

Assignment - 4

Aim: To understand Continuous integration, Jenkins installation.

LO Mapped: LO1, LO3

Theory:

Jenkins is an open-source automation server. With Jenkins, organizations can accelerate the software development process by automating it. Jenkins manages and controls software delivery processes throughout the entire lifecycle, including build, document, test, package, stage, deployment, static code analysis and much more.

You can set up Jenkins to watch for any code changes in places like GitHub, Bitbucket or GitLab and automatically do a build with tools like Maven and Gradle. You can utilize container technology such as Docker and Kubernetes, initiate tests and then take actions like rolling back or rolling forward in production.

Jenkins History

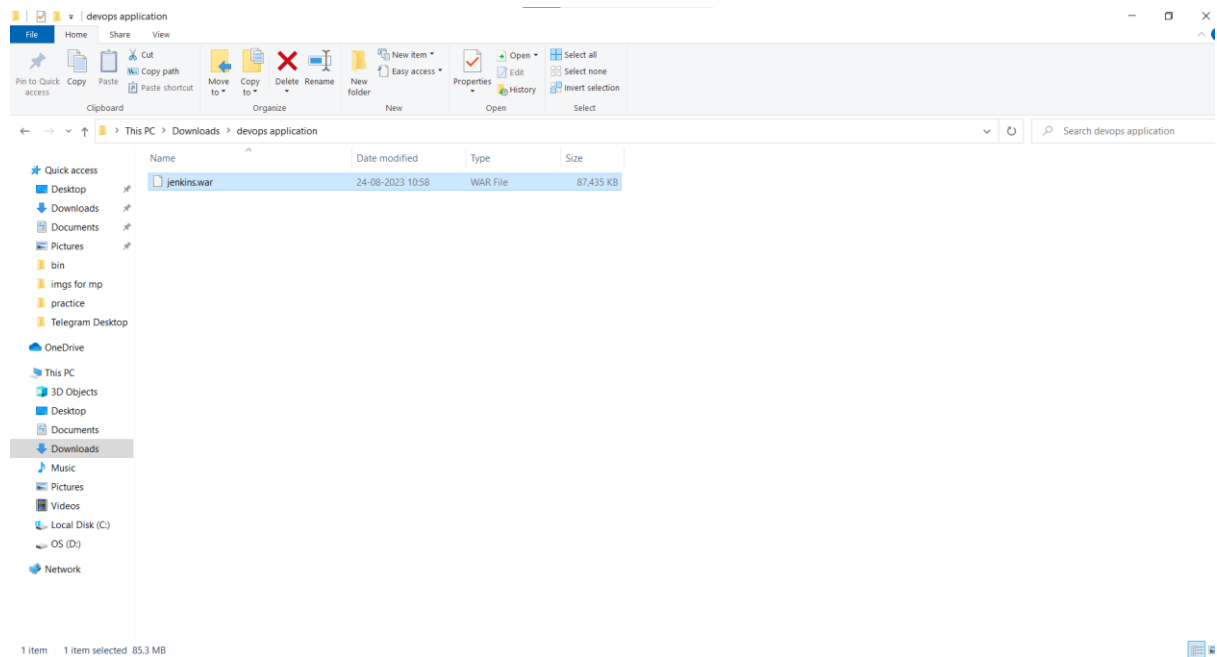
The Jenkins project was started in 2004 (originally called Hudson) by Kohsuke Kawaguchi, while he worked for Sun Microsystems. Kohsuke was a developer at Sun and got tired of incurring the wrath of his team every time his code broke the build. He created Jenkins as a way to perform continuous integration – that is, to test his code before he did an actual commit to the repository, to be sure all was well. Once his teammates saw what he was doing, they all wanted to use Jenkins. Kohsuke open sourced it, creating the Jenkins project, and soon Jenkins usage had spread around the world.

Jenkins Today

Originally developed by Kohsuke for continuous integration (CI), today Jenkins orchestrates the entire software delivery pipeline – called continuous delivery. For some organizations automation extends even further, to continuous deployment. Continuous delivery (CD), coupled with a DevOps culture, dramatically accelerates the delivery of software.

Jenkins is the most widely adopted solution for continuous delivery, thanks to its extensibility and a vibrant, active community. The Jenkins community offers more than 1,700 plugins that enable Jenkins to integrate with virtually any tool, including all of the best-of-breed solutions used throughout the continuous delivery process. Jenkins continues to grow as the dominant solution for software process automation, continuous integration and continuous delivery and, as of February 2018, there are more than 165,000 active installations and an estimated 1.65 million users around the world. Jenkins offers a simple way to set up a continuous integration or continuous delivery (CI/CD) environment for almost any combination of languages and source code repositories using pipelines, as well as automating other routine development tasks. While Jenkins doesn't eliminate the need to create scripts for individual steps, it does give you a faster and more robust way to integrate your entire chain of build, test, and deployment tools than you can easily build yourself.

Screenshots:



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Microsoft Windows [Version 10.0.19045.3324]
(c) Microsoft Corporation. All rights reserved.

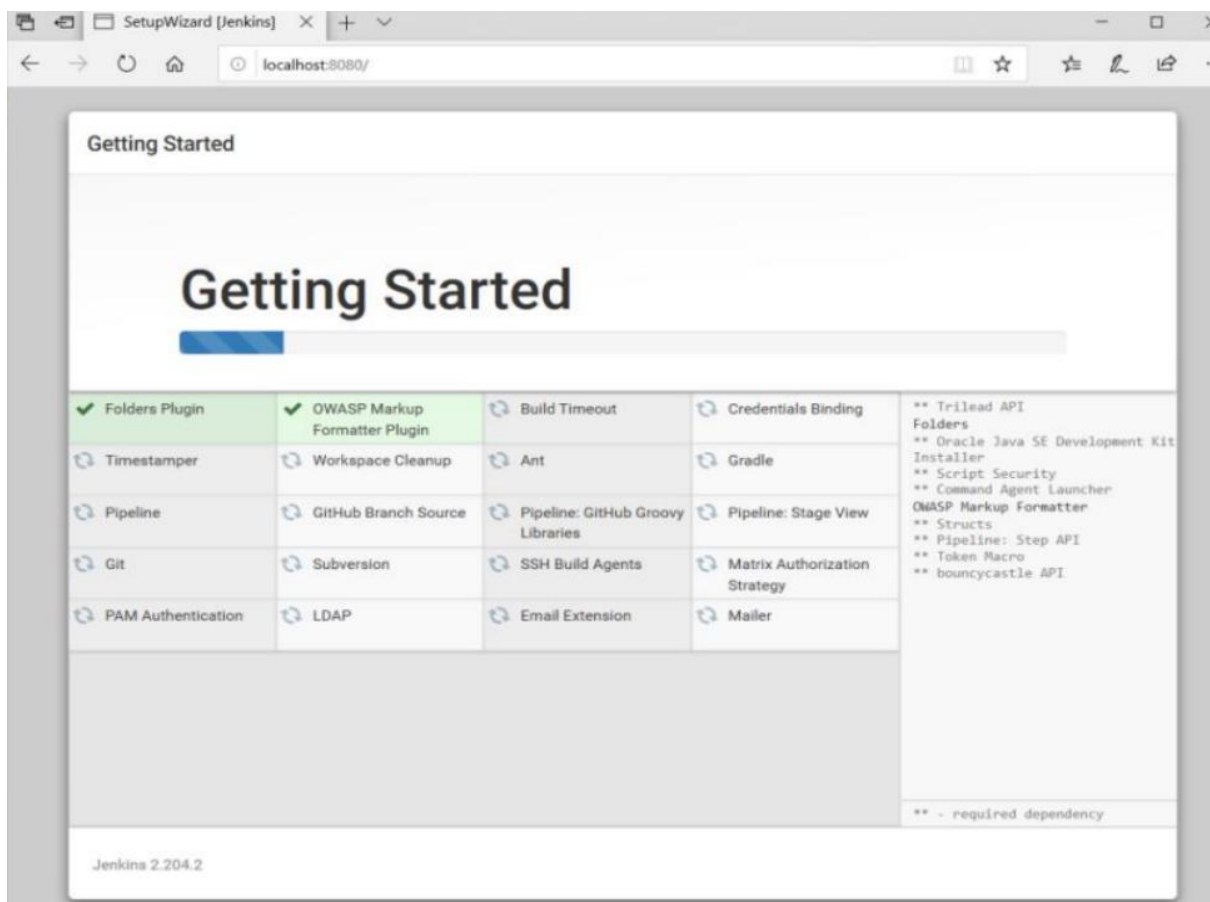
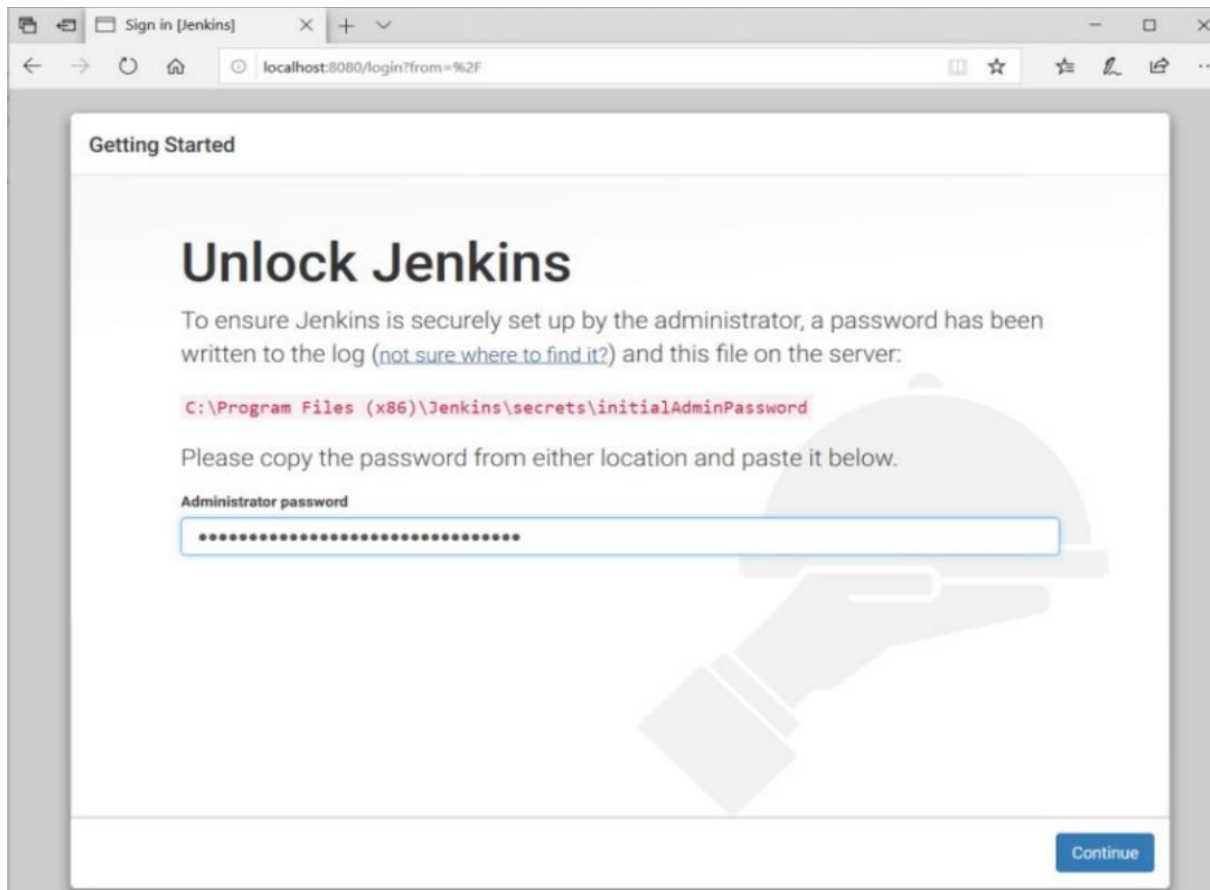
C:\Users\Devl>java -version
java version "20.0.1" 2023-04-18
Java(TM) SE Runtime Environment (build 20.0.1+9-29)
Java HotSpot(TM) 64-Bit Server VM (build 20.0.1+9-29, mixed mode, sharing)

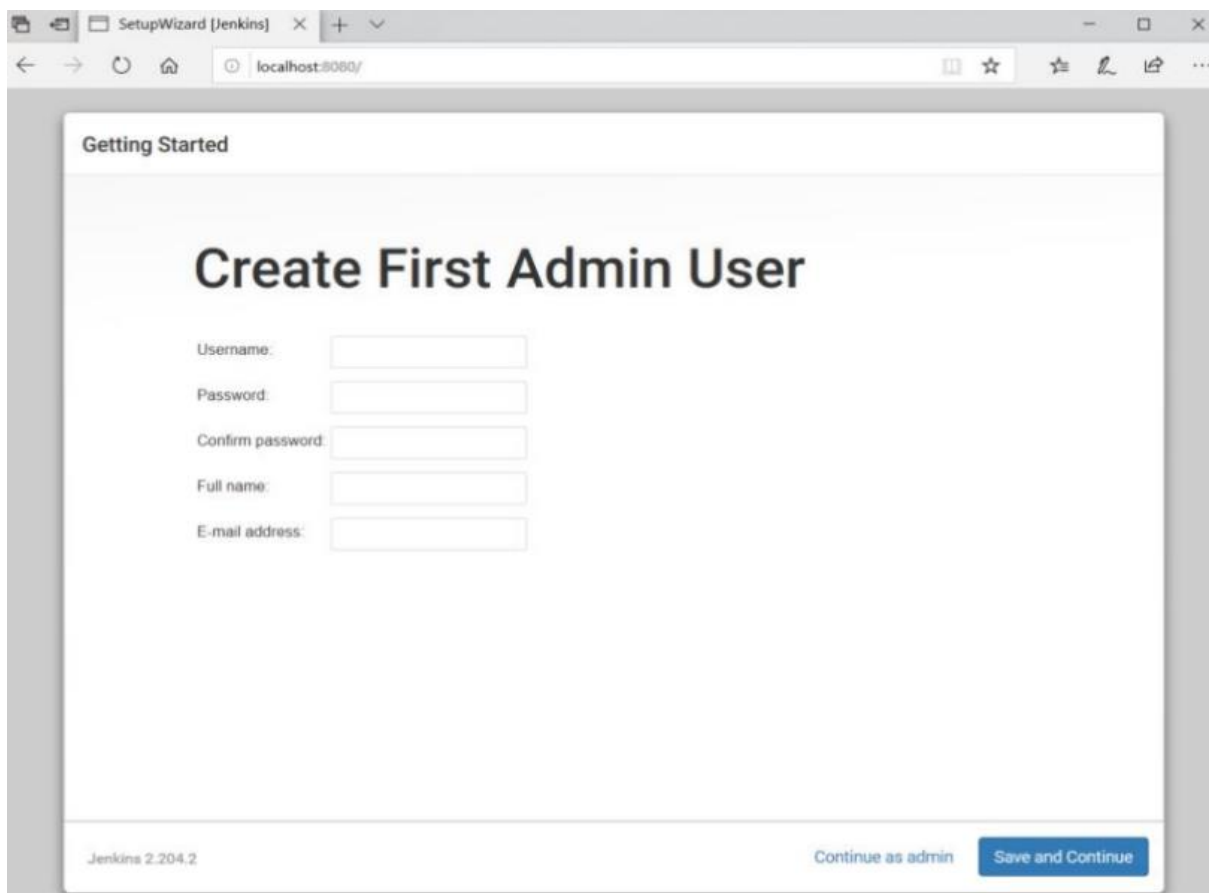
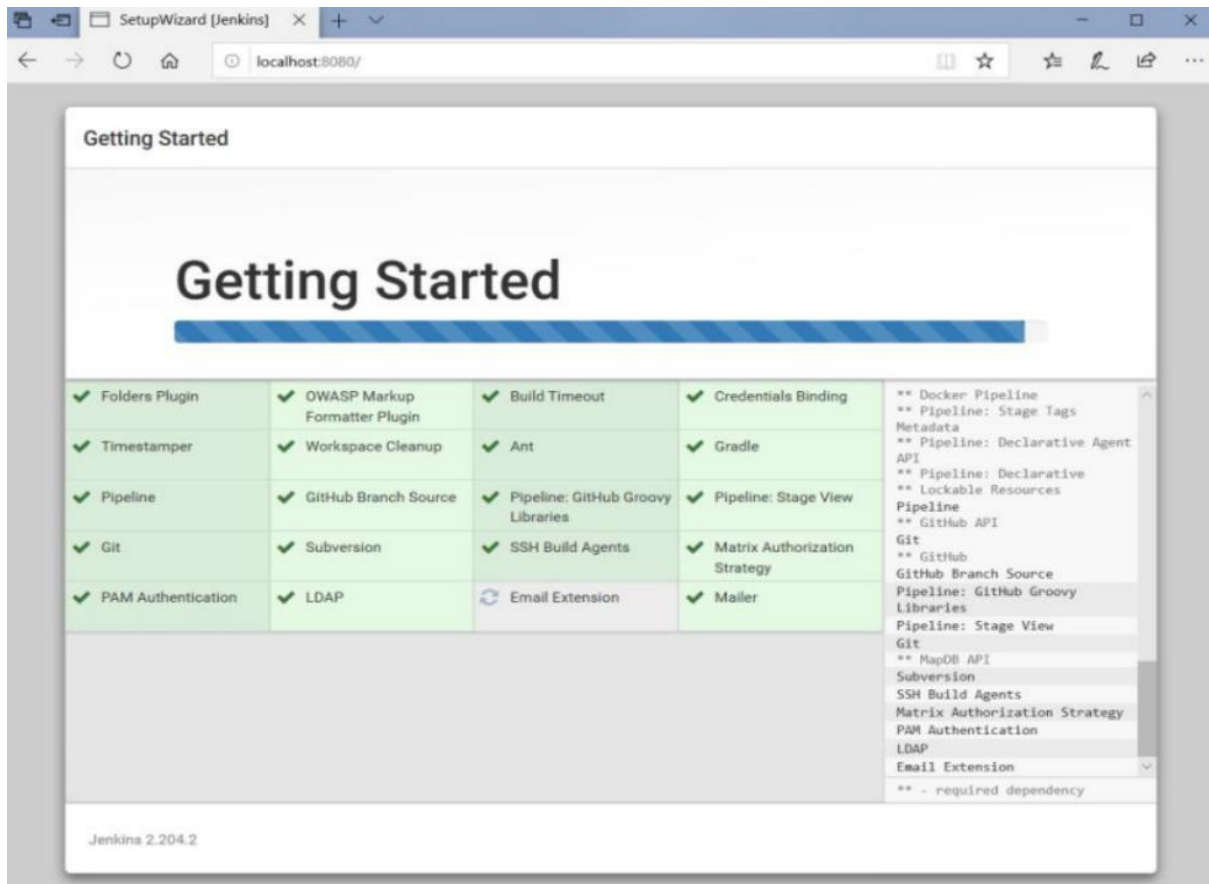
C:\Users\Devl>java -jar C:\Users\Devl\Downloads\jenkins.war
Running with Java 20 from C:\Program Files\Java\jdk-20, which is not yet fully supported.
Run the command again with the --enable-future-java flag to enable preview support for future Java versions.
Supported Java versions are: [11, 17]
See https://jenkins.io/redirect/java-support/ for more information.

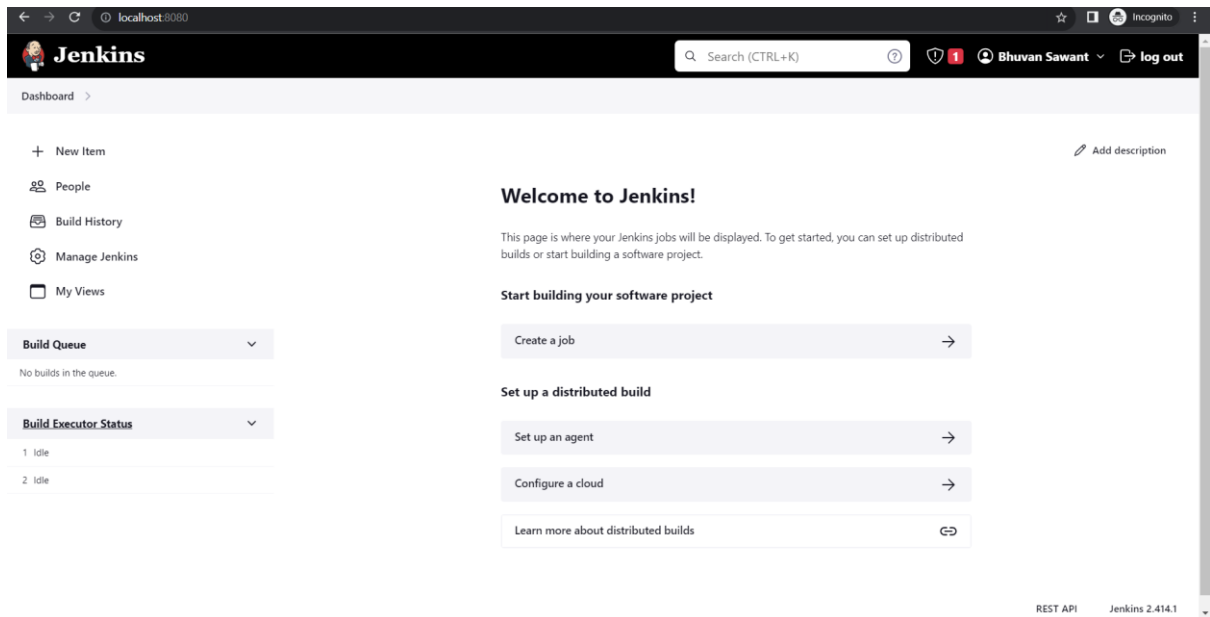
C:\Users\Devl>--enable-future-java flag
'--enable-future-java' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\Devl>--enable-future-java
'--enable-future-java' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\Devl>java -jar C:\Users\Devl\Downloads\jenkins.war --enable-future-java
Running with Java 20 from C:\Program Files\Java\jdk-20, which is not fully supported. Continuing because --enable-future-java is set. Supported Java versions are: [11, 17]. See https://jenkins.io/redirect/java-support/ for more information.
Running from: C:\Users\Devl\Downloads\jenkins.war
webroot: C:\Users\Devl\.jenkins\war
2023-08-24 05:32:12.233+0000 [id=1] INFO winstone.Logger#logInternal: Beginning extraction from war file
2023-08-24 05:32:13.980+0000 [id=1] WARNING o.e.j.s.handler.ContextHandler#setContextPath: Empty contextPath
2023-08-24 05:32:14.088+0000 [id=1] INFO org.eclipse.jetty.server.Server#doStart: jetty-10.0.15; built: 2023-04-11T17:25:14.480Z; git: 68017dbd0236bb7e187330d7585a059610f661d; jvm 20.0.1+9-29
2023-08-24 05:32:14.809+0000 [id=1] INFO o.e.j.w.StandardDescriptorProcessor#visitServlet: NO JSP Support for /, did not find org.eclipse.jetty.jsp.JettyJspServlet
2023-08-24 05:32:14.876+0000 [id=1] INFO o.e.j.s.s.DefaultSessionIdManager#doStart: Session workerName=node0
2023-08-24 05:32:15.700+0000 [id=1] INFO hudson.WebAppMain#contextInitialized: Jenkins home directory: C:\Users\Devl\.jenkins found at: $user.home/.jenkins
2023-08-24 05:32:15.874+0000 [id=1] INFO o.e.j.s.handler.ContextHandler#doStart: Started w.@35dd9ed3(Jenkins v2.414.1,/,file:///C:/Users/Devl/.jenkins/war/,AVAILABLE)(C:\Users\Devl\.jenkins\war)
2023-08-24 05:32:15.900+0000 [id=1] INFO o.e.j.server.AbstractConnector#doStart: Started ServerConnector@54ab2b70(HTTP/1.1, (http/1.1))[0.0.0.0:8080]
2023-08-24 05:32:15.930+0000 [id=1] INFO org.eclipse.jetty.server.Server#doStart: Started Server@172b013(STARTING)[10.0.15,sto=0] @4299ms
2023-08-24 05:32:15.935+0000 [id=37] INFO winstone.Logger#logInternal: Winstone Servlet Engine running: controlPort=disabled
2023-08-24 05:32:16.190+0000 [id=43] INFO jenkins.InitReactorRunner$1#onAttained: Started initialization
2023-08-24 05:32:16.213+0000 [id=43] INFO jenkins.InitReactorRunner$1#onAttained: Listed all plugins
2023-08-24 05:32:17.373+0000 [id=40] INFO jenkins.InitReactorRunner$1#onAttained: Prepared all plugins
2023-08-24 05:32:17.380+0000 [id=45] INFO jenkins.InitReactorRunner$1#onAttained: Started all plugins
2023-08-24 05:32:17.392+0000 [id=45] INFO jenkins.InitReactorRunner$1#onAttained: Augmented all extensions
2023-08-24 05:32:17.692+0000 [id=43] INFO jenkins.InitReactorRunner$1#onAttained: System config loaded
2023-08-24 05:32:17.702+0000 [id=43] INFO jenkins.InitReactorRunner$1#onAttained: System config adapted
2023-08-24 05:32:17.705+0000 [id=43] INFO jenkins.InitReactorRunner$1#onAttained: Loaded all jobs
2023-08-24 05:32:17.708+0000 [id=44] INFO jenkins.InitReactorRunner$1#onAttained: Configuration for all jobs updated
2023-08-24 05:32:17.800+0000 [id=61] INFO hudson.util.Retrier#start: Attempt #1 to do the action check updates server
2023-08-24 05:32:18.264+0000 [id=44] INFO jenkins.install.SetupWizard#init:
*****
```







Conclusion: In this experiment we had understood Jenkins tool and installation of Jenkins.