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 Yaeger 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 Yaeger 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

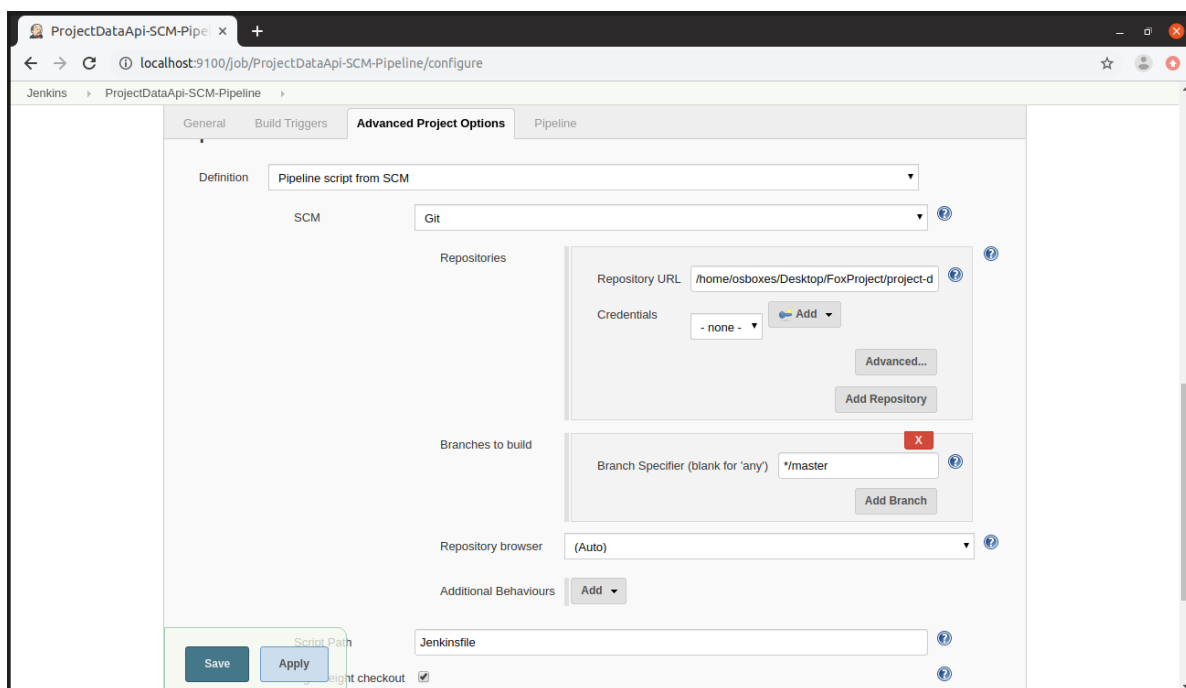/usr/lib/jvm/java-8-openjdk-amd64

osboxes@osboxes:~$ echo $GRADLE_HOME

/opt/gradle/gradle-6.4.1

osboxes@osboxes:~$ which git

/usr/bin/git

osboxes@osboxes:~

Example Pipeline