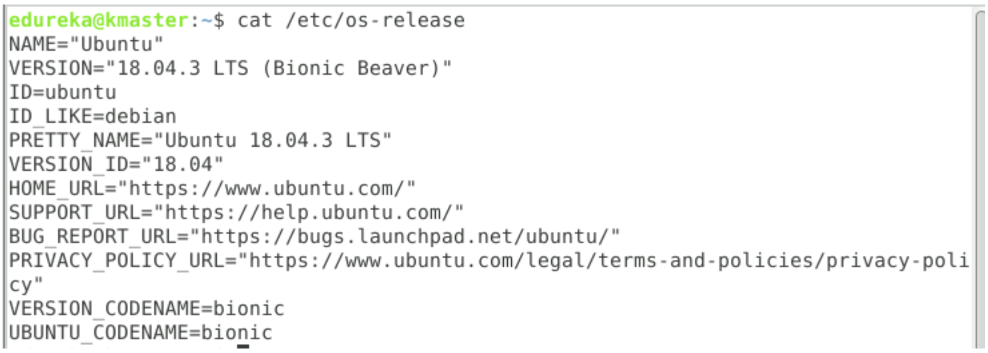
IndustryGradeProject-1:

Project executed using following OS configuration:



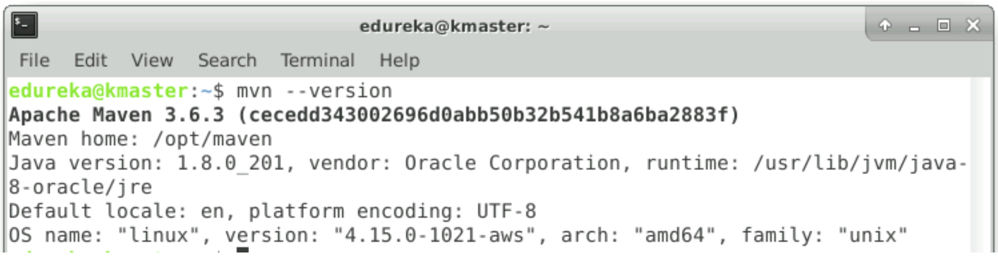
```
edureka@kmaster:~$ cat /etc/os-release
NAME="Ubuntu"
VERSION="18.04.3 LTS (Bionic Beaver)"
ID=ubuntu
ID_LIKE=debian
PRETTY_NAME="Ubuntu 18.04.3 LTS"
VERSION_ID="18.04"
HOME_URL="https://www.ubuntu.com/"
SUPPORT_URL="https://help.ubuntu.com/"
BUG_REPORT_URL="https://bugs.launchpad.net/ubuntu/"
PRIVACY_POLICY_URL="https://www.ubuntu.com/legal/terms-and-policies/privacy-poli
cy"
VERSION_CODENAME=bionic
UBUNTU_CODENAME=bionic
```

Git: Git is free and open-source software for distributed version control, tracking changes in any set of files, usually used for coordinating work among programmers collaboratively developing source code during software development

1. Create new repository in github and push the initial code to repository
2. https://github.com/yogeshk04/IndustryGradeProject-1.git
   a. Copy the industry grade repo from Edureka industry grade project section
   b. Go to directory and execute following commands
      i. *: ~$ git init*
      ii. *: ~$ git add .*
      iii. *: ~$ git commit -m "Initial project code commit"*
   c. Configure git for the first time to github (*Note – you need to have github or gitlab account)*
   d. Execute following commands
      i. *: ~$ git config –global user.name "yogeshk04"*
      ii. *: ~$ git config --global user.email "yogeshk04@gmail.com"*
      iii. Creating a personal access token to access the github – *Personal access token (PAT) are an alternative to using passwords for authentication to GitHub when using the GitHub API or the command line.*
   e. Push local repo to GitHub
      i. *: ~$ git remote add origin https://github.com/yogeshk04/IndustryGradeProject-1.git*
      ii. *: ~$ git push –set-upstream origin master*
   f. Go back to GitHub and see that the repository has been updated.

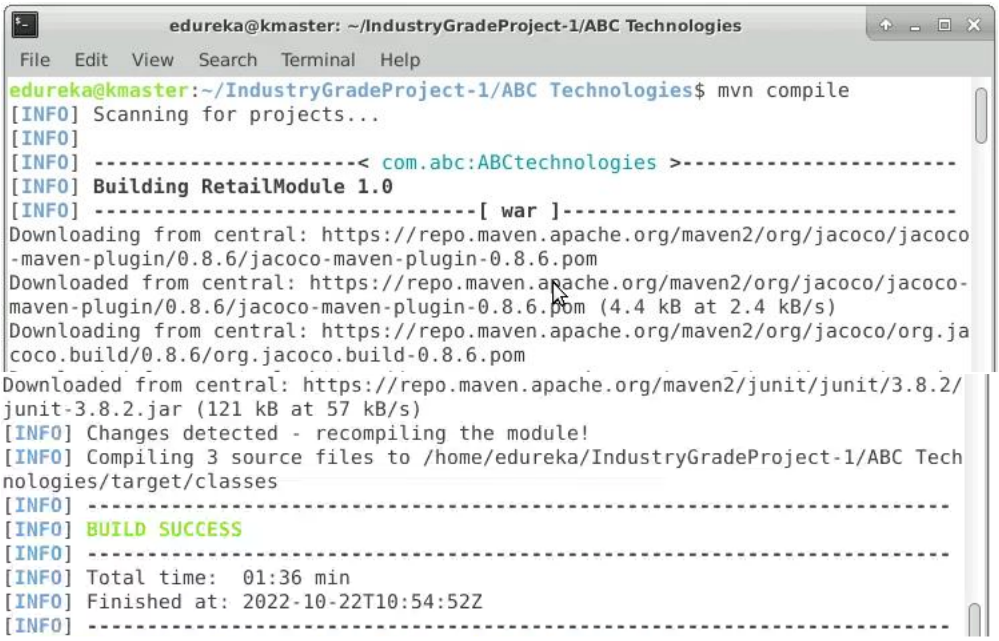
Maven: Maven is a build automation tool used primarily for Java projects. Maven can also be used to build and manage projects written in C#, Ruby, Scala, and other languages. The Maven project is hosted by the Apache Software Foundation, where it was formerly part of the Jakarta Project.

1. Check maven version and java version using *mvn –version command*



```
edureka@kmaster:~$ mvn --version
Apache Maven 3.6.3 (cecedd343002696d0abb50b32b541b8a6ba2883f)
Maven home: /opt/maven
Java version: 1.8.0_201, vendor: Oracle Corporation, runtime: /usr/lib/jvm/java-
8-oracle/jre
Default locale: en, platform encoding: UTF-8
OS name: "linux", version: "4.15.0-1021-aws", arch: "amd64", family: "unix"
```

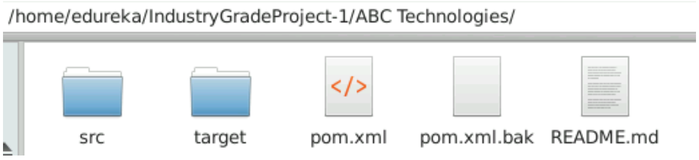
2. Compile the project and generate target folder using *mvn compile*



edureka@kmaster: ~/IndustryGradeProject-1/ABC Technologies
File Edit View Search Terminal Help

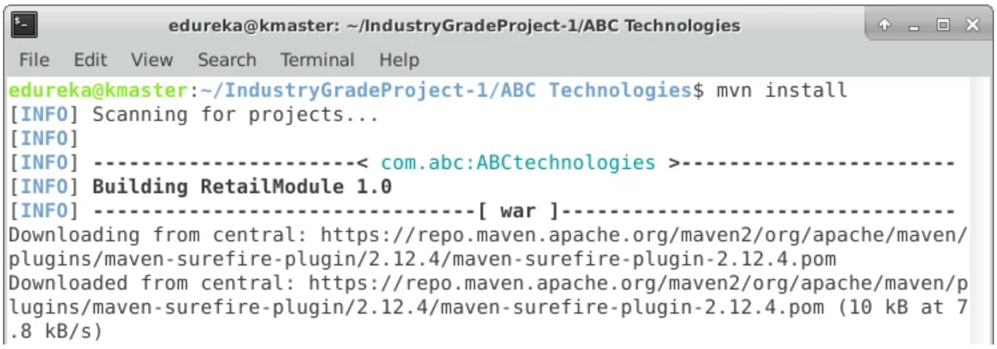
```
edureka@kmaster:~/IndustryGradeProject-1/ABC Technologies$ mvn compile
[INFO] Scanning for projects...
[INFO]
[INFO] ----------------------< com.abc:ABCtechnologies >----------------------
[INFO] Building RetailModule 1.0
[INFO] --------------------------------[ war ]---------------------------------
Downloading from central: https://repo.maven.apache.org/maven2/org/jacoco/jacoco
-maven-plugin/0.8.6/jacoco-maven-plugin-0.8.6.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/jacoco/jacoco-
maven-plugin/0.8.6/jacoco-maven-plugin-0.8.6.pom (4.4 kB at 2.4 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/jacoco/org.ja
coco.build/0.8.6/org.jacoco.build-0.8.6.pom
Downloaded from central: https://repo.maven.apache.org/maven2/junit/junit/3.8.2/
junit-3.8.2.jar (121 kB at 57 kB/s)
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 3 source files to /home/edureka/IndustryGradeProject-1/ABC Tech
nologies/target/classes
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  01:36 min
[INFO] Finished at: 2022-10-22T10:54:52Z
[INFO] ------------------------------------------------------------------------
```

3. On successfully compilation directory will have target folder.



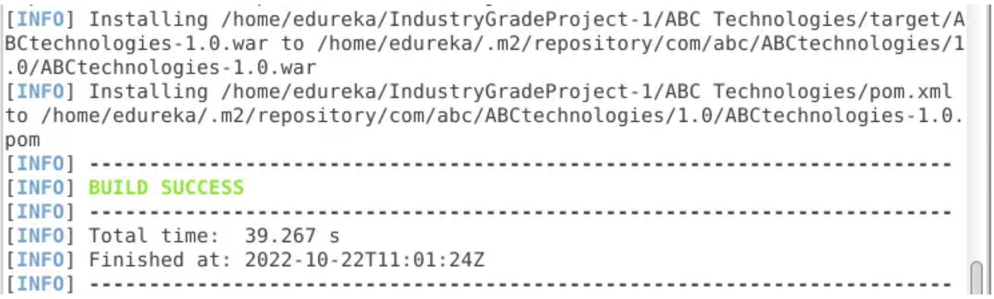
/home/edureka/IndustryGradeProject-1/ABC Technologies/

4. Now build the maven project and install it into local maven repository *mvn install*



edureka@kmaster: ~/IndustryGradeProject-1/ABC Technologies
File Edit View Search Terminal Help

```
edureka@kmaster:~/IndustryGradeProject-1/ABC Technologies$ mvn install
[INFO] Scanning for projects...
[INFO]
[INFO] ----------------------< com.abc:ABCtechnologies >----------------------
[INFO] Building RetailModule 1.0
[INFO] --------------------------------[ war ]---------------------------------
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/
plugins/maven-surefire-plugin/2.12.4/maven-surefire-plugin-2.12.4.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/p
lugins/maven-surefire-plugin/2.12.4/maven-surefire-plugin-2.12.4.pom (10 kB at 7
.8 kB/s)
```



```
[INFO] Installing /home/edureka/IndustryGradeProject-1/ABC Technologies/target/A
BCtechnologies-1.0.war to /home/edureka/.m2/repository/com/abc/ABCtechnologies/1
.0/ABCtechnologies-1.0.war
[INFO] Installing /home/edureka/IndustryGradeProject-1/ABC Technologies/pom.xml
to /home/edureka/.m2/repository/com/abc/ABCtechnologies/1.0/ABCtechnologies-1.0.
pom
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  39.267 s
[INFO] Finished at: 2022-10-22T11:01:24Z
[INFO] ------------------------------------------------------------------------
```

5. Run the following maven build command to clean the target folder

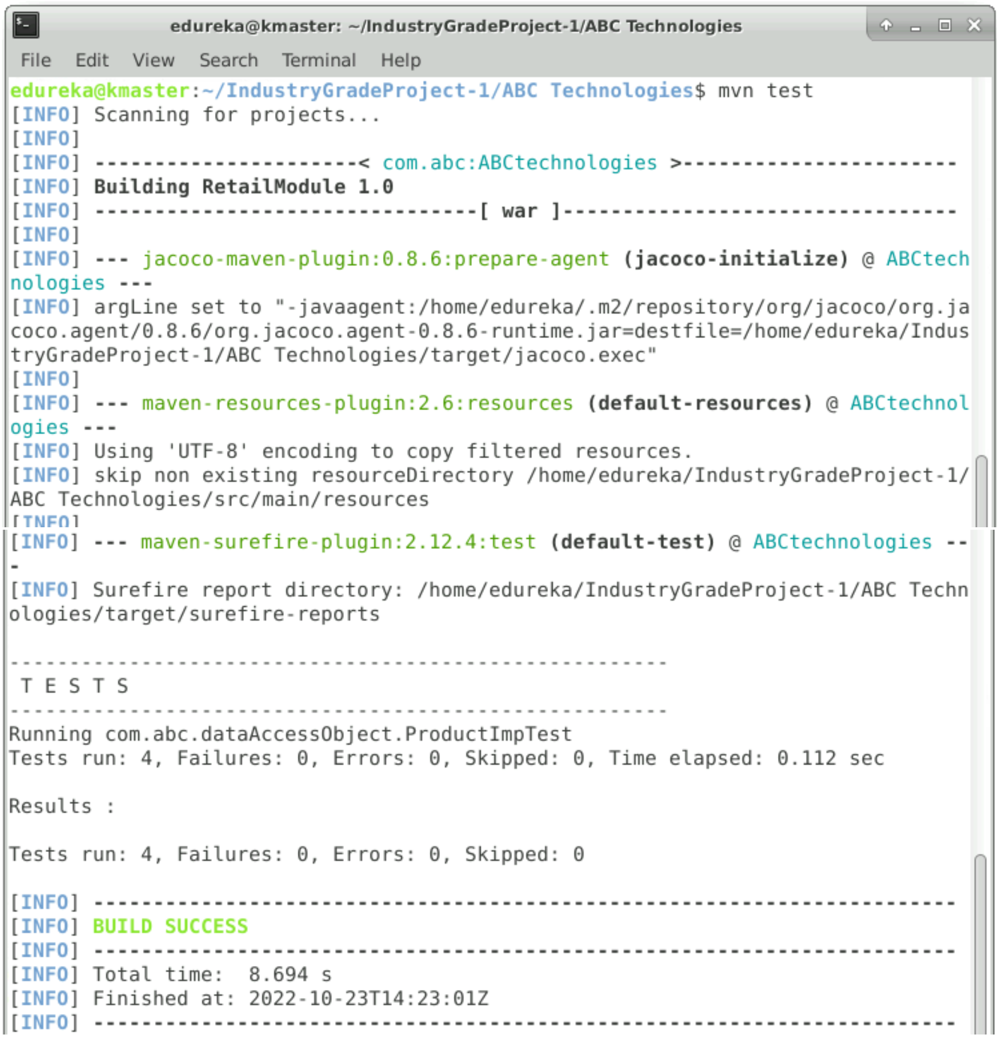
   : ~$ mvn clean install

6. To package the project, one should run following command

   : ~$ mvn package

7. Maven Run command
8. Mvn exec:java -Dexec.mainClass=
9. Run the test cases in the project

   : ~$ mvn test



edureka@kmaster: ~/IndustryGradeProject-1/ABC Technologies
File Edit View Search Terminal Help

```
edureka@kmaster:~/IndustryGradeProject-1/ABC Technologies$ mvn test
[INFO] Scanning for projects...
[INFO]
[INFO] ---------------------< com.abc:ABCtechnologies >----------------------
[INFO] Building RetailModule 1.0
[INFO] --------------------------------[ war ]---------------------------------
[INFO]
[INFO] --- jacoco-maven-plugin:0.8.6:prepare-agent (jacoco-initialize) @ ABCtech
nologies ---
[INFO] argLine set to "-javaagent:/home/edureka/.m2/repository/org/jacoco/org.ja
coco.agent/0.8.6/org.jacoco.agent-0.8.6-runtime.jar=destfile=/home/edureka/Indus
tryGradeProject-1/ABC Technologies/target/jacoco.exec"
[INFO]
[INFO] --- maven-resources-plugin:2.6:resources (default-resources) @ ABCtechnol
ogies ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] skip non existing resourceDirectory /home/edureka/IndustryGradeProject-1/
ABC Technologies/src/main/resources
[INFO]
[INFO] --- maven-surefire-plugin:2.12.4:test (default-test) @ ABCtechnologies --
-
[INFO] Surefire report directory: /home/edureka/IndustryGradeProject-1/ABC Techn
ologies/target/surefire-reports

-------------------------------------------------------
 T E S T S
-------------------------------------------------------
Running com.abc.dataAccessObject.ProductImpTest
Tests run: 4, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.112 sec

Results :

Tests run: 4, Failures: 0, Errors: 0, Skipped: 0

[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  8.694 s
[INFO] Finished at: 2022-10-23T14:23:01Z
[INFO] ------------------------------------------------------------------------
```

Tomcat: Apache Tomcat is a free and open-source implementation of the Jakarta Servlet, Jakarta Expression Language, and WebSocket technologies. It provides a "pure Java" HTTP web server environment in which Java code can also run. Thus, it's a Java web application server, although not a full JEE application server

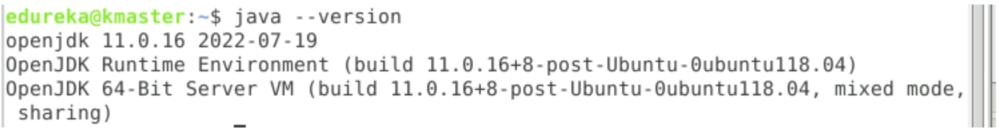
Installation of Tomcat.

1. Check for the updates

   : ~$ sudo apt update

2. Check java version if already install or install the required java version

   : ~$ java --version



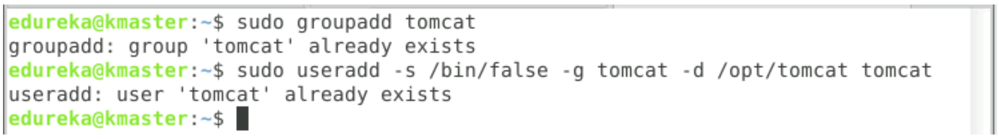
```
edureka@kmaster:~$ java --version
openjdk 11.0.16 2022-07-19
OpenJDK Runtime Environment (build 11.0.16+8-post-Ubuntu-0ubuntu118.04)
OpenJDK 64-Bit Server VM (build 11.0.16+8-post-Ubuntu-0ubuntu118.04, mixed mode,
 sharing)
```

   To install java use

   : ~$ sudo apt install default-jdk

3. Create Tomcat user

   sudo groupadd tomcat

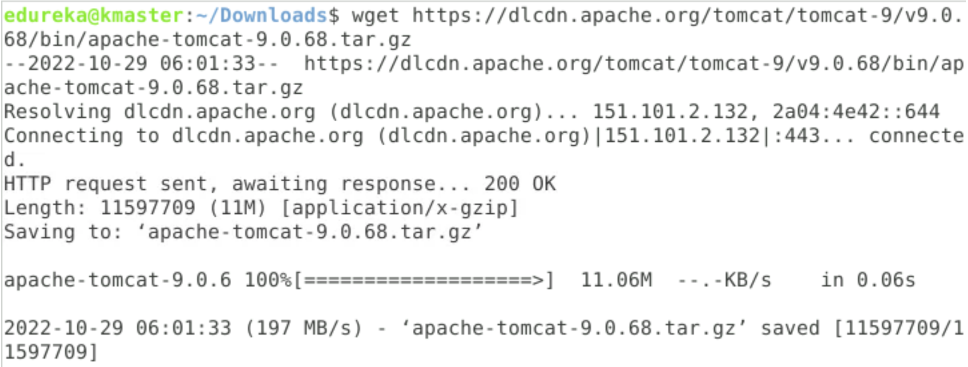


```
edureka@kmaster:~$ sudo groupadd tomcat
groupadd: group 'tomcat' already exists
edureka@kmaster:~$ sudo useradd -s /bin/false -g tomcat -d /opt/tomcat tomcat
useradd: user 'tomcat' already exists
edureka@kmaster:~$
```

4. Install Tomcat on Ubuntu

   a. Download the Tomcat .tar file using following command

   : ~$ wget https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.68/bin/apache-tomcat-9.0.68.tar.gz

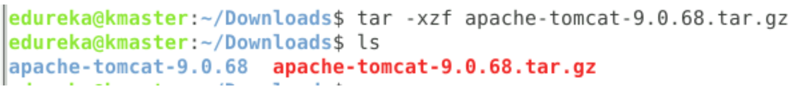


```
edureka@kmaster:~/Downloads$ wget https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.
68/bin/apache-tomcat-9.0.68.tar.gz
--2022-10-29 06:01:33--  https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.68/bin/ap
ache-tomcat-9.0.68.tar.gz
Resolving dlcdn.apache.org (dlcdn.apache.org)... 151.101.2.132, 2a04:4e42::644
Connecting to dlcdn.apache.org (dlcdn.apache.org)|151.101.2.132|:443... connecte
d.
HTTP request sent, awaiting response... 200 OK
Length: 11597709 (11M) [application/x-gzip]
Saving to: ‘apache-tomcat-9.0.68.tar.gz’

apache-tomcat-9.0.6 100%[===================>]  11.06M  --.-KB/s    in 0.06s

2022-10-29 06:01:33 (197 MB/s) - ‘apache-tomcat-9.0.68.tar.gz’ saved [11597709/1
1597709]
```

   b. Extract the .tar file

   : ~$ tar -xzf apache-tomcat-9.0.68.tar.gz

   : ~$ ls



```
edureka@kmaster:~/Downloads$ tar -xzf apache-tomcat-9.0.68.tar.gz
edureka@kmaster:~/Downloads$ ls
apache-tomcat-9.0.68  apache-tomcat-9.0.68.tar.gz
```

   c. Create tomcat directory into opt folder

   : ~$ suod mkdir /opt/tomcat

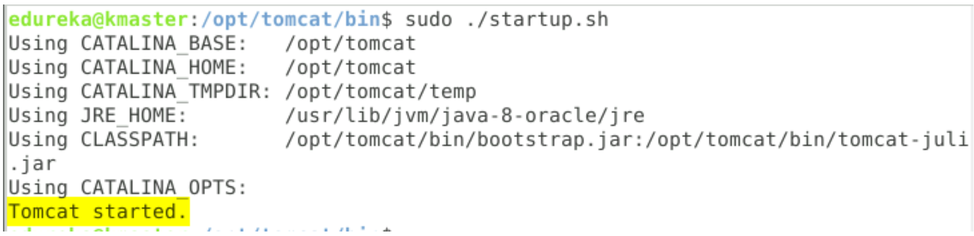
   d. Move all the content to that folder

   : ~$ sudo mv apache-tomcat-9.0.68/ /opt/tomcat/*

   e. Change directory to /opt/tomcat/bin

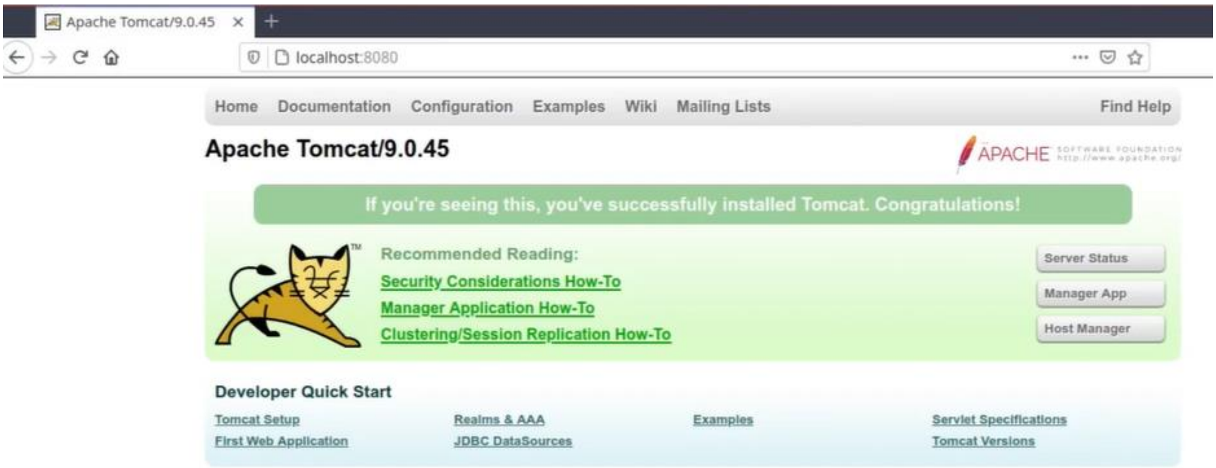
f. Start the tomcat server using startup script file

: ~$ sudo ./startup.sh



```
edureka@kmaster:/opt/tomcat/bin$ sudo ./startup.sh
Using CATALINA_BASE:   /opt/tomcat
Using CATALINA_HOME:   /opt/tomcat
Using CATALINA_TMPDIR: /opt/tomcat/temp
Using JRE_HOME:        /usr/lib/jvm/java-8-oracle/jre
Using CLASSPATH:       /opt/tomcat/bin/bootstrap.jar:/opt/tomcat/bin/tomcat-juli
.jar
Using CATALINA_OPTS:
Tomcat started.
```

5. Access tomcat using http:localhost:8080



Apache Tomcat/9.0.45

If you're seeing this, you've successfully installed Tomcat. Congratulations!

Recommended Reading:
Security Considerations How-To
Manager Application How-To
Clustering/Session Replication How-To

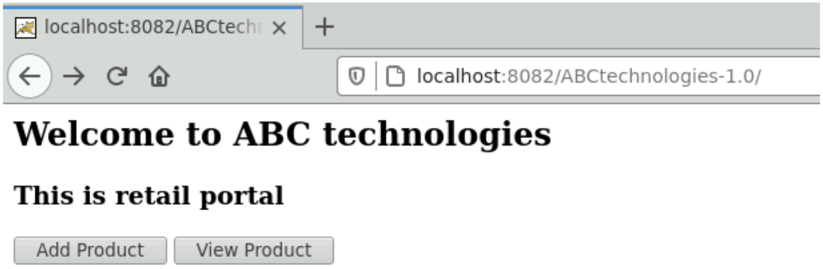
Developer Quick Start
Tomcat Setup
First Web Application
Realms & AAA
JDBC DataSources
Examples
Servlet Specifications
Tomcat Versions

6. Deploy the .war file to Tomcat manually

7. Copy the WAR file you have created for ABCtechnologies to /opt/tomcat/webapps

~$ cp ABCtechnologies-1.0.war /opt/tomcat/webapps/

8. Start the Tomcat server.
9. In the address area of the browser, type *http://localhost:8080/ABCtechnologies-1.0* *(Note: here I change the port to 8082 as 8080 was used by Jenkins server)*
10. The output of your application page will be displayed as



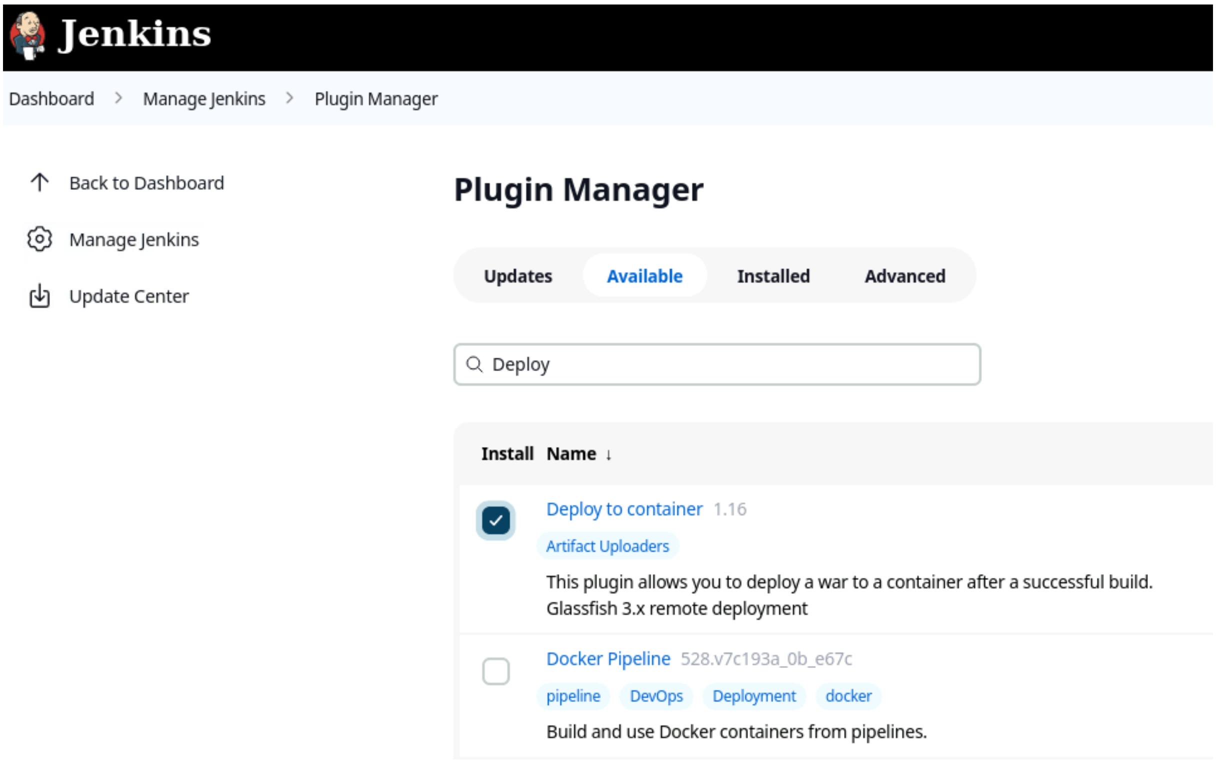
Welcome to ABC technologies

This is retail portal

Jenkins: Jenkins is an open-source automation server. It helps automate the parts of software development related to building, testing, and deploying, facilitating continuous integration and continuous delivery. It is a server-based system that runs in servlet containers such as Apache Tomcat.

Deploy Application war file to Tomcat using Jenkins:

1. Configure Jenkins and install suggested plugins
2. Go to Mange Jenkins → Manage Plugins → Available, search for Deploy Container plugin and select and install without restart

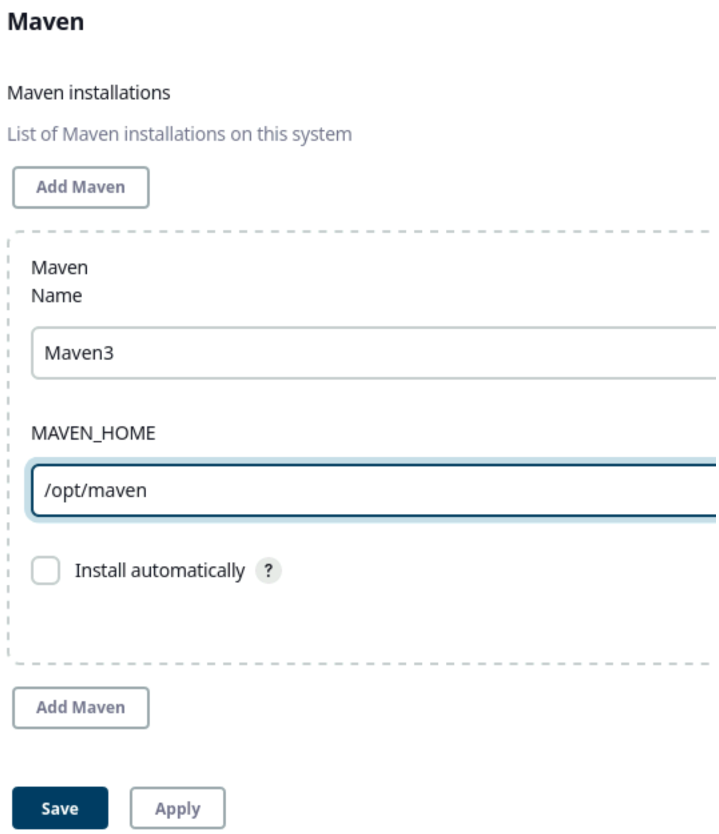


Plugin Manager

Deploy

Install	Name ↓
☑	Deploy to container 1.16 Artifact Uploaders This plugin allows you to deploy a war to a container after a successful build. Glassfish 3.x remote deployment
□	Docker Pipeline 528.v7c193a_0b_e67c pipeline DevOps Deployment docker Build and use Docker containers from pipelines.

3. Configure maven installer.
    a. Go to Jenkins → Manage Jenkins → Global Tool Configuration.
    b. Under Maven installation provide the name and path of the maven installation directory as show in image.
    c. To check the maven installation director user *mvn –version* command



Maven

Maven installations

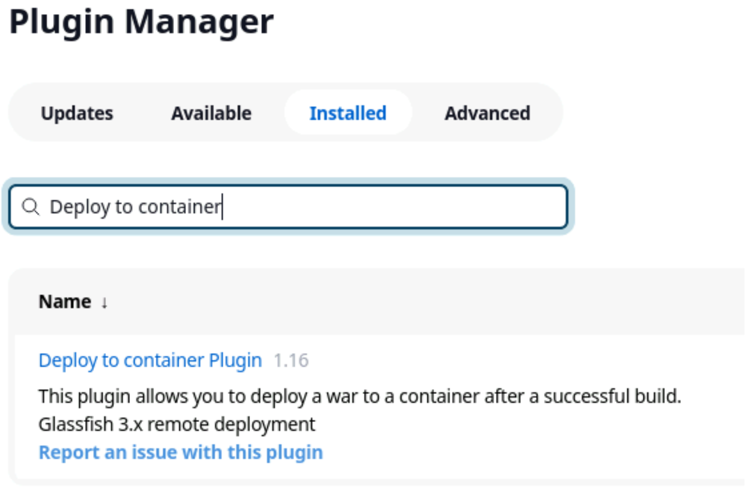
List of Maven installations on this system

Maven Name: Maven3

MAVEN_HOME: /opt/maven

□ Install automatically

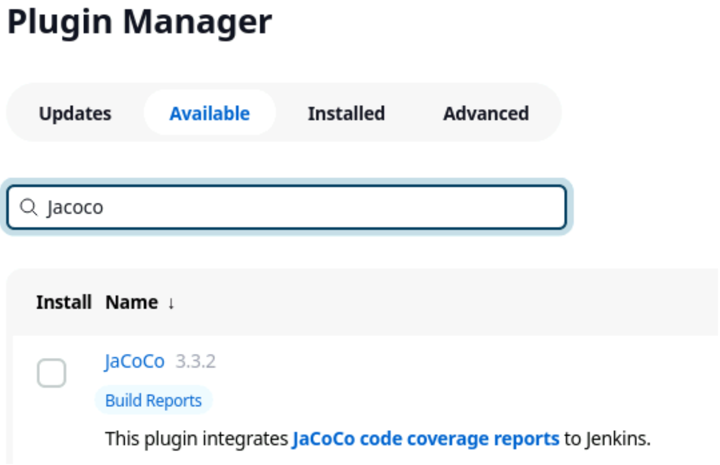
4. Also install deploy to container and Jacoco plugins under Jenkins → Manage Jenkins → Mange Plug-ins



Plugin Manager

Deploy to container

Name ↓
Deploy to container Plugin 1.16 This plugin allows you to deploy a war to a container after a successful build. Glassfish 3.x remote deployment Report an issue with this plugin

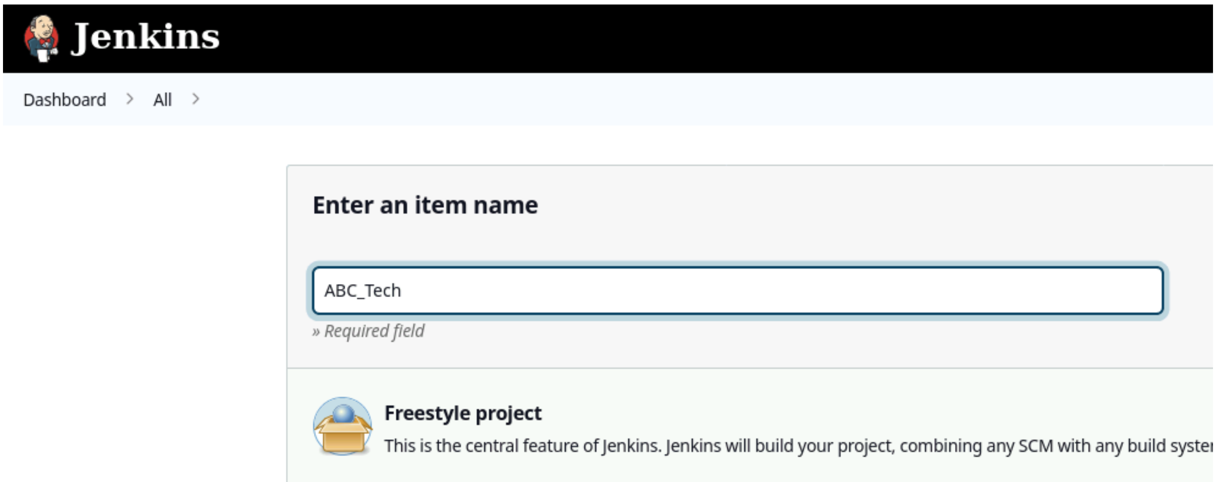


Plugin Manager

Jacoco

Install	Name ↓
□	JaCoCo 3.3.2 Build Reports This plugin integrates JaCoCo code coverage reports to Jenkins.

5. Create new item Job as free style project New Item → Freestyle project
   Enter name as "ABC_Tech" or any other suitable name and hit OK button.



Jenkins

Dashboard > All >

Enter an item name

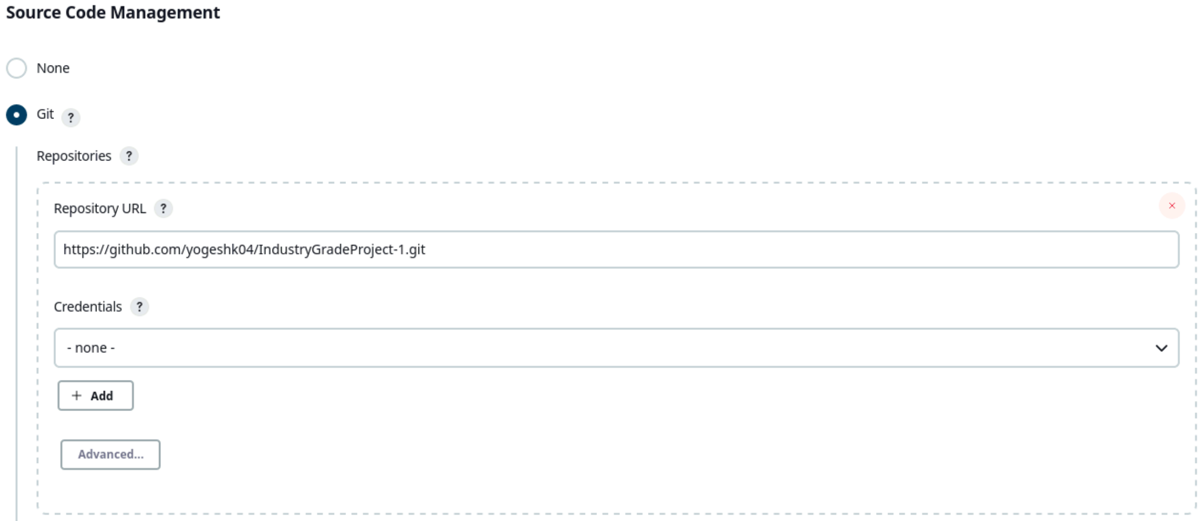
ABC_Tech

» Required field

Freestyle project

This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with any build syste

6. Under source code management add GitHub repository



Source Code Management

○ None

● Git ?

Repositories ?

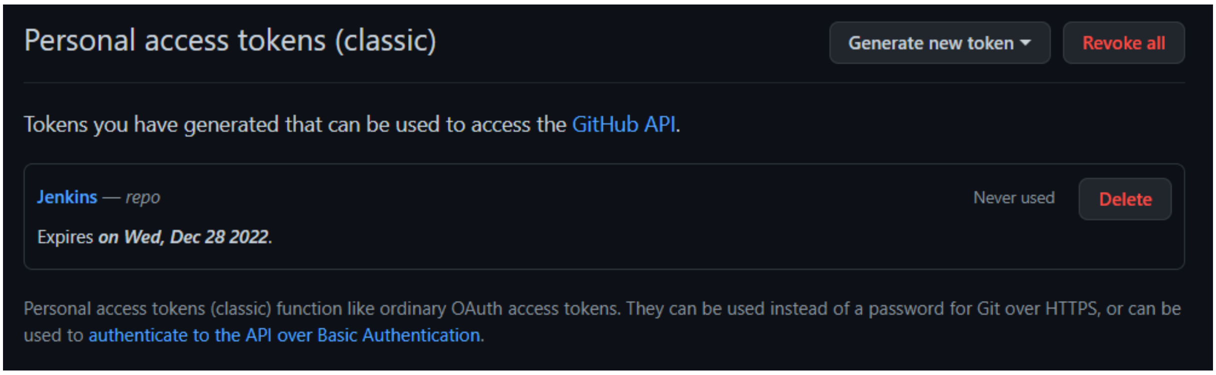
Repository URL ?

https://github.com/yogeshk04/IndustryGradeProject-1.git

Credentials ?

- none -

7. For accessing GitHub repo create new Personal Access Token and add copy the token. Follow the link to create the token [here]



Personal access tokens (classic)

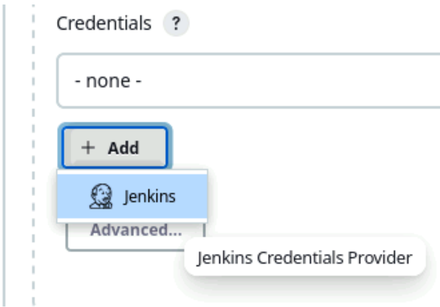
Tokens you have generated that can be used to access the GitHub API.

Jenkins — *repo* Never used

Expires *on Wed, Dec 28 2022*.

Personal access tokens (classic) function like ordinary OAuth access tokens. They can be used instead of a password for Git over HTTPS, or can be used to authenticate to the API over Basic Authentication.

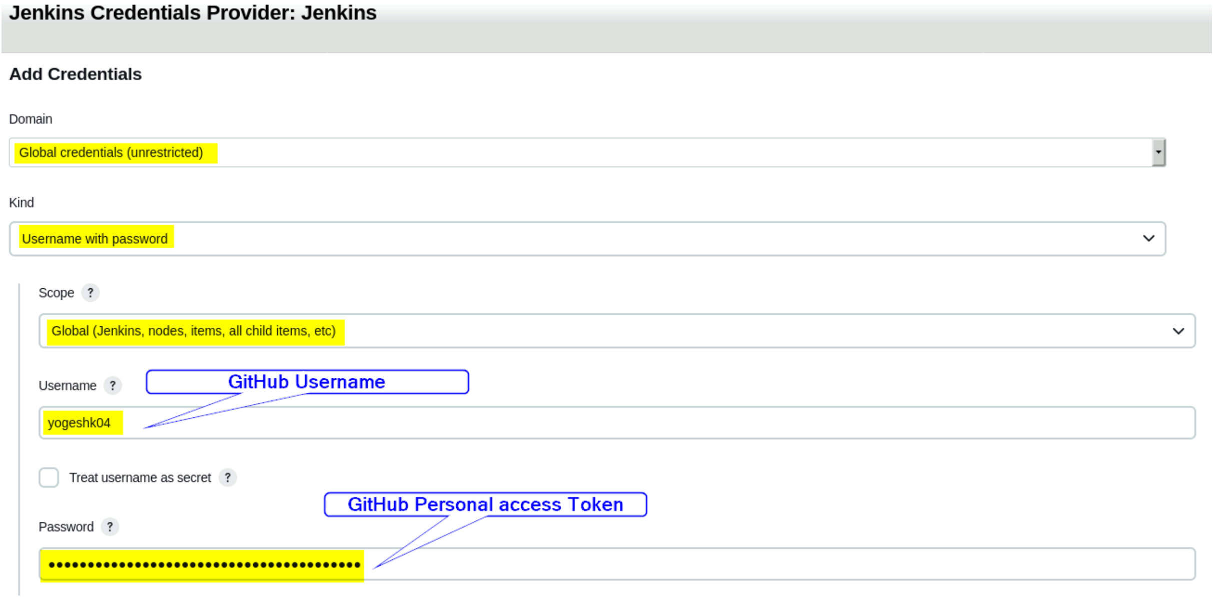
8. Click on + Add → Jenkins – Jenkins Credentials Provider



Credentials ?

- none -

9. Add Credentials as shown in following image and click Add



Jenkins Credentials Provider: Jenkins

Add Credentials

Domain

Global credentials (unrestricted)

Kind

Username with password

Scope ?

Global (Jenkins, nodes, items, all child items, etc)

Username ?

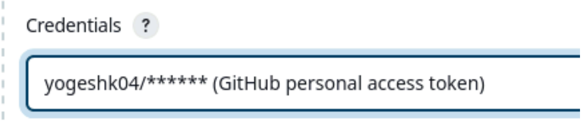
yogeshk04

□ Treat username as secret ?

Password ?

••

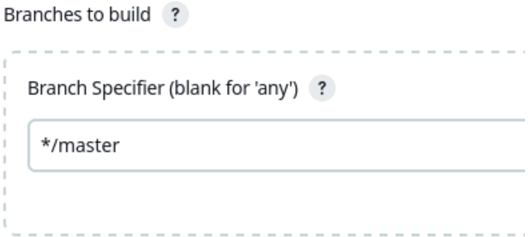
10. Now select the credentials form dop-down



Credentials ?

yogeshk04/****** (GitHub personal access token)

11. Select the respective branch to deploy

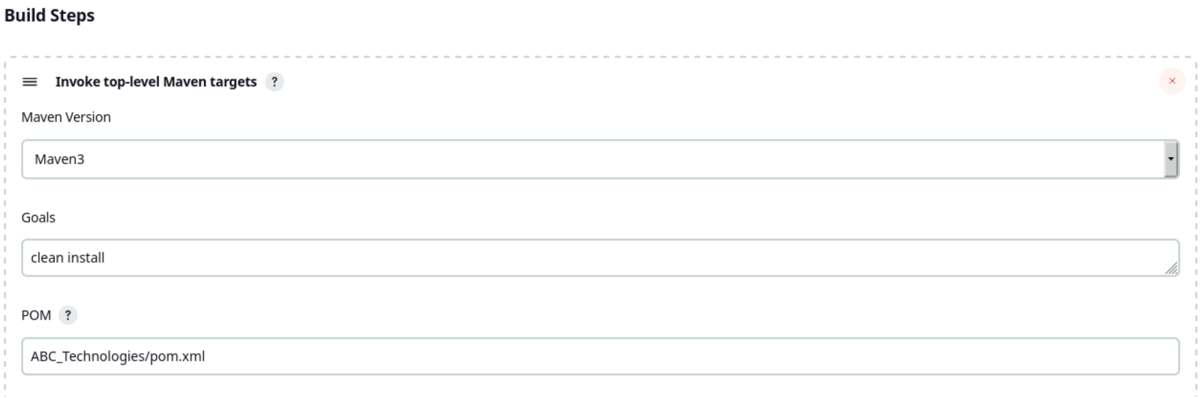


Branches to build ?

Branch Specifier (blank for 'any') ?

*/master

12. As we already configure maven installer in step 3, provide the build steps here and pom.xml file name



Build Steps

Invoke top-level Maven targets ?

Maven Version

Maven3

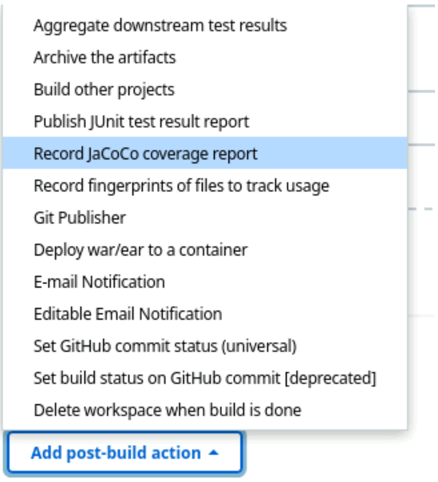
Goals

clean install

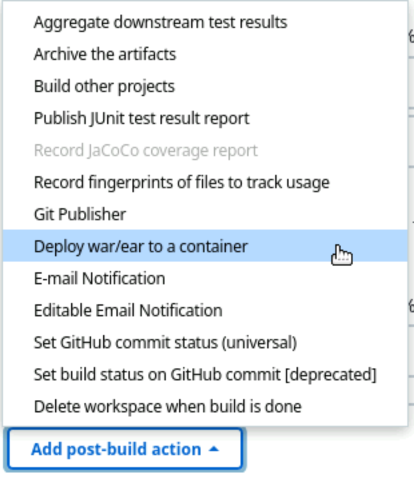
POM ?

ABC_Technologies/pom.xml

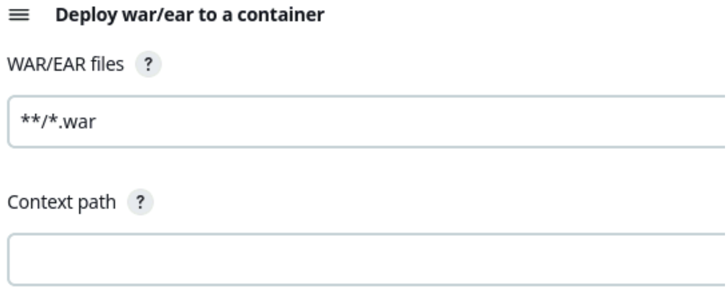
13. For the post build action setup, the JaCoCo code coverage into post build actions. Just enable the Record JaCoCo coverage report option


Aggregate downstream test results
Archive the artifacts
Build other projects
Publish JUnit test result report
Record JaCoCo coverage report
Record fingerprints of files to track usage
Git Publisher
Deploy war/ear to a container
E-mail Notification
Editable Email Notification
Set GitHub commit status (universal)
Set build status on GitHub commit [deprecated]
Delete workspace when build is done
Add post-build action

14. Select Add Post-build action → Deploy war/ear to a container


Aggregate downstream test results
Archive the artifacts
Build other projects
Publish JUnit test result report
Record JaCoCo coverage report
Record fingerprints of files to track usage
Git Publisher
Deploy war/ear to a container
E-mail Notification
Editable Email Notification
Set GitHub commit status (universal)
Set build status on GitHub commit [deprecated]
Delete workspace when build is done
Add post-build action

15. Add WAR files



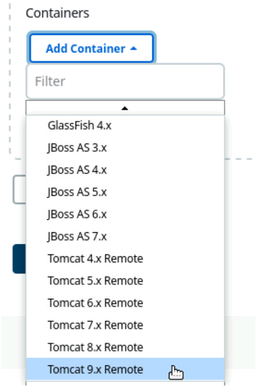
Deploy war/ear to a container

WAR/EAR files ?

**/*.war

Context path ?

16. Now, select Containers → Add Container → Tomcat 9.x Remote option as we have installed tomcat 9.

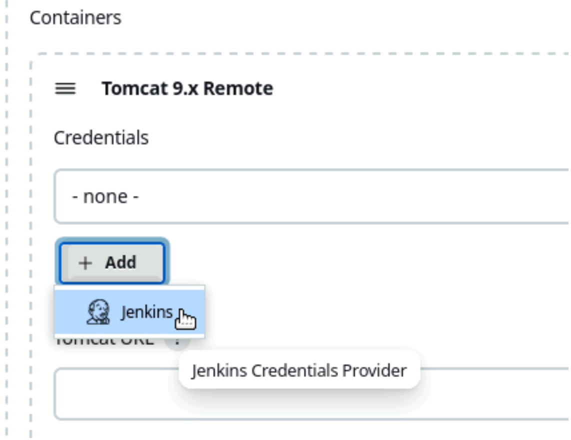


17. Add “*tomcat*” as a user into Tomcat conf file “*tomcat-users.xml*”

<user username="tomcat" password=" password " roles="manager-script"/>

```
<role rolename="manager-script" />
<user username="tomcat" password="password" roles="manager-script" />
```

18. Add Tomcat credentials

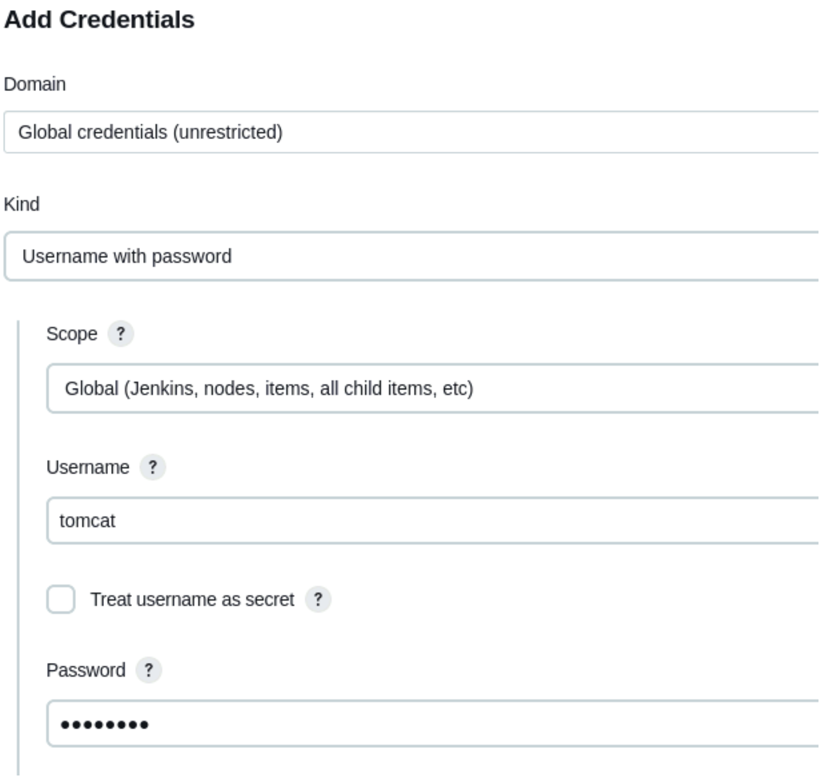


Containers

Tomcat 9.x Remote

Credentials

- none -



Add Credentials

Domain

Global credentials (unrestricted)

Kind

Username with password

Scope ?

Global (Jenkins, nodes, items, all child items, etc)

Username ?

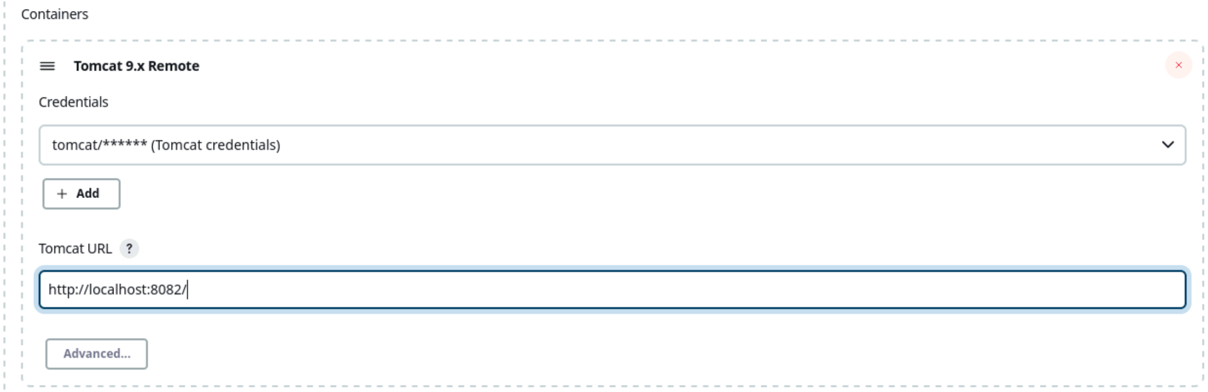
tomcat

□ Treat username as secret ?

Password ?

••••••••

19. Select the Tomcat credentials from drop-down menu and Tomcat URL



Containers

Tomcat 9.x Remote

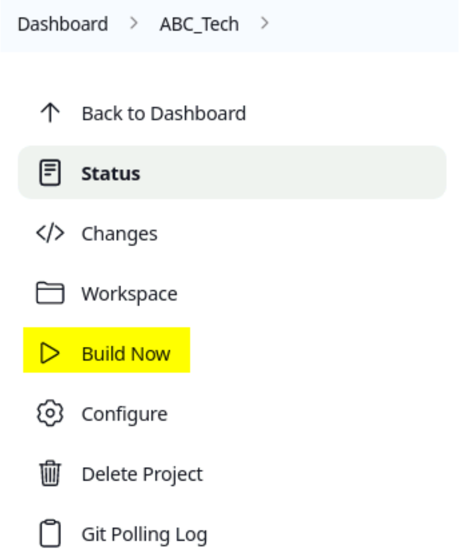
Credentials

tomcat/****** (Tomcat credentials)

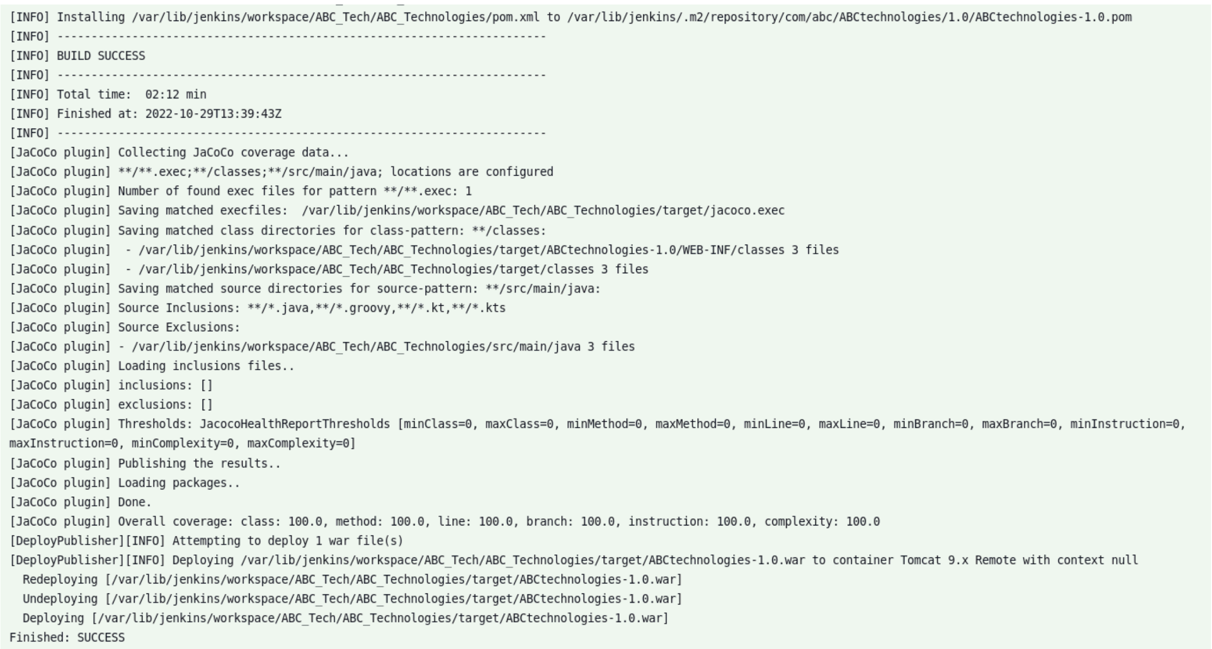
Tomcat URL ?

http://localhost:8082/

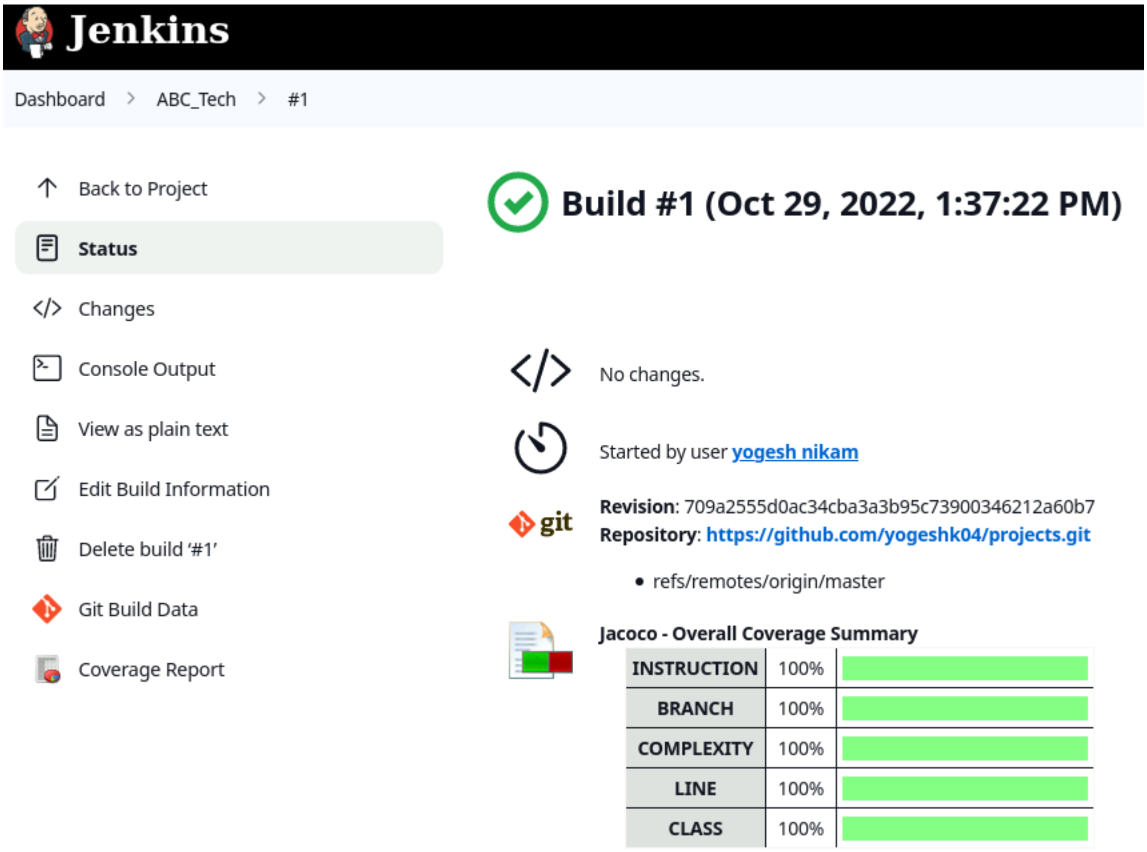
20. Apply and save the configuration job
21. Go the Job and click Build Now



22. If the build is successful, you will see the following build success message



```
[INFO] Installing /var/lib/jenkins/workspace/ABC_Tech/ABC_Technologies/pom.xml to /var/lib/jenkins/.m2/repository/com/abc/ABCtechnologies/1.0/ABCtechnologies-1.0.pom
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  02:12 min
[INFO] Finished at: 2022-10-29T13:39:43Z
[INFO] ------------------------------------------------------------------------
[JaCoCo plugin] Collecting JaCoCo coverage data...
[JaCoCo plugin] **/**.exec;**/classes;**/src/main/java; locations are configured
[JaCoCo plugin] Number of found exec files for pattern **/**.exec: 1
[JaCoCo plugin] Saving matched execfiles:  /var/lib/jenkins/workspace/ABC_Tech/ABC_Technologies/target/jacoco.exec
[JaCoCo plugin] Saving matched class directories for class-pattern: **/classes:
[JaCoCo plugin]  - /var/lib/jenkins/workspace/ABC_Tech/ABC_Technologies/target/ABCtechnologies-1.0/WEB-INF/classes 3 files
[JaCoCo plugin]  - /var/lib/jenkins/workspace/ABC_Tech/ABC_Technologies/target/classes 3 files
[JaCoCo plugin] Saving matched source directories for source-pattern: **/src/main/java:
[JaCoCo plugin] Source Inclusions: **/*.java,**/*.groovy,**/*.kt,**/*.kts
[JaCoCo plugin] Source Exclusions:
[JaCoCo plugin] - /var/lib/jenkins/workspace/ABC_Tech/ABC_Technologies/src/main/java 3 files
[JaCoCo plugin] Loading inclusions files..
[JaCoCo plugin] inclusions: []
[JaCoCo plugin] exclusions: []
[JaCoCo plugin] Thresholds: JacocoHealthReportThresholds [minClass=0, maxClass=0, minMethod=0, maxMethod=0, minLine=0, maxLine=0, minBranch=0, maxBranch=0, minInstruction=0,
maxInstruction=0, minComplexity=0, maxComplexity=0]
[JaCoCo plugin] Publishing the results..
[JaCoCo plugin] Loading packages..
[JaCoCo plugin] Done.
[JaCoCo plugin] Overall coverage: class: 100.0, method: 100.0, line: 100.0, branch: 100.0, instruction: 100.0, complexity: 100.0
[DeployPublisher][INFO] Attempting to deploy 1 war file(s)
[DeployPublisher][INFO] Deploying /var/lib/jenkins/workspace/ABC_Tech/ABC_Technologies/target/ABCtechnologies-1.0.war to container Tomcat 9.x Remote with context null
  Redeploying [/var/lib/jenkins/workspace/ABC_Tech/ABC_Technologies/target/ABCtechnologies-1.0.war]
  Undeploying [/var/lib/jenkins/workspace/ABC_Tech/ABC_Technologies/target/ABCtechnologies-1.0.war]
  Deploying [/var/lib/jenkins/workspace/ABC_Tech/ABC_Technologies/target/ABCtechnologies-1.0.war]
Finished: SUCCESS
```



Build #1 (Oct 29, 2022, 1:37:22 PM)

No changes.

Started by user yogesh nikam

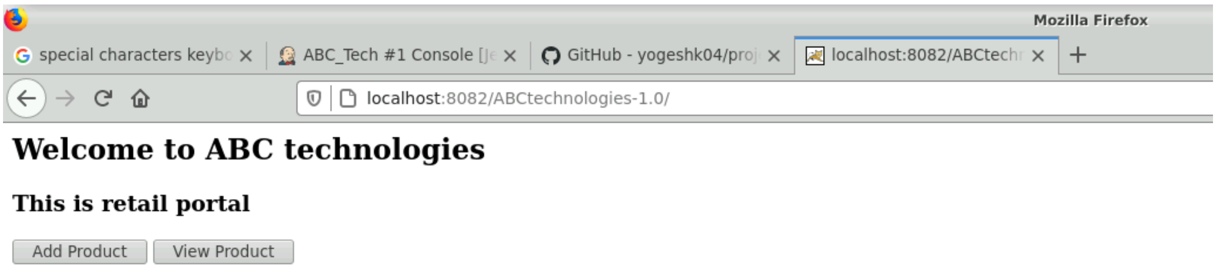
Revision: 709a2555d0ac34cba3a3b95c73900346212a60b7
Repository: https://github.com/yogeshk04/projects.git

- refs/remotes/origin/master

Jacoco - Overall Coverage Summary

INSTRUCTION	100%	🟩
BRANCH	100%	🟩
COMPLEXITY	100%	🟩
LINE	100%	🟩
CLASS	100%	🟩

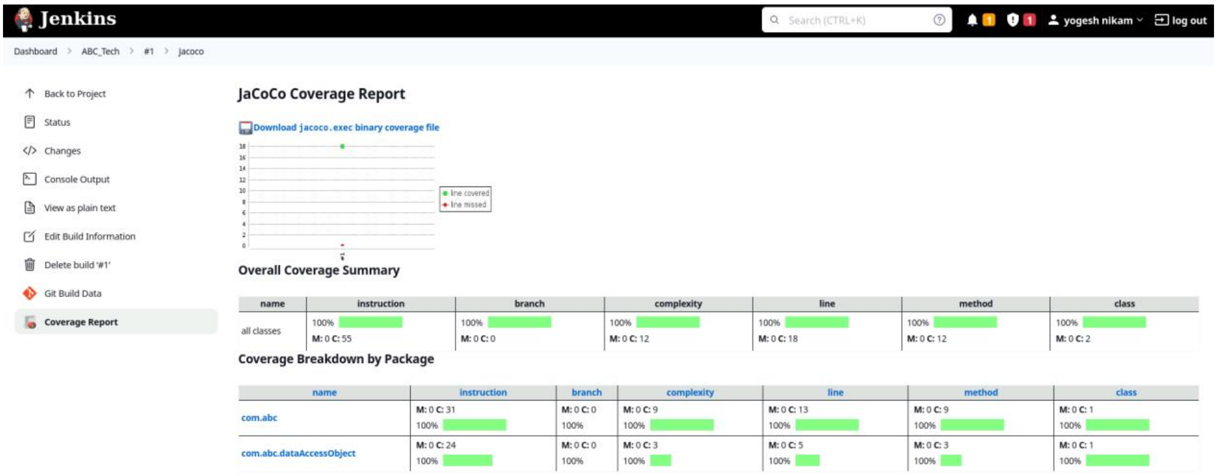
23. Access the web application



Welcome to ABC technologies

This is retail portal

24. JaCoCo code coverage report



JaCoCo Coverage Report

Download jacoco.exec binary coverage file

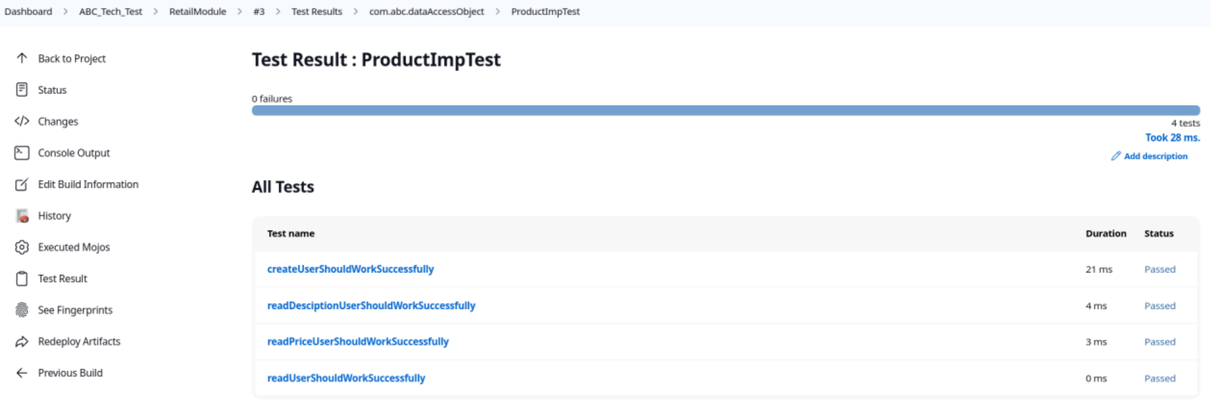
Overall Coverage Summary

name	instruction	branch	complexity	line	method	class
all classes	100% 🟩 M: 0 C: 55	100% 🟩 M: 0 C: 0	100% 🟩 M: 0 C: 12	100% 🟩 M: 0 C: 18	100% 🟩 M: 0 C: 12	100% 🟩 M: 0 C: 2

Coverage Breakdown by Package

name	instruction	branch	complexity	line	method	class
com.abc	M: 0 C: 31 100% 🟩	M: 0 C: 0 100%	M: 0 C: 9 100% 🟩	M: 0 C: 13 100% 🟩	M: 0 C: 9 100% 🟩	M: 0 C: 1 100% 🟩
com.abc.dataAccessObject	M: 0 C: 24 100% 🟩	M: 0 C: 0 100%	M: 0 C: 3 100% 🟩	M: 0 C: 5 100% 🟩	M: 0 C: 3 100% 🟩	M: 0 C: 1 100% 🟩

Test result:



Test Result : ProductImpTest

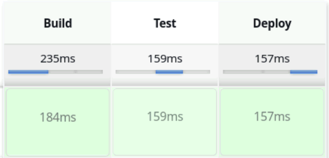
0 failures

4 tests

Took 28 ms.

All Tests

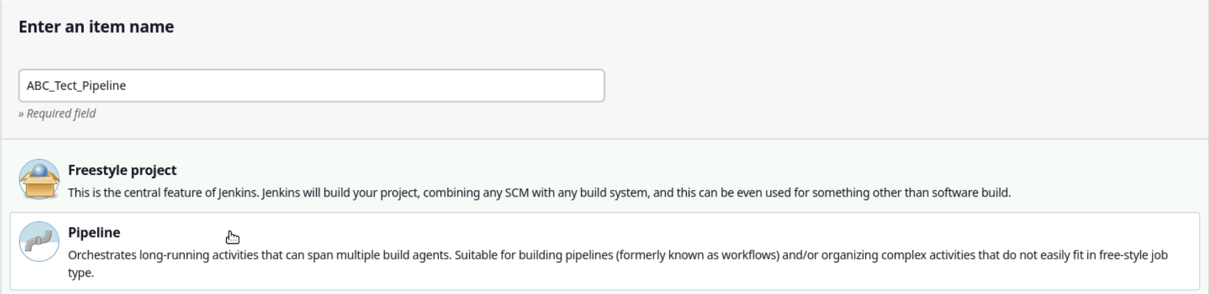
Test name	Duration	Status
createUserShouldWorkSuccessfully	21 ms	Passed
readDesciptionUserShouldWorkSuccessfully	4 ms	Passed
readPriceUserShouldWorkSuccessfully	3 ms	Passed
readUserShouldWorkSuccessfully	0 ms	Passed



Build	Test	Deploy
235ms	159ms	157ms
184ms	159ms	157ms

Create Pipeline for the project

1. From Dashboard click on New Item
2. Enter an item name for the pipeline and click OK



Enter an item name

ABC_Tect_Pipeline

» Required field

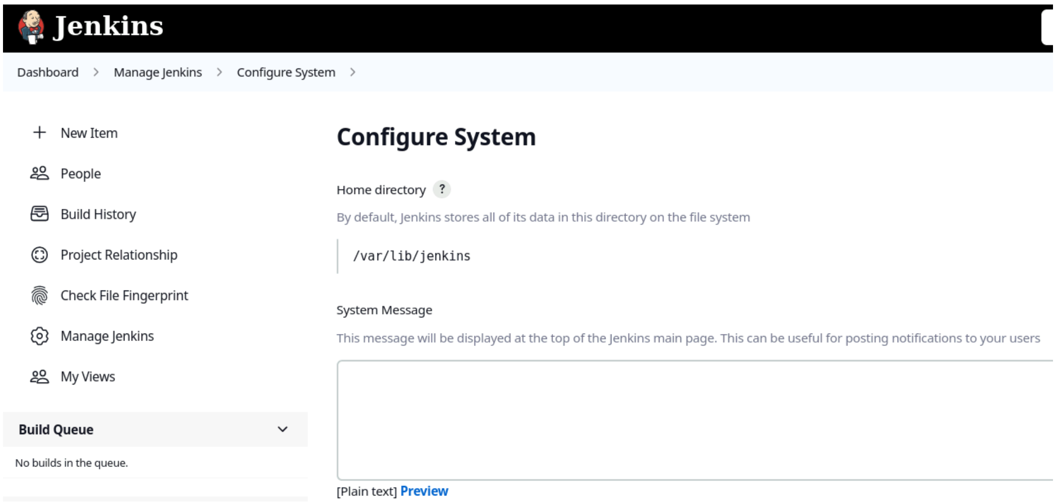
Freestyle project

This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with any build system, and this can be even used for something other than software build.

Pipeline

Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.

3. Configure email notification in Jenkins



No builds in the queue.

Configure System

Home directory ?

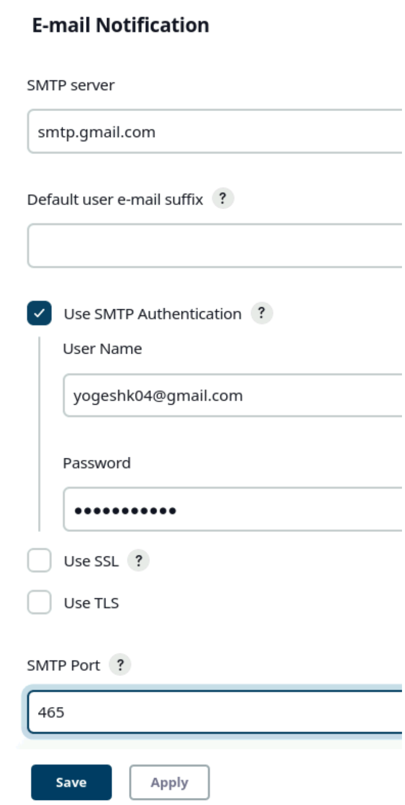
By default, Jenkins stores all of its data in this directory on the file system

```
/var/lib/jenkins
```

System Message

This message will be displayed at the top of the Jenkins main page. This can be useful for posting notifications to your users

[Plain text] Preview



E-mail Notification

SMTP server

smtp.gmail.com

Default user e-mail suffix ?

☑ Use SMTP Authentication ?

User Name

yogeshk04@gmail.com

Password

•••••••••••

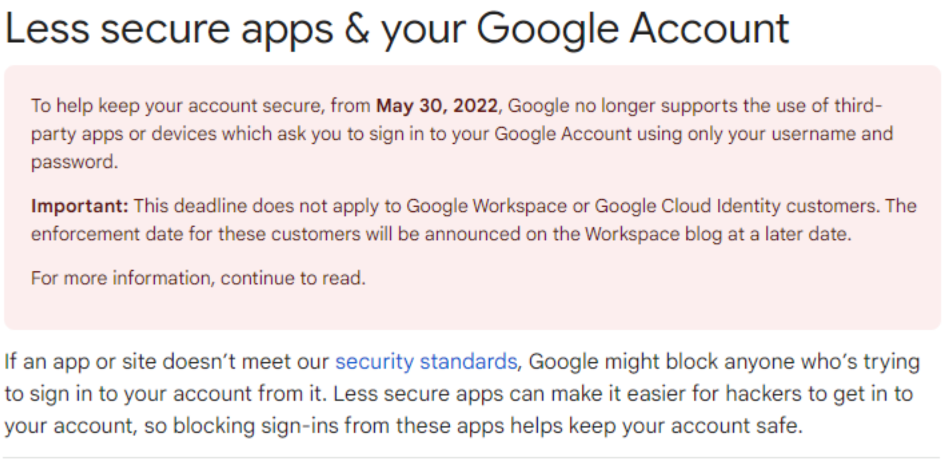
□ Use SSL ?

□ Use TLS

SMTP Port ?

465

4. Google has removed this service for low secure application.



Less secure apps & your Google Account

To help keep your account secure, from **May 30, 2022**, Google no longer supports the use of third-party apps or devices which ask you to sign in to your Google Account using only your username and password.

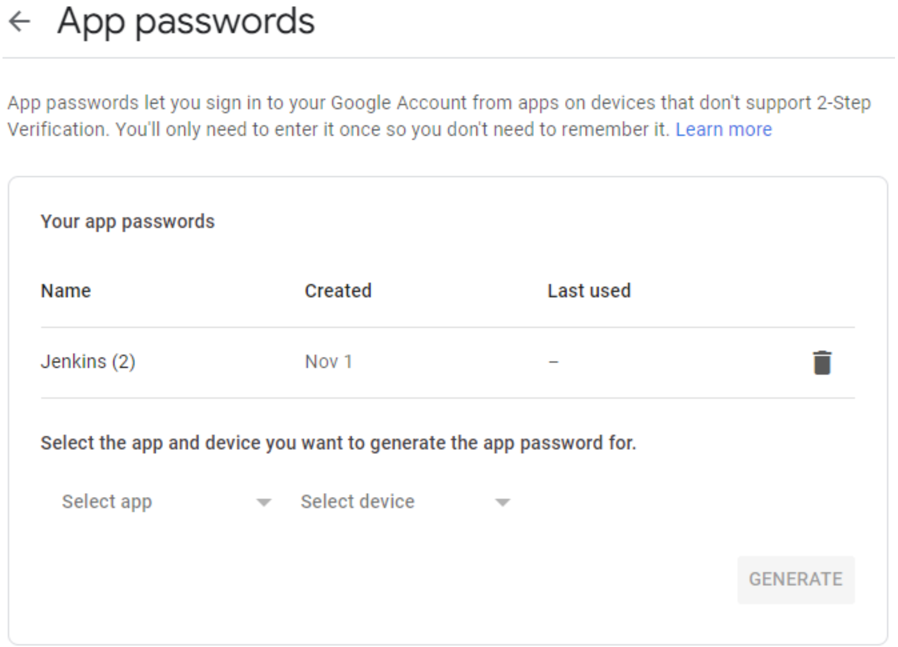
Important: This deadline does not apply to Google Workspace or Google Cloud Identity customers. The enforcement date for these customers will be announced on the Workspace blog at a later date.

For more information, continue to read.

If an app or site doesn't meet our security standards, Google might block anyone who's trying to sign in to your account from it. Less secure apps can make it easier for hackers to get in to your account, so blocking sign-ins from these apps helps keep your account safe.

5. Instead, user https://app.sendinblue.com/ reference link here

6. Use App password form google security



← App passwords

App passwords let you sign in to your Google Account from apps on devices that don't support 2-Step Verification. You'll only need to enter it once so you don't need to remember it. Learn more

Your app passwords

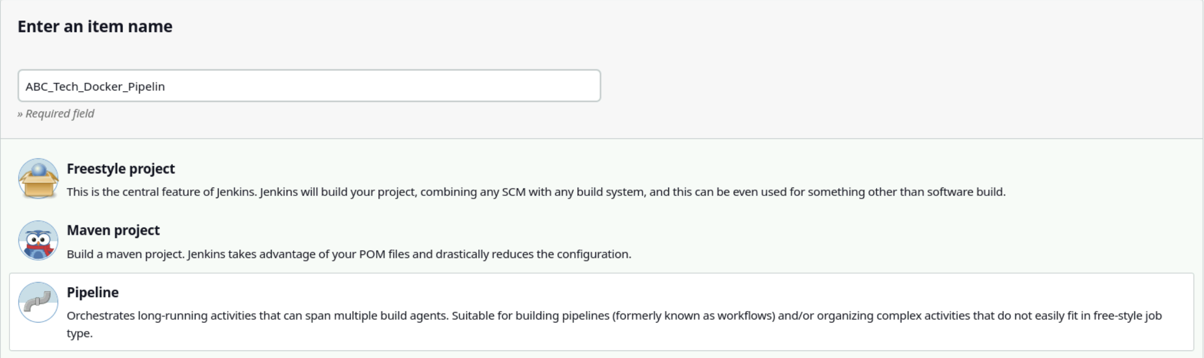
Name	Created	Last used
Jenkins (2)	Nov 1	–

Select the app and device you want to generate the app password for.

Docker: Docker is a set of platforms as a service product that use OS-level virtualization to deliver software in packages called containers. The service has both free and premium tiers. The software that hosts the containers is called Docker Engine.

Task 3: Write a Docker file. Create an Image and container on the Docker host. Integrate docker host with Jenkins. Create CI/CD job on Jenkins to build and deploy on a container

1. Create new item → Pipeline → provide the suitable name



Enter an item name

ABC_Tech_Docker_Pipelin

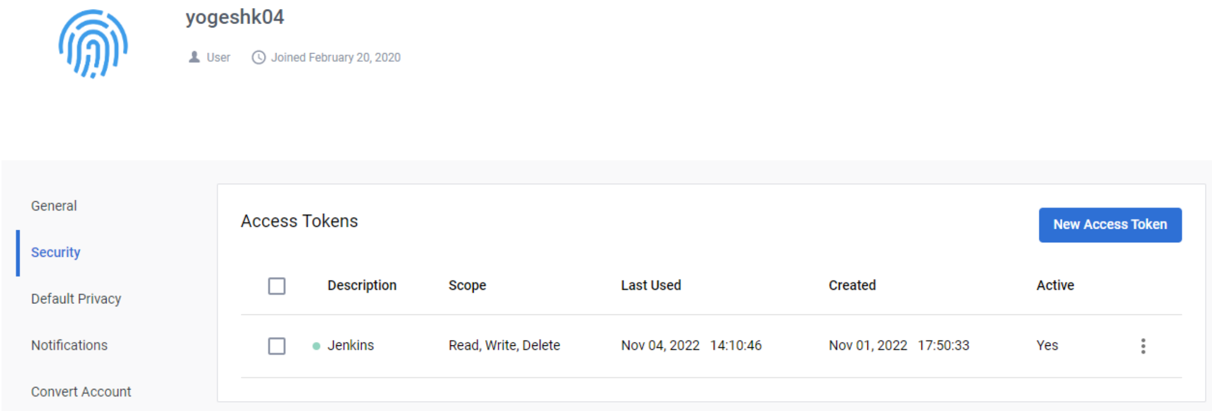
» Required field

Freestyle project
This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with any build system, and this can be even used for something other than software build.

Maven project
Build a maven project. Jenkins takes advantage of your POM files and drastically reduces the configuration.

Pipeline
Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.

2. Add GitHub credential
3. Add Docker Hub access token into Jenkins
    a. Create new Access token on your DockerHub account under Security section.



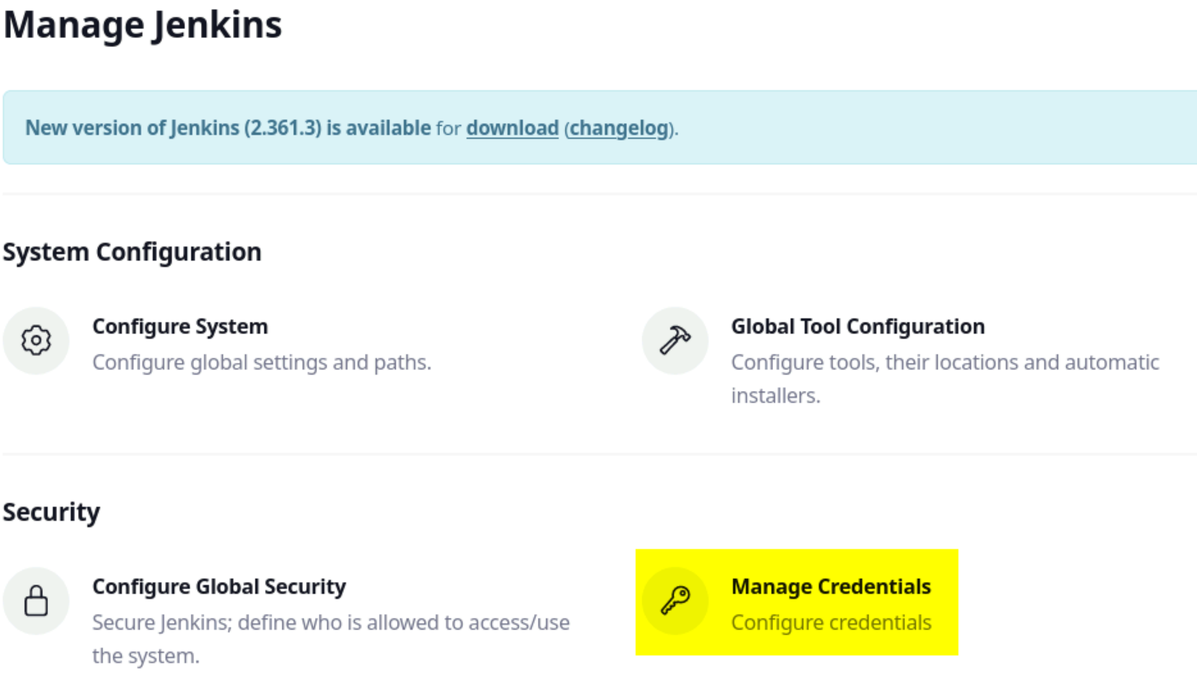
yogeshk04

User Joined February 20, 2020

Access Tokens

□	Description	Scope	Last Used	Created	Active
□	● Jenkins	Read, Write, Delete	Nov 04, 2022 14:10:46	Nov 01, 2022 17:50:33	Yes

b. Open Manage Jenkins –> Mange Credentials



Manage Jenkins

New version of Jenkins (2.361.3) is available for download (changelog).

System Configuration

Configure System
Configure global settings and paths.

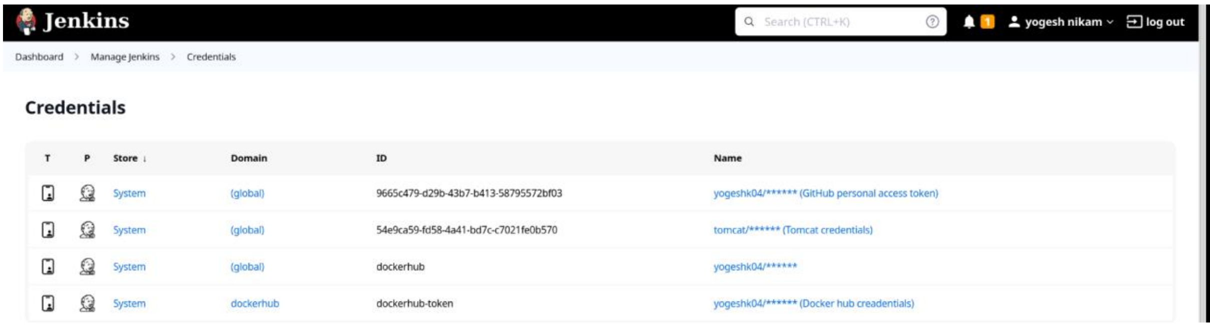
Global Tool Configuration
Configure tools, their locations and automatic installers.

Security

Configure Global Security
Secure Jenkins; define who is allowed to access/use the system.

Manage Credentials
Configure credentials

c. Add the System Credentials into Jenkins

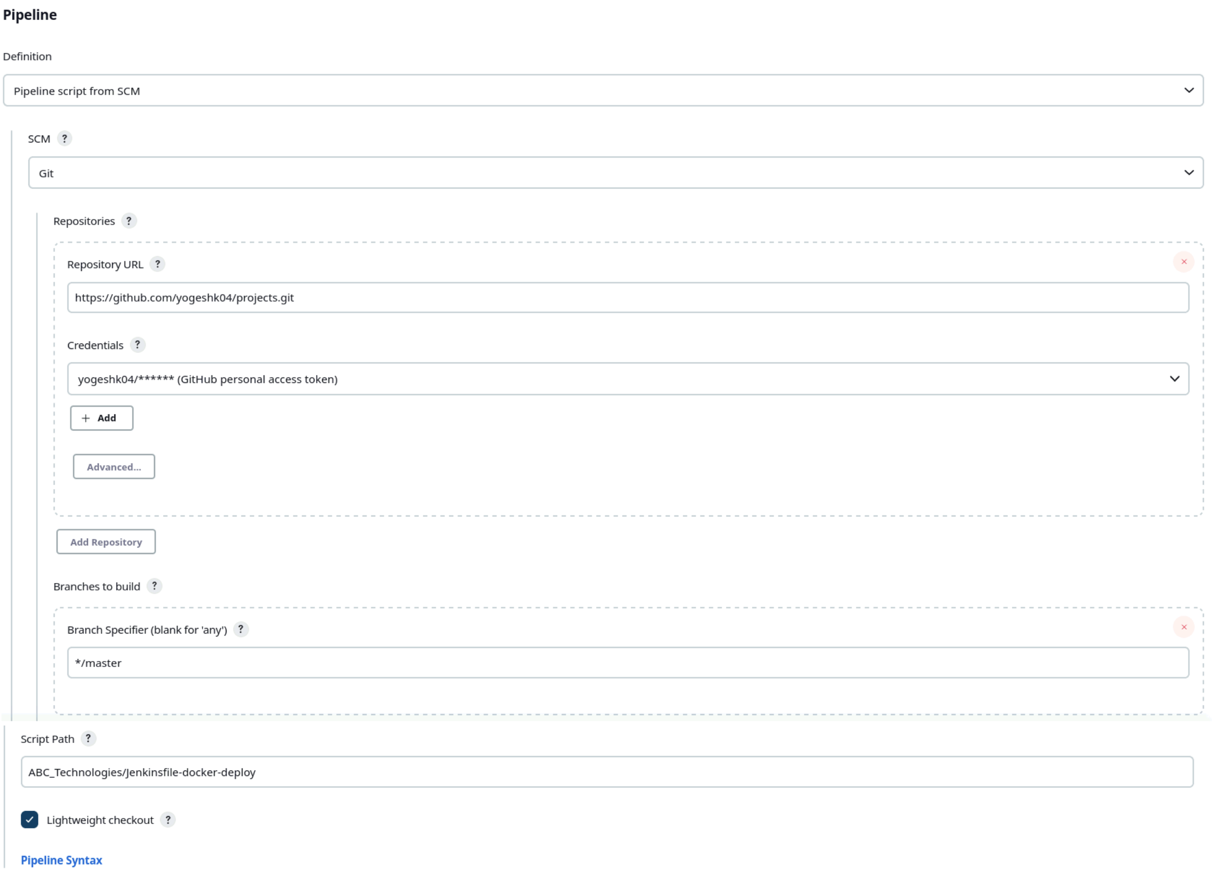


Dashboard > Manage Jenkins > Credentials

Credentials

T	P	Store ↓	Domain	ID	Name
		System	(global)	9665c479-d29b-43b7-b413-58795572bf03	yogeshk04/****** (GitHub personal access token)
		System	(global)	54e9ca59-fd58-4a41-bd7c-c7021fe0b570	tomcat/****** (Tomcat credentials)
		System	(global)	dockerhub	yogeshk04/******
		System	dockerhub	dockerhub-token	yogeshk04/****** (Docker hub creadentials)

4. Go to Pipeline section add definition pipeline script form SCM
   Select the details as show in the following image.
   Jenkins file can be found at repo. file name is *Jenkinsfile-docker-deploy*



Pipeline

Definition

Pipeline script from SCM

SCM

Git

Repositories

Repository URL

https://github.com/yogeshk04/projects.git

Credentials

yogeshk04/****** (GitHub personal access token)

Branches to build

Branch Specifier (blank for 'any')

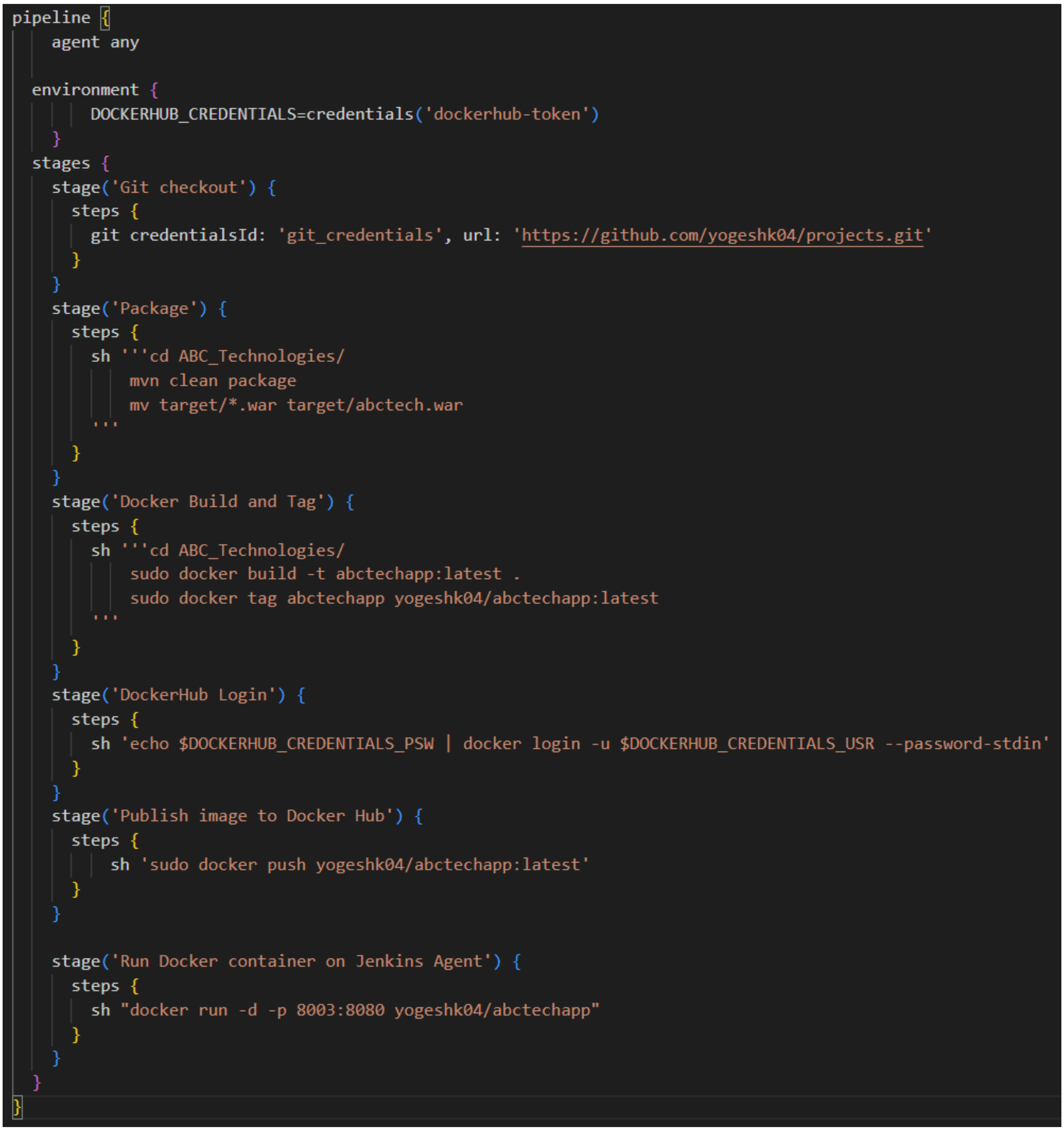
*/master

Script Path

ABC_Technologies/Jenkinsfile-docker-deploy

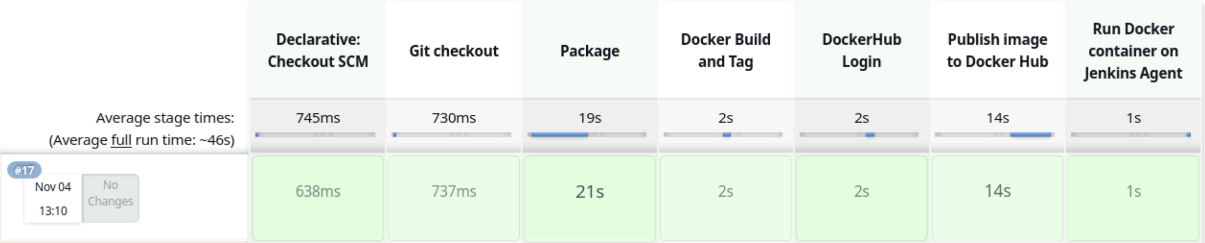
☑ Lightweight checkout

5. Pipeline script



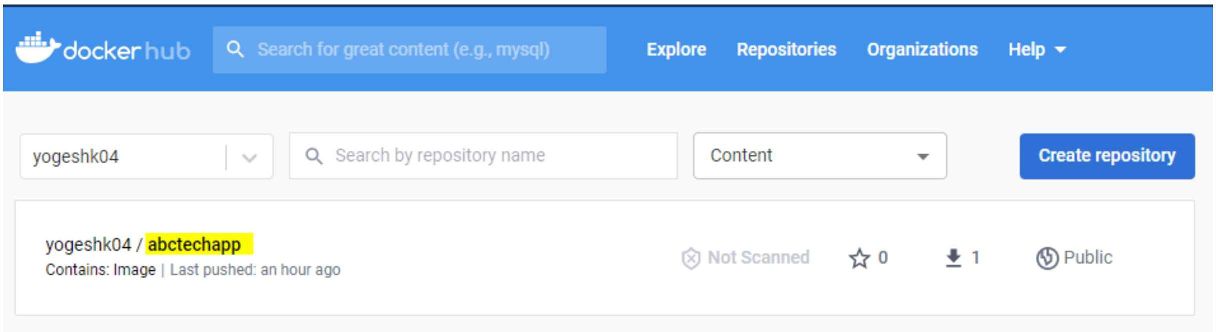
```
pipeline {
    agent any

  environment {
        DOCKERHUB_CREDENTIALS=credentials('dockerhub-token')
    }
  stages {
    stage('Git checkout') {
      steps {
        git credentialsId: 'git_credentials', url: 'https://github.com/yogeshk04/projects.git'
      }
    }
    stage('Package') {
      steps {
        sh '''cd ABC_Technologies/
            mvn clean package
            mv target/*.war target/abctech.war
        '''
      }
    }
    stage('Docker Build and Tag') {
      steps {
        sh '''cd ABC_Technologies/
            sudo docker build -t abctechapp:latest .
            sudo docker tag abctechapp yogeshk04/abctechapp:latest
        '''
      }
    }
    stage('DockerHub Login') {
      steps {
        sh 'echo $DOCKERHUB_CREDENTIALS_PSW | docker login -u $DOCKERHUB_CREDENTIALS_USR --password-stdin'
      }
    }
    stage('Publish image to Docker Hub') {
      steps {
          sh 'sudo docker push yogeshk04/abctechapp:latest'
      }
    }

    stage('Run Docker container on Jenkins Agent') {
      steps {
        sh "docker run -d -p 8003:8080 yogeshk04/abctechapp"
      }
    }
  }
}
```

6. Apply and Save
7. Build Now → After completing the pipeline you should see the following pipeline results.
   Stage View



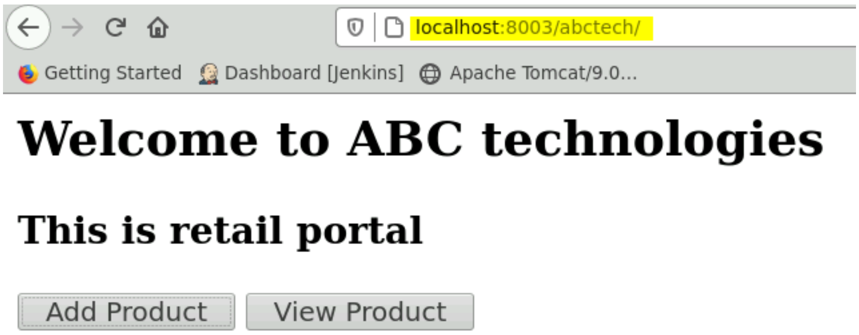
	Declarative: Checkout SCM	Git checkout	Package	Docker Build and Tag	DockerHub Login	Publish image to Docker Hub	Run Docker container on Jenkins Agent
Average stage times: (Average full run time: ~46s)	745ms	730ms	19s	2s	2s	14s	1s
#17 Nov 04 13:10 No Changes	638ms	737ms	21s	2s	2s	14s	1s

8. Login to Docker Hub account and verify the image is successfully pushed to docker hub account.



yogeshk04 / abctechapp
Contains: Image | Last pushed: an hour ago

9. Access the web application running as a **container** using http://localhost:8003/abctech/ you should see the following web application

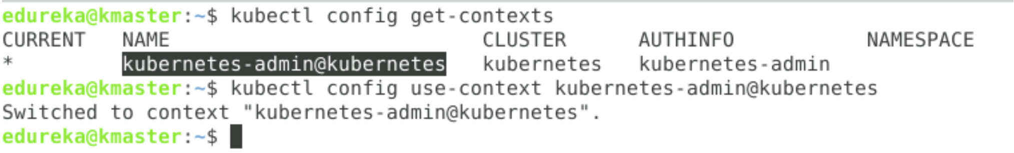


Welcome to ABC technologies

This is retail portal

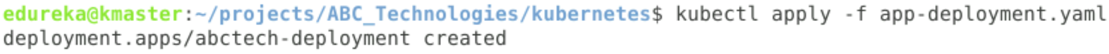
Kubernetes: Kubernetes is an open-source container orchestration system for automating software deployment, scaling, and management. Google originally designed Kubernetes, but the Cloud Native Computing Foundation now maintains the project.

1. User **contexts**: A Kubernetes context is used to group access parameters under an easily recognizable name in a kubeconfig file – a file used to configure access to clusters. It is the connection to a particular cluster used by kubectl. This concept only applies in the place where the kubectl command is run



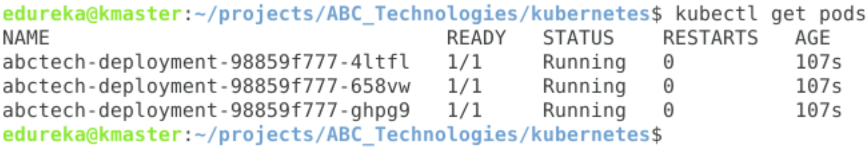
```
edureka@kmaster:~$ kubectl config get-contexts
CURRENT   NAME                          CLUSTER      AUTHINFO           NAMESPACE
*         kubernetes-admin@kubernetes   kubernetes   kubernetes-admin
edureka@kmaster:~$ kubectl config use-context kubernetes-admin@kubernetes
Switched to context "kubernetes-admin@kubernetes".
edureka@kmaster:~$ 
```

2. Manifest files are updated into github repo https://github.com/yogeshk04/projects/tree/master/ABC_Technologies/kubernetes
3. Create deployment



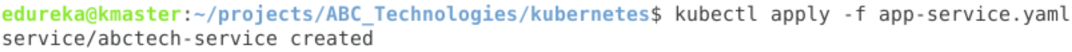
```
edureka@kmaster:~/projects/ABC_Technologies/kubernetes$ kubectl apply -f app-deployment.yaml
deployment.apps/abctech-deployment created
```

4. Get newly created pods



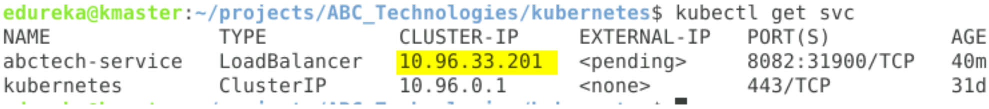
```
edureka@kmaster:~/projects/ABC_Technologies/kubernetes$ kubectl get pods
NAME                                 READY   STATUS    RESTARTS   AGE
abctech-deployment-98859f777-4ltfl   1/1     Running   0          107s
abctech-deployment-98859f777-658vw   1/1     Running   0          107s
abctech-deployment-98859f777-ghpg9   1/1     Running   0          107s
edureka@kmaster:~/projects/ABC_Technologies/kubernetes$
```

5. Create service



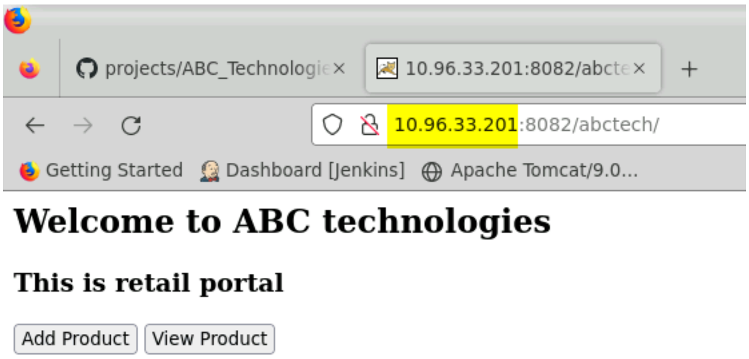
```
edureka@kmaster:~/projects/ABC_Technologies/kubernetes$ kubectl apply -f app-service.yaml
service/abctech-service created
```

6. Get newly created service



```
edureka@kmaster:~/projects/ABC_Technologies/kubernetes$ kubectl get svc
NAME              TYPE           CLUSTER-IP     EXTERNAL-IP    PORT(S)          AGE
abctech-service   LoadBalancer   10.96.33.201   <pending>      8082:31900/TCP   40m
kubernetes        ClusterIP      10.96.0.1      <none>         443/TCP          31d
```

7. Access the web app using cluster IP as the external ip assignment is still pending



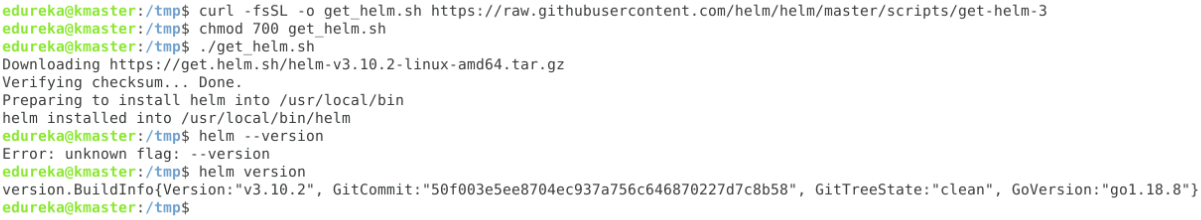
Welcome to ABC technologies

This is retail portal

Helm: Helm helps you manage Kubernetes applications. Helm Charts help you define, install, and upgrade even the most complex Kubernetes application.

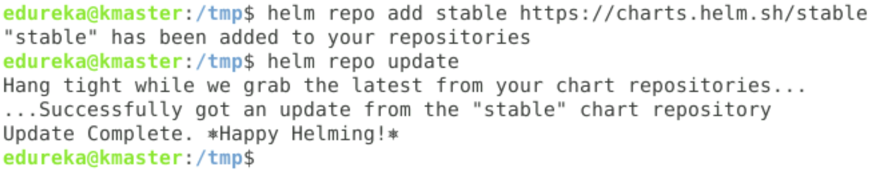
Deploy application on Kubernetes using Helm

1. Install helm



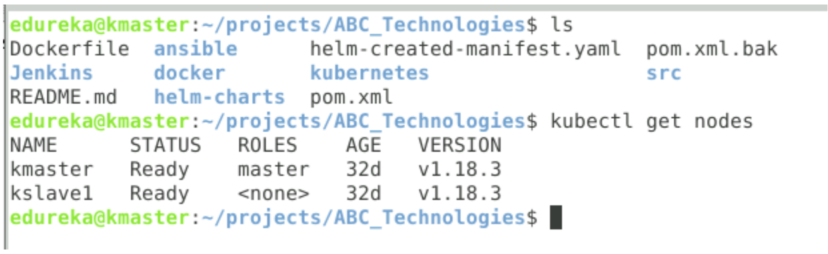
```
edureka@kmaster:/tmp$ curl -fsSL -o get_helm.sh https://raw.githubusercontent.com/helm/helm/master/scripts/get-helm-3
edureka@kmaster:/tmp$ chmod 700 get_helm.sh
edureka@kmaster:/tmp$ ./get_helm.sh
Downloading https://get.helm.sh/helm-v3.10.2-linux-amd64.tar.gz
Verifying checksum... Done.
Preparing to install helm into /usr/local/bin
helm installed into /usr/local/bin/helm
edureka@kmaster:/tmp$ helm --version
Error: unknown flag: --version
edureka@kmaster:/tmp$ helm version
version.BuildInfo{Version:"v3.10.2", GitCommit:"50f003e5ee8704ec937a756c646870227d7c8b58", GitTreeState:"clean", GoVersion:"go1.18.8"}
edureka@kmaster:/tmp$
```

2. Update helm



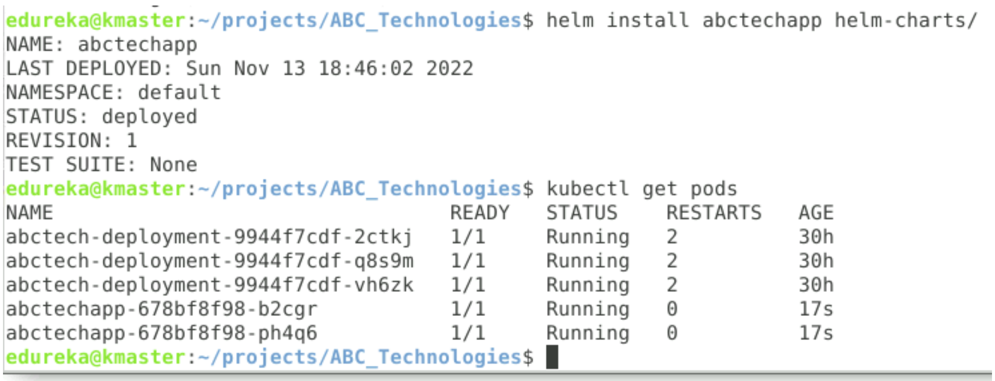
```
edureka@kmaster:/tmp$ helm repo add stable https://charts.helm.sh/stable
"stable" has been added to your repositories
edureka@kmaster:/tmp$ helm repo update
Hang tight while we grab the latest from your chart repositories...
...Successfully got an update from the "stable" chart repository
Update Complete. *Happy Helming!*
edureka@kmaster:/tmp$
```

3. Clone the project repository on Kubernetes master and check the nodes



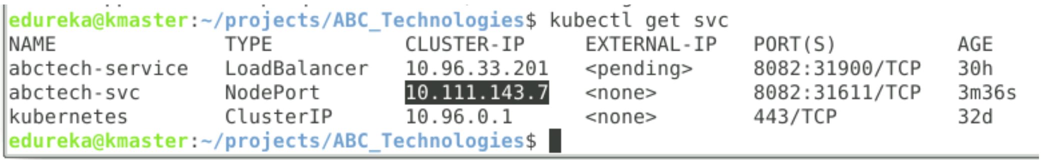
```
edureka@kmaster:~/projects/ABC_Technologies$ ls
Dockerfile  ansible      helm-created-manifest.yaml  pom.xml.bak
Jenkins     docker       kubernetes                  src
README.md   helm-charts  pom.xml
edureka@kmaster:~/projects/ABC_Technologies$ kubectl get nodes
NAME      STATUS   ROLES    AGE   VERSION
kmaster   Ready    master   32d   v1.18.3
kslave1   Ready    <none>   32d   v1.18.3
edureka@kmaster:~/projects/ABC_Technologies$
```

4. Deploy application using following helm reference repository directory helm-charts
   Helm deployment command
   : ~$ helm install abctechapp helm-chart/



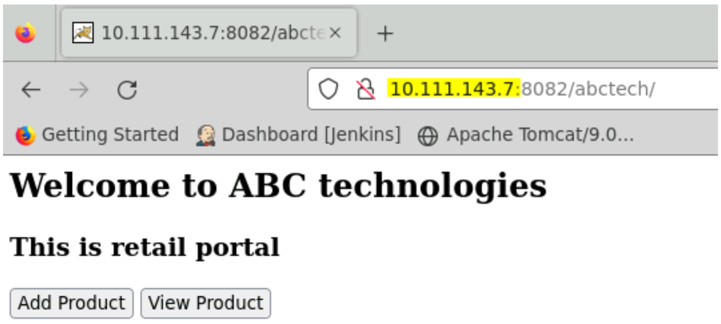
```
edureka@kmaster:~/projects/ABC_Technologies$ helm install abctechapp helm-charts/
NAME: abctechapp
LAST DEPLOYED: Sun Nov 13 18:46:02 2022
NAMESPACE: default
STATUS: deployed
REVISION: 1
TEST SUITE: None
edureka@kmaster:~/projects/ABC_Technologies$ kubectl get pods
NAME                                 READY   STATUS    RESTARTS   AGE
abctech-deployment-9944f7cdf-2ctkj   1/1     Running   2          30h
abctech-deployment-9944f7cdf-q8s9m   1/1     Running   2          30h
abctech-deployment-9944f7cdf-vh6zk   1/1     Running   2          30h
abctechapp-678bf8f98-b2cgr           1/1     Running   0          17s
abctechapp-678bf8f98-ph4q6           1/1     Running   0          17s
edureka@kmaster:~/projects/ABC_Technologies$
```

5. Check the service abctech-svc created by helm chart



```
edureka@kmaster:~/projects/ABC_Technologies$ kubectl get svc
NAME              TYPE           CLUSTER-IP      EXTERNAL-IP   PORT(S)          AGE
abctech-service   LoadBalancer   10.96.33.201    <pending>     8082:31900/TCP   30h
abctech-svc       NodePort       10.111.143.7    <none>        8082:31611/TCP   3m36s
kubernetes        ClusterIP      10.96.0.1       <none>        443/TCP          32d
edureka@kmaster:~/projects/ABC_Technologies$
```

6. Access the application using cluster ip



Welcome to ABC technologies

This is retail portal

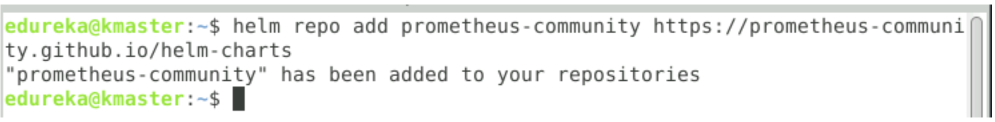
Prometheus: An open-source monitoring system with a dimensional data model, flexible query language, efficient time series database and modern alerting approach.

Grafana: Grafana is a multi-platform open-source analytics and interactive visualization web application. It provides charts, graphs, and alerts for the web when connected to supported data sources

Monitoring using Prometheus and Grafana

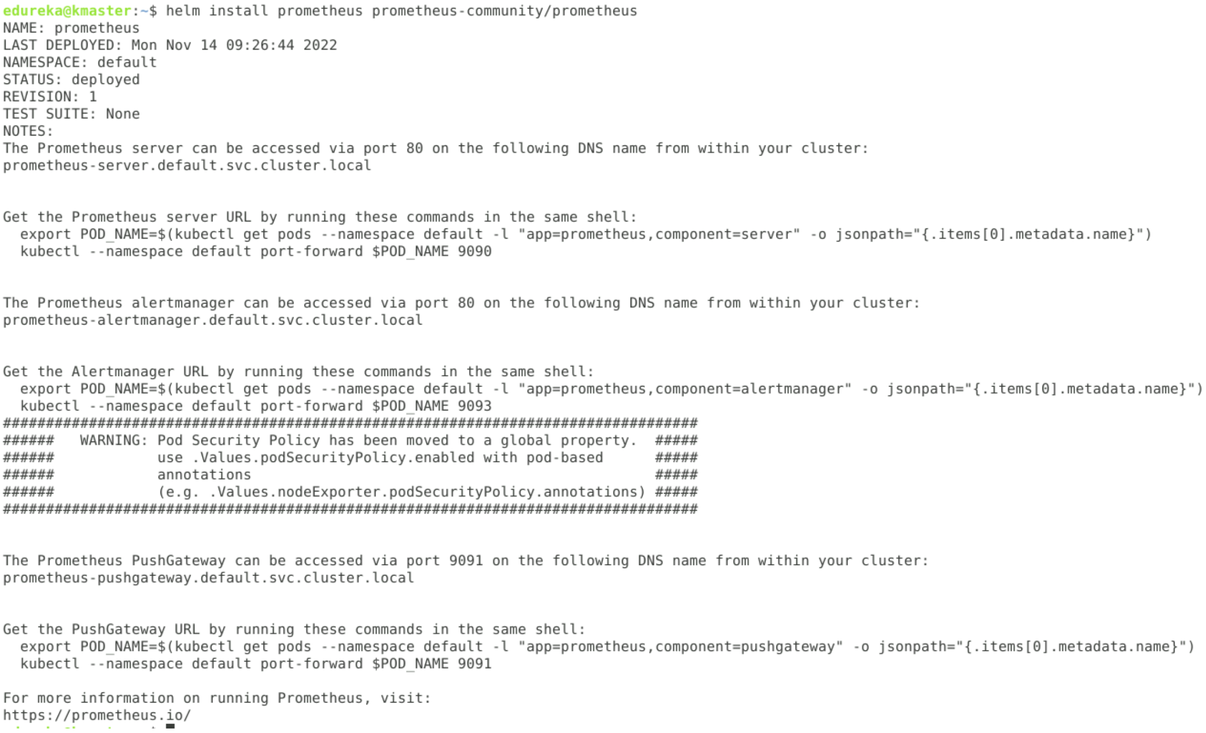
1. Add Prometheus community

User command: helm repo add prometheus-community https://prometheus-community.github.io/helm-charts



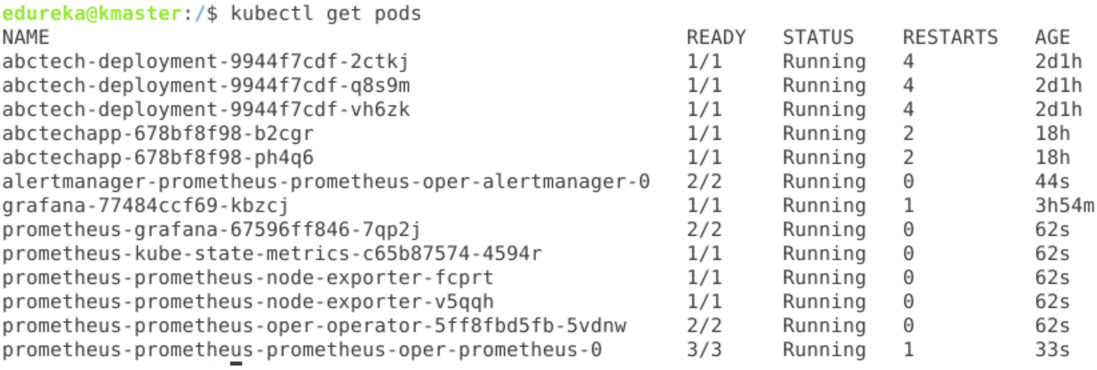
```
edureka@kmaster:~$ helm repo add prometheus-community https://prometheus-communi
ty.github.io/helm-charts
"prometheus-community" has been added to your repositories
edureka@kmaster:~$ 
```

2. Install Prometheus community release as NAME: prometheus



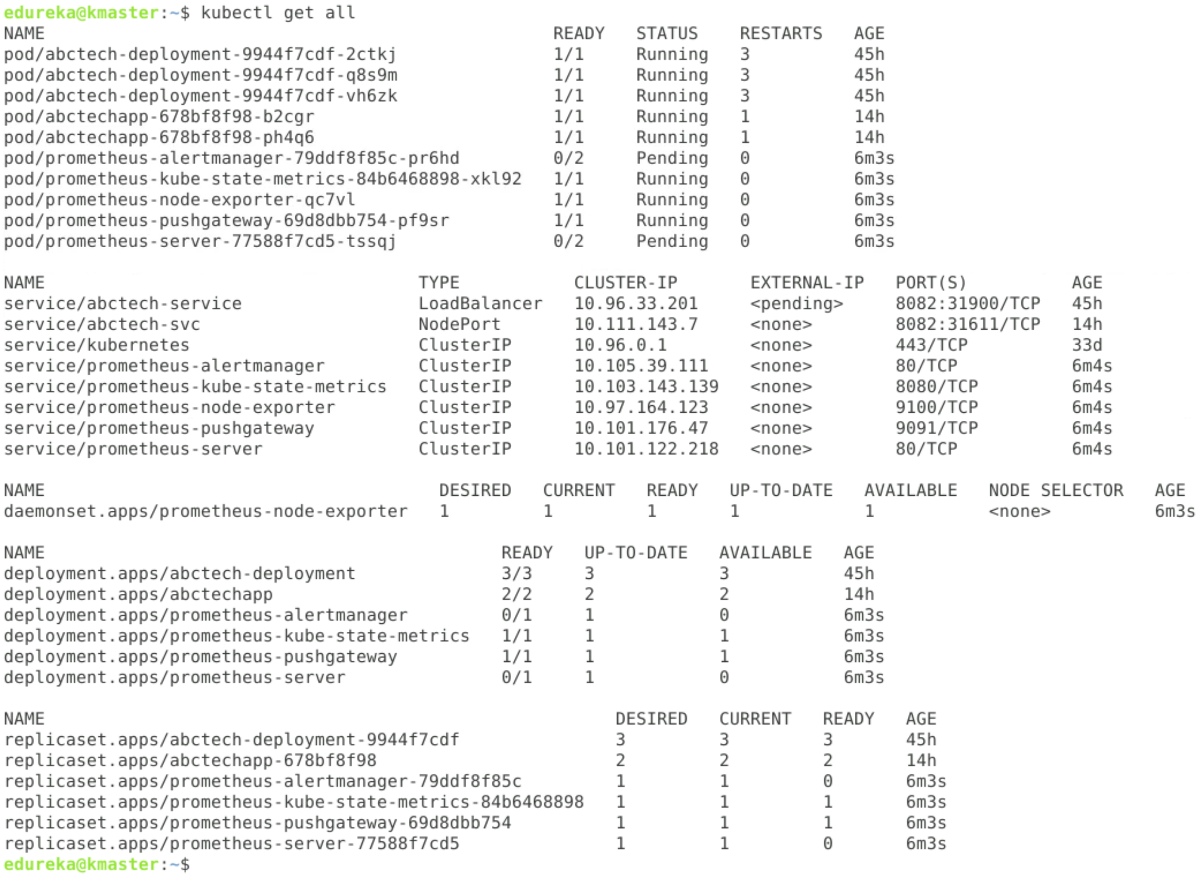
```
edureka@kmaster:~$ helm install prometheus prometheus-community/prometheus
NAME: prometheus
LAST DEPLOYED: Mon Nov 14 09:26:44 2022
NAMESPACE: default
STATUS: deployed
REVISION: 1
TEST SUITE: None
NOTES:
The Prometheus server can be accessed via port 80 on the following DNS name from within your cluster:
prometheus-server.default.svc.cluster.local


Get the Prometheus server URL by running these commands in the same shell:
  export POD_NAME=$(kubectl get pods --namespace default -l "app=prometheus,component=server" -o jsonpath="{.items[0].metadata.name}")
  kubectl --namespace default port-forward $POD_NAME 9090


The Prometheus alertmanager can be accessed via port 80 on the following DNS name from within your cluster:
prometheus-alertmanager.default.svc.cluster.local


Get the Alertmanager URL by running these commands in the same shell:
  export POD_NAME=$(kubectl get pods --namespace default -l "app=prometheus,component=alertmanager" -o jsonpath="{.items[0].metadata.name}")
  kubectl --namespace default port-forward $POD_NAME 9093
#################################################################################
######   WARNING: Pod Security Policy has been moved to a global property.  #####
######            use .Values.podSecurityPolicy.enabled with pod-based      #####
######            annotations                                               #####
######            (e.g. .Values.nodeExporter.podSecurityPolicy.annotations) #####
#################################################################################


The Prometheus PushGateway can be accessed via port 9091 on the following DNS name from within your cluster:
prometheus-pushgateway.default.svc.cluster.local


Get the PushGateway URL by running these commands in the same shell:
  export POD_NAME=$(kubectl get pods --namespace default -l "app=prometheus,component=pushgateway" -o jsonpath="{.items[0].metadata.name}")
  kubectl --namespace default port-forward $POD_NAME 9091

For more information on running Prometheus, visit:
https://prometheus.io/
```

3. Check the pods



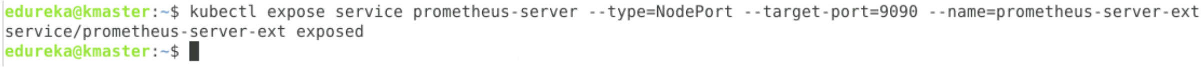
```
edureka@kmaster:/$ kubectl get pods
NAME                                                   READY   STATUS    RESTARTS   AGE
abctech-deployment-9944f7cdf-2ctkj                     1/1     Running   4          2d1h
abctech-deployment-9944f7cdf-q8s9m                     1/1     Running   4          2d1h
abctech-deployment-9944f7cdf-vh6zk                     1/1     Running   4          2d1h
abctechapp-678bf8f98-b2cgr                             1/1     Running   2          18h
abctechapp-678bf8f98-ph4q6                             1/1     Running   2          18h
alertmanager-prometheus-prometheus-oper-alertmanager-0 2/2     Running   0          44s
grafana-77484ccf69-kbzcj                               1/1     Running   1          3h54m
prometheus-grafana-67596ff846-7qp2j                    2/2     Running   0          62s
prometheus-kube-state-metrics-c65b87574-4594r          1/1     Running   0          62s
prometheus-prometheus-node-exporter-fcprt              1/1     Running   0          62s
prometheus-prometheus-node-exporter-v5qqh              1/1     Running   0          62s
prometheus-prometheus-oper-operator-5ff8fbd5fb-5vdnw   2/2     Running   0          62s
prometheus-prometheus-prometheus-oper-prometheus-0     3/3     Running   1          33s
```

4. Check kubectl get all



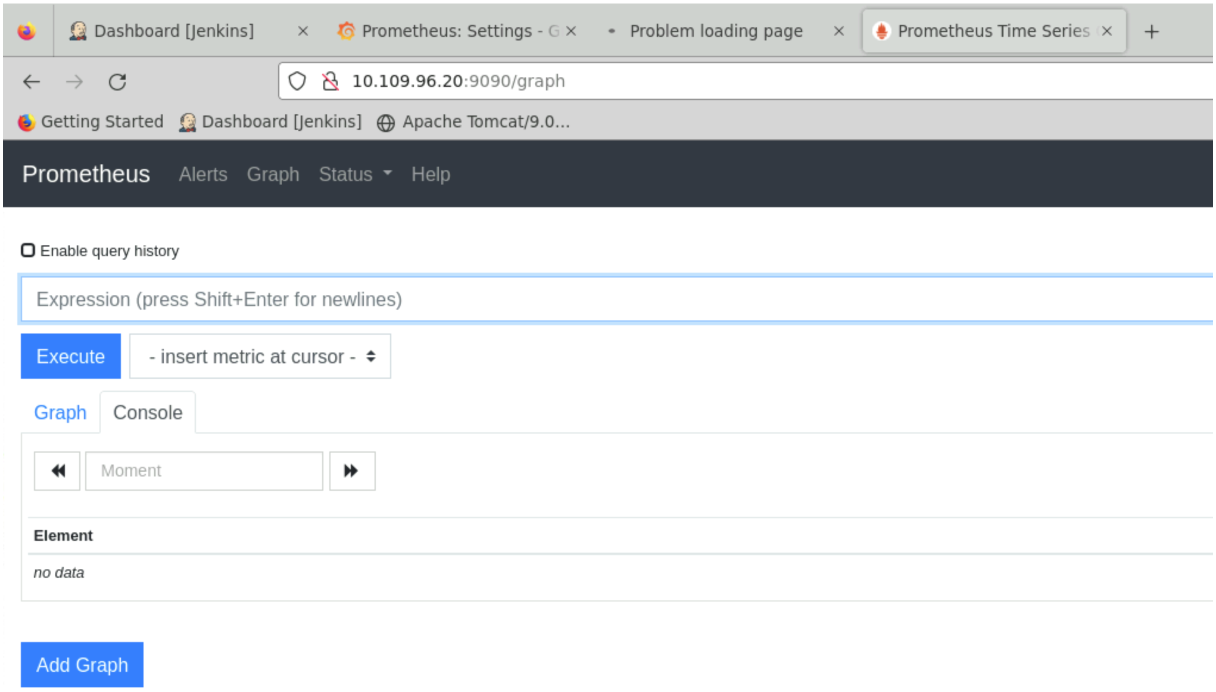
```
edureka@kmaster:~$ kubectl get all
NAME                                                READY   STATUS    RESTARTS   AGE
pod/abctech-deployment-9944f7cdf-2ctkj              1/1     Running   3          45h
pod/abctech-deployment-9944f7cdf-q8s9m              1/1     Running   3          45h
pod/abctech-deployment-9944f7cdf-vh6zk              1/1     Running   3          45h
pod/abctechapp-678bf8f98-b2cgr                      1/1     Running   1          14h
pod/abctechapp-678bf8f98-ph4q6                      1/1     Running   1          14h
pod/prometheus-alertmanager-79ddf8f85c-pr6hd        0/2     Pending   0          6m3s
pod/prometheus-kube-state-metrics-84b6468898-xkl92  1/1     Running   0          6m3s
pod/prometheus-node-exporter-qc7vl                  1/1     Running   0          6m3s
pod/prometheus-pushgateway-69d8dbb754-pf9sr         1/1     Running   0          6m3s
pod/prometheus-server-77588f7cd5-tssqj              0/2     Pending   0          6m3s

NAME                                    TYPE           CLUSTER-IP       EXTERNAL-IP   PORT(S)          AGE
service/abctech-service                 LoadBalancer   10.96.33.201     <pending>     8082:31900/TCP   45h
service/abctech-svc                     NodePort       10.111.143.7     <none>        8082:31611/TCP   14h
service/kubernetes                      ClusterIP      10.96.0.1        <none>        443/TCP          33d
service/prometheus-alertmanager         ClusterIP      10.105.39.111    <none>        80/TCP           6m4s
service/prometheus-kube-state-metrics   ClusterIP      10.103.143.139   <none>        8080/TCP         6m4s
service/prometheus-node-exporter        ClusterIP      10.97.164.123    <none>        9100/TCP         6m4s
service/prometheus-pushgateway          ClusterIP      10.101.176.47    <none>        9091/TCP         6m4s
service/prometheus-server               ClusterIP      10.101.122.218   <none>        80/TCP           6m4s

NAME                                      DESIRED   CURRENT   READY   UP-TO-DATE   AVAILABLE   NODE SELECTOR   AGE
daemonset.apps/prometheus-node-exporter   1         1         1       1            1           <none>          6m3s

NAME                                            READY   UP-TO-DATE   AVAILABLE   AGE
deployment.apps/abctech-deployment              3/3     3            3           45h
deployment.apps/abctechapp                      2/2     2            2           14h
deployment.apps/prometheus-alertmanager         0/1     1            0           6m3s
deployment.apps/prometheus-kube-state-metrics   1/1     1            1           6m3s
deployment.apps/prometheus-pushgateway          1/1     1            1           6m3s
deployment.apps/prometheus-server               0/1     1            0           6m3s

NAME                                                       DESIRED   CURRENT   READY   AGE
replicaset.apps/abctech-deployment-9944f7cdf               3         3         3       45h
replicaset.apps/abctechapp-678bf8f98                       2         2         2       14h
replicaset.apps/prometheus-alertmanager-79ddf8f85c         1         1         0       6m3s
replicaset.apps/prometheus-kube-state-metrics-84b6468898   1         1         1       6m3s
replicaset.apps/prometheus-pushgateway-69d8dbb754          1         1         1       6m3s
replicaset.apps/prometheus-server-77588f7cd5               1         1         0       6m3s
edureka@kmaster:~$
```

5. Create new service to access Prometheus form outside



```
edureka@kmaster:~$ kubectl expose service prometheus-server --type=NodePort --target-port=9090 --name=prometheus-server-ext
service/prometheus-server-ext exposed
edureka@kmaster:~$
```

6. Access the Prometheus using IP address:



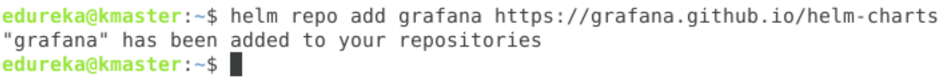
☐ Enable query history

Expression (press Shift+Enter for newlines)

Element

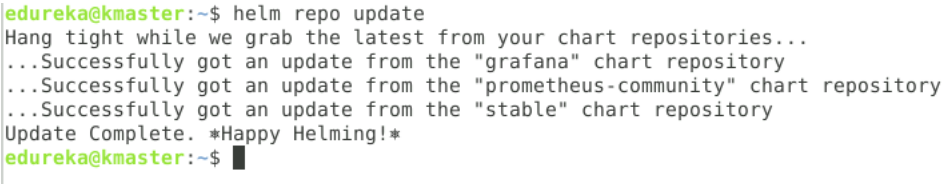
no data

7. Add Grafana repo



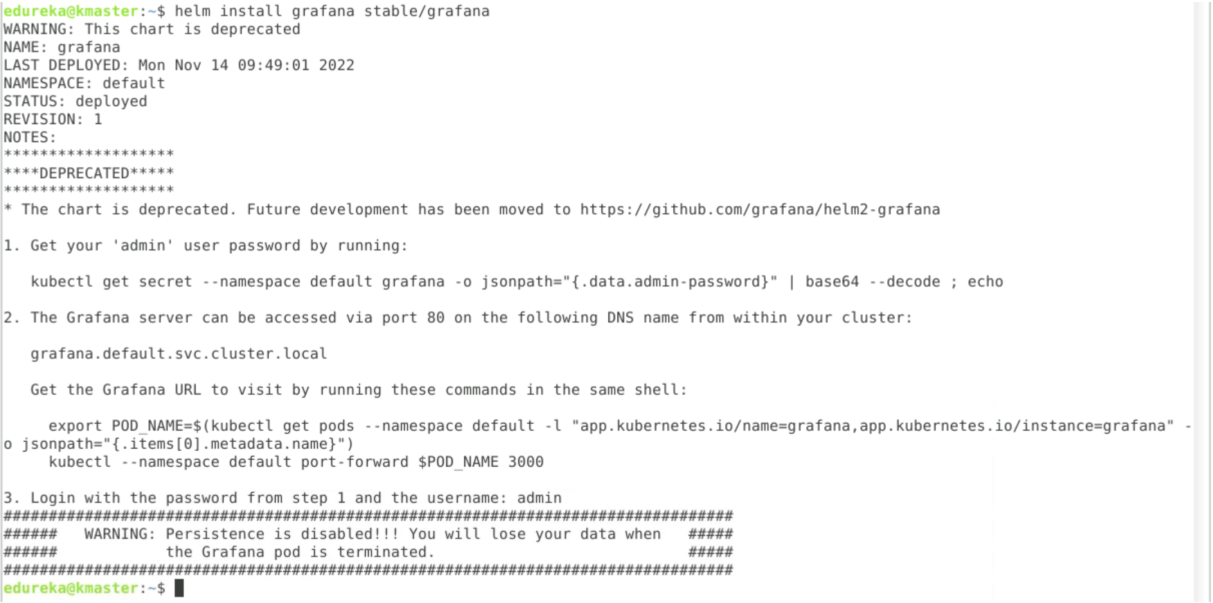
```
edureka@kmaster:~$ helm repo add grafana https://grafana.github.io/helm-charts
"grafana" has been added to your repositories
edureka@kmaster:~$ 
```

8. Update the hlem repo



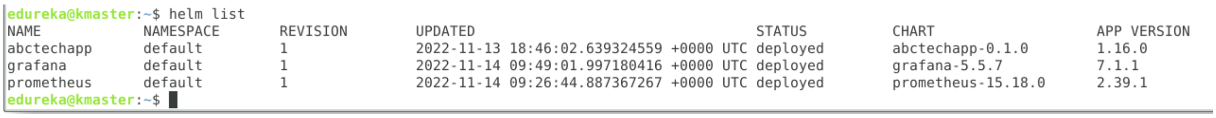
```
edureka@kmaster:~$ helm repo update
Hang tight while we grab the latest from your chart repositories...
...Successfully got an update from the "grafana" chart repository
...Successfully got an update from the "prometheus-community" chart repository
...Successfully got an update from the "stable" chart repository
Update Complete. *Happy Helming!*
edureka@kmaster:~$ 
```

9. Install Grafana



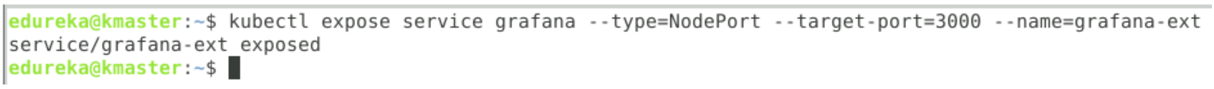
```
edureka@kmaster:~$ helm install grafana stable/grafana
WARNING: This chart is deprecated
NAME: grafana
LAST DEPLOYED: Mon Nov 14 09:49:01 2022
NAMESPACE: default
STATUS: deployed
REVISION: 1
NOTES:
*******************
****DEPRECATED*****
*******************
* The chart is deprecated. Future development has been moved to https://github.com/grafana/helm2-grafana

1. Get your 'admin' user password by running:

   kubectl get secret --namespace default grafana -o jsonpath="{.data.admin-password}" | base64 --decode ; echo

2. The Grafana server can be accessed via port 80 on the following DNS name from within your cluster:

   grafana.default.svc.cluster.local

   Get the Grafana URL to visit by running these commands in the same shell:

     export POD_NAME=$(kubectl get pods --namespace default -l "app.kubernetes.io/name=grafana,app.kubernetes.io/instance=grafana" -
o jsonpath="{.items[0].metadata.name}")
     kubectl --namespace default port-forward $POD_NAME 3000

3. Login with the password from step 1 and the username: admin
#################################################################################
######   WARNING: Persistence is disabled!!! You will lose your data when   #####
######            the Grafana pod is terminated.                            #####
#################################################################################
edureka@kmaster:~$ 
```

10. Check helm list



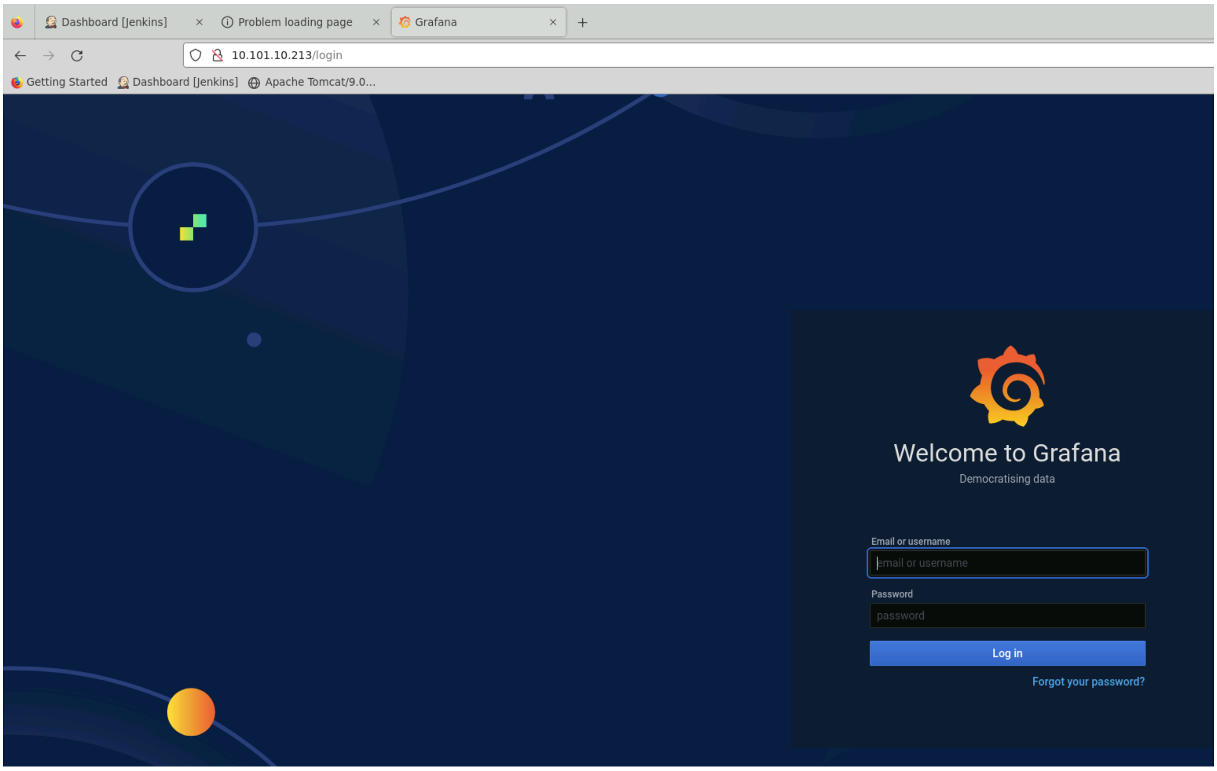
```
edureka@kmaster:~$ helm list
NAME            NAMESPACE       REVISION        UPDATED                                 STATUS          CHART                   APP VERSION
abctechapp      default         1               2022-11-13 18:46:02.639324559 +0000 UTC deployed        abctechapp-0.1.0        1.16.0
grafana         default         1               2022-11-14 09:49:01.997180416 +0000 UTC deployed        grafana-5.5.7           7.1.1
prometheus      default         1               2022-11-14 09:26:44.887367267 +0000 UTC deployed        prometheus-15.18.0      2.39.1
edureka@kmaster:~$ 
```

11. Create new service to access Grafana form outside

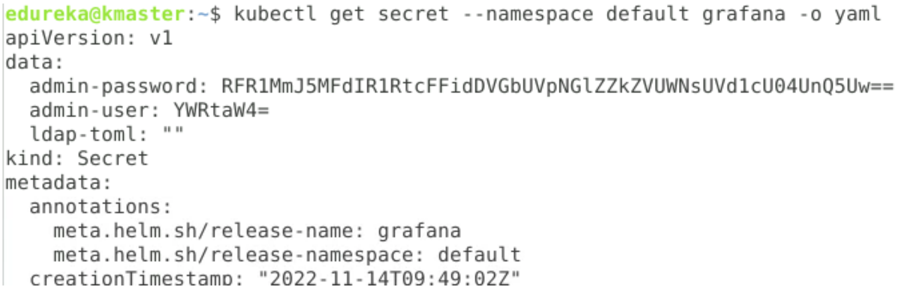


```
edureka@kmaster:~$ kubectl expose service grafana --type=NodePort --target-port=3000 --name=grafana-ext
service/grafana-ext exposed
edureka@kmaster:~$ 
```

12. Access Grafana using ip address

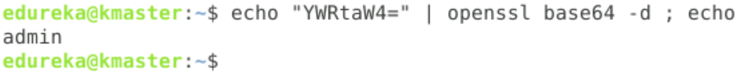


13. Get the Grafana login id and password

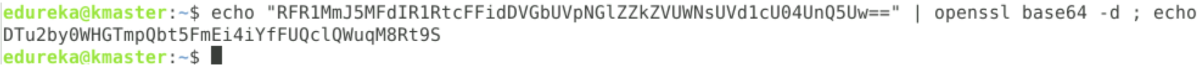


```
edureka@kmaster:~$ kubectl get secret --namespace default grafana -o yaml
apiVersion: v1
data:
  admin-password: RFR1MmJ5MFdIR1RtcFFidDVGbUVpNGlZZkZVUWNsUVd1cU04UnQ5Uw==
  admin-user: YWRtaW4=
  ldap-toml: ""
kind: Secret
metadata:
  annotations:
    meta.helm.sh/release-name: grafana
    meta.helm.sh/release-namespace: default
  creationTimestamp: "2022-11-14T09:49:02Z"
```

14. Admin-user and admin-password will be encrypted you need to decrypt it. Using following command



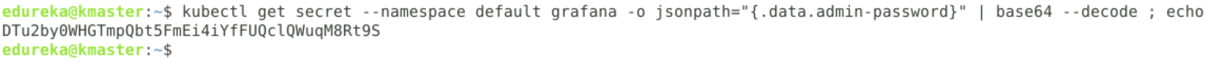
```
edureka@kmaster:~$ echo "YWRtaW4=" | openssl base64 -d ; echo
admin
edureka@kmaster:~$
```



```
edureka@kmaster:~$ echo "RFR1MmJ5MFdIR1RtcFFidDVGbUVpNGlZZkZVUWNsUVd1cU04UnQ5Uw==" | openssl base64 -d ; echo
DTu2by0WHGTmpQbt5FmEi4iYfFUQclQWuqM8Rt9S
edureka@kmaster:~$ █
```

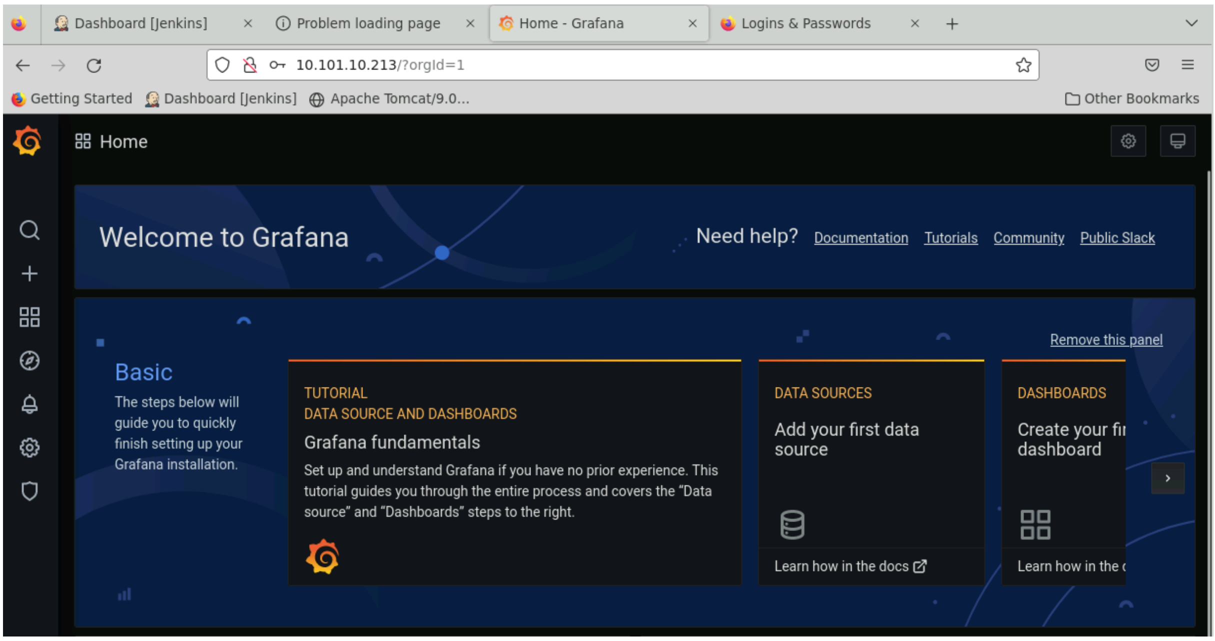
15. Command finds the password:

kubectl get secret --namespace default grafana -o jsonpath="{.data.admin-password}" | base64 --decode ; echo



```
edureka@kmaster:~$ kubectl get secret --namespace default grafana -o jsonpath="{.data.admin-password}" | base64 --decode ; echo
DTu2by0WHGTmpQbt5FmEi4iYfFUQclQWuqM8Rt9S
edureka@kmaster:~$
```

16. Access the Grafana UI



Welcome to Grafana

Basic

The steps below will guide you to quickly finish setting up your Grafana installation.

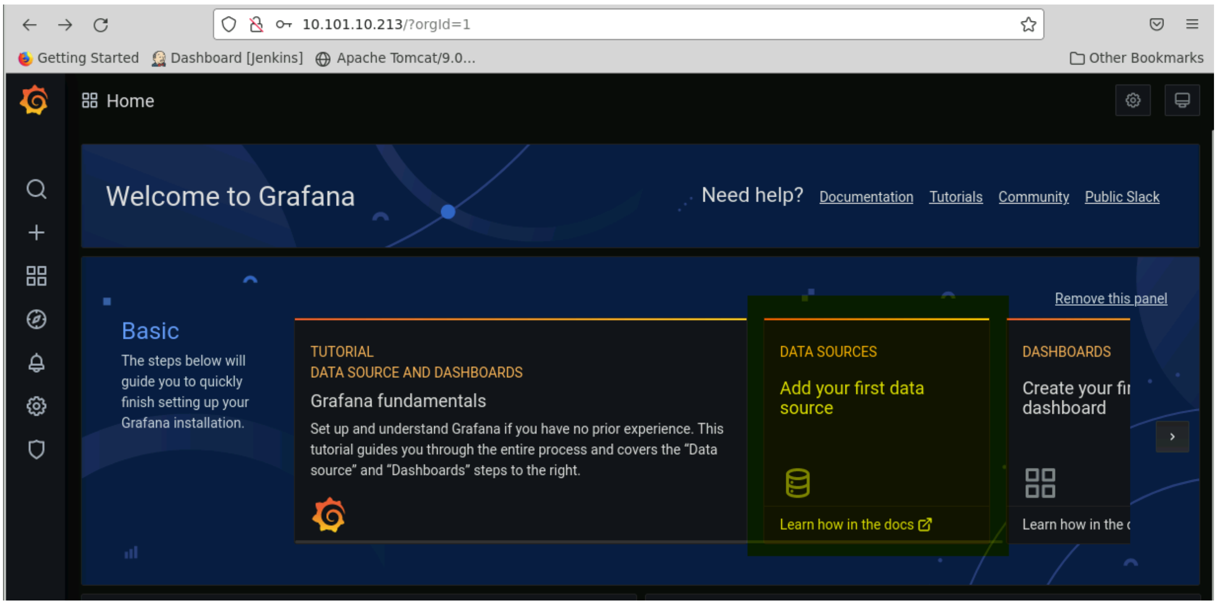
Grafana fundamentals

Set up and understand Grafana if you have no prior experience. This tutorial guides you through the entire process and covers the "Data source" and "Dashboards" steps to the right.

Add your first data source

Create your fi dashboard

17. On Grafana UI click on DATA SOURCES



Welcome to Grafana

Basic

The steps below will guide you to quickly finish setting up your Grafana installation.

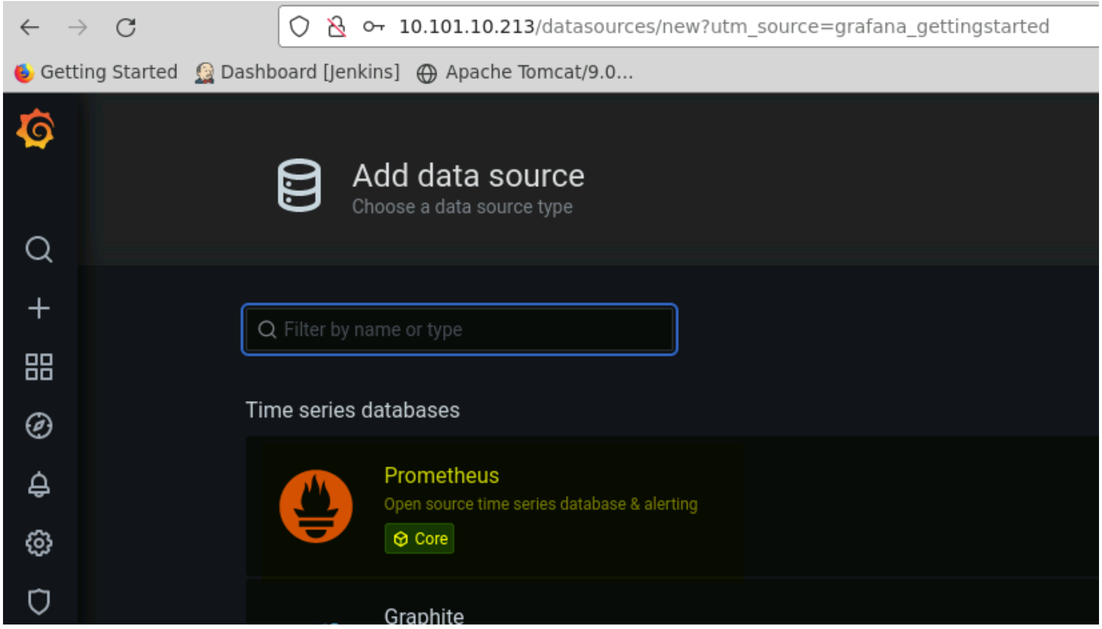
Grafana fundamentals

Set up and understand Grafana if you have no prior experience. This tutorial guides you through the entire process and covers the "Data source" and "Dashboards" steps to the right.

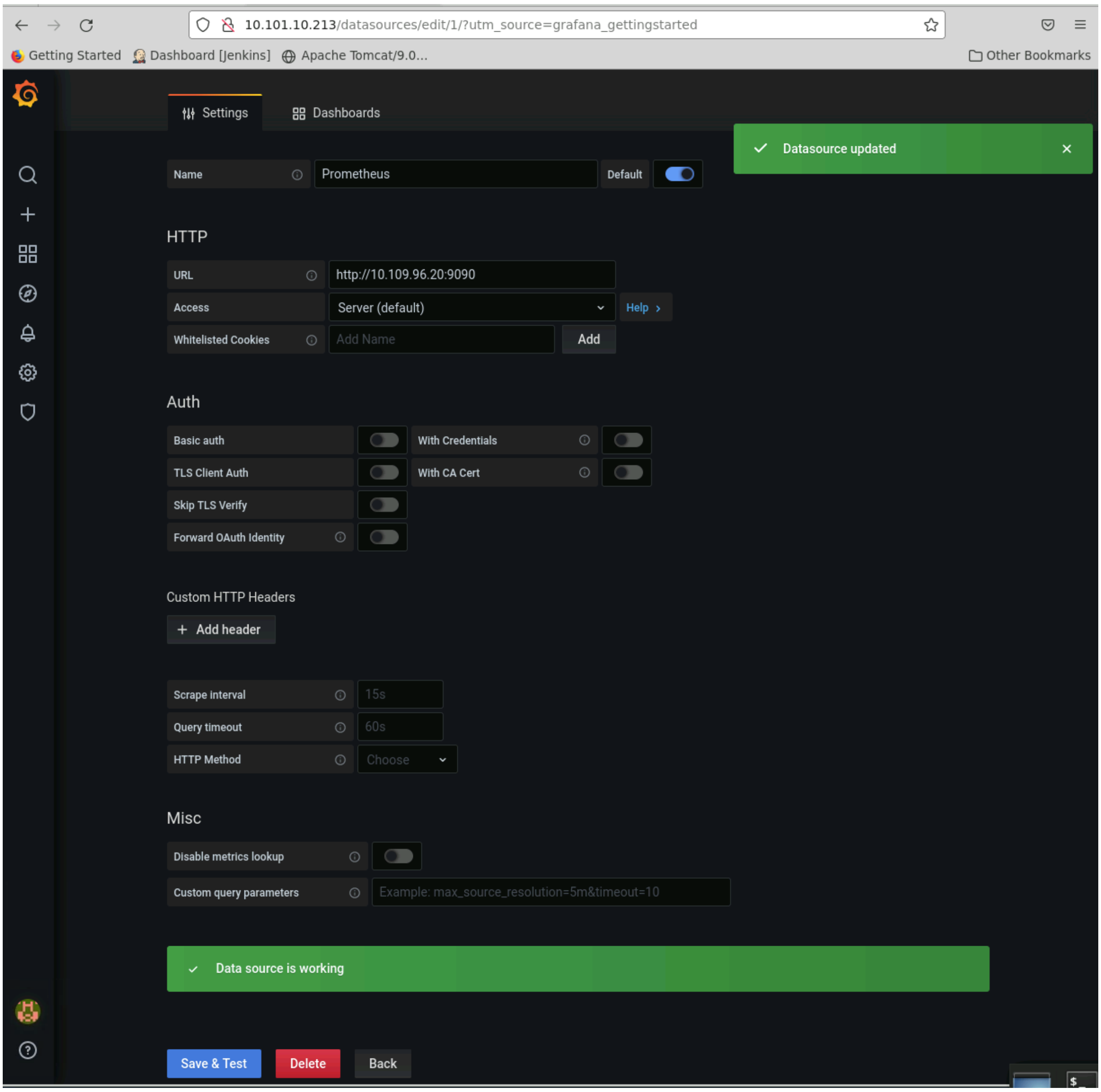
Add your first data source

Create your fi dashboard

18. Select Prometheus



19. Add URL and Save & Test



10.101.10.213/datasources/edit/1/?utm_source=grafana_gettingstarted

Getting Started | Dashboard [Jenkins] | Apache Tomcat/9.0... | Other Bookmarks

Settings | Dashboards

✓ Datasource updated ×

Name: Prometheus | Default: ●

HTTP

URL: http://10.109.96.20:9090

Access: Server (default) | Help ›

Whitelisted Cookies: Add Name | Add

Auth

Basic auth ○ | With Credentials ○

TLS Client Auth ○ | With CA Cert ○

Skip TLS Verify ○

Forward OAuth Identity ○

Custom HTTP Headers

+ Add header

Scrape interval: 15s

Query timeout: 60s

HTTP Method: Choose

Misc

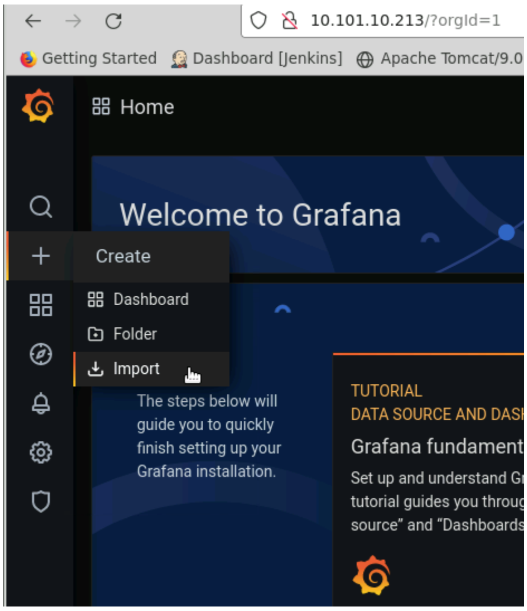
Disable metrics lookup ○

Custom query parameters: Example: max_source_resolution=5m&timeout=10

✓ Data source is working

Save & Test | Delete | Back

20. Create your dashboard → On Grafana home click + button → Import



10.101.10.213/?orgId=1

Getting Started | Dashboard [Jenkins] | Apache Tomcat/9.0

Home

Welcome to Grafana

Create

Dashboard

Folder

Import

The steps below will guide you to quickly finish setting up your Grafana installation.

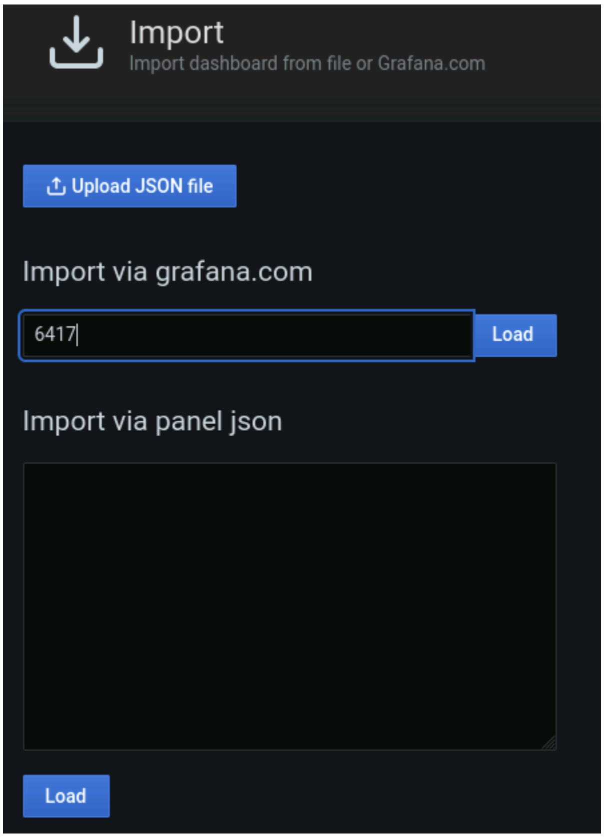
TUTORIAL

DATA SOURCE AND DASH

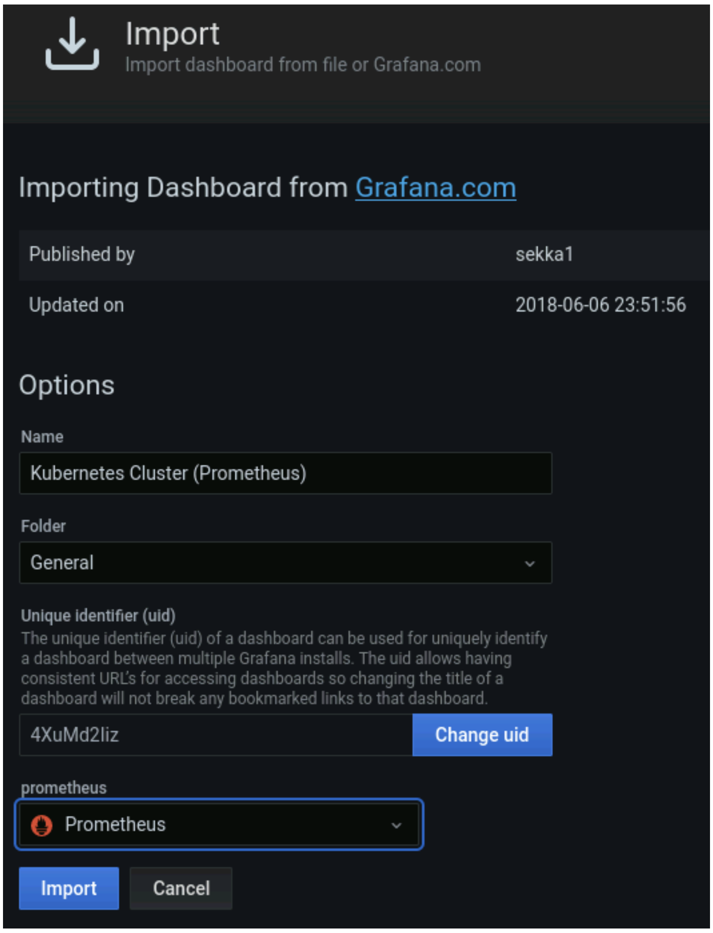
Grafana fundament

Set up and understand G tutorial guides you throug source" and "Dashboards

21. Use the 6417 tempate number and click on load. Reference url https://grafana.com/grafana/dashboards/6417-kubernetes-cluster-prometheus/



22. Select Prometheus and import



Import

Import dashboard from file or Grafana.com

Importing Dashboard from Grafana.com

Published by	sekka1
Updated on	2018-06-06 23:51:56

Options

Name: Kubernetes Cluster (Prometheus)

Folder: General

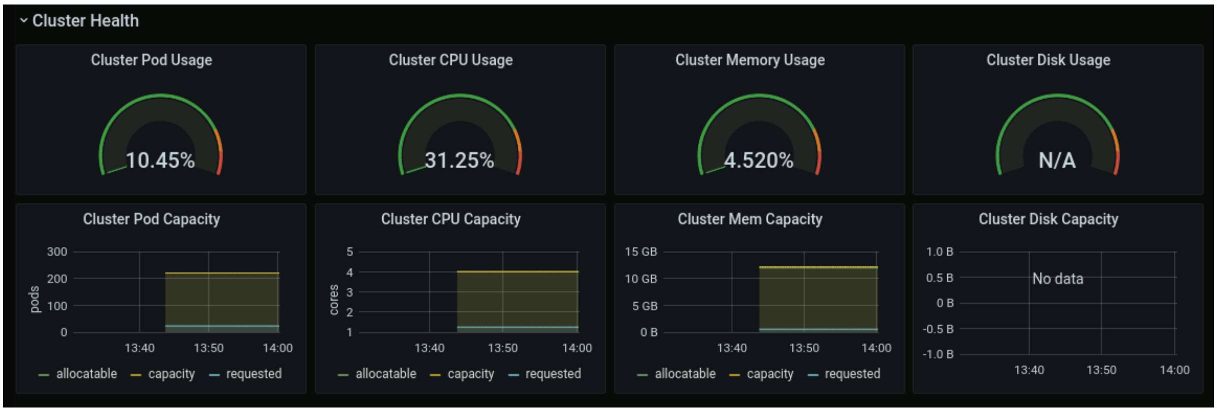
Unique identifier (uid)

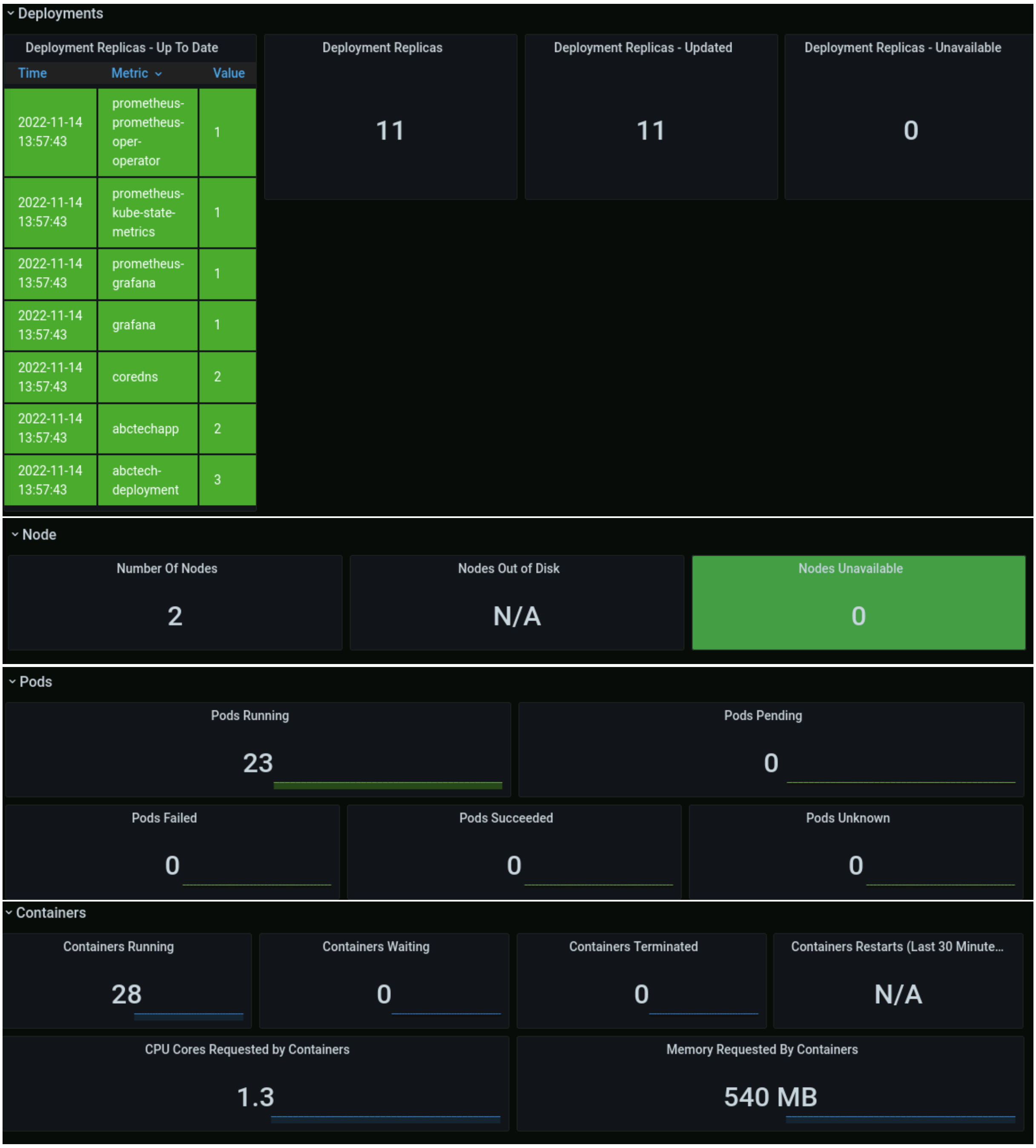
The unique identifier (uid) of a dashboard can be used for uniquely identify a dashboard between multiple Grafana installs. The uid allows having consistent URL's for accessing dashboards so changing the title of a dashboard will not break any bookmarked links to that dashboard.

4XuMd2liz

prometheus: Prometheus

23. It will show the complete dashboard for the Kubernetes cluster and other monitoring activities





Deployments

Deployment Replicas - Up To Date

Time	Metric	Value
2022-11-14 13:57:43	prometheus-prometheus-oper-operator	1
2022-11-14 13:57:43	prometheus-kube-state-metrics	1
2022-11-14 13:57:43	prometheus-grafana	1
2022-11-14 13:57:43	grafana	1
2022-11-14 13:57:43	coredns	2
2022-11-14 13:57:43	abctechapp	2
2022-11-14 13:57:43	abctech-deployment	3

Deployment Replicas

11

Deployment Replicas - Updated

11

Deployment Replicas - Unavailable

0

Node

Number Of Nodes

2

Nodes Out of Disk

N/A

Nodes Unavailable

0

Pods

Pods Running

23

Pods Pending

0

Pods Failed

0

Pods Succeeded

0

Pods Unknown

0

Containers

Containers Running

28

Containers Waiting

0

Containers Terminated

0

Containers Restarts (Last 30 Minute...

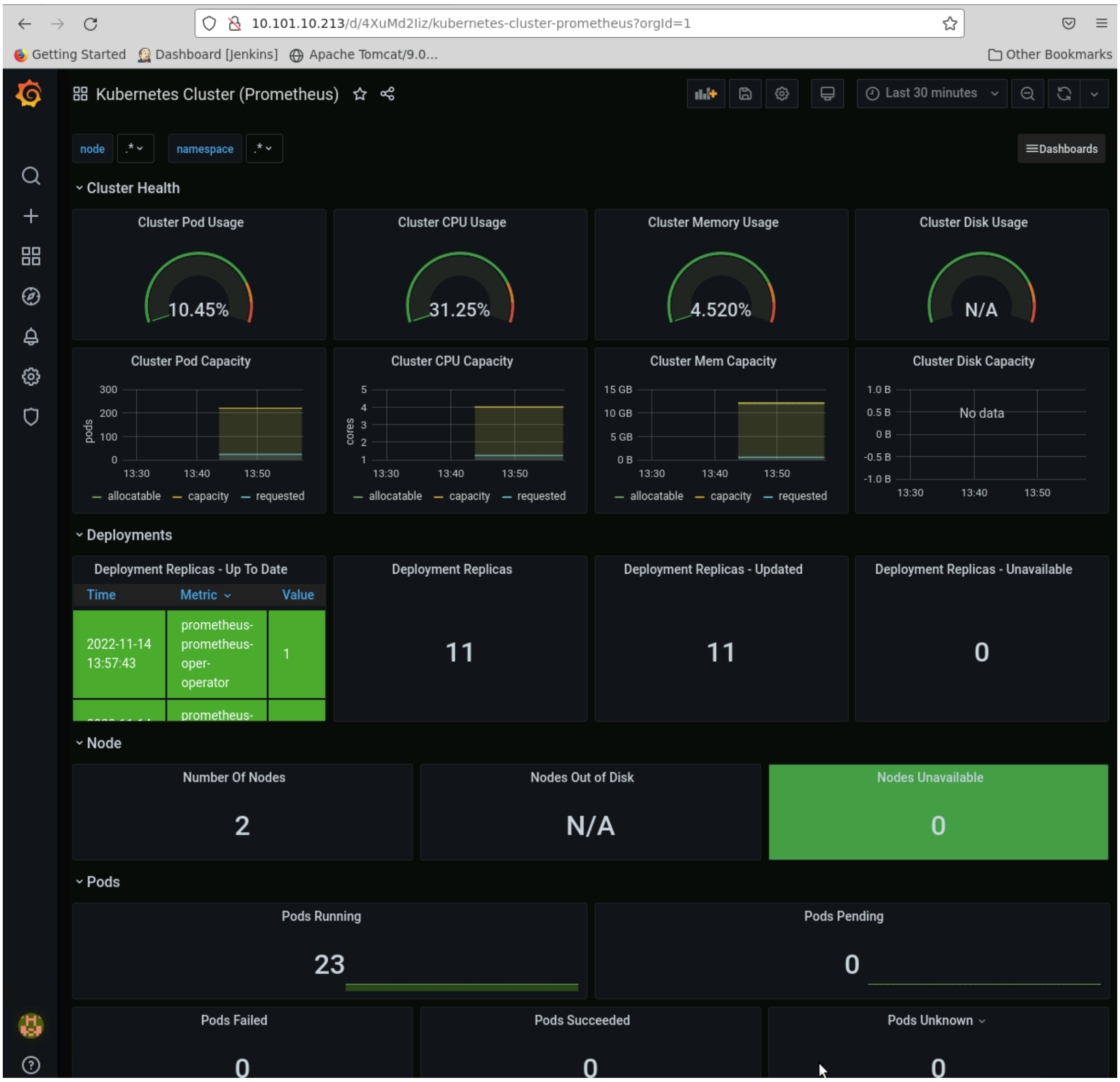
N/A

CPU Cores Requested by Containers

1.3

Memory Requested By Containers

540 MB



Time	Metric	Value
2022-11-14 13:57:43	prometheus-prometheus-oper-operator	1
	prometheus-	

This completes the project

The end