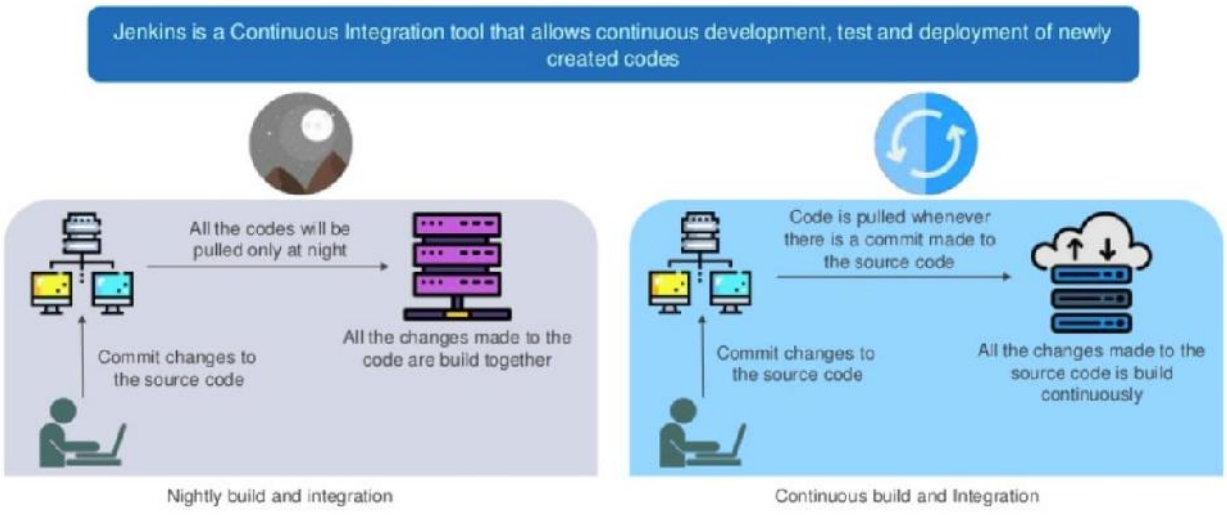
Jenkins - CI/CD Tool

Introduction

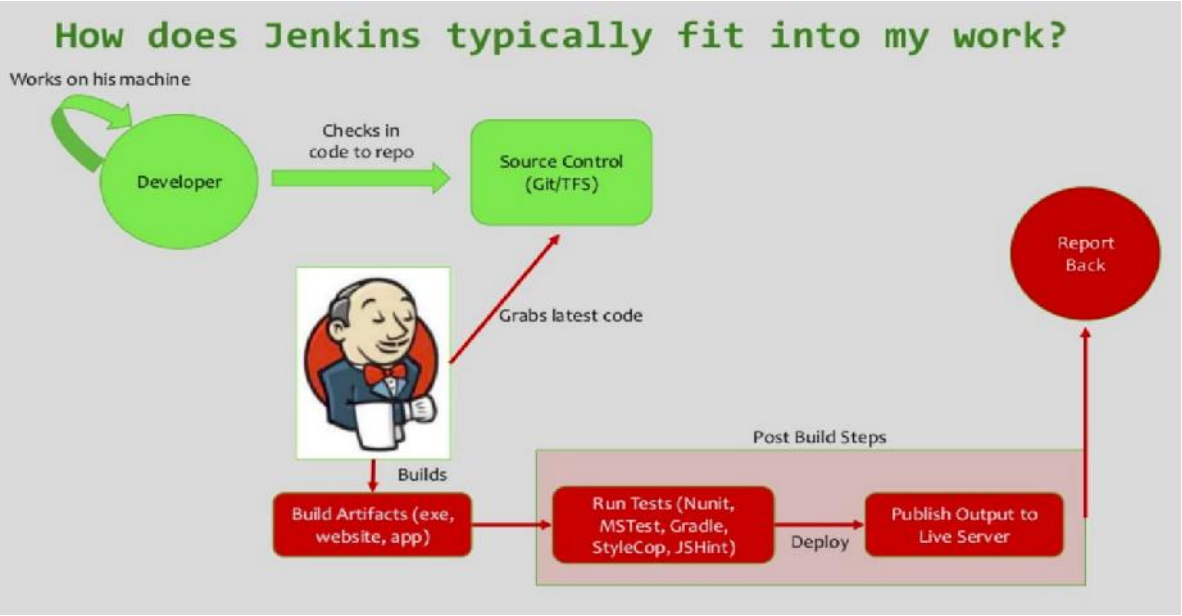
- An **open source** tool written in Java.
- Widely used for **Continues Integration** and **Continues Delivery.**
- It is a simple tool, which can be extended using 900 plugins available for multiple purposes.



What Jenkins generally does ?

- Trigger a build
- Get source code from repository
- Automatic build and test
- Deploy code
- Jenkins provides continuous Integration services for software deployment.
- Based on tomcat
- Originally started as Hudson then renamed as Jenkins
- leading open source continuous integration server.
- Flexibility
- Jenkins is a highly configurable system by itself.
- 400+ community developed plugins.
- Less Effort to Integrate existing existing test buckets.
- Multi platform
- Easy to use
- Free & Open Source
- Documentation: **https://jenkins.io/index.html**
- Catching a bug in test costs less than catching in production and code quality review.

This can be done using custom scripts, but as the project increases it is difficult to maintain. There was split in Hudson when oracle took over SUN, 90% Hudson and Jenkins are same;



- As soon as any developer commit the code in shared repository. Jenkins takes that code and trigger the build and build notification sent out.
- In case any issues comes out due build or error you will get notified as build get triggered and build completes.
- If error comes we can check which commit occurs the issues and reverse it.
- If build successful we can also integrate out unit test, subtest or performance test along with build as post build action in Jenkins and it will be automated.
- As soon as build deployed Jenkins triggers some test which is automated and it sent report back to us.
- In some cases build is successful and no issues but code (repository) has changes. In this case there is something broke and we will know it by report.

Build can be started by -

- Commit a version in version control
- Scheduling via cron like mechanism
- Tests can be executed every week/hour etc
- If A fails do B, if A passes do C – jobs can be dependent like a pipeline

What is a build ?

- Build has many components – one of them is version control
- No matters how many times a code changes, build has to happen, code has to be compiled.
- Build also has to be tested.
- History can be maintained in Jenkins.
- Communicate the results to all stake holders

    - ✓ Product owner
    - ✓ System admin
    - ✓ QA
    - ✓ Developer

Continuous delivery vs Continuous deployment

Continuous Deployment: deploying the product to customers continuously without approval, this is automatic
Continuous delivery: approval is needed, ready to deploy. This is not automatic

Test cases have to be automated for Continuous Integration

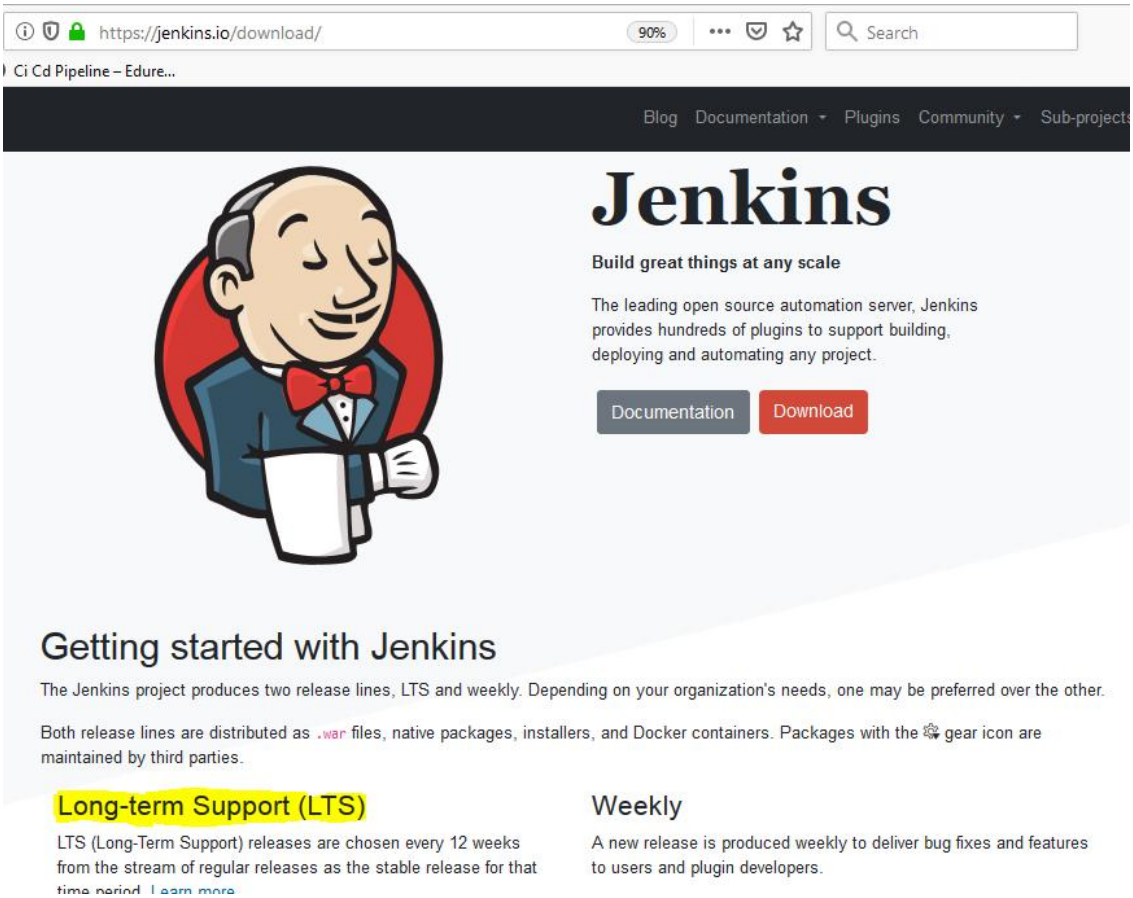
Jenkins installation on ubuntu

Minimum Requirements - 1 GB RAM and java installed.

Java requirements in Jenkins - https://jenkins.io/doc/administration/requirements/java/

Check more details in - https://pkg.jenkins.io/debian/

GoTo - https://jenkins.io/download/ and select LTS.



Pending - Installation on Unix machine. ETA - 13/07/2019

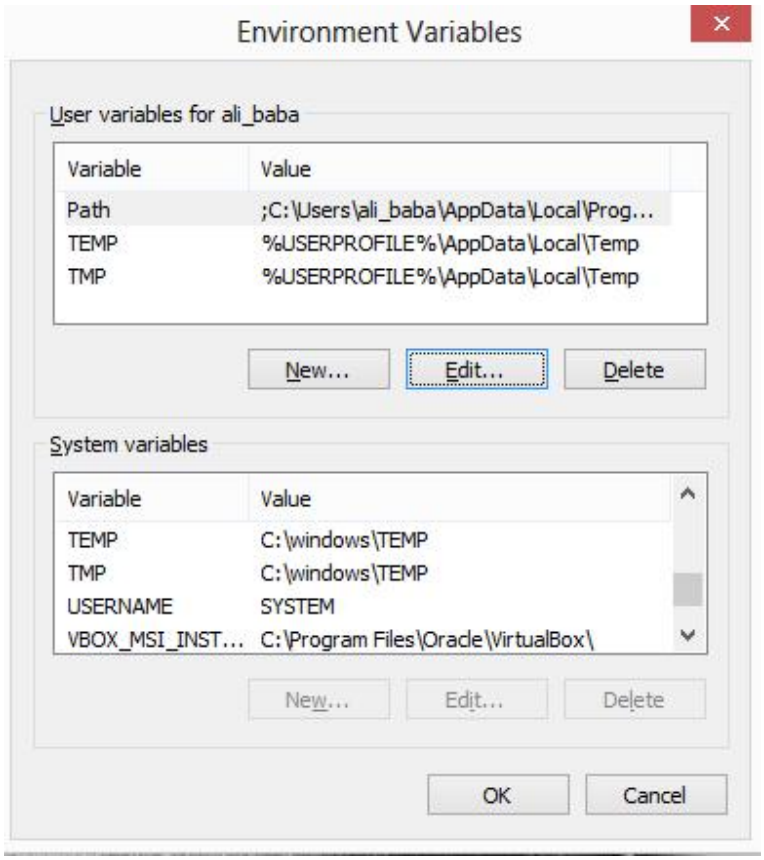
Install on Windows - (Java) - This is prerequisites

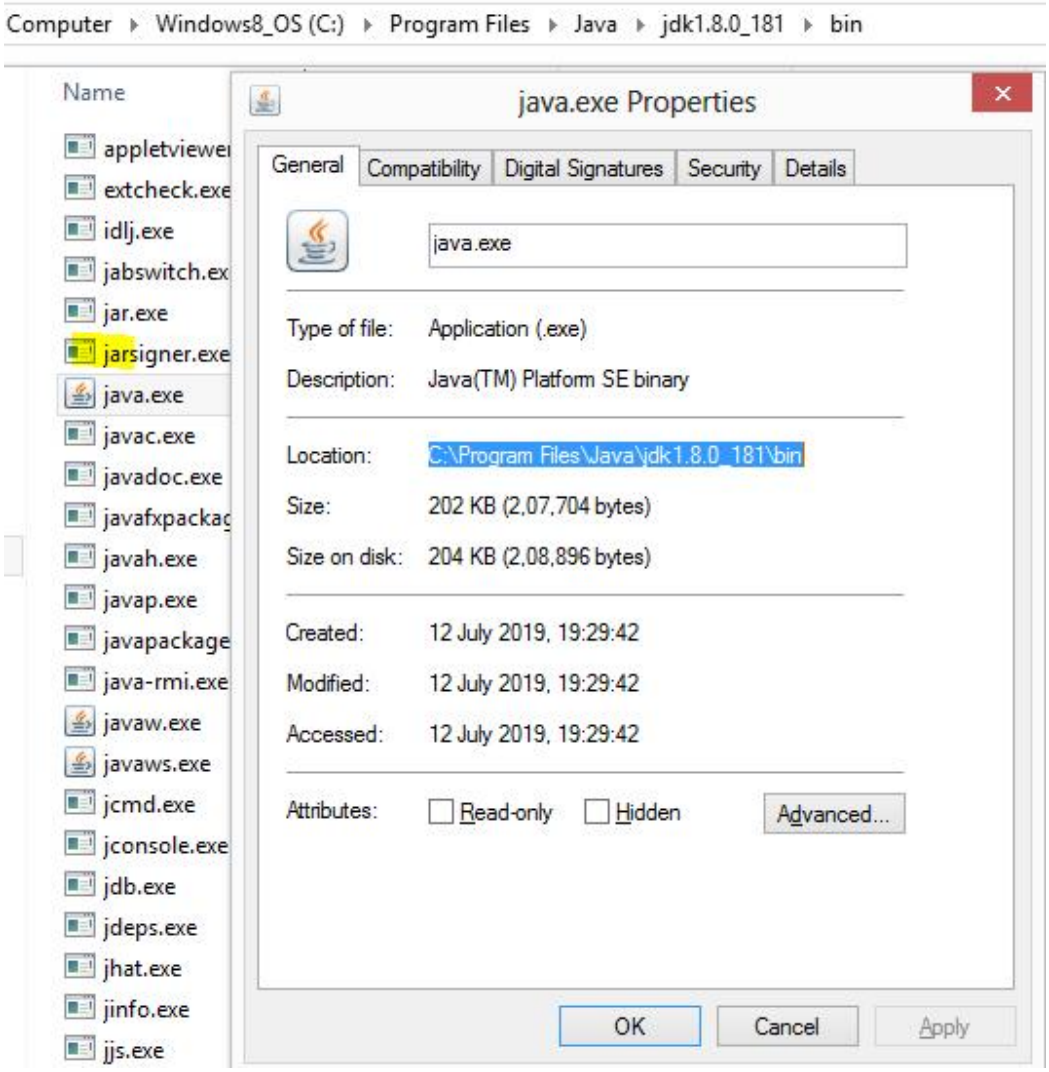
Requirement - 2 GB RAM and JDK (Java Developement Kit 1.7 OR 1.8) and setup environment variables.

1. Download Java

2. Set environment variables.

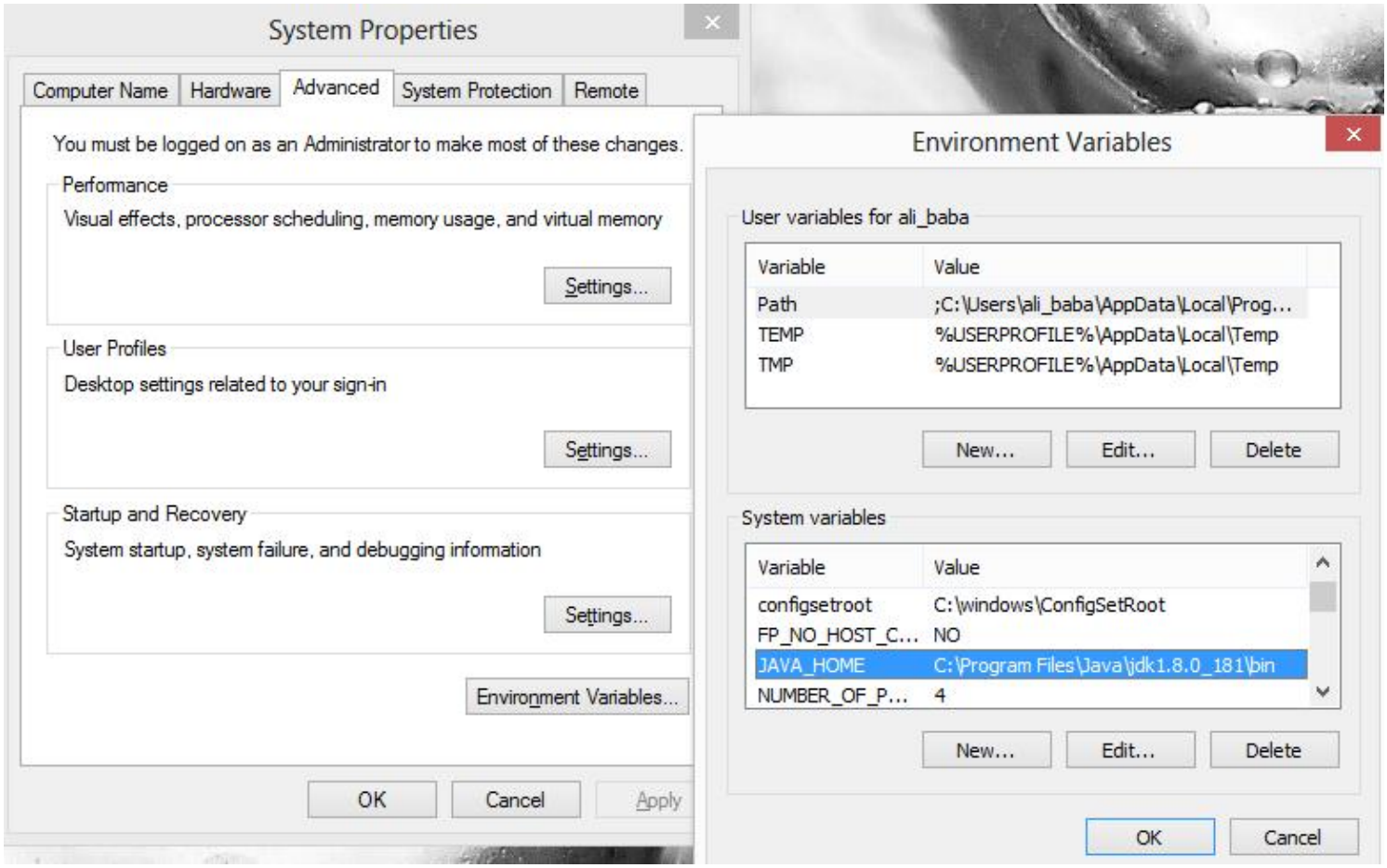
```
Run... -> "SystemPropertiesAdvanced"
```


Environment Variables
User variables for ali_baba
Variable
Value
Path
;C:\Users\ali_baba\AppData\Local\Prog...
TEMP
%USERPROFILE%\AppData\Local\Temp
TMP
%USERPROFILE%\AppData\Local\Temp
New...
Edit...
Delete
System variables
Variable
Value
TEMP
C:\windows\TEMP
TMP
C:\windows\TEMP
USERNAME
SYSTEM
VBOX_MSI_INST...
C:\Program Files\Oracle\VirtualBox\
New...
Edit...
Delete
OK
Cancel

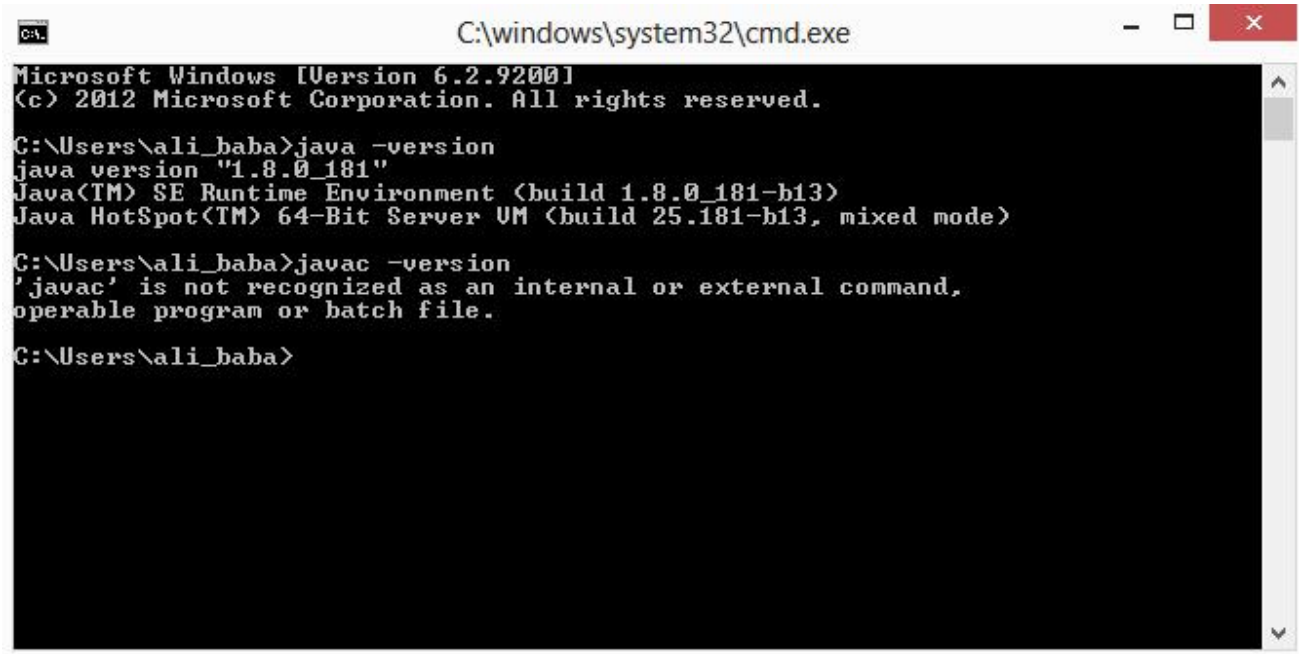

Computer ▸ Windows8_OS (C:) ▸ Program Files ▸ Java ▸ jdk1.8.0_181 ▸ bin
Name
appletviewer
extcheck.exe
idlj.exe
jabswitch.ex
jar.exe
jarsigner.exe
java.exe
javac.exe
javadoc.exe
javafxpackag
javah.exe
javap.exe
javapackage
java-rmi.exe
javaw.exe
javaws.exe
jcmd.exe
jconsole.exe
jdb.exe
jdeps.exe
jhat.exe
jinfo.exe
jjs.exe
java.exe Properties
General
Compatibility
Digital Signatures
Security
Details
java.exe
Type of file:
Application (.exe)
Description:
Java(TM) Platform SE binary
Location:
C:\Program Files\Java\jdk1.8.0_181\bin
Size:
202 KB (2,07,704 bytes)
Size on disk:
204 KB (2,08,896 bytes)
Created:
12 July 2019, 19:29:42
Modified:
12 July 2019, 19:29:42
Accessed:
12 July 2019, 19:29:42
Attributes:
Read-only
Hidden
Advanced...
OK
Cancel
Apply

C:\Program Files\Java\jdk1.8.0_1 81\bin

Set JAVA home in environment variable.



Now Verify it -

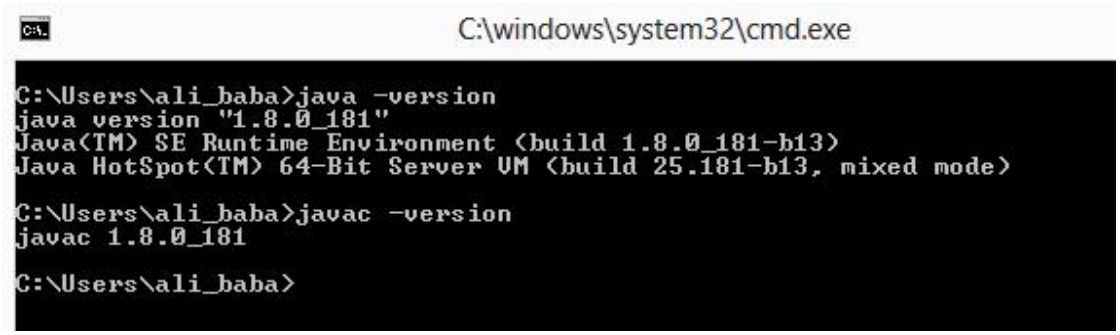


To fix the javac. Please do the needful as below -

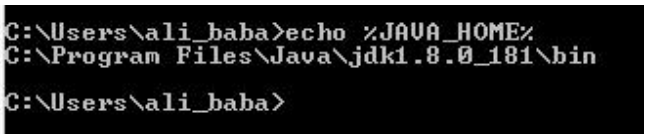
Open environment variable. Add path in it -

path= %set path%;C:\Program Files\Java\jdk1.8.0_181\bin

Start CMD new session and verify -

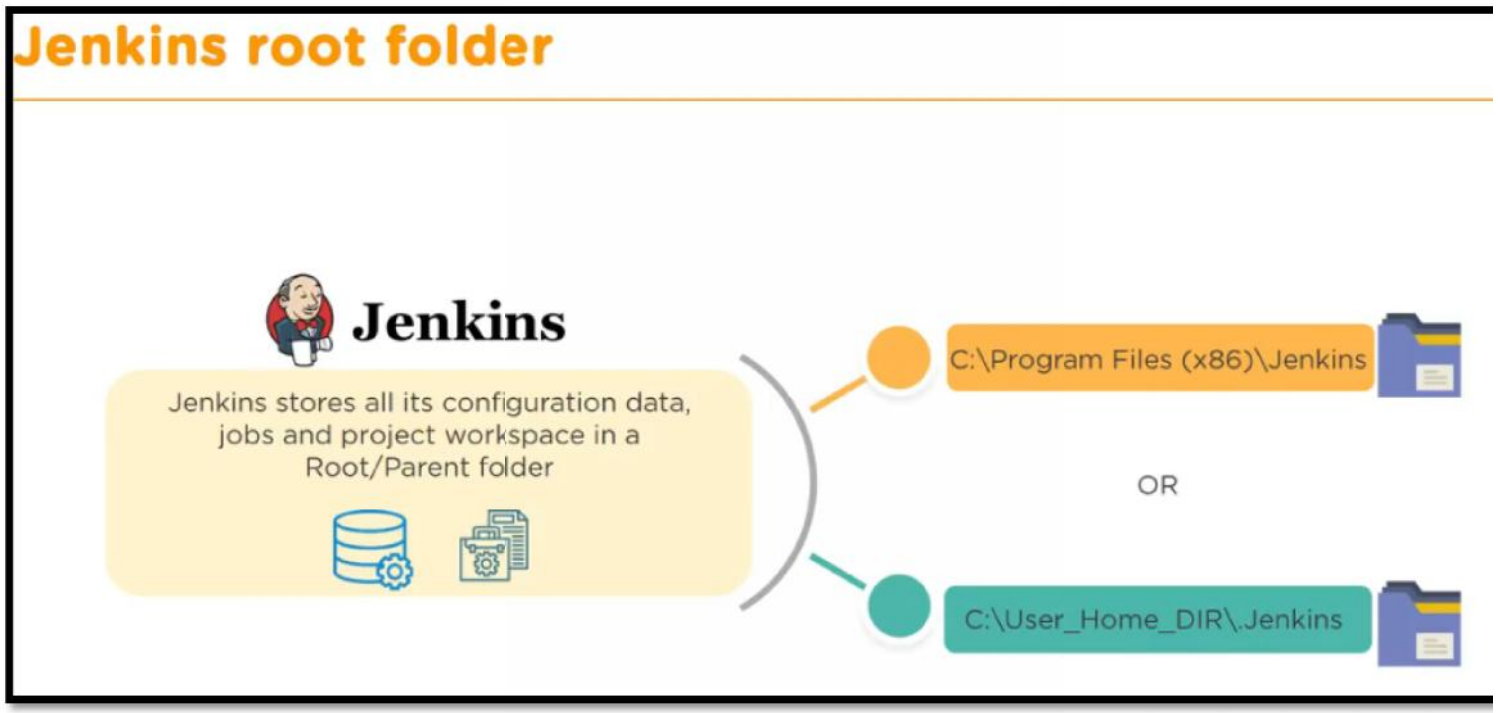


Verify Java home path from CMD -



1. Now Install Jenkins on windows -

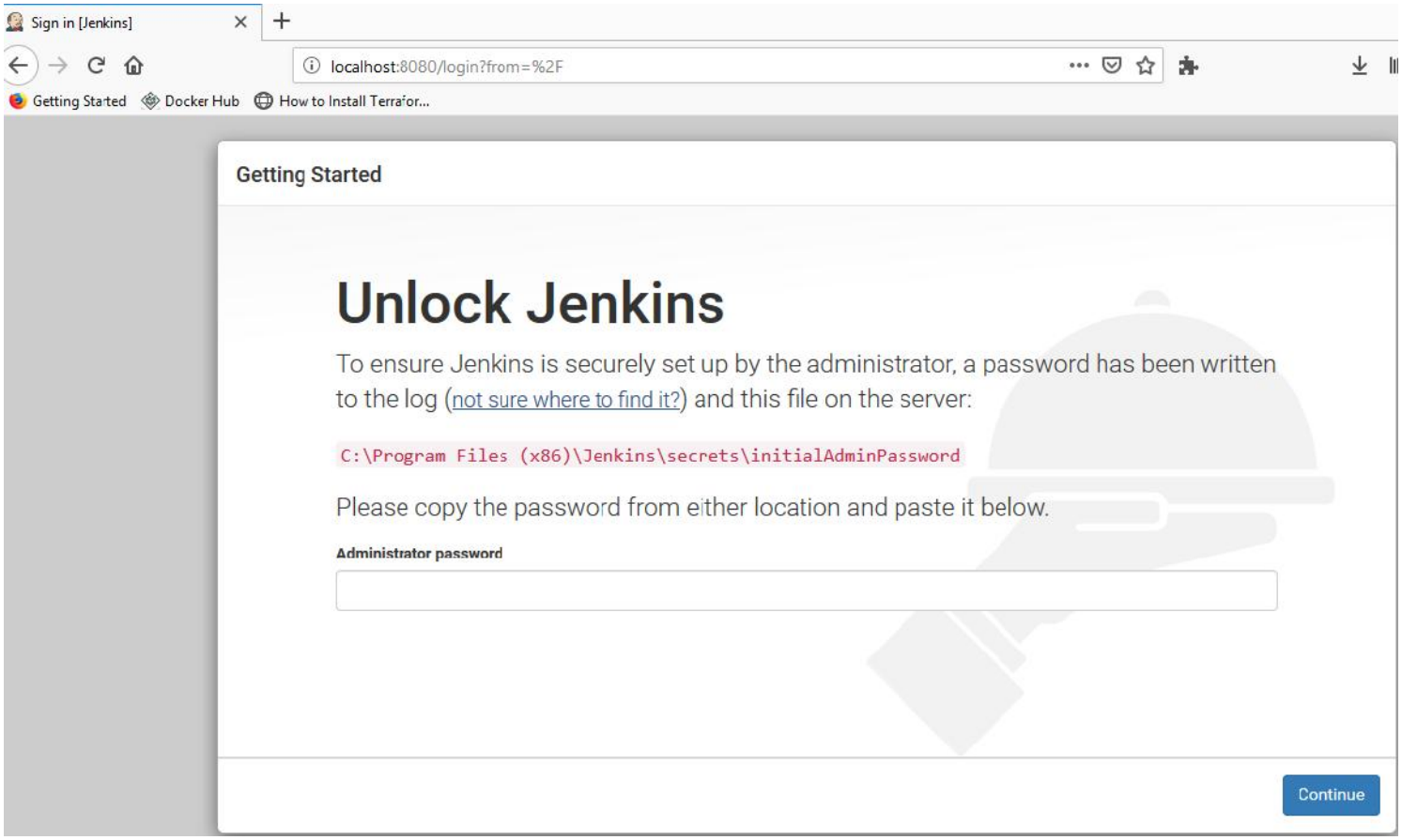
https://jenkins.io/download/



2. Run jenkins.msi with default option.

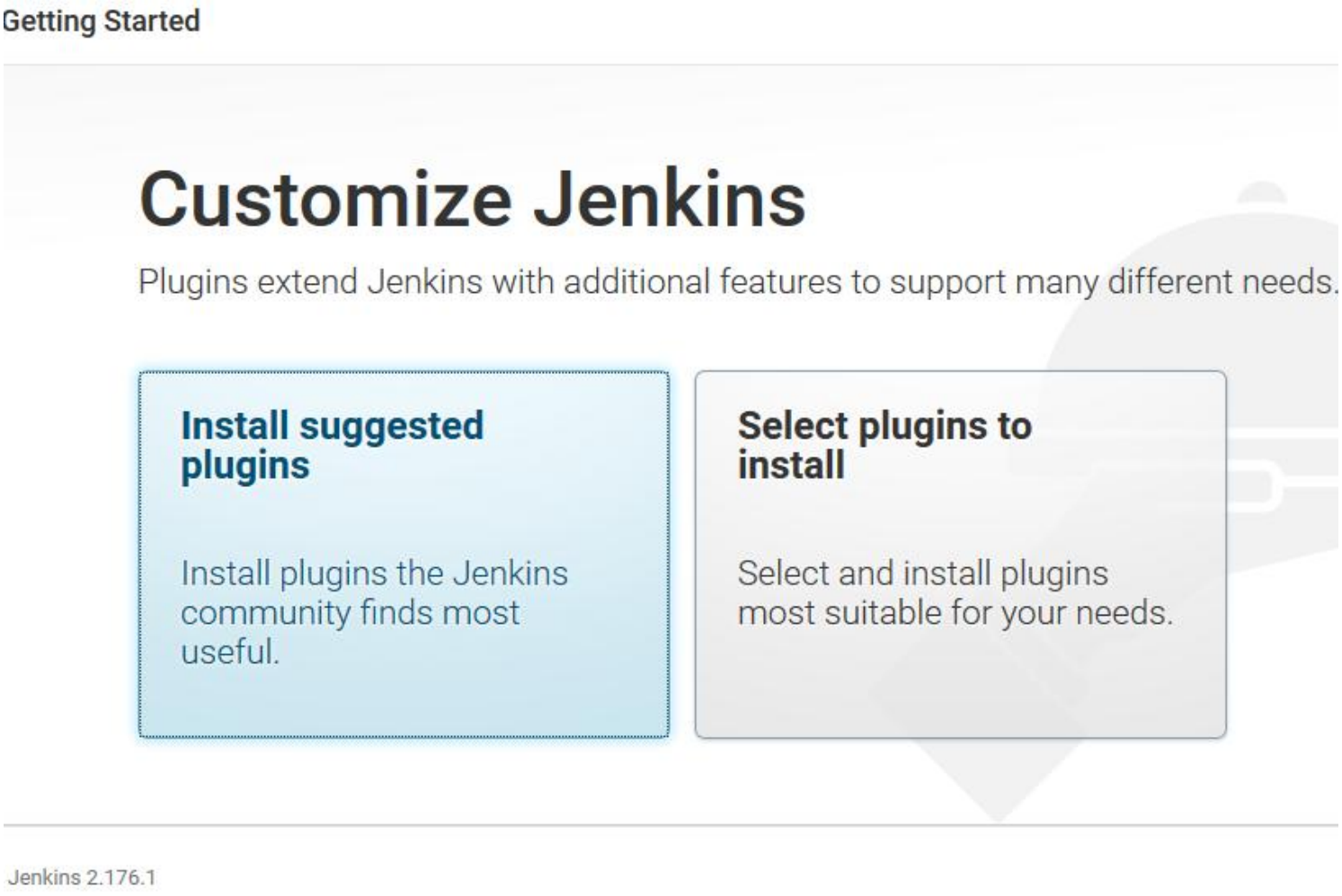
Once installation completed please open broswer - localhost:8080

Jenkins page will display like below -

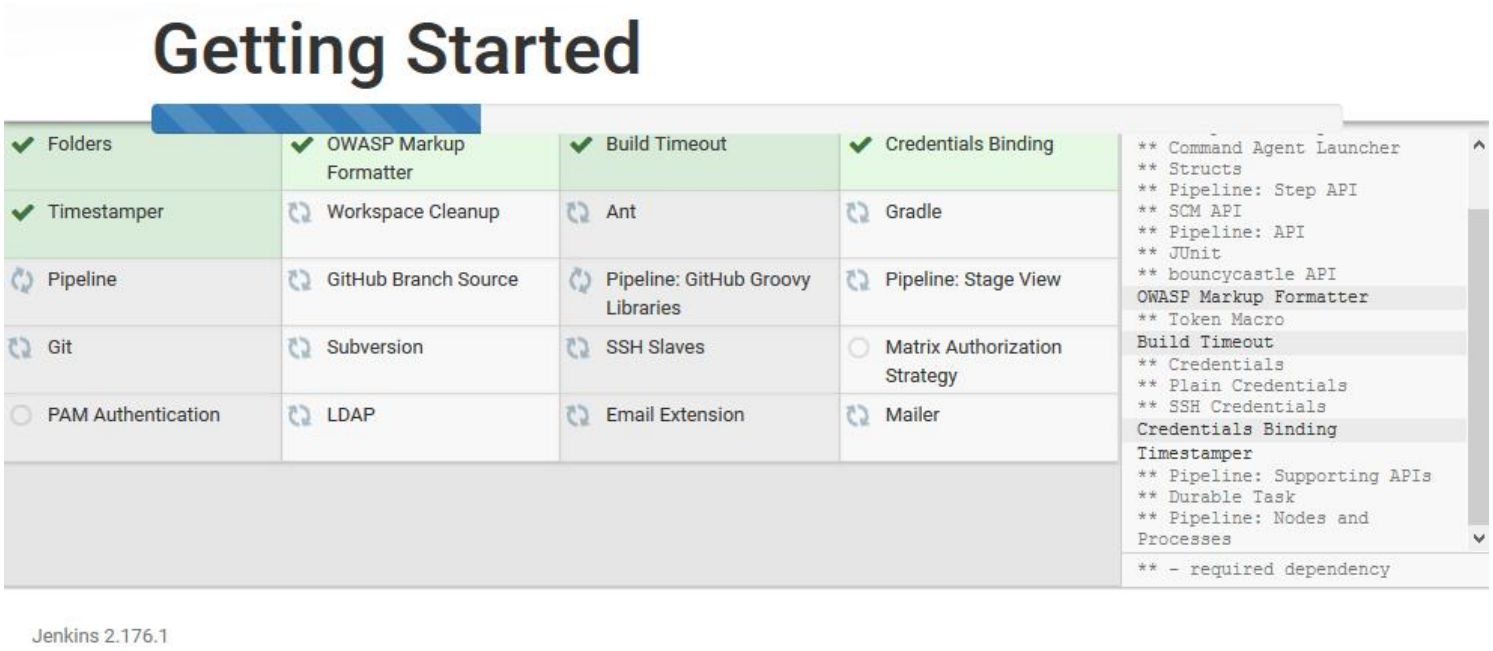


`C:\Program Files (x86)\Jenkins\secrets\initialAdminPassword go to the path and copy password and paste in browser.`

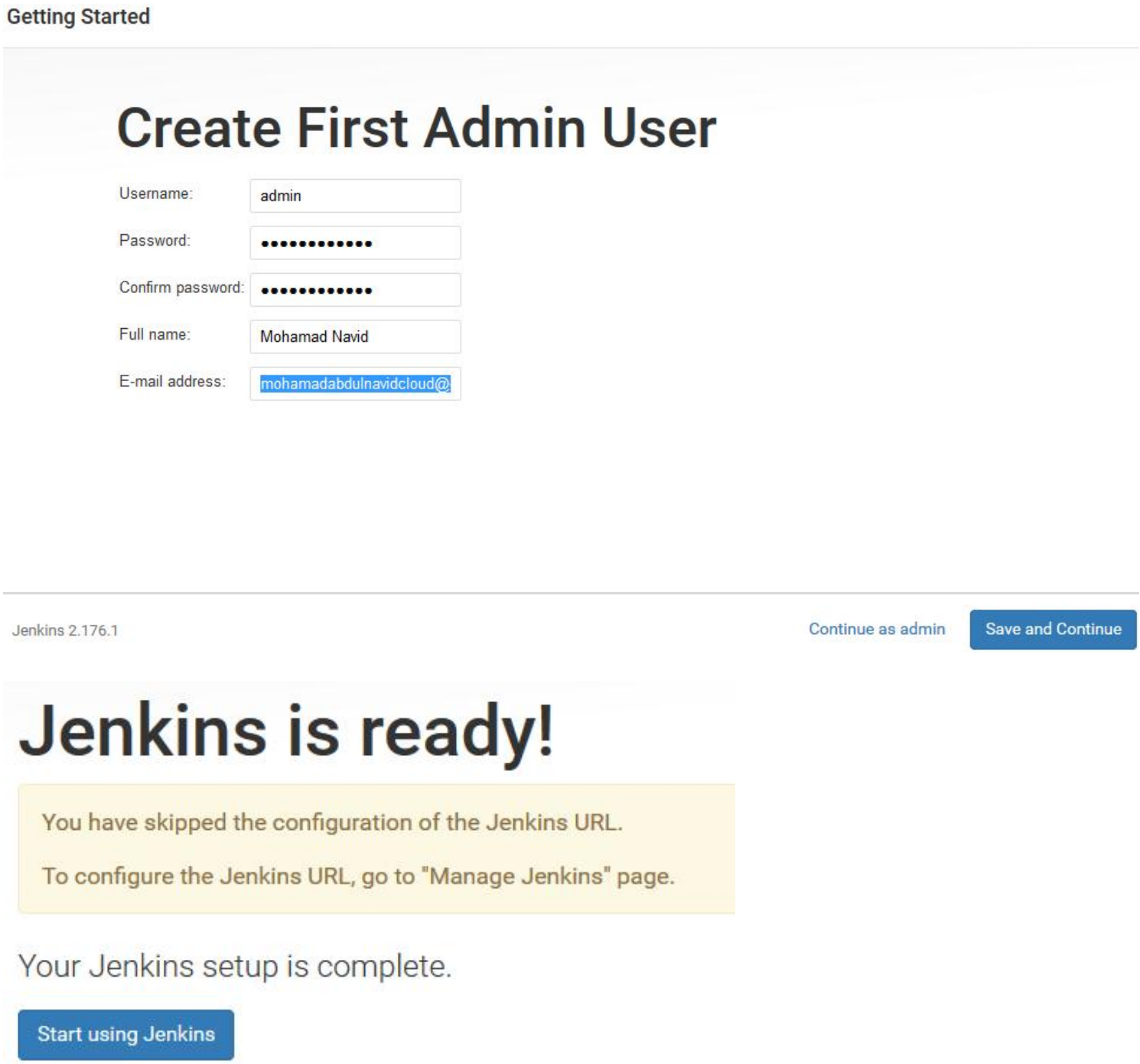
Once entered the password below page will display -



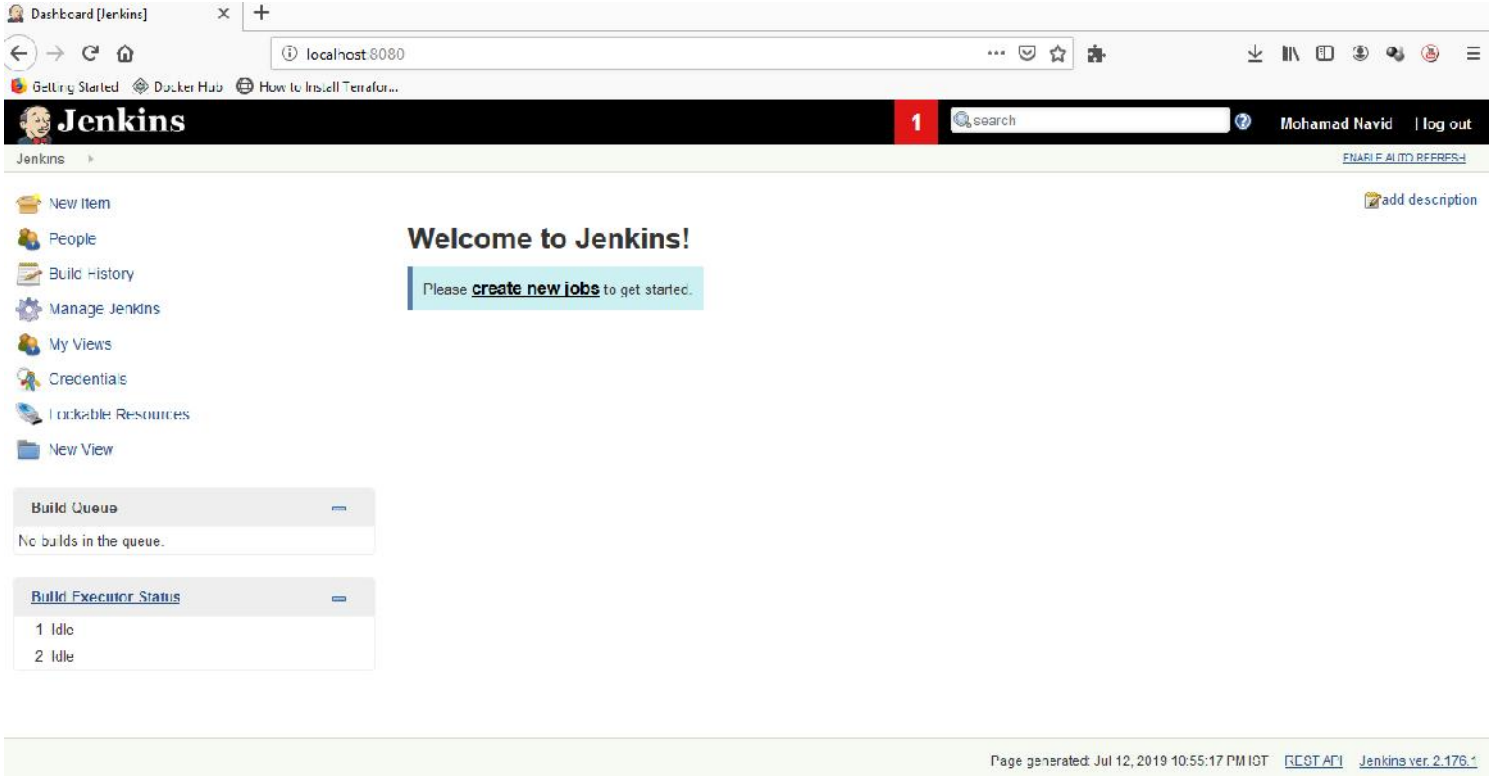
3. Click on install suggested plugins and wait to complete until all are marked.



4. Create first admin user - enter the details and click on "save and finish"



5. Click on start using Jenkins.


Dashboard [Jenkins]
localhost:8080
Getting Started
Docker Hub
How to Install Terrafor...
Jenkins
1
search
Mohamad Navid
| log out
Jenkins
ENABLE AUTO REFRESH
New Item
People
Build History
Manage Jenkins
My Views
Credentials
Lockable Resources
New View
add description
Welcome to Jenkins!
Please create new jobs to get started.
Build Queue
No builds in the queue.
Build Executor Status
1 Idle
2 Idle
Page generated: Jul 12, 2019 10:55:17 PM IST
REST API
Jenkins ver. 2.176.1