

#### Deploy directory or WAR file located on server

Context Path (required):   
XML Configuration file URL:   
WAR or Directory URL:

#### WAR file to deploy

Select WAR file to upload  No file chosen

## Uploading Gitbucket and Jenkins:-

>> go to Tomcat manager  
>> click on deploy option  
>> context path /gitbucket  
>> war or Directory URL /opt/gitbucket.war  
>> deploy  
open Gitbucket from Applications

## Jenkins :-

>> go to Tomcat manager  
>> click on deploy option  
>> context path /jenkins  
>> war or Directory URL /opt/jenkins.war

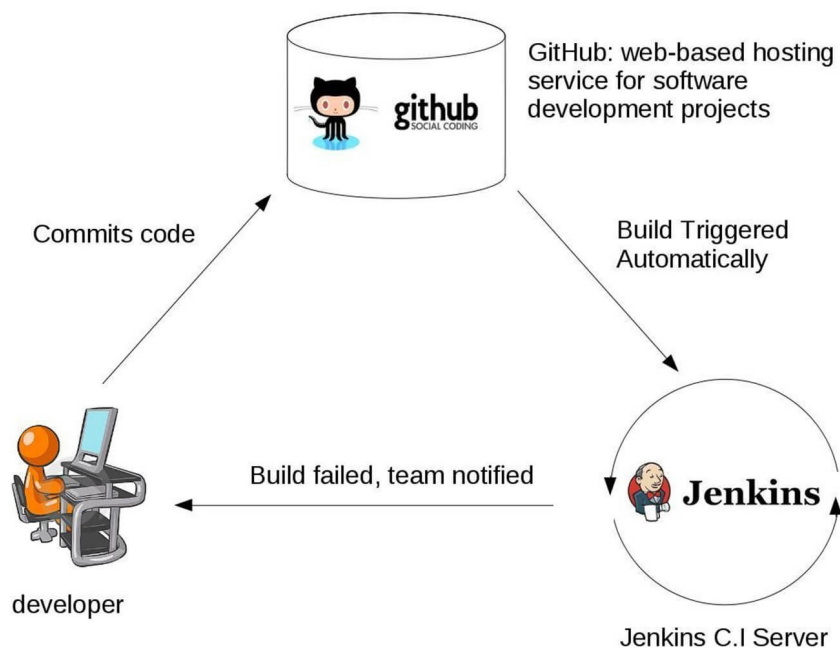
>> deploy  
open Gitbucket from Applications

## Jenkins:-

Jenkins is a self-contained, open source automation server which can be used to automate all sorts of tasks related to building, testing, and delivering or deploying software.

Jenkins can be installed through native system packages, Docker, or even run standalone by any machine with a Java Runtime Environment (JRE) installed.

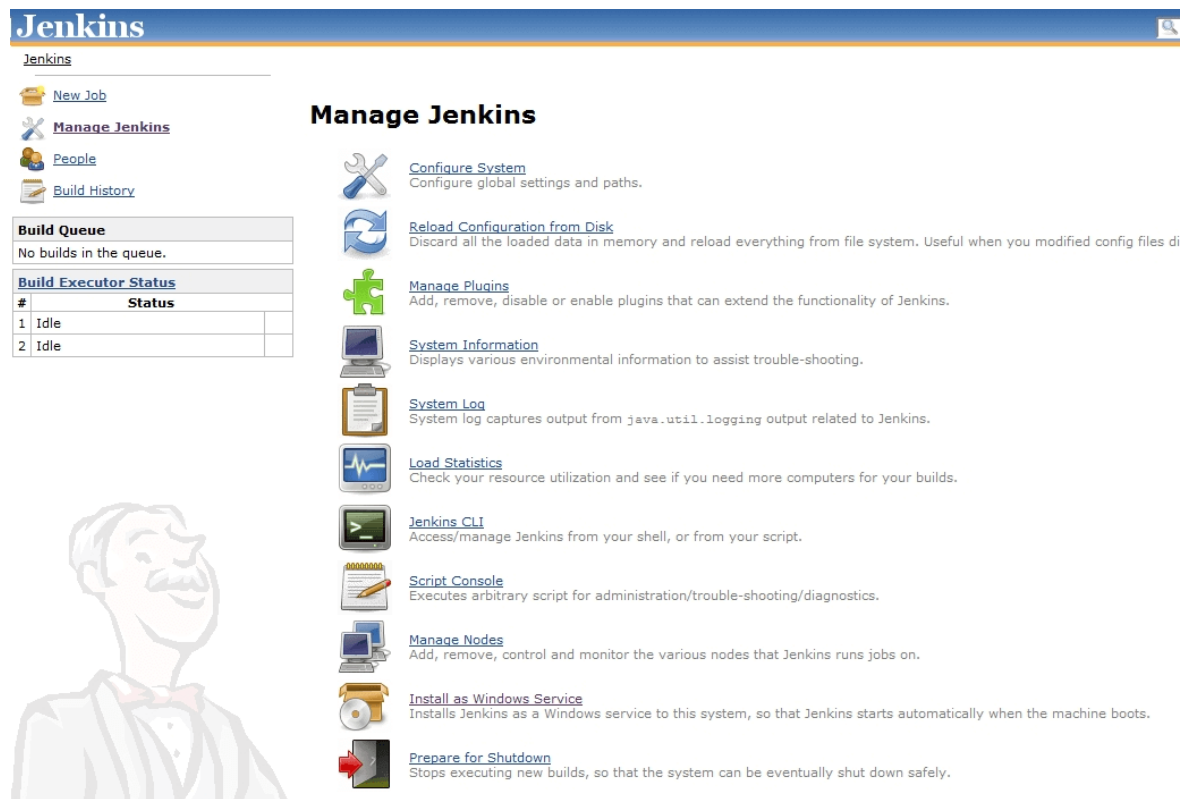
In Continuous Integration after a code commit, the software is built and tested immediately. In a large project with many developers, commits are made many times during a day. With each commit code is built and tested. If the test is passed, build is tested for deployment. If deployment is a success, the code is pushed to production. This commit, build, test, and deploy is a continuous process and hence the name continuous integration/deployment.



## Jenkins Plugins:-

By default, Jenkins comes with a limited set of features. If you want to integrate your Jenkins installation with version control tools like Git, then you need to

install plugins related to Git. In fact, for integration with tools like Maven you need to install respective plugins in your Jenkins.



The screenshot displays the Jenkins web interface. On the left, there's a sidebar with navigation links: 'New Job', 'Manage Jenkins' (highlighted), 'People', and 'Build History'. Below these is a 'Build Queue' section showing 'No builds in the queue.' and a 'Build Executor Status' table with two idle executors. The main area is titled 'Manage Jenkins' and contains a list of administrative links, each with an icon and a brief description: 'Configure System' (wrench icon), 'Reload Configuration from Disk' (refresh icon), 'Manage Plugins' (puzzle piece icon), 'System Information' (monitor icon), 'System Log' (notepad icon), 'Load Statistics' (line graph icon), 'Jenkins CLI' (terminal icon), 'Script Console' (notepad with pencil icon), 'Manage Nodes' (server rack icon), 'Install as Windows Service' (CD/DVD icon), and 'Prepare for Shutdown' (stop sign icon). A faint cartoon illustration of a man with a mustache is visible in the bottom left corner of the dashboard area.

## **Jenkins installation and configuration:-**

Configure tomcat server and Maven

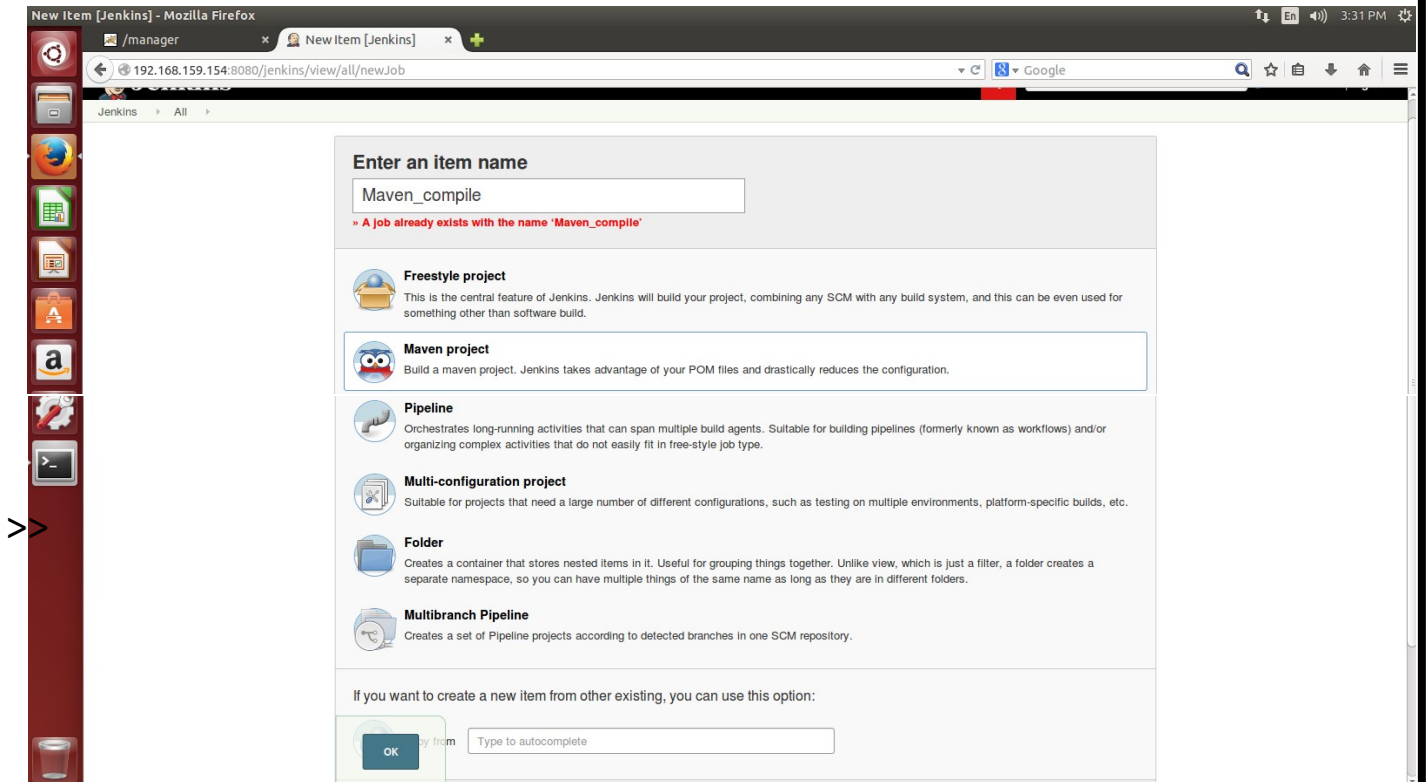
- >> Download Jenkins.war and gitbucket.war files
- >> Deploy Jenkins.war and gitbucket.war to Tomcat server
- >> Open jenkins console and gitbucket console through firefox

## **Jenkins Plug in management:-**

- >> Manage Jenkins Manage plugins Available
- >> type your required package name
- >> install without restart.

## **Compile Maven code:-**

- >> Go to Jenkins Dashboard
- >> New item item name
- >> Select Maven project ok



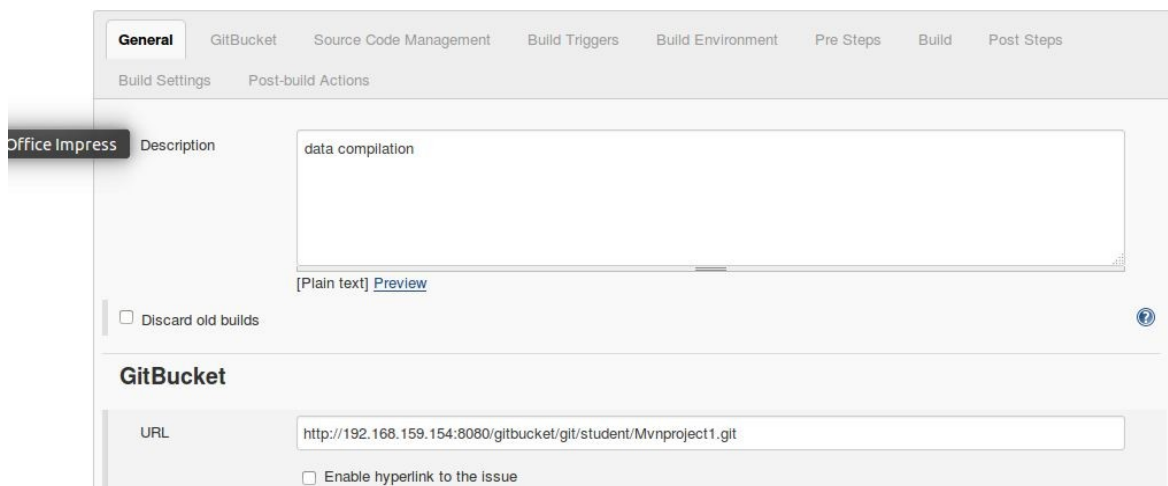
Description GitBucket Url Source code management

>> Gitbucket url

>> Delete workspace before build starts

>> Build Pom.xml location goal command<compile>

>> save.



### Source Code Management

☐ None  
☒ Git

Repositories

Repository URL

Credentials

Branches to build

Branch Specifier (blank for 'any')

☒ Delete workspace before build starts

☐ Execute shell script on remote host using ssh  
☐ SSH Agent

### Pre Steps

### Build

Root POM

Goals and options

### Post Steps

### Test Maven code (CB):-

- >> Go to Jenkins Dashboard
- >> New item
- >> item name

>> Select Maven project >> ok

General

GitBucket

Source Code Management

Build Triggers

Build Environment

Pre Steps

Build

Post Steps

Build Settings

Post-build Actions

Description

testing

[Plain text] Preview

☐ Discard old builds

GitBucket

URL

http://192.168.159.154:8080/gitbucket/git/student/Mvnproject1.git

☐ Enable hyperlink to the issue

☐ This project is parameterized

☐ Throttle builds

☐ Disable this project

☐ Execute concurrent builds if necessary

Advanced...

## Source Code Management

☐ None

☒ Git

### Repositories

Repository URL

Credentials

Add

Advanced...

Add Repository

### Branches to build

Branch Specifier (blank for 'any')

Add Branch

General   GitBucket   Source Code Management   Build Triggers   **Build Environment**   Pre Steps   Build   Post Steps

Build Settings   Post-build Actions

☒ Delete workspace before build starts

Advanced...

☐ Execute shell script on remote host using ssh ?

☐ SSH Agent

**Pre Steps**

Add pre-build step ▾

**Build**

Root POM   /Mwebapp/sampleweb/pom.xml ?

Goals and options   test ?

Advanced...

**Post Steps**

☐ Run only if build succeeds   ☐ Run only if build succeeds or is unstable   ☒ Run regardless of build result

### Integrate Maven code in Jenkins:-

- >> Go to Jenkins Dashboard
- >> New item   item name
- >> Select Maven project   ok
- >> Comment
- >> git url
- >> Build whenever a SNAPSHOT dependency is built
- >> Delete workspace before build starts
- >> Set root pom path
- >> set branches path
- >> apply ok
- >> click on build icon



GeneralGitBucketSource Code ManagementBuild TriggersBuild EnvironmentPre StepsBuildPost Steps

Build SettingsPost-build Actions

Description

Integration

[Plain text] [Preview](#)

☐ Discard old builds

GitBucket

URL

http://192.168.159.154:8080/gitbucket/git/student/Mvnproject1.git

☐ Enable hyperlink to the issue

☐ This project is parameterized

☐ Throttle builds

☐ Disable this project

☐ Execute concurrent builds if necessary

Advanced...

Source Code Management

☐ None

☒ Git

Repositories

Repository URL

http://192.168.159.154:8080/gitbucket/git/student/Mvnproject1.git

Credentials

student/\*\*\*\*\*

Add

Advanced...

Add Repository

Branches to build

Branch Specifier (blank for 'any')

\*/branch1

Add Branch

Repository browser

(Auto)

Additional Behaviours

Add

☐ Subversion

## Source Code Management

☐ None

☒ Git

### Repositories

Repository URL

Credentials

### Branches to build

Branch Specifier (blank for 'any')

Repository browser

Additional Behaviours

☐ Subversion

General GitBucket Source Code Management **Build Triggers** Build Environment Pre Steps Build Post Steps

Build Settings Post-build Actions

☐ Subversion

### Build Triggers

☒ Build whenever a SNAPSHOT dependency is built

☐ Schedule build when some upstream has no successful builds

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

☐ Build after other projects are built

☐ Build periodically

☐ Build when a change is pushed to GitBucket

☐ Poll SCM

### Build Environment

☒ Delete workspace before build starts

☐ Execute shell script on remote host using ssh

☐ SSH Agent

☐ With Ant

Build Settings

Post-build Actions

Add pre-build step

Build

Root POM

/Mwebapp/sampleweb/pom.xml

Goals and options

Advanced...

Post Steps

☐ Run only if build succeeds

☐ Run only if build succeeds or is unstable

☒ Run regardless of build result

Should the post-build steps run only for successful builds, etc.

Add post-build step

Build Settings

☐ E-mail Notification

Post-build Actions

General

Gitbucket

Source Code Management

Build Triggers

Build Environment

Pre Steps

Build

Post Steps

Build Settings

Post-build Actions

☐ E-mail Notification

Post-build Actions

Git Publisher

Push Only If Build Succeeds

☒

Merge Results

☐

If pre-build merging is configured, push the result back to the origin

Force Push

☒

Add force option to git push

Tags

Add Tag

Tags to push to remote repositories

Branches

Branch to push

master

Target remote name

origin

Add Branch

Branches to push to remote repositories

## Package Maven code (CB):-

- >> Go to Jenkins Dashboard
- >> New item >> item name
- >> Select Maven project >> ok
- >> Description
- >> git url
- >> Build whenever a SNAPSHOT dependency is built
- >> Delete workspace before build starts
- >> Set root pom path
- >> Goal package
- >> set branches >> path >> apply >> save >> build now.

The screenshot displays the Jenkins configuration interface for a new item. The 'General' tab is selected, showing the 'Description' field with the value 'package'. Below this, there is a checkbox for 'Discard old builds' which is unchecked. The 'GitBucket' section is visible, and the 'Source Code Management' section is expanded. In the 'Source Code Management' section, the 'Git' radio button is selected. The 'Repositories' section shows a 'Repository URL' of 'http://192.168.159.154:8080/gitbucket/git/student/Mvnproject1.git' and 'Credentials' set to 'student/\*\*\*\*\*'. There are buttons for 'Advanced...', 'Add Repository', and 'Add Branch'. The 'Branches to build' section shows a 'Branch Specifier (blank for \'any\')' of '\*/branch1'. The 'Repository browser' is set to '(Auto)'. At the bottom, there is an 'Additional Behaviours' section with an 'Add' button and a 'Subversion' radio button.

**General**   GitBucket   Source Code Management   Build Triggers   Build Environment   Pre Steps   Build   Post Steps

Build Settings   Post-build Actions

Description: package

[Plain text] [Preview](#)

☐ Discard old builds

**GitBucket**

**Source Code Management**

☐ None  
☒ Git

Repositories

Repository URL:

Credentials:  [Add](#)

[Advanced...](#)

[Add Repository](#)

Branches to build

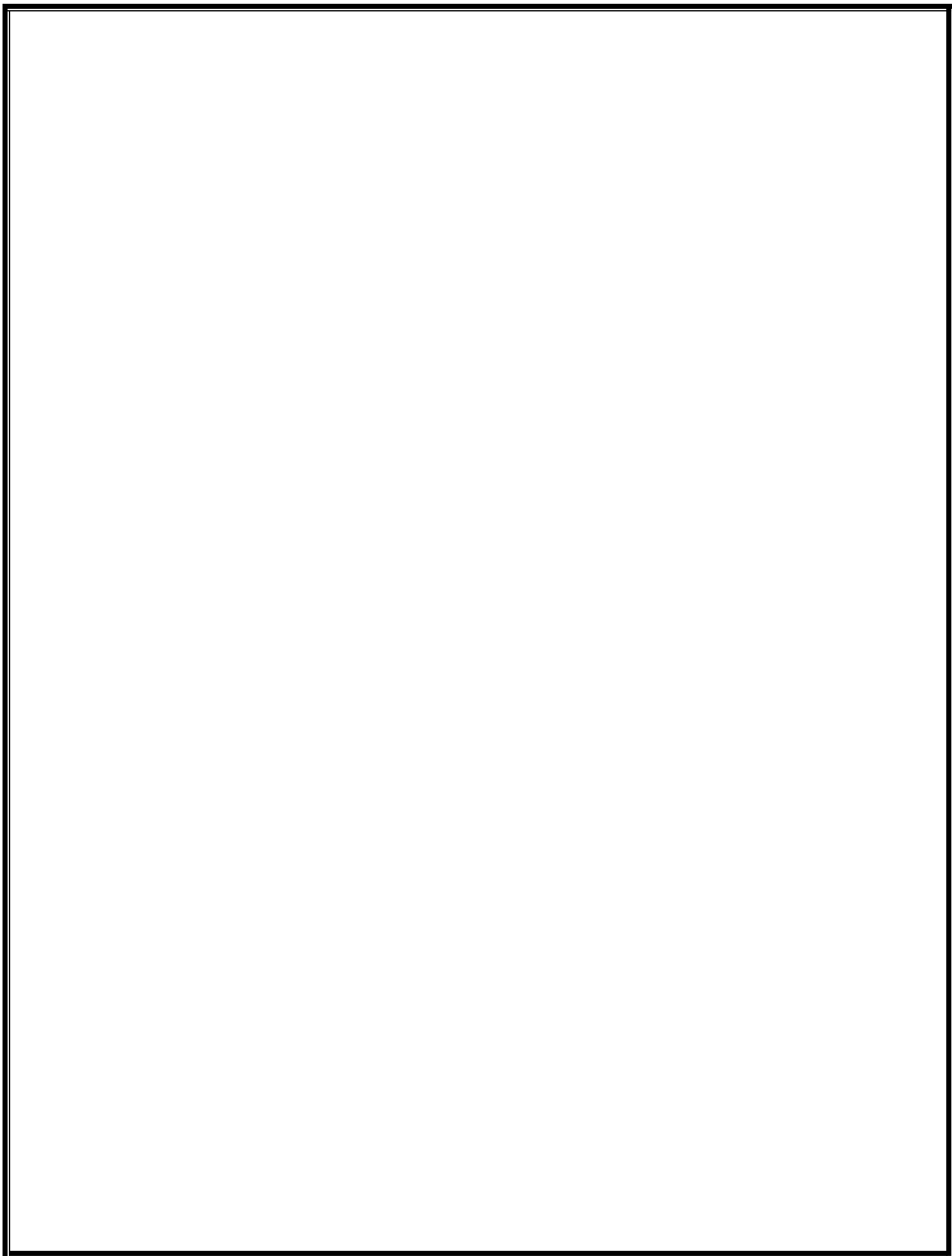
Branch Specifier (blank for 'any'):

[Add Branch](#)

Repository browser:

Additional Behaviours: [Add](#)

☐ Subversion



**Pre Steps**

Add pre-build step ▾

---

**Build**

Root POM  ?

Goals and options  ?

Advanced...

---

**Post Steps**

☐ Run only if build succeeds
 ☐ Run only if build succeeds or is unstable
 ☒ Run regardless of build result

Should the post-build steps run only for successful builds, etc.

Add post-build step ▾

---

**Build Settings**

☐ E-mail Notification

### **Automation with Pipeline View:-**

1st step

- >> Go to Maven\_compile configuration
- >> Build triggers
- >> Build after other projects are built
- >> Maven\_integration
- >> Apply >> save.

2nd step

- >> Go to Maven\_test configuration
- >> Build triggers
- >> Build after other projects are built
- >> Maven\_compile
- >> Apply >> save.

3rd step

- >> Go to Maven\_Package configuration
- >> Build triggers
- >> Build after other projects are built
- >> Maven\_test

>> Apply >> save

Additional Behaviours

Add

☐ Subversion

### Build Triggers

☒ Build whenever a SNAPSHOT dependency is built

☐ Schedule build when some upstream has no successful builds

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

☒ Build after other projects are built

Projects to watch

Maven\_integration

☒ Trigger only if build is stable

☐ Trigger even if the build is unstable

☐ Trigger even if the build fails

☐ Build periodically

☐ Build when a change is pushed to GitBucket

☐ Poll SCM

### Build Environment

☒ Delete workspace before build starts

Advanced...

☐ Execute shell script on remote host using ssh

Save

Apply

Amazon

Additional Behaviours

Add

☐ Subversion

Build Triggers

☒ Build whenever a SNAPSHOT dependency is built

☐ Schedule build when some upstream has no successful builds

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

☒ Build after other projects are built

Projects to watch

Maven\_compile

☒ Trigger only if build is stable

☐ Trigger even if the build is unstable

☐ Trigger even if the build fails

☐ Build periodically

☐ Build when a change is pushed to GitBucket

☐ Poll SCM

Build Environment

☒ Delete workspace before build starts

Advanced...

☐ Execute shell script on remote host using ssh

☐ SSH Agent

Save

Apply

Build Triggers

☒ Build whenever a SNAPSHOT dependency is built

☐ Schedule build when some upstream has no successful builds

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

☒ Build after other projects are built

Projects to watch

Maven\_test

☒ Trigger only if build is stable

☐ Trigger even if the build is unstable

☐ Trigger even if the build fails

☐ Build periodically

☐ Build when a change is pushed to GitBucket

☐ Poll SCM

Build Environment

☐ Delete workspace before build starts

☐ Execute shell script on remote host using ssh

☐ SSH Agent

☐ With Ant

Pre Steps

Save

Apply



## Pipeline Installation:-

### 1st Step

>> Manage Jenkins

>> Manage plugins

>> Available <type build pipeline package name>

>> install without restart.

### 2nd step

>> Jenkins Dashboard

>> New view

>> Name

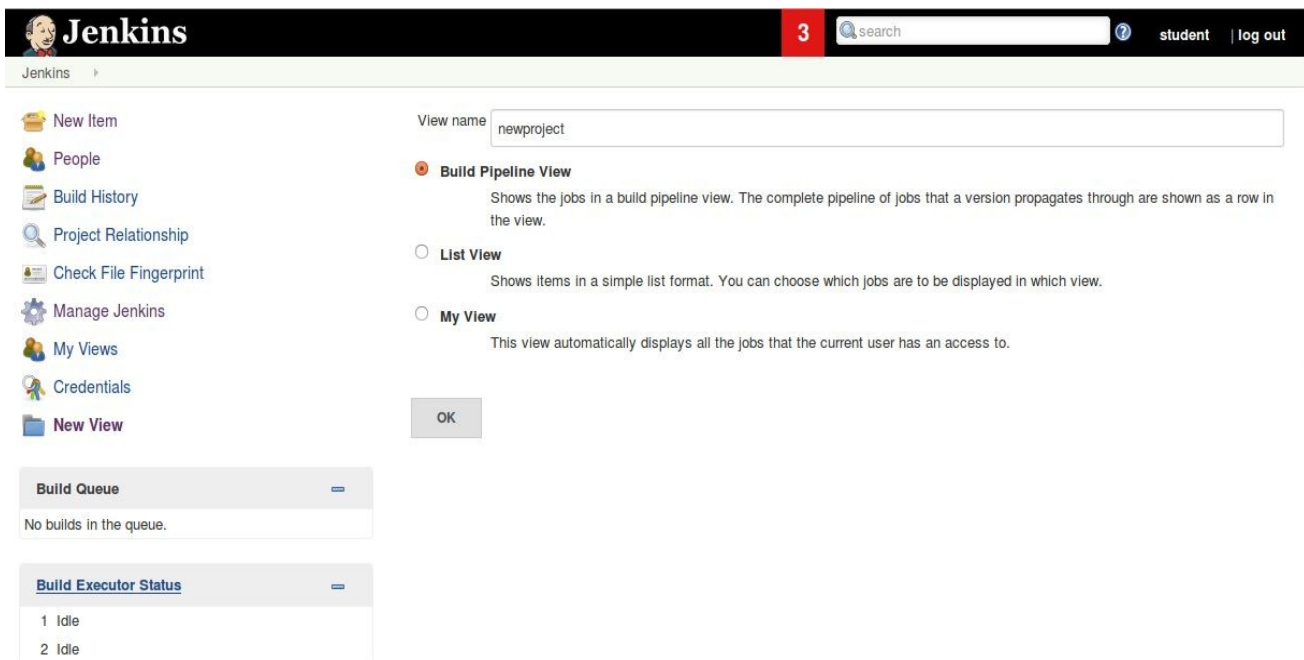
>> build pipeline view

>> apply >> save.

### 3rd Step

>> View configure Upstream / downstream config

>> Select >> Maven\_integration >> Apply >> ok.



The screenshot displays the Jenkins web interface. At the top, the Jenkins logo is on the left, and a navigation bar on the right includes a red tab with the number '3', a search bar, and links for 'student' and 'log out'. Below the navigation bar, a sidebar on the left lists various Jenkins features: 'New Item', 'People', 'Build History', 'Project Relationship', 'Check File Fingerprint', 'Manage Jenkins', 'My Views', 'Credentials', and 'New View' (which is highlighted). The main content area is titled 'View name' with a text input field containing 'newproject'. Below this, there are three radio button options for the view type: 'Build Pipeline View' (selected), 'List View', and 'My View'. Each option has a descriptive text block. At the bottom of the main content area, there is an 'OK' button. On the left side of the main content area, there are two expandable sections: 'Build Queue' (showing 'No builds in the queue.') and 'Build Executor Status' (showing two executors in an 'Idle' state).

Build History

Edit View

Delete View

Project Relationship

Check File Fingerprint

Manage Jenkins

My Views

Credentials

New View

Build Queue

No builds in the queue.

Build Executor Status

1 Idle

2 Idle

Filter build queue

Filter build executors

Build Pipeline View Title

Pipeline Flow

Layout

Based on upstream/downstream relationship

Upstream / downstream config

Select Initial Job

Maven\_Integration

Trigger Options

Build Cards

Standard build card

Use the default build cards

Restrict triggers to most recent successful builds

Yes No

Always allow manual trigger on pipeline steps

Yes No

[Plain text] Preview

Jenkins

3

search

student | log out

Jenkins

Project1

ENABLE AUTO REFRESH

Build Pipeline

Run

History

Configure

Add Step

Delete

Manage

Pipeline

Ubuntu Software Center

#10 Maven\_Integration

#8 Maven\_compile

#8 Maven\_test

#13 Maven\_package

## Fully Automation in Jenkins:-

### 1st Step

- >> Go to Jenkins user configure
- >> Add new Token and copy
- >> Apply Save.

### 2nd step

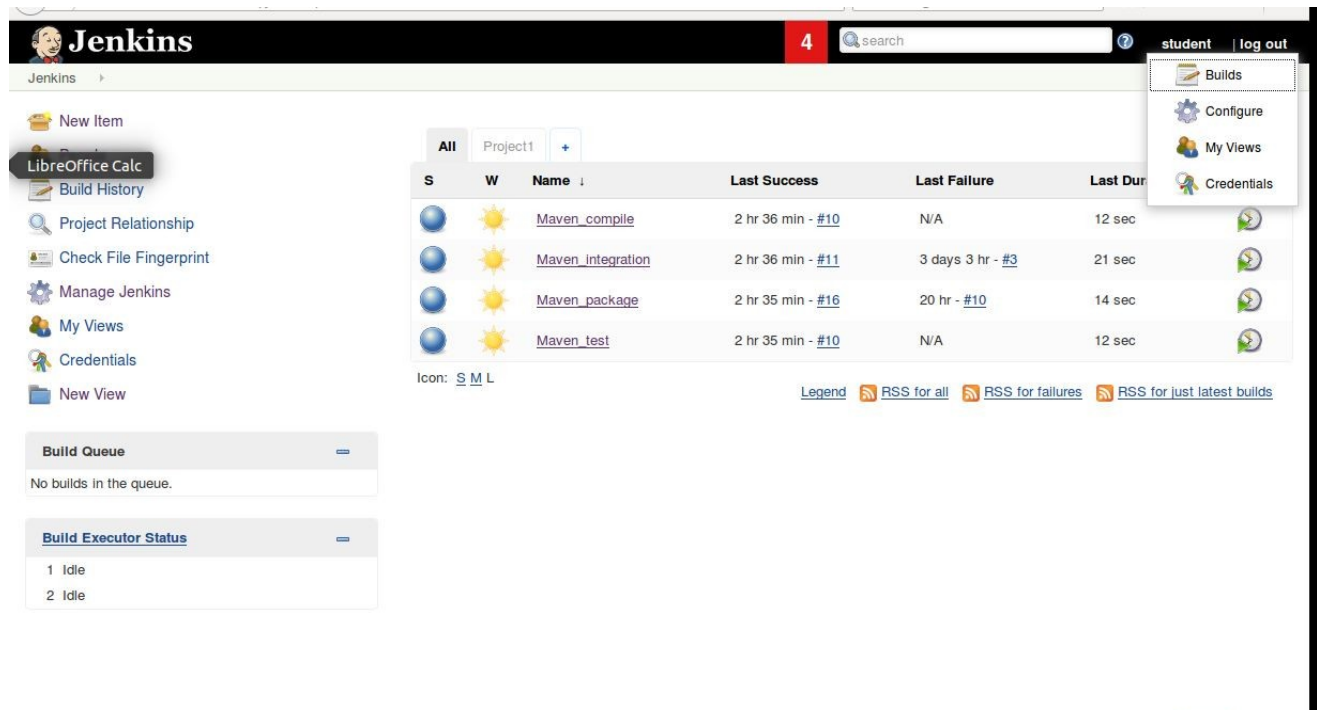
- >> Go to Gitbucket
- >> Account Settings
- >> Service hooks Add payroll url(Jenkins url)
- >> Past the Token >> tick on Push >> save.

### 3rd step

- >> Go to Jenkins
- >> Maven\_integaration
- >> Configure
- >> Build Triggers
- >> Build when a change is pushed to Gitbucket >> apply >> save.

### 4th step

- >> Go to Terminal Push new code to Gitbucket server.



The screenshot displays the Jenkins web interface. The top navigation bar includes the Jenkins logo, a red status indicator with the number '4', a search bar, and user information 'student | log out'. The left sidebar contains a 'New Item' button and a list of links: 'LibreOffice Calc', 'Build History', 'Project Relationship', 'Check File Fingerprint', 'Manage Jenkins', 'My Views', 'Credentials', and 'New View'. The main content area shows a table of build history for 'Project1'. The table has columns for status (S), weather icon (W), name, last success, last failure, and last duration. Below the table, there are links for 'Build Queue' (showing 'No builds in the queue.') and 'Build Executor Status' (showing '1 Idle' and '2 Idle').

S	W	Name	Last Success	Last Failure	Last Duration
		<a href="#">Maven compile</a>	2 hr 36 min - <a href="#">#10</a>	N/A	12 sec
		<a href="#">Maven Integration</a>	2 hr 36 min - <a href="#">#11</a>	3 days 3 hr - <a href="#">#3</a>	21 sec
		<a href="#">Maven package</a>	2 hr 35 min - <a href="#">#16</a>	20 hr - <a href="#">#10</a>	14 sec
		<a href="#">Maven test</a>	2 hr 35 min - <a href="#">#10</a>	N/A	12 sec

Icon: [S](#) [M](#) [L](#)

Legend: [RSS for all](#) [RSS for failures](#) [RSS for just latest builds](#)

Jenkins

4

search

student | log out

Jenkinsstudent

People

LibreOffice Calc

Builds

Configure

My Views

Credentials

Full Name

student

Description

API Token

Current token(s)

Token created on 2019-04-13T10:13:55.463+05:30

Created 0 day(s) ago

Never used

Add new Token

Credentials

Credentials are only available to the user they belong to

E-mail

E-mail address

student@pivotal.com

Your e-mail address, like joe.chin@sun.com

My Views

Default View

Webhook / Manage webhook

Profile

Applications

Service Hooks

Notifications

Payload URL

http://192.168.159.154:8080/jenkins/

Test Hook

Content type

application/x-www-form-urlencoded

Security Token

Token created on 2019-04-13T10:13:55.463+05:30

Which events would you like to trigger this webhook?

☐ Create

Branch, or tag created.

☐ Gollum

Wiki page updated.

☐ Issue comment

Issue commented on.

☐ Issues

Issue opened, closed.

☐ Pull request

Pull request opened, closed, or synchronized.

☐ Pull request review comment

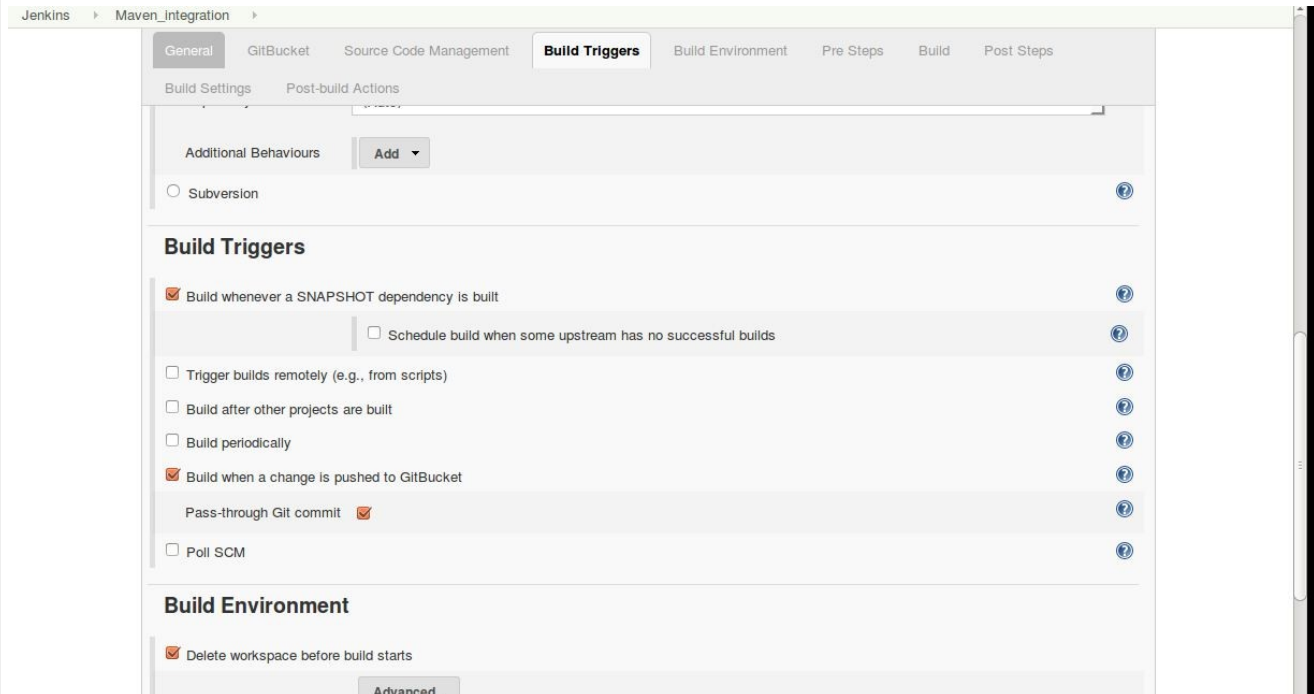
Pull request diff commented on.

☒ Push

Git push to a repository.

Update webhook

Delete webhook



### Continues Deploy:-

#### 1st step

- >> Go to Jenkins Dashboard
- >> Manage Jenkins
- >> Manage Plugins >> Available >> Deploy to container
- >> install without restart >> ok.

#### 2nd step

- >> Go to Jenkins Dashboard
- >> Maven\_Package Configure
- >> Post-build Actions
- >> Deploy war/ear to container >> war/ear files=\*\*/\*.war
- >> Context path=/sampleweb >> credentials
- >> Tomcat Url Apply Save.

#### 3rd Step

- >> Go to Terminal push some new code to Gitbucket than see the changes in firefox.

## Jenkins Backup and Restore:-

Jenkins > Plugin Manager

LibreOffice Impress

ability to define manual triggers for jobs that require intervention prior to execution, e.g. an approval process outside of Jenkins.		
<input checked="" type="checkbox"/>	<a href="#">Command Agent Launcher Plugin</a> Allows agents to be launched using a specified command.	1.3 Uninstall
<input checked="" type="checkbox"/>	<a href="#">Conditional BuildStep</a> A buildstep wrapping any number of other buildsteps, controlling their execution based on a defined condition (e.g. BuildParameter).	1.3.6 Uninstall
<input checked="" type="checkbox"/>	<a href="#">Credentials Plugin</a> This plugin allows you to store credentials in Jenkins.	2.1.18 Uninstall
<input checked="" type="checkbox"/>	<a href="#">Deploy to container Plugin</a> This plugin allows you to deploy a war to a container after a successful build. Glassfish 3.x remote deployment	1.13 Uninstall
<input checked="" type="checkbox"/>	<a href="#">Display URL API</a> Provides the DisplayURLProvider extension point to provide alternate URLs for use in notifications	2.3.1 Uninstall
<input checked="" type="checkbox"/>	<a href="#">Durable Task Plugin</a> Library offering an extension point for processes which can run outside of Jenkins yet be monitored.	1.29 Uninstall
<input checked="" type="checkbox"/>	<a href="#">External Monitor Job Type Plugin</a> Adds the ability to monitor the result of externally executed jobs	1.7 Uninstall
<input checked="" type="checkbox"/>	<a href="#">Folders Plugin</a> This plugin allows users to create "folders" to organize jobs. Users can define custom taxonomies (like by project type, organization type etc). Folders are nestable and you can define views within folders. Maintained by CloudBees, Inc.	6.8 Uninstall
<input checked="" type="checkbox"/>	<a href="#">Git client</a> Utility plugin for Git support in Jenkins	2.7.6 Downgrade to 2.7.6 Uninstall

1st step

>> Go to Jenkins Dashboard

Add post-build step

### Build Settings

☐ E-mail Notification

### Post-build Actions

Deploy war/ear to a container

WAR/EAR files

Context path

Containers

Tomcat 7.x

Credentials  Add

Tomcat URL

Add Container

Deploy on failure ☐

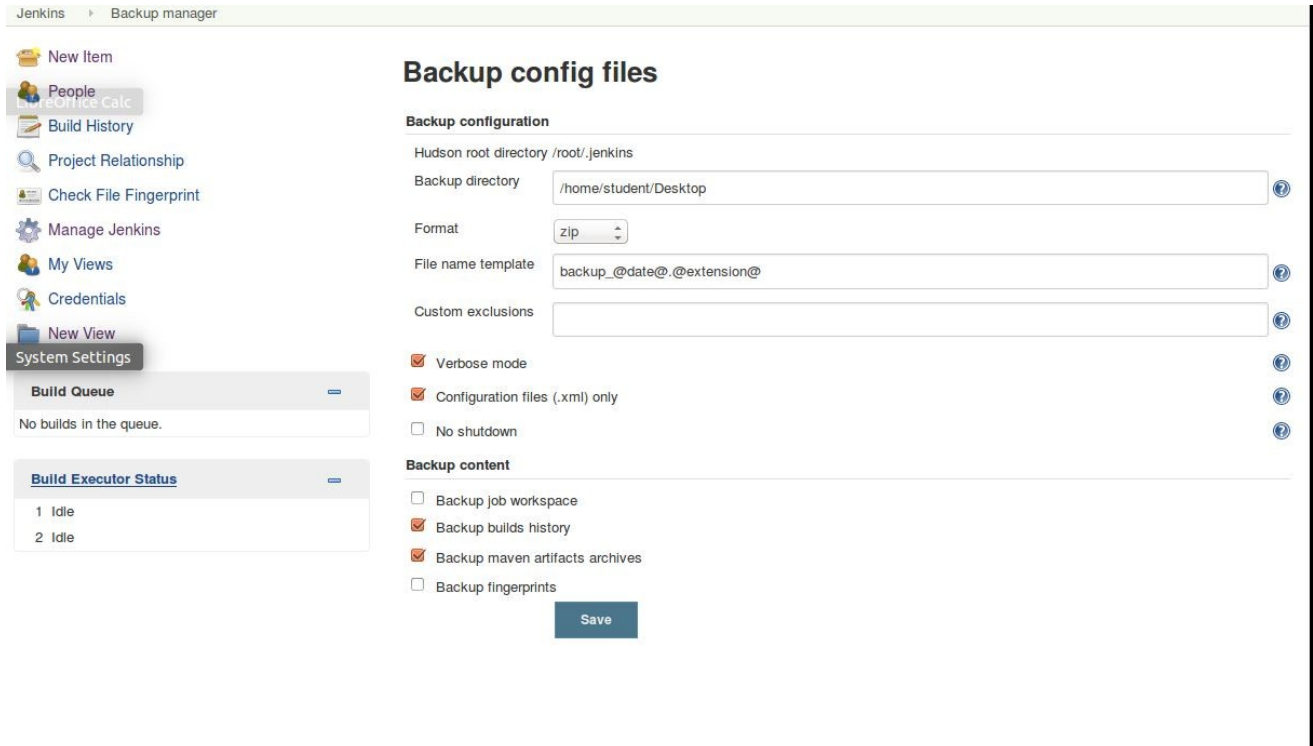
Add post-build action

Save Apply

>> Manage Jenkins  
>> Manage Plugins >> Available  
>> Backup Plugin >> install without restart >> ok.  
2nd step  
>> Go to Jenkins Dashboard  
>> Manage Jenkins  
>> Backup manager  
>> Setup >> Backup directory >> Format >> save.  
3rd step  
>> Go to Jenkins Dashboard  
>> Manage Jenkins  
>> Backup manager  
>> Backup Hudson configuration >> Ok.  
4th step  
>> Go to Jenkins Dashboard  
>> Manage Jenkins  
>> Backup manager  
>> Restore Hudson configuration >> Launch Restore.

# Ansible:-

Ansible is a radically simple IT automation system. It handles configuration



The screenshot shows the Jenkins Backup manager configuration page. The left sidebar contains navigation links: New Item, People, Build History, Project Relationship, Check File Fingerprint, Manage Jenkins, My Views, Credentials, New View, and System Settings. The main content area is titled 'Backup config files' and contains two sections: 'Backup configuration' and 'Backup content'. The 'Backup configuration' section has fields for Hudson root directory (/root/.jenkins), Backup directory (/home/student/Desktop), Format (zip), File name template (backup\_@date@.@extension@), and Custom exclusions. It also has checkboxes for Verbose mode, Configuration files (.xml) only, and No shutdown. The 'Backup content' section has checkboxes for Backup job workspace, Backup builds history, Backup maven artifacts archives, and Backup fingerprints. A 'Save' button is at the bottom right.

Jenkins > Backup manager

New Item

People

Build History

Project Relationship

Check File Fingerprint

Manage Jenkins

My Views

Credentials

New View

System Settings

Build Queue

No builds in the queue.

Build Executor Status

1 Idle

2 Idle

### Backup config files

**Backup configuration**

Hudson root directory /root/.jenkins

Backup directory /home/student/Desktop

Format zip

File name template backup\_@date@.@extension@

Custom exclusions

☒ Verbose mode

☒ Configuration files (.xml) only

☐ No shutdown

**Backup content**

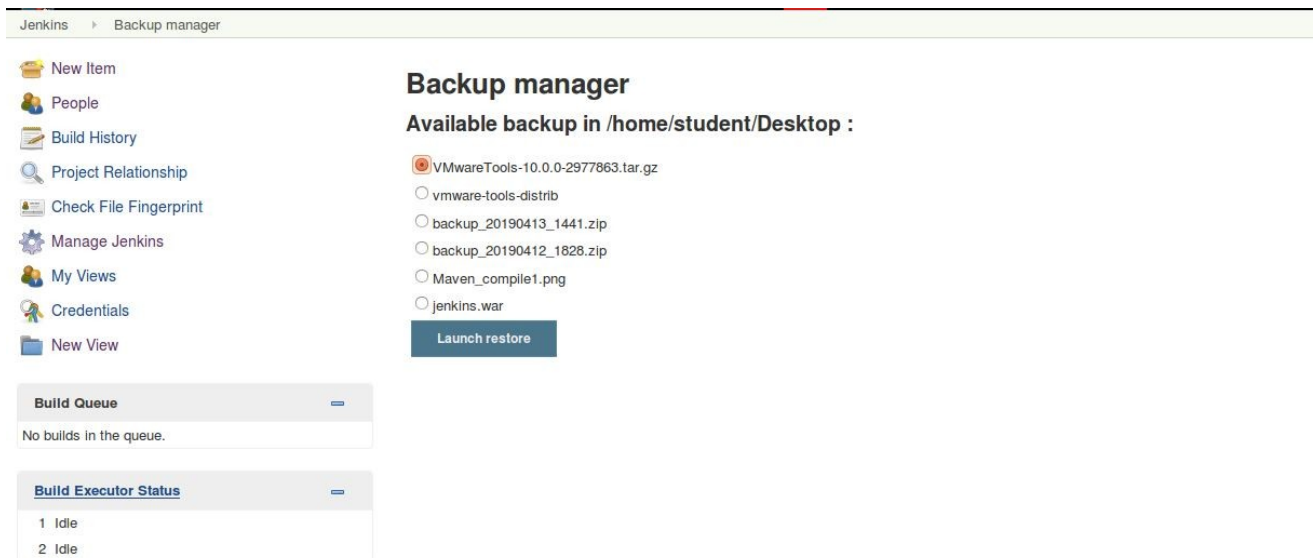
☐ Backup job workspace

☒ Backup builds history

☒ Backup maven artifacts archives

☐ Backup fingerprints

Save



The screenshot shows the Jenkins Backup manager restore page. The left sidebar is the same as the previous screenshot. The main content area is titled 'Backup manager' and contains a section 'Available backup in /home/student/Desktop :'. This section lists several backup files: VMwareTools-10.0.0-2977863.tar.gz, vmware-tools-distrib, backup\_20190413\_1441.zip, backup\_20190412\_1828.zip, Maven\_compile1.png, and jenkins.war. A 'Launch restore' button is at the bottom right.

Jenkins > Backup manager

New Item

People

Build History

Project Relationship

Check File Fingerprint

Manage Jenkins

My Views

Credentials

New View

Build Queue

No builds in the queue.

Build Executor Status

1 Idle

2 Idle

### Backup manager

**Available backup in /home/student/Desktop :**

☒ VMwareTools-10.0.0-2977863.tar.gz

☐ vmware-tools-distrib

☐ backup\_20190413\_1441.zip

☐ backup\_20190412\_1828.zip

☐ Maven\_compile1.png

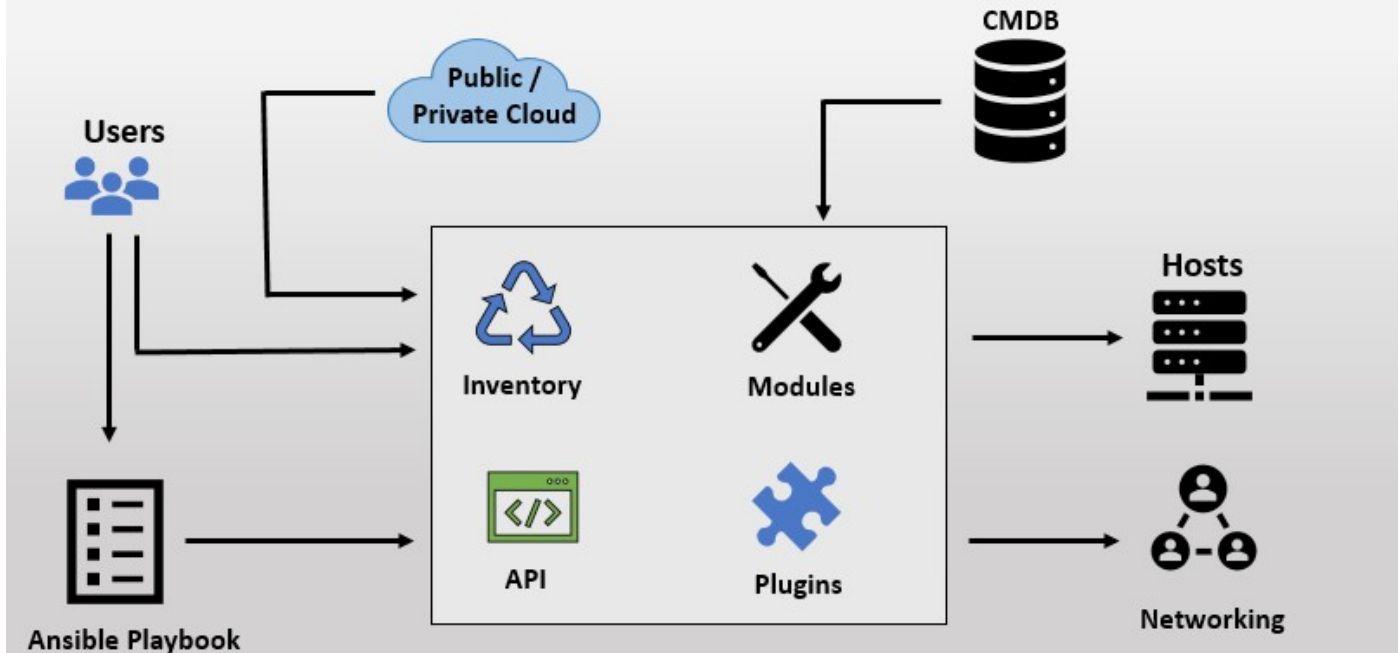
☐ jenkins.war

Launch restore

management, application deployment, cloud provisioning, ad-hoc task execution, network automation, and multi-node orchestration. Ansible makes complex changes like zero-downtime rolling updates with load balancers easy.



# Ansible Architecture



- Minimal in nature. Management systems should not impose additional dependencies on the environment.[16]
- Consistent. With Ansible one should be able to create consistent environments.
- Secure. Ansible does not deploy agents to nodes. Only OpenSSH and Python are required on the managed nodes.[16][12]
- Highly reliable. When carefully written, an Ansible playbook can be idempotent, to prevent unexpected side-effects on the managed systems. [18] It is entirely possible to have a poorly written playbook that is not idempotent.
- Minimal learning required. Playbooks use an easy and descriptive language based on YAML and Jinja templates.
- Control machines have to be a Linux/Unix host (for example, Red Hat Enterprise Linux, Debian, CentOS, macOS, BSD, Ubuntu[11]), and Python 2.7 or 3.5 is required.[3]

## **Ansible Installation:-**

Configure in System 1, System2 and System3 :-

```
>> set ip address and hostaddress
>> install ssh
>> install epel-release packages
>> install yum packages
>> sudo yum localinstall --nogpgcheck
https://download1.rpmfusion.org/free/el/rpmfusion-free-release-7.noarch.rpm
>> sudo yum localinstall --nogpgcheck
https://download1.rpmfusion.org/nonfree/el/rpmfusion-nonfree-release-
7.noarch.rpm
>> sudo yum localinstall --nogpgcheck
http://dl.fedoraproject.org/pub/epel/7/x86_64/Packages/e/epel-release-7-
11.noarch.rpm
>> sudo yum localinstall --nogpgcheck
http://rpms.famillecollet.com/enterprise/remi-release-7.rpm
>> sudo rpm --import https://www.elrepo.org/RPM-GPG-KEY-elrepo.org
sudo rpm -Uvh http://www.elrepo.org/elrepo-release-7.0-
3.el7.elrepo.noarch.rpm
>> sudo yum localinstall --nogpgcheck
http://repo.webtatic.com/yum/el7/webtatic-release.rpm
>> yum update
>> yum clean all
>> yum install ansible
ssh-key has to setup on both the nodes
```

Ansible server talks to managed nodes using ssh

Default location of inventory: /etc/ansible/hosts

add hosts to /etc/ansible/hosts

and configure password less authentication

Generate ssh keys and setup password less authentication between server and clients

perform jobs either using ansible command line or playbooks.

### **Ansible command line:-**

```
>> ansible all -m ping
>> ansible all -a "touch /tmp/hello"
>> ansible webserver -m ping
```

### **Ansible playbooks:-**

playbook for file copying

---

```
- hosts: all
  become_user: root
```

tasks:

```
- name: Copy file with owner and permissions
```

copy:

```
  src: /root/playfile
```

```
  dest: /tmp
```

```
  owner: root
```

```
  group: root
```

```
  mode: '0644'
```

```
>> ansible-playbook apache.yml --check
```

```
>> ansible-playbook filename
```

### **Web playbooks:-**

```
- hosts: all
  become_user: root
```

tasks:

- name: 1. Install Latest Version of HTTP/Apache  
yum: name=httpd state=present
- name: 2. start httpd service  
service: name=httpd state=started enabled=yes
- name: 3. copy the standard index.html file  
copy: src=/tmp/index.html dest=/var/www/html/index.html mode=0664
- name: 4. Add apache iptable rule  
command: /sbin/iptables -I INPUT 1 -p tcp --dport http -j ACCEPT -m comment  
--comment "Apache on port 80"
- name: 5. Save iptable rule  
command: iptables-save

>> ansible-playbook apache.yml --check  
>> ansible-playbook filename

### **users playbook:-**

---

- hosts: all  
become\_user: root

tasks:

# this task creates groups

- name: add a group  
group:  
name={{ item }}

```
state=present
with_items:
- demogrp
- demogrp1
tags: add_new_grp
# this task creates users
- name: add a user
user:
name={{ item }}
state=present
password="redhat"
shell=/bin/bash
with_items:
- demouser1
- demouser2
- demouser3
tags: add_new_user
# this tasks is to delete the users
- name: delete several users
user:
name={{ item }}
state=absent
with_items:
- demouser1
tags: remove_user
# this task is to delete the groups
- name: delete groups
group:
name={{ item }}
state=absent
with_items:
- demogrp
- demogrp1
tags: remove_group
```

```
>> ansible-playbook apache.yml --check
>> ansible-playbook user.yml --list-tags
>> ansible-playbook user.ymo --tags add_net_user
```

```
- name: Patch Windows systems against Meltdown and Spectre
  hosts: "{{ target_hosts | default('all') }}"
```

```
vars:
```

```
  reboot_after_update: no
```

```
  registry_keys:
```

```
    - path: HKLM:\SYSTEM\CurrentControlSet\Control\Session
      Manager\Memory Management
        name: FeatureSettingsOverride
        data: 0
        type: dword
```

```
    - path: HKLM:\SYSTEM\CurrentControlSet\Control\Session
      Manager\Memory Management
        name: FeatureSettingsOverrideMask
        data: 3
        type: dword
```

```
  # https://support.microsoft.com/en-us/help/4072699
```

```
  - path:
```

```
    HKLM:\SOFTWARE\Microsoft\Windows\CurrentVersion\QualityCompat
      name: cadca5fe-87d3-4b96-b7fb-a231484277cc
      type: dword
      data: '0x00000000'
```

```
tasks:
```

```
  - name: Install security updates
```

```
    win_updates:
```

```
      category_names:
```

- SecurityUpdates

notify: reboot windows system

- name: Enable kernel protections

win\_regedit:

path: "{{ item.path }}"

name: "{{ item.name }}"

data: "{{ item.data }}"

type: "{{ item.type }}"

with\_items: "{{ registry\_keys }}"

handlers:

- name: reboot windows system

win\_reboot:

shutdown\_timeout: 3600

reboot\_timeout: 3600

when: reboot\_after\_update

>> ansible-playbook apache.yml --check

>> ansible-playbook user.yml --list-tags

>> ansible-playbook user.ymo --tags add\_net\_user