# Jenkins FAQs

1. What is CI & CD?

CI means Continues Integration and CD means Continues Delivery/Deploy. Whenever developers write code, we integrate all that code of all developers at that point of time and we build, test and deliver/deploy to the client. This process we call CI & CD. Jenkins helps in achieving this. So instead of doing night builds, build as and when commit occurs by integrating all code in SCM tool, build, test and checking the quality of that code is what we call Continues Integration.

2. Key terminology that we use in Jenkins?

Integrate: Combine all code written by developers till some point of time.

Build: Compile the code and make a small executable package.

Test: Test in all environments whether application is working properly or not.

Archived: Stored in an artifactory so that in future we may use/deliver again.

Deliver: Handing the product to Client

Deploy: Installing product in client's machines.

3. What is Jenkins Workflow?

We attach Git, Maven, Selenium & Artifactory plug-ins to Jenkins. Once Developers put the code in Git, Jenkins pulls that code and send to Maven for build. Once build is done, Jenkins pulls that built code and send to selenium for testing. Once testing is done, then Jenkins will pull that code and send to Artifactory as per requirement and finally we can deliver the end product to client we call Continues delivery. We can also deploy with Jenkins into clients machine directly as per the requirement. This is what Jenkins work flow.

4. What are the ways through which we can do Continues Integration?

are total three ways through which we can do Continues Integration

1. Manually: - Manually write code, then do build manually and then test manually by writing test cases and deploy manually into clients machine.

2. Scripts: - Can do above process by writing scripts so that these scripts do CI&CD automatically. But here complexity is, writing script is not so easy.

3. Tool: - Using tools like Jenkins is very handy. Everything is preconfigured in these type of tools. So less manual intervention. This is the most preferred way.

5. Benefits of CI?

1. Detects bugs as soon as possible, so that bug will be rectified fast and development happens fast.

2. Complete automation. No need manual intervention.

3. We can intervene manually whenever we want. I.e. we can stop any stage at any point of time so have better control.

4. Can establish complete and continues work flow.

6. Why only Jenkins?

.It has so many plug-ins.

.You can write your own plug-in

.You can use community plug-ins

.Jenkins is not just a tool. It is a framework. I.e. you can do what ever you want. All you need is plug-ins.

.We can attach slaves (nodes) to Jenkins master. It instructs others (slaves) to do Job. If slaves are not available, Jenkins itself does the job.

.Jenkins also acts as crone server replacement. I.e. can do repeated tasks automatically

.Running some scripts regularly

E.g.: Automatic daily alarm.

.Can create Labels (Group of slaves) (Can restrict where the project has to run)

7. What is the Jenkins Architecture?

Jenkins architecture is Client-Server model. Where ever, we install Jenkins, we call that server is Jenkins master. We can create slaves also in Jenkins, so that, server load will be distributed to slaves. Jenkins master randomly assigns tasks to slaves. But if you want to restrict any job to run in particular slave, then we can do it so that, that particular job will be executed in that slave only. We can group some slaves by using "Label"

8. How to install Jenkins?

.You can install Jenkins in any OS. All OSs supports Jenkins. We access Jenkins through web page only. That's why it doesn't make any difference whether you install Jenkins in Windows or Linux.

.Choose Long Term Support release version, so that you will get support from Jenkins community. If you are using Jenkins for testing purpose, you can choose weekly release. But for production environments, we prefer Long Term Support release version.

.Need to install JAVA. Java is pre-requisite to install Jenkins.

. Need to install web package. Because, we are going to access Jenkins through web page only.

9. Does Jenkins open source?

There are two editions in Jenkins

1. Open source

2. Enterprise edition

Open source edition we call Jenkins. Here we get support from community if we need it.

Enterprise edition we call Hudson. Here Jenkins company will provide support.

10. How many types of configurations in Jenkins?

There are total 3 types of configurations in Jenkins.

1. Global: - Here, whatever configuration changes we do, applicable to whole Jenkins including jobs as well as nodes. This configuration has high priority.

2. Job: - These configurations applicable to only Jobs. Jobs also we call as projects or items in Jenkins.

3. Node: - These configurations applicable to only nodes. Also we call Slaves. These are kind of helpers to Jenkins master to distribute the excessive load.

11. What do you mean by workspace in Jenkins?

The workspace is the location on your computer where Jenkins places all files related to the Jenkins project. By default each project or job is assigned a workspace location and it contains Jenkins-specific project metadata, temporary files like logs and any build artifacts, including transient build files. Jenkins web page acts like a window through which we are actually doing work in workspace.

12. List of Jenkins services?

localhost:8080/restart (to restart Jenkins)

localhost:8080/stop (to stop Jenkins)

localhost:8080/start (to start Jenkins)

13. How to create a free style project in Jenkins?

Create project by giving any name

Select Free style project

Click on build

Select execute windows batch command

Give any command (echo "Hello Dear Students!!")

Select Save

Click on Build now

Finally can see Console output

14. What do you mean by Plugins in Jenkins?

.With Jenkins, nearly everything is a plugin and that nearly all functionality is provided by plugins. You can think of Jenkins as little more than an executor of plugins.

.Plugins are small libraries that add new abilities to Jenkins and can provide integration points to other tools.

.Since nearly everything Jenkins does is because of a plugin, Jenkins ships with a small set of default plugins, some of which can be upgraded independently of Jenkins

15. How to create Maven Project?

Select new item

Copy the git hub maven project link and paste in git section in Jenkins

Select build

Click on clean package

Select save

Click on Build now

Verify workspace contents with GitHub side

See console output

16. How can we Schedule projects?

Sometimes, we might need some jobs to be executed after frequent intervals. To schedule a job,

Click on any project

Click on Configure

Select on Build triggers

Click on Build periodically

Give timing (* * * * *)

Select Save

Can see automatic builds every 1 min

You can manually trigger build as well if you want

17. What do you mean by Upstream and Downstream projects?

We can also call them as linked projects. These are the ways through which, we connect jobs one with other. In Upstream jobs, first job will trigger second job after build is over. In Downstream jobs, second job will wait till first job finishes its build. As and when first job finishes its work, then second job will be triggered automatically. In Upstream, first job will be active. In Downstream jobs, second job will be active. We can use any one type to link multiple jobs.

18. What is view in Jenkins?

We can customize view as per our needs. We can modify Jenkins home page. We can segregate jobs as per the type of jobs like free style jobs and maven jobs and so on. To create custom view

Select List of Related Projects

Select Default views

Click on All

Click on + and select Freestyle

Select List Views

Select Job filter

Select required jobs to be segregated

Now, you can see different view

19. What is User Administration in Jenkins?

In Jenkins, we can create users, groups and can assign limited privileges to them so that, we can have better control on Jenkins. Users will not install Jenkins in their machines. They access Jenkins as a user. Here we can't assign permissions directly to users. Instead we create "Roles" and assign permissions to those roles. These roles we attach to users so that users get the permissions whatever we assign to those roles.

20. What is Global tool configuration in Jenkins?

We install Java, Maven, Git and many other tools in our server. Whenever Jenkins need those tools, by default Jenkins will install them automatically every time. But it’s not a good practice. That's why we give installed path of all these tools in Jenkins so that whenever Jenkins need them, automatically Jenkins pull them form local machine instead of downloading every time. This way of giving path of these tools in Jenkins we call "Global tool configuration"