**1. What is CI?**

**Answer:  What is Continuous Integration?**

Continuous Integration is a development practice in which the developers are required to commit changes to the source code in a shared repository several times a day or more frequently. Every commit made in the repository is then built. This allows the teams to detect the problems early. Continuous Integration is the most important part of DevOps that is used to integrate various DevOps stages. Jenkins is the most famous Continuous Integration tool.

**Continuous Integration comprises of:**

* Development and Compilation
* Database Integration
* Unit Testing
* Production Deployment
* Code Labeling
* Functional Testing
* Generating and Analyzing Reports

**Below is the list of few popular Continuous Integration tools:**

* Jenkins
* TeamCity
* Travis CI
* Go CD
* Bamboo
* GitLab CI
* CircleCI
* Codeship

**Continuous Integration**: CI or Continuous Integration is an engineering practice in which members of a development team integrate their code at a very high frequency. Teams implementing CI aim to integrate code daily or, in some cases, even hourly.

**Continuous Delivery:** CD or Continuous Delivery is the practice of ensuring that code is always in a deployable state. This means that all changes to code – new features, bug fixes, experiments, configuration changes – are always ready for deployment to a production environment.

**Continuous Deployment:** CD can also mean Continuous Deployment – a practice in which all changes are automatically deployed into production. Unlike Continuous Delivery, there is no final manual approval step before releasing into production.

**2. What is Jenkins?**

**Answer:**Jenkins is an open source automation tool written in Java with plugins built for Continuous Integration purpose. Jenkins is used to build and test your software projects continuously making it easier for developers to integrate changes to the project, and making it easier for users to obtain a fresh build. It also allows you to continuously deliver your software by integrating with a large number of testing and deployment technologies. Jenkins integrates development life-cycle processes of all kinds, including build, document, test, package, stage, deploy, static analysis and much more. Jenkins achieves Continuous Integration with the help of plugins. Plugins allows the integration of Various DevOps stages. If you want to integrate a particular tool, you need to install the plugins for that tool. For example: Git, Maven, HTML publisher etc.

**Advantages:**

Advantages of Jenkins include:

* It is an open source tool with great community support.
* It is easy to install.
* It has 1000+ plugins to ease your work. If a plugin does not exist, you can code it and share with the community.
* It is built with Java and hence, it is portable to all the major platforms.

**3. What is a Jenkins Pipeline?**

**Answer:**Jenkins Pipeline (or simply “Pipeline”) is a suite of plugins which supports implementing and integrating continuous delivery pipelines into Jenkins.

**4. What is Groovy in Jenkins?**

**Answer:** Groovy is the default scripting language that is being used in the development of JMeter Version 3.1. Currently Apache Groovy is the dynamic object-oriented programming language that is used as a scripting language for the Java platform. Apache Groovy comes with some useful features such as Java Compatibility and Development Support.

**5. Diff between maven, Jenkins, ant**

**Answer:**Maven is a build tool, in short a successor of ant. It helps in build and version control. However Jenkins is continuous integration system, where in maven is used for build. Jenkins can be used to automate the deployment process.

**6. Which SCM tools Jenkins supports?**

**Answer:**below are the Source code management tools supported by Jenkins:

* AccuRev
* CVS
* Subversion
* Git
* Mercurial
* Perforce
* Clearcase
* RTC

**7. What is the relation between husdon and Jenkins?**

**Answer:**There is no such difference between Hudson and Jenkins. Jenkins is actually the renamed version of Hudson

Jenkins was forked from Hudson when Sun was acquired by Oracle who aimed to develop a commercial version of the software. Since the fork, Jenkins has grown to be much more than a CI solution.

**8. How to make sure that your project builds doesn’t break in Jenkins?**

**Answer:**To make sure Jenkins build isn't broken in the slightest degree we need to make sure that we tend to perform a successful clean install on the local machine with all unit tests.

Then make sure that all code changes are checked in without any issues.

Then synchronize with a repository to make sure that all needed config and changes and any variations are checked into the repository.

**9. How to move or copy Jenkins from one server to another**

**Answer:**

1. Copy all the files in your JENKINS\_HOME directory over to the new server.

2. Point JENKINS\_HOME on the new server at the new directory.

3. Copy the Jenkins war file (or your servlet container setup if you have one) over to the new machine and start it up.

All Jenkins settings, jobs, plugins, config, etc. live in JENKINS\_HOME.

You just need a copy of it to start it elsewhere.

**10. How can we create a backup and copy files in Jenkins?**

**Answer:**to create a backup all you need to do is to periodically back up your JENKINS\_HOME directory.

This contains all of your build jobs configurations, your slave node configurations, and your build history.

To create a back-up of your Jenkins setup, just copy this directory. You can also copy a job directory to clone or replicate a job or rename the directory.

You can create a cron job to do so.

Or you can use “Thin Backup” plugin in Jenkins.

**11. How can you clone a git repo via Jenkins?**

**Answer:**To create a clone repository via Jenkins you need to use your login credentials in the Jenkins System. To achieve the same you need to enter the Jenkins job directory and execute the git config command**.**

**12. How to run smoke and sanity using Jenkins?**

**Answer:**Please refer below YouTube video

<https://www.youtube.com/watch?v=KG47Y8uUtVI&list=PLsGOlyTzNH6f6azWCMyTpW11F-3gyDYxV&index=2>

**13. How to reset Jenkins username and password**

**Answer:**To reset the jenkins admin password, You can simply disable the security in the config.xml file.

1. If your jenkins is running on the Linux OS, edit the below file.

vi /var/lib/jenkins/config.xml file.

2. Search for the word <useSecurity>true</useSecurity>

and change the word true to false.

3. Restart the Jenkins server.

service jenkins restart

4. Now go to the Jenkins portal again and Jenkins will not ask any credentials this time. You navigate to "Manage Jenkins" to set the administrator password again.

5. Enable the security again by changing settings to <useSecurity>true</useSecurity> and restart the Jenkins again.

Note:

If your jenkins is running on Windows OS, config.xml file located in C:\Program Files (x86)\Jenkis\ folder.

**14. How do you setup Maven Project in Jenkins?**

**Answer:**Please refer below link and videos –

<https://www.automationtestinginsider.com/2020/06/selenium-integration-with-jenkins-part-a.html>

**15. How do you start Jenkins?**

**Answer:**To start Jenkins from command line

Open command prompt.

Go to the directory where your war file is placed and run the following command: java -jar jenkins.war

**16. How to create a job in Jenkins?**

**Answer:**Few of the steps given below

Step 1 − Go to the Jenkins dashboard and Click on New Item.

Step 2 − in the next screen, enter the Item name, in this case we have named it Helloworld.

Step 3 − the following screen will come up in which you can specify the details of the job.

Step 4 − we need to specify the location of files which need to be built.

**17. What are the basic plugins you used in Jenkins?**

**Answer:**

**Maven Integration** - This plug-in provides, for better and for worse, a deep integration of Jenkins and Maven.

**Git plugin** - This plugin integrates Git with Jenkins.

**TestNG Results Plugin** - This plugin integrates TestNG test reports to Jenkins.

**HTML Publisher plugin** - This plugin publishes HTML reports.

**Email Extension** - This plugin is a replacement for Jenkins's email publisher. It allows to configure every aspect of email notifications: when an email is sent, who should receive it and what the email says.

**Email Extension Template Plugin** - This plugin allows administrators to create global templates for the Extended Email Publisher.

**External Monitor Job Type Plugin** - Adds the ability to monitor the result of externally executed jobs

**Green Balls**- Because green is better than blue! For color blind support configure user property.

**18. On which platform JENKINS will work?**

**Answer:**It is built with Java and hence, it is portable to all the major platforms.

**19. Mention what are the commands you can use to start Jenkins manually?**

**Answer:** To start Jenkins manually, you can use either of the following

(Jenkins\_url)/restart: Forces a restart without waiting for builds to complete

(Jenkin\_url)/safeRestart: Allows all running builds to complete

**20. Mention what are the two components Jenkins is mainly integrated with?**

**Answer:**Jenkins is mainly integrated with two components

* Version Control system like GIT, SVN
* And build tools like Apache Maven.

**21. What are Triggers?**

**Answer:** Trigger in Jenkins defines the way in which the pipeline should be executed frequently. PollSCM, Cron, etc are the currently available Triggers.