# Jenkins

## What is Jenkins?

**Jenkins** – is an open-source automation server.

## Jenkins Pipeline

**Jenkins Pipeline** – is a suite of plugins which supports implementing and integrating continuous delivery pipelines into Jenkins.

**Continuous Delivery Pipeline** – is an automated expression of your process for getting software from version control right through to your users and customers.

**Jenkins File** – is a text file that contains the definition of a Jenkins Pipeline and is checked into source control.

The Jenkins File is written in Groovy.

**Pipeline Concepts**:

* **Pipeline** – is a user-defined model of a CD pipeline. A pipelines code defines your entire build process, which typically includes stages for building an application, testing it, and then delivering it.
* **Node** – is a machine which is part of the Jenkins environment and is capable of executing a Pipeline.
* **Stage** – defines a conceptually distinct subset of tasks performed through the entire Pipeline, which is used by many plugins to visualize or present Jenkins Pipeline status/progress.
* **Step** – a single task. Fundamentally, a step tells Jenkins what to do at a particular point in time.

## Jenkins Infrastructure

**Master Server** – controls the pipeline and schedules builds to agents.

**Agents** – run the build in their workspace.

**Agent Types**:

* **Permanent Agents** – dedicated servers for running jobs.
* **Cloud Agents** – dynamic agents spun up on demand, e.g. Docker, Kubernetes, etc.

## Build Types

**Built Types**:

* **Freestyle Build** – is the simplest method to create a build. Think of it as shell scripts that will be run a server and trigger by specific events.

Freestyle Builds are easy because you can use the UI and plugins to manage just about anything in the builds.

* **Pipelines** – use Jenkins File written in Groovy syntax to specify what happens during the build. The pipeline are commonly broken into different stages.

# Freestyle Project

When creating a freestyle project name, do not create a name with spaces in it. This is because in the backend, Jenkins will be creating a folder based on this job.

It’s better to use underscore or dashes instead.

Graphical user interface, text, application, email

Description automatically generated

Graphical user interface, text, application, email

Description automatically generated**Settings for Freestyle Project**:

## Exploring Jenkins Filesystem and Workspace

The home directory for Jenkins, where it stores all its data on the file system.

***C:\ProgramData\Jenkins\.jenkins***

# Build Jenkins Pipeline using Groovy Script

Example Groovy script:



Graphical user interface, text, application, email

Description automatically generatedNext I select the Jenkins pipeline:

Build-in Jenkins Environment Variables:

<http://localhost:8080/env-vars.html/>