

Task: CI-CD pipeline using Jenkins

CI, CD, CD

CI - Continuous Integration

CD - Continuous Delivery

CD - Continuous Deployment

Continuous Integration - CI

repository --> build --> test --> integrate

example: Mo has added additional code and configuration in data service

- connect to git repo
- pull project code from remote repo and update local repo
- build using maven or gradle
- run the app
- run unit tests
- report unit tests results (pass | fail)
- integrate with existing app (e.g. integrate with auth service)

Continuous Delivery - CD

repository --> build --> test --> integrate ---> deliver to staging

--> application acceptance tests --> Can we deploy to production?

Manual approval step

if approved,

deploy to production --> post deploy tasks

example: Rahul's build, test, all good. Ready to deploy? Wait a minute.

Kahlil wants to run application acceptance tests

-- done and documented

Can we deploy now? wait a minute.

Fox will inspect it, and then approve

-- manual step to approve deployment

Continuous Deployment - CD (fully automated)

repository --> build --> test --> integrate --> deliver to staging

--> application acceptance tests --> deploy to production

--> post deploy tasks

example: Tracy has added Jaeger tracing capabilities to data service

- connect to git repo
- pull project code from remote repo and update local repo
- build using maven or gradle
- run the app
- run unit tests
- report unit tests results (pass | fail)
- integrate with existing app (e.g. integrate with auth service)
- staging
- user interface --> auth service --> data service tests and traces
- tests results OK
- containerize data and auth services -- docker images
- use docker images to create Kubernetes deployment and services
- pods are up and running - Great!
- logs --> recorded to Elastic --> view from Kibana
- monitoring --> view from Prometheus UI and/or Grafana -- Cool!
- traces --> view from Jaeger UI -- Awesome!

How to automate all these tasks?

- scripting
 - Jenkins
-

Jenkins

<https://www.jenkins.io/>

<https://www.jenkins.io/download/>

<https://www.jenkins.io/doc/>

Download Jenkins distribution.

How to set up and run ? Demo

Jenkins Global Tool Configurations in Project VM

```
osboxes@osboxes:~$ echo $JAVA_HOME
```

```
/usr/lib/jvm/java-8-openjdk-amd64
```

```
osboxes@osboxes:~$ echo $GRADLE_HOME
```

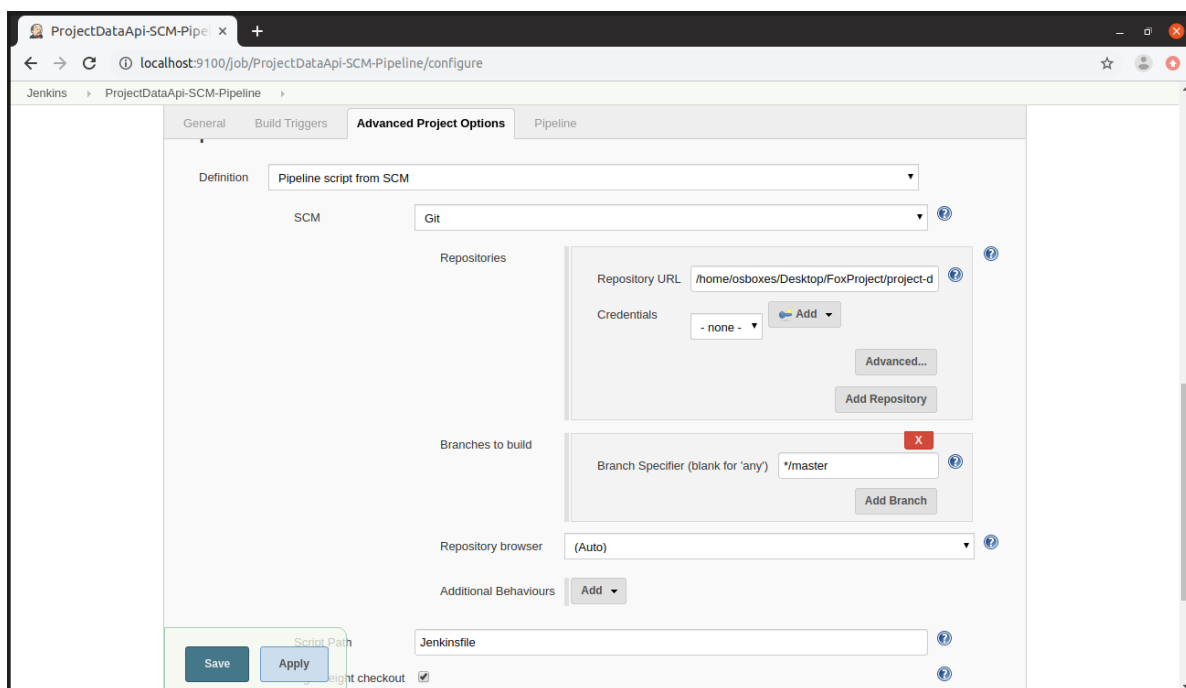
```
/opt/gradle/gradle-6.4.1
```

```
osboxes@osboxes:~$ which git
```

```
/usr/bin/git
```

```
osboxes@osboxes:~
```

Example Pipeline



ProjectDataApi-SCM-Pipeline

localhost:9100/job/ProjectDataApi-SCM-Pipeline/

ns

2

search

Saravanan Kuppusamy

log out

Jenkins

ProjectDataApi-SCM-Pipeline

ENABLE AUTO REFRESH

board

Pipeline ProjectDataApi-SCM-Pipeline

add description

Disable Project

Recent Changes

Stage View

trend

2, 2020 6:26 PM

2, 2020 6:24 PM

RSS for all

RSS for failures

Average stage times:

(Average full run time: ~7min 39s)

#2

Oct 22 18:26

No Changes

#1

Oct 22 18:24

No Changes

Checkout DataApi	Gradle Build - DataApi	Gradle Bootjar-Package - DataApi	Containerize the app-docker build - DataApi	Inspect the docker image - DataApi	Run Docker container instance - DataApi	User Acceptance Test - DataApi	Deploy to Kubernetes cluster - DataApi	Production Deployment View
15s	1min 50s	12s	3min 9s	969ms	3s	311ms	3s	4s
15s	1min 50s	12s	3min 9s	969ms	3s	311ms (default for 1min 50s)	3s	4s