DOu DevOps united

DevOps SetupGuide 1.0

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1 IMPORTANT INSTRUCTIONS

WHEN YOU CREATE SETUP AS PER THE INSTRUCTIONS BELOW PLEASE MAKE SURE THAT YOU

1. INSTALL ONLY THE VERSIONS AS MENTIONED IN THE DOCUMENT. INSTALLING A WRONG VERSION MIGHT RESULT IN ISSUES AND THE SOFTWARE MAY NOT WORK.
2. FOLLOW THE INSTRUCTIONS CAREFULLY AND KEEP ALL FILE NAMES EXACTLY AS MENTIONED IN THE DOCUMENT.
3. ON MAC DO NOT PUT ANY SPACES IN THE FILE/FOLDER NAMES.

2 Introduction

Welcome to DevOps Course. This guide will help you to setup the environment for this hands-on course.

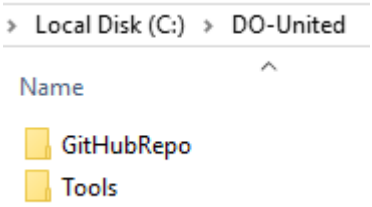
The environment setup is simple however it can become tricky if the instructions are not followed properly. Please also note that the setup requires downloads of large amount of data and can take some time. It is **STRONGLY** recommended that you finish the installation before you come for the class.

Please retain all downloads in case you need to uninstall and install something again.

This document is valid for installations on Windows machines.

This guide is prepared based on 64-bit machine, if your machine is 32 bit, download and install the respective software versions accordingly.

Please download the corresponding software from respective website(s) as mentioned in the instructions below. Do keep all software as per the following folder structure:



The links provided in the document may have change after this document was published. Please try to find the appropriate link for corresponding software from respective website(s).

2.1 System Requirements

Hardware	Windows
Minimum RAM	8 GB
Minimum CPU	Intel i5
Software	**Windows**
OS	64-bit version of Microsoft Windows 10(Pro or Enterprise version 14393& Above)

Note: This guide has been created for below mentioned software versions

i. Java 10(jdk 10.0.1) (You can install any higher version as well)
ii. GitHub Web & Desktop 1.3.3

iii. Docker 18.06.0
iv. Jenkins 2.138.1
v. SonarQube 7.7
vi. JaCoCo 3.0.4
vii. JFrog Artifactory 6.10
viii. VMWare Workstation 14.0
ix. Nagios 5.5.2

3 Windows

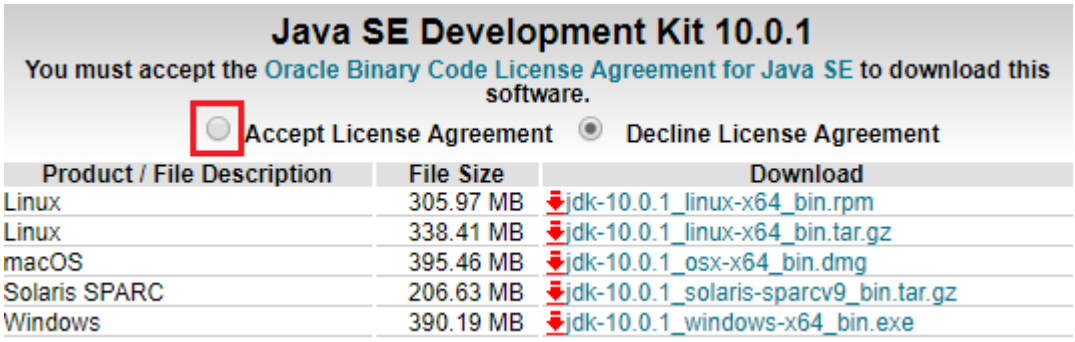
3.1 Installation of Java Development Kit

Downloading the Java Development Kit

- Open an internet browser and go to

  http://www.oracle.com/technetwork/Java/Javase/downloads/index.html

- Click the button “Download” below JDK
- Select “Accept License Agreement”
- Select the “Windows” installer. Choose the latest version available (>=10.0.1)



Java SE Development Kit 10.0.1

You must accept the Oracle Binary Code License Agreement for Java SE to download this software.

○ Accept License Agreement ◉ Decline License Agreement

Product / File Description	File Size	Download
Linux	305.97 MB	jdk-10.0.1_linux-x64_bin.rpm
Linux	338.41 MB	jdk-10.0.1_linux-x64_bin.tar.gz
macOS	395.46 MB	jdk-10.0.1_osx-x64_bin.dmg
Solaris SPARC	206.63 MB	jdk-10.0.1_solaris-sparcv9_bin.tar.gz
Windows	390.19 MB	jdk-10.0.1_windows-x64_bin.exe

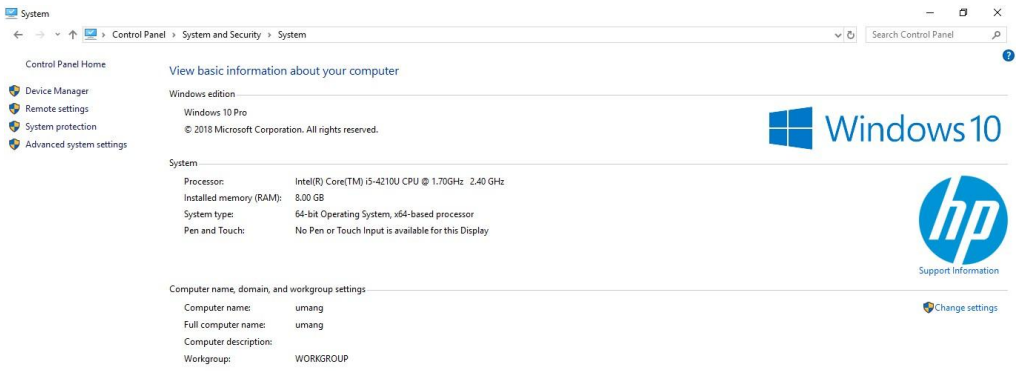
Installing the Java Development Kit

- Run the installer
- Follow the instructions from the wizard until the installation is completed

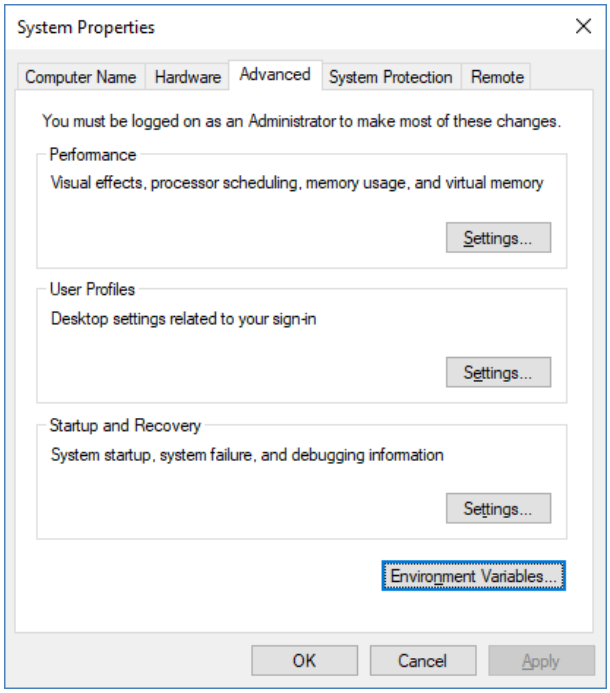
Setting JAVA_HOME

- To set JAVA_HOME go to system properties.
  - Right click “My Computer” (or “This PC”) and select Properties.

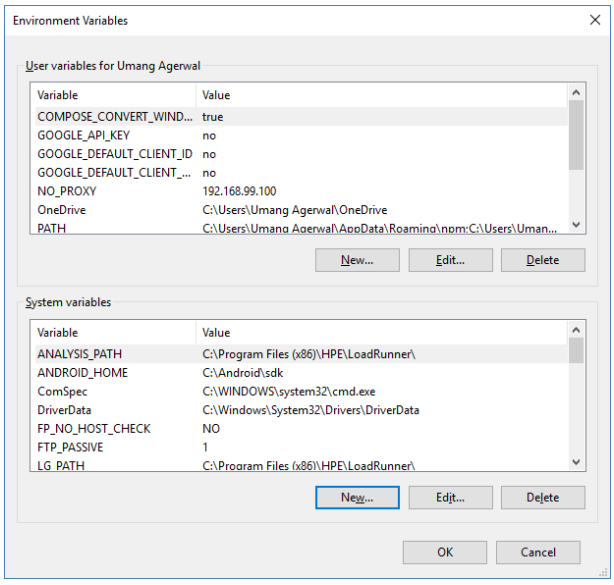
    On Windows 10 another way could be to go to Control Panel>System and Security > Click System
  - Click Advanced systems settings



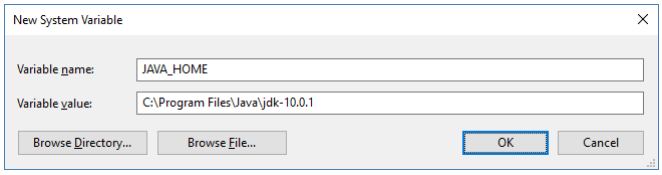
  - Click “Environment Variables” button

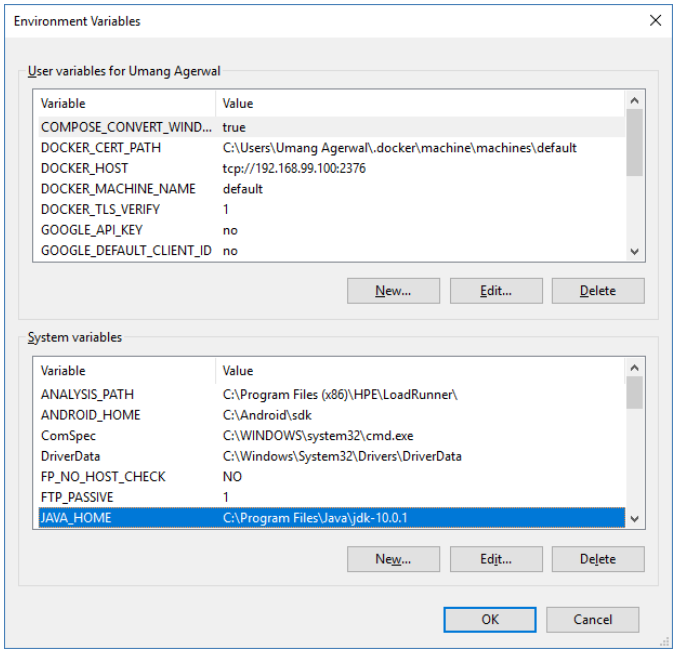


- Click on New button at the bottom of the screen for defining a new system variable



- Set Java Home& Click OK button





Setting Java in Path

- Go to Path under System variables
- Click Edit
- Add new variable (Keep "**%JAVA_HOME%\bin**" in it)
- Click OK
- To test that JAVA_HOME has been set correctly type the following command in command prompt and observe the output:
    - echo %JAVA_HOME%
    - Output should be something like C:\Program Files\Java\jdk-10.0.1
- To test that Java path has been setup correctly type the following command in command prompt
    - java --version

3.2 Setup GitHub Web & Desktop

Setup GitHub Web

GirHub Web is applicable only if you are a participant and setting up your own machine. Each participants needs to have a GitHub account.

Launch below URL & create an account on GitHub

https://github.com/

Setup GitHub Desktop

Downloading the GitHub Desktop

- Download **GitHub Desktop** from https://desktop.github.com/
- Click “Download for Windows (64bit)”
- Run the installer
- Follow the instructions from the wizard until the installation is completed

- Login to GitHub Desktop(File > Options > Accounts > Sign in)

3.3 Installing Docker

Pre-requisite: Virtualization/Hyper-V is enabled on machine

- Steps of turning on (VT-x) on Windows machine with UEFI:

  Go to "Change advanced startup options" in machine
  Click "Restart" now under Advanced startup section
  Click Troubleshoot

Click Advanced Options
Click UEFI Firmware Settings
Click Restart
Press F10 from keyboard (BIOS Setup)
Go to System Configuration
Press(F5/F6) from keyboard for enabling Virtualization Technology
Press F10 from keyboard to Save and Exit

Steps of turning on (VT-x) with BIOS – If you can't find UEFI settings on your computer as in the steps listed above you may want to visit
http://www.sysprobs.com/disable-enable-virtualization-technology-bios
To check Virtualization is enabled or not, follow below steps:

Way I --> Go to Task Manager > Performance window > CPU section > Virtualization: Enabled/Disabled.

Way 2 --> Control Panel > Programs > Programs and Features > Turn Windows features on or off > Hyper-V option: Selected/Deselected.

Downloading Docker

- Launch below URL & create an account on Docker

  https://store.docker.com/signup

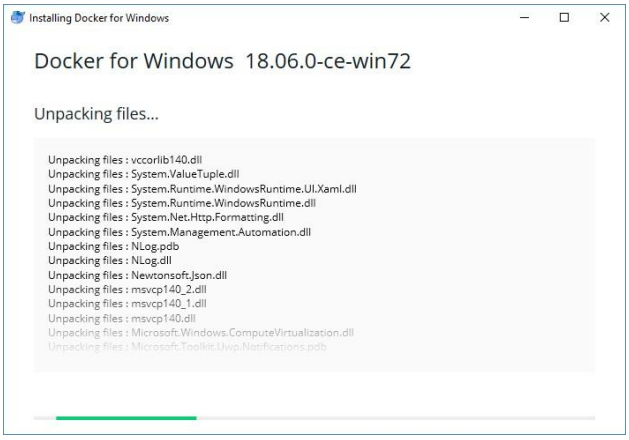
- Launch below URL

  https://docs.docker.com/docker-for-windows/install/

- Click "Download from Docker Store"
- Click "Please Login to Download"
- Login to Docker Store
- Click "Get Docker"

Installing the Docker

- Run the installer (Docker for Windows Installer.exe)
- Follow the instructions from the wizard until the installation is completed



- Launch "Docker for Windows" software (it may take some time to be up)
- You can see Whale icon in notification area, it means Docker is up & running successfully
- Launch cmd (with administrative privileges) /Power Shell and run a command **docker --version**
- You should see output <<Docker version 18.06.0-ce, build 0ffa825>>
- Docker is now installed and running
- Run the following command
    - docker run ubuntu
    - Once the download is complete, after a message that local image was not found, proceed to the next step

3.4 Setup Jenkins

Installing Jenkins in Docker using blueocean image

- Create a folder **blueoceantest** under **C:\Users\<your user name>**
- Launch following command in cmd

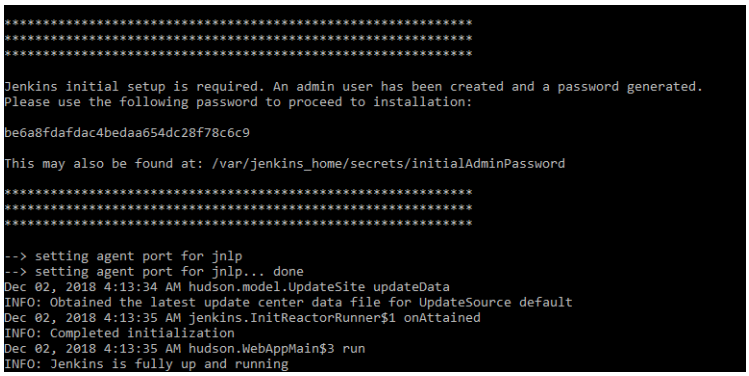
  For Windows:

  docker run --rm -u root -p 8080:8080 -v jenkins-data:/var/jenkins_home -v /var/run/docker.sock:/var/run/docker.sock -v c:\\"%HOMEPATH%"\blueoceantest:/home jenkinsci/blueocean

  For Mac:

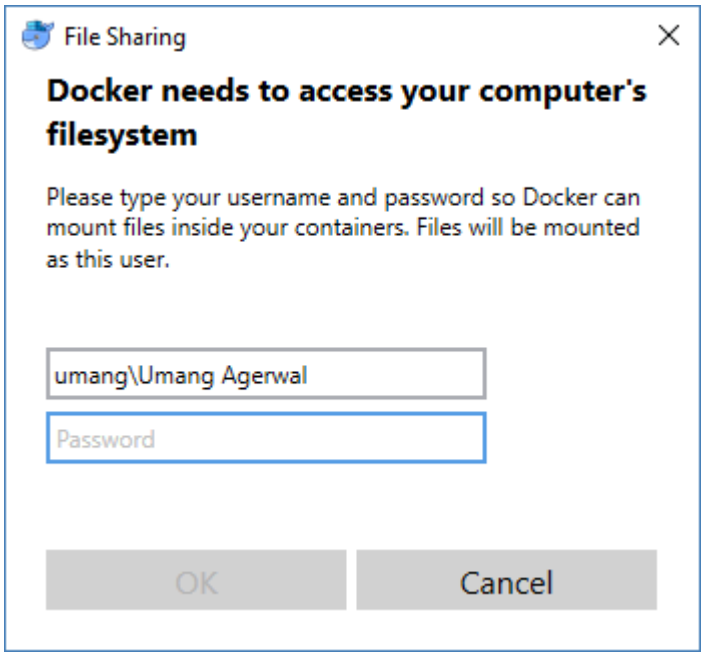
  docker run --rm -u root -p 8080:8080 -v jenkins-data:/var/jenkins_home -v /var/run/docker.sock:/var/run/docker.sock -v $HOME:/home jenkinsci/blueocean

```
C:\Users\Umang Agerwal>docker run --rm -u root -p 8080:8080 -v jenkins-data:/var/jenkins_home -v /var/run/docker.sock:/var/run/docker.sock -v c:\\"%HOMEPATH%"\blueocean
test:/home jenkinsci/blueocean
```



- You will get a pop-up UI requesting for sharing of C drive

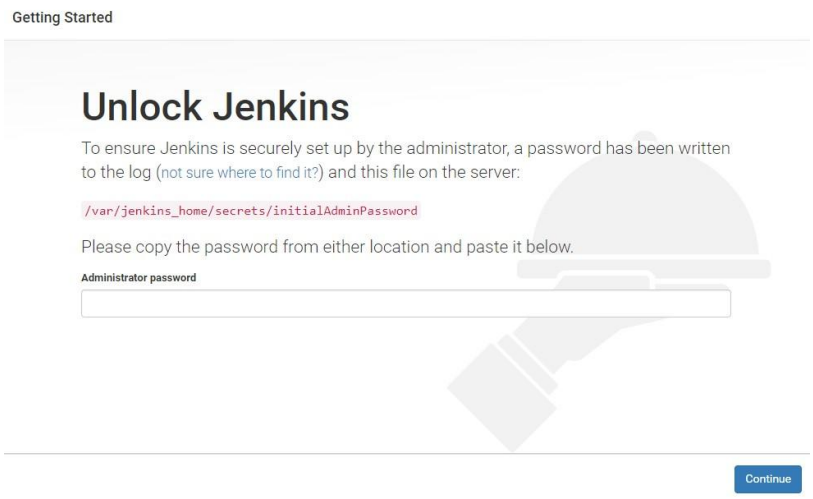
- Click **Share it**
- When you get the following UI



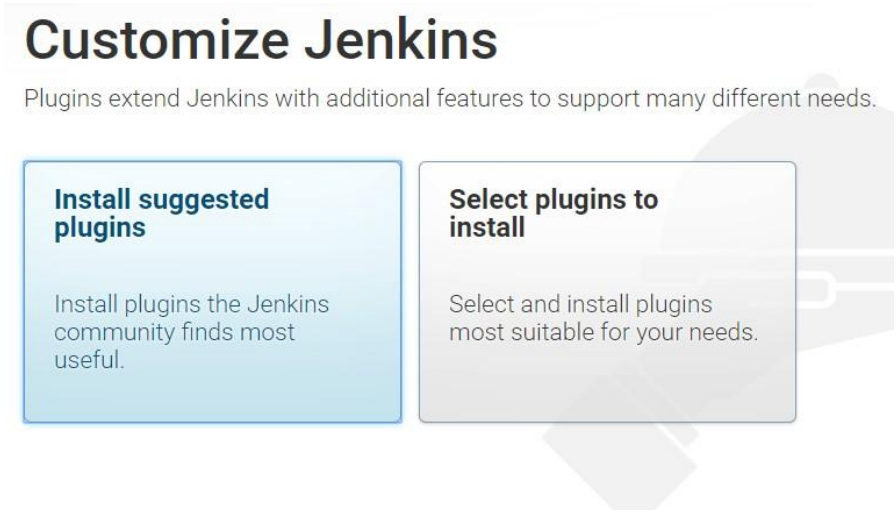
- Login to Docker

  Note: Login credential to be used are the same that you chose while creating account in Docker. Use Docker ID and not the email id for login

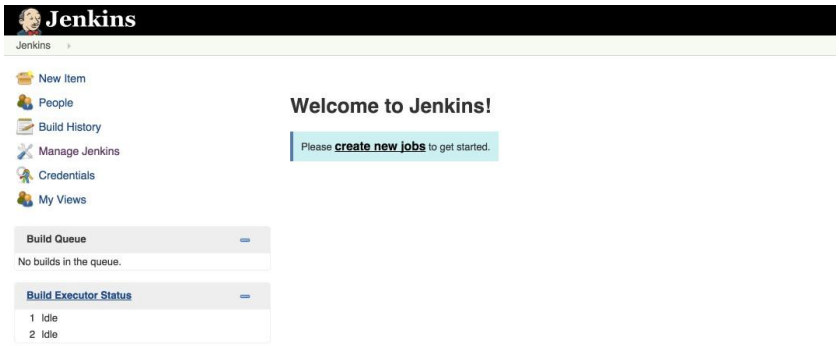
- After the 2 sets of asterisks appear in the terminal/command prompt window, browse to http://localhost:8080 and wait until the Unlock Jenkins page appears
- From the terminal/command prompt window again, copy the automatically-generated alphanumeric password (between the 2 sets of asterisks)
- Click Continue



- Click "Install suggested plugins"



- Once the plugins are installed, Click "Continue"
- Click "Continue as admin"
- Click "Save and Finish"
- Click "Start using Jenkins", it will take you to Jenkins UI dashboard

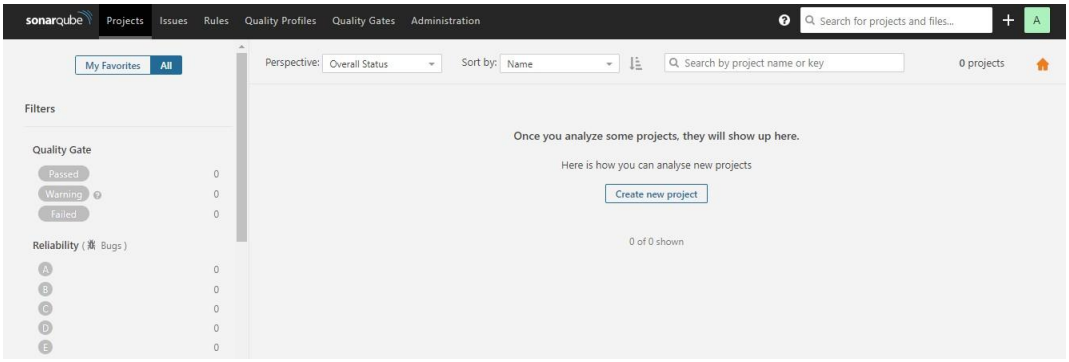


3.5 Setup SonarQube

- Open the browser and go to

  https://binaries.sonarsource.com/Distribution/sonarqube/sonarqube-7.7.zip
- Unzip sonarqube folder in C drive (if required give all access)
- Go to C:\sonarqube-7.7\bin\windows-x86-64\
- Run StartSonar.bat

  (Note: It may take few minutes to be up)
- Launch http://localhost:9000 on browser
- Login with U/N --> admin & P/W --> admin
- You will navigate to SonarQube dashboard



- Go to Administration > Security > Users > Update token icon > Enter token name (e.g. SonarQube Token) > Click Generate
- It will generate the token (you will need to use this token in Jenkins later)

Setup SonarQube in Jenkins

- Launch Jenkins

Setup SonarQube scanner plugin in Jenkins:

- Go to Manage Jenkins > Manage Plugins > Available Plugins > Search "SonarQube Scanner for Jenkins" plugin > Select the plugin > Install the plugin without restart

  (Note: It may take few minutes to be installed)

- Back to Dashboard

Setup SonarQube server in Jenkins:

- Go to Manage Jenkins > Configure System > SonarQube servers section > Add SonarQube > Enter following details:

  Name - <any meaningful name> (e.g. My SonarQube Server)

  Server URL - <your ip address with port 9000> (e.g. http://192.168.101.47:9000)

  Server authentication token - <token id that you got from SonarQube web portal>

- Select "Enable injection of SonarQube server configuration as build environment variable"
- Apply & Save
- Back to Dashboard

Setup SonarQube Scanner in Jenkins:

- Go to Manage Jenkins > Global Tool Configuration > SonarQube Scanner section > Add SonarQube Scanner > Enter following details:

  Name - <any meaningful name<(e.g. sonar-scanner)

- Select install automatically checkbox
- Apply & Save
- Back to Dashboard

3.6 Setup JaCoCo

- Launch Jenkins

Setup JaCoCo plugin in Jenkins:

- Go to Manage Jenkins > Manage Plugins > Available Plugins > Search "JaCoCo" plugin > Select the plugin > Install the plugin without restart

  (Note: It may take few minutes to be installed)

- Back to Dashboard

3.7 Setup JFrog Artifactory

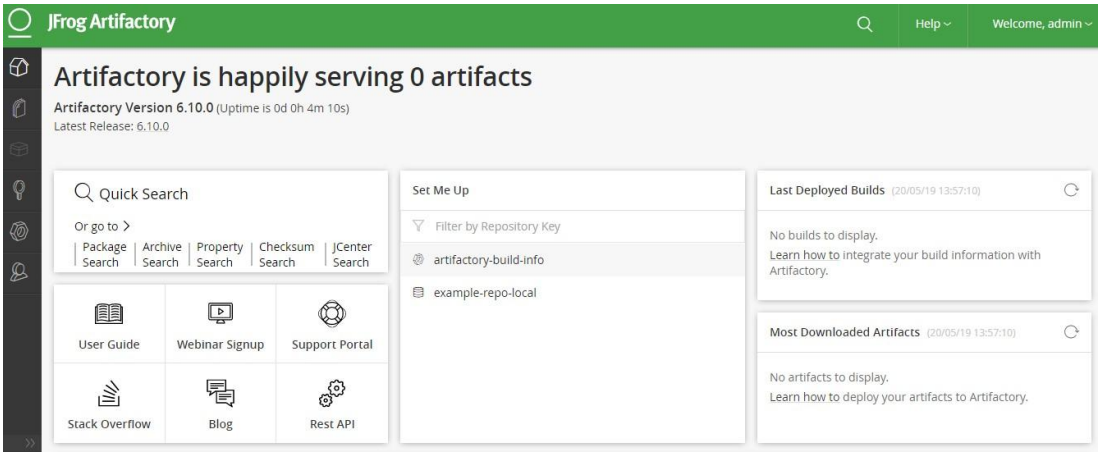
- Open the browser and go to

  https://api.bintray.com/content/jfrog/artifactory/jfrog-artifactory-oss-$latest.zip;bt_package=jfrog-artifactory-oss-zip

- Unzip artifactory folder in C drive(if required give all access)
- Go to C:\artifactory-oss-6.10.0\bin\
- Run artifactory.bat

  (Note: It may take few minutes to be up)

- Launch http://localhost:8081 on browser
- Login with U/N --> admin & P/W --> password
- You will navigate to Artifactory dashboard



Setup Artifactory in Jenkins

- Launch Jenkins

Setup Artifactory plugin in Jenkins:

- Go to Manage Jenkins > Manage Plugins > Available Plugins > Search "Artifactory" plugin > Select the plugin > Install the plugin without restar

(Note: it may take few minutes to be installed)

- Back to Dashboard

Setup Artifactory server in Jenkins:

- Go to Manage Jenkins > Configure System > Artifactory section > Add Artifactory > Enter following details:

  Artifactory Server ID *- <any meaningful name>(e.g. My ART)*

  Server URL *- <your ip address with port 8081>(e.g. http://192.168.101.47:8081/artifactory)*

  Default Deployer Credentials *- <U/N & P/W details that you have used for Artifactory web login>*

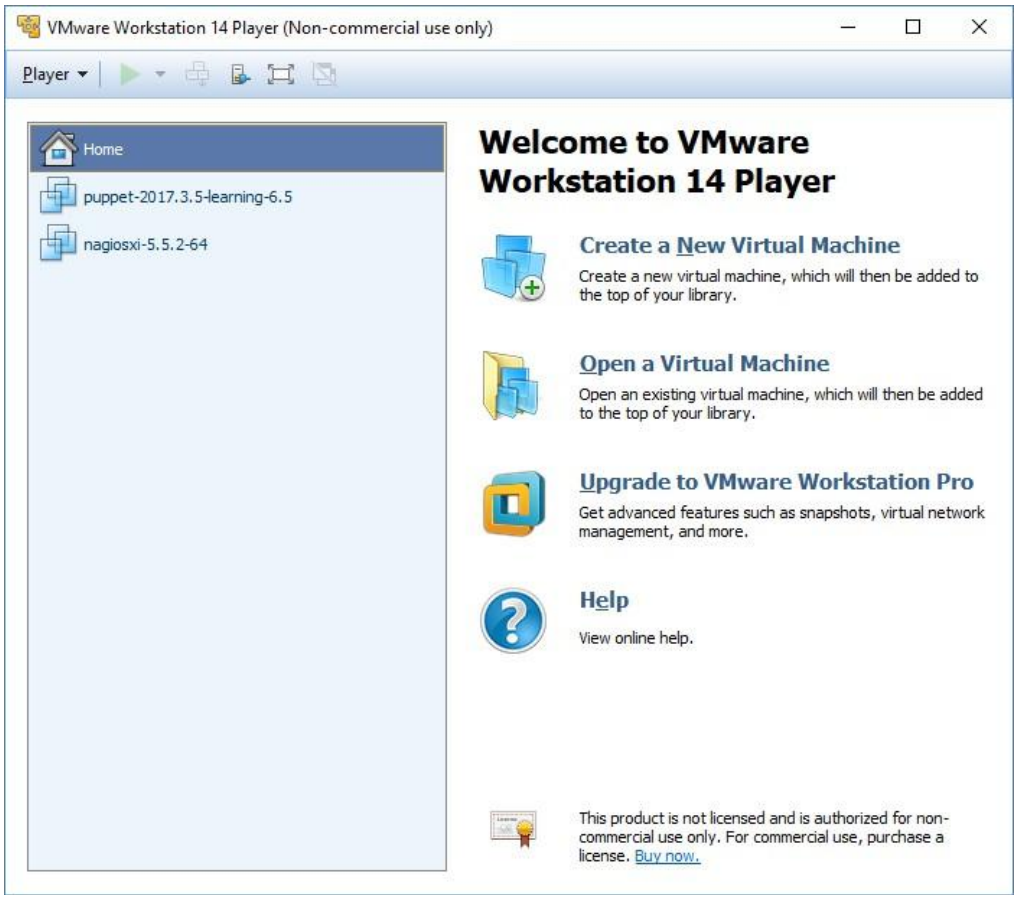
- Click Test Connection to verify Artifactory is connected to Jenkins successfully or not
- Apply & Save
- Back to Dashboard

3.8 Download & Install VMWare Workstation

- Open the browser and go to

  https://www.vmware.com/products/workstation-player/workstation-player-evaluation.html

- Click "Download Now"
- Once download is finished, run the installer to install VMWare Workstation
- Follow the instructions from the wizard until the installation is completed



3.9 Download Nagios

- Open the browser and go to https://www.nagios.org/downloads/nagios-core/
- Click Nagios XI Download
- Click "Download Now" for Windows
- Click "Download Now" for Open Virtualization Format
- Skip the form
- OVA file will be downloaded