EX.NO. 1 INSTALL VIRTUALBOX/VMWARE WORKSTATION WITH DIFFERENT FLAVOURS OF LINUX OR WINDOWS OS ON TOP OF WINDOWS7 OR 8

AIM:

To Install Virtual box/VMware Workstation with different flavors of Linux or windows OS on top of windows7 or 8.

PROCEDURE TO INSTALL:

Step 1: Visit http://www.virtualbox.org/wiki/downloads.

Step 2: Download Virtual Box platform packages for your OS.

Step 3: Open the Installation Package by double clicking.

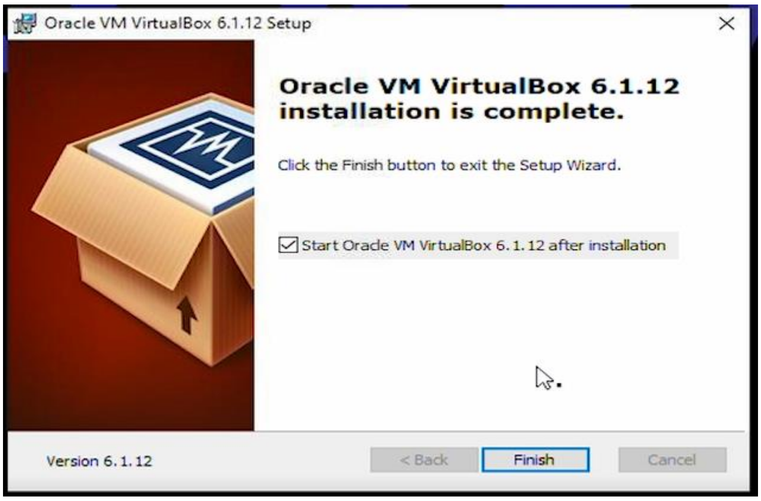
Step 4: Click continue and finish installing Virtual Box.

Step 5: When finished installation, close the window.

INSTALLING VIRTUAL BOX SETUP ON WINDOWS:

Step 1: Once at your desktop, open your web browser and head over to the **VirtualBox website** and download it. Then when the download is complete, open the file and the installation wizard will begin.

The first window is a welcome screen to introduce you to the installation; Click' Next'.



Oracle VM VirtualBox 6.1.12 Setup

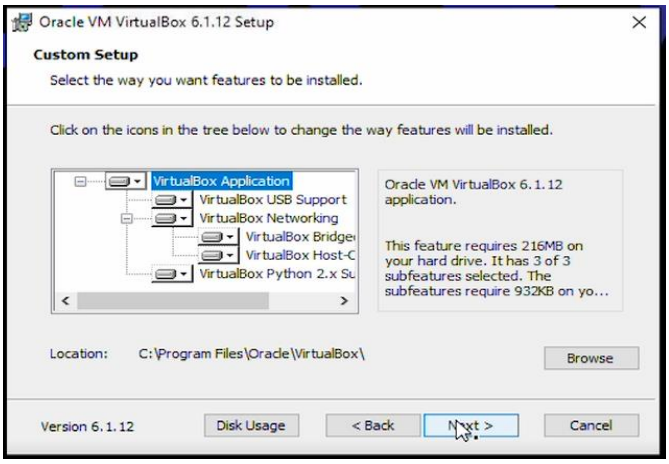
Oracle VM VirtualBox 6.1.12 installation is complete.

Click the Finish button to exit the Setup Wizard.

☑ Start Oracle VM VirtualBox 6.1.12 after installation

Version 6.1.12

Step 2: After, we will see the Custom Setup choices to select the additional support features needed. By default, they are all selected, and we will keep it this way. Click 'Next'



Oracle VM VirtualBox 6.1.12 Setup

Custom Setup

Select the way you want features to be installed.

Click on the icons in the tree below to change the way features will be installed.

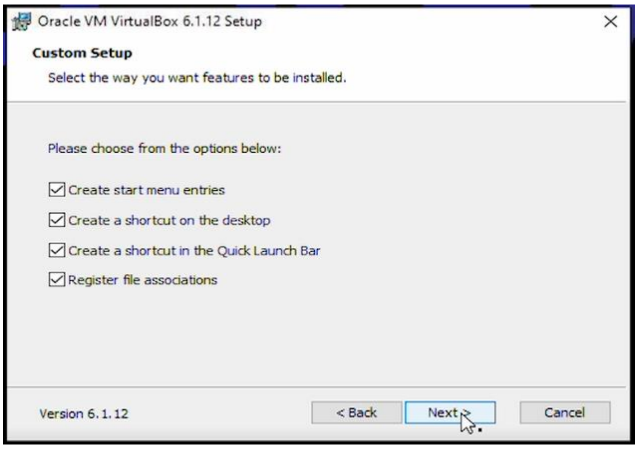
Oracle VM VirtualBox 6.1.12 application.

This feature requires 216MB on your hard drive. It has 3 of 3 subfeatures selected. The subfeatures require 932KB on yo...

Location: C:\Program Files\Oracle\VirtualBox\

Version 6.1.12

Step 3: The next screen will allow us to add short cuts to our system and register file associations. Again, we will keep the default settings and click 'Next'.



Oracle VM VirtualBox 6.1.12 Setup

Custom Setup

Select the way you want features to be installed.

Please choose from the options below:

☑ Create start menu entries

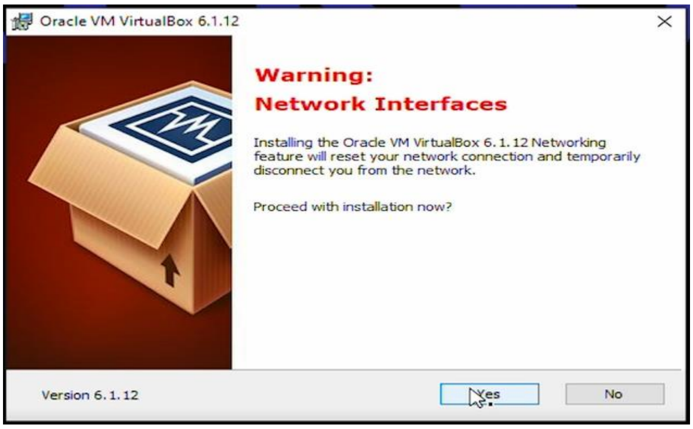
☑ Create a shortcut on the desktop

☑ Create a shortcut in the Quick Launch Bar

☑ Register file associations

Version 6.1.12

Step 4: We will be prompted with a warning about 'Network Interfaces'. This lets you know that your network connection many drop serval times during the installation as it incorporates the devices with the virtual machine. Click 'Yes'



Oracle VM VirtualBox 6.1.12

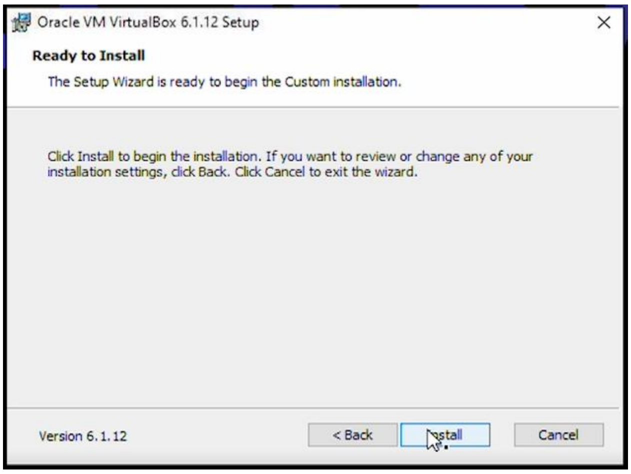
Warning:
Network Interfaces

Installing the Oracle VM VirtualBox 6.1.12 Networking feature will reset your network connection and temporarily disconnect you from the network.

Proceed with installation now?

Version 6.1.12

Step 5: Next, the wizard has all the information it needs to install and is ready to begin. Click on ‘Install’ to start



Oracle VM VirtualBox 6.1.12 Setup

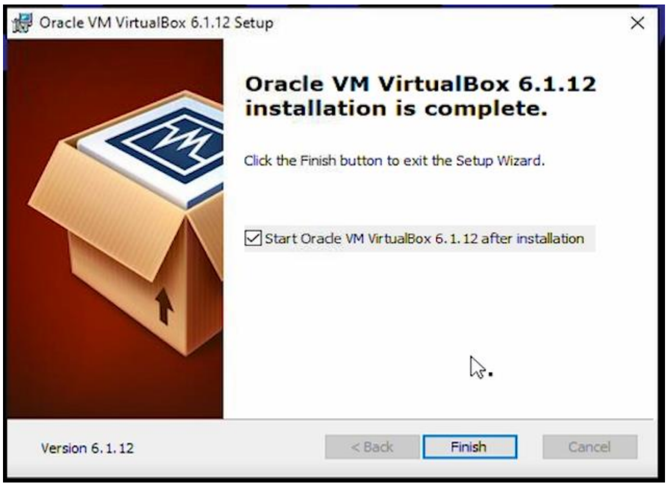
Ready to Install

The Setup Wizard is ready to begin the Custom installation.

Click Install to begin the installation. If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.

Version 6.1.12

Step 6: After a few minutes of the installation, it will be completed, and you can leave ‘Start Oracle VM VirtualBox 6.1.12 after installation’ then click on ‘Finish’. This will start the program immediately after closing the window.



Oracle VM VirtualBox 6.1.12 Setup

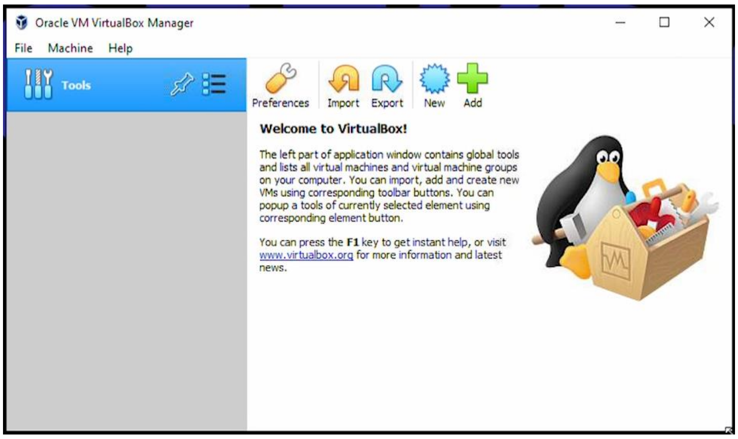
Oracle VM VirtualBox 6.1.12 installation is complete.

Click the Finish button to exit the Setup Wizard.

☑ Start Oracle VM VirtualBox 6.1.12 after installation

Version 6.1.12

Step 7: You will now see the VirtualBox application loaded. From here, you can modify the preferences to the system, change settings for various OS’s and start installing a virtually run operating system.



Oracle VM VirtualBox Manager

Welcome to VirtualBox!

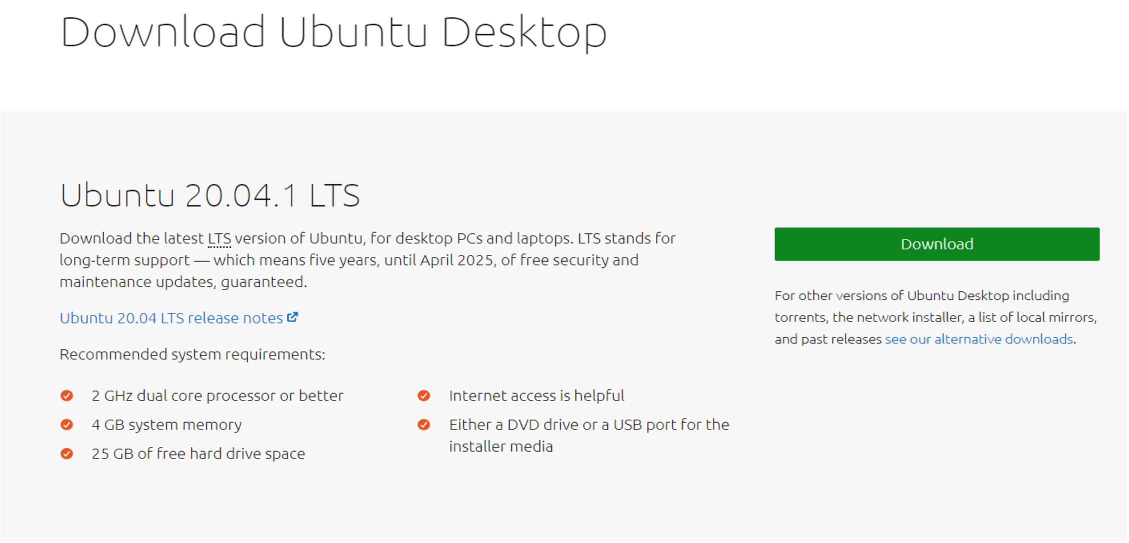
The left part of application window contains global tools and lists all virtual machines and virtual machine groups on your computer. You can import, add and create new VMs using corresponding toolbar buttons. You can popup a tools of currently selected element using corresponding element button.

You can press the **F1** key to get instant help, or visit www.virtualbox.org for more information and latest news.

Download Linux:

Step 1: Visit the page http://www.ubuntu.com/download/ubuntu/download

Step 2: Choose the Latest version of Ubuntu and 64-bit and click “Start Download”



Download Ubuntu Desktop

Ubuntu 20.04.1 LTS

Download the latest LTS version of Ubuntu, for desktop PCs and laptops. LTS stands for long-term support — which means five years, until April 2025, of free security and maintenance updates, guaranteed.

Ubuntu 20.04 LTS release notes

Recommended system requirements:

- 2 GHz dual core processor or better
- 4 GB system memory
- 25 GB of free hard drive space
- Internet access is helpful
- Either a DVD drive or a USB port for the installer media

Download

For other versions of Ubuntu Desktop including torrents, the network installer, a list of local mirrors, and past releases see our alternative downloads.

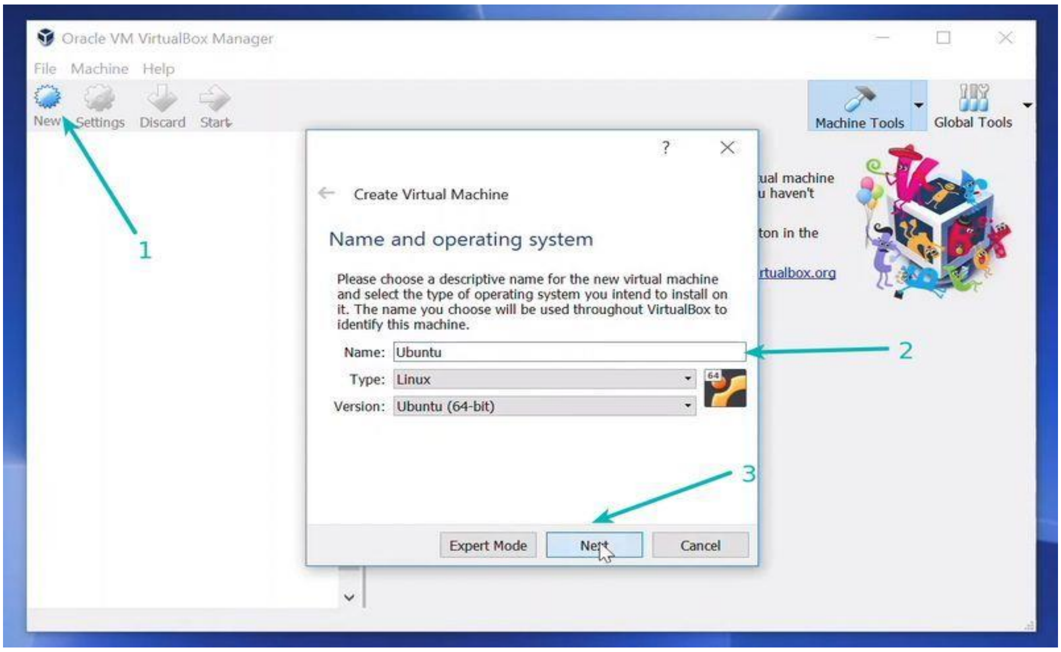
Install Linux using Virtual Box:

Step 1: Run Virtual Box by double-clicking the icon.

Step 2: Click “New” button on the top left corner.

Step 3: Click “Continue” on the pop-up window.

Step 4: Type VM name, select “Linux” for the OS and choose “Ubuntu” for the version.



Create Virtual Machine

Name and operating system

Please choose a descriptive name for the new virtual machine and select the type of operating system you intend to install on it. The name you choose will be used throughout VirtualBox to identify this machine.

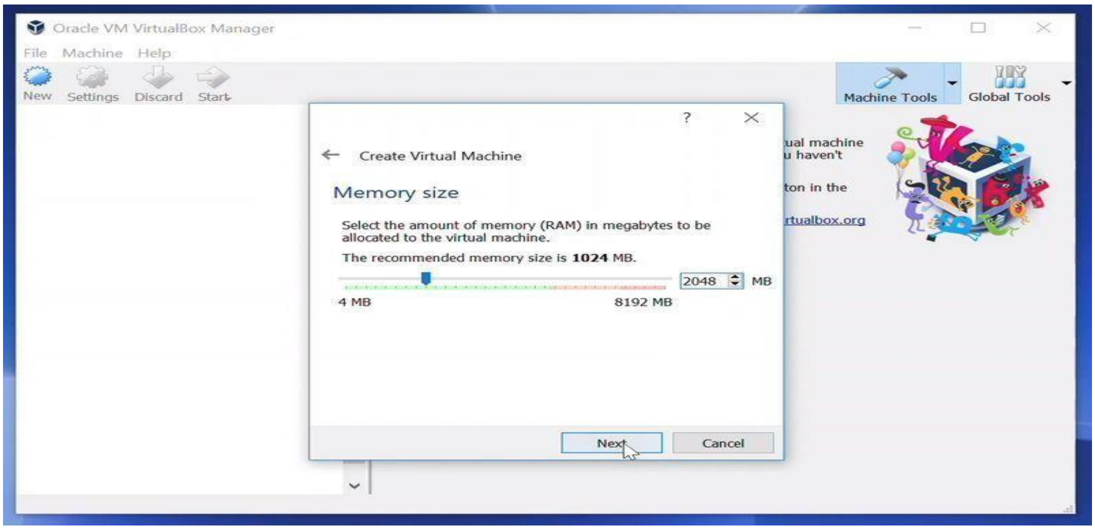
Name: Ubuntu

Type: Linux

Version: Ubuntu (64-bit)

Step 5: Choose the amount of memory to allocate (512 MB to 1024 MB)

Step 6: Click Continue or Next


Oracle VM VirtualBox Manager
File Machine Help
New Settings Discard Start
Machine Tools Global Tools
Next Cancel

Create Virtual Machine

Memory size

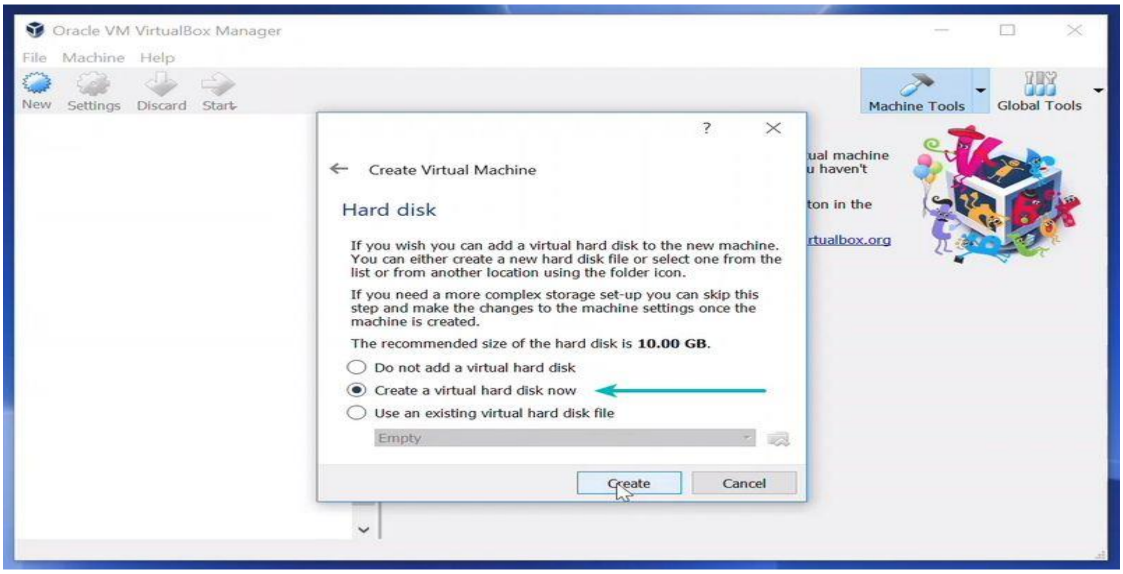
Select the amount of memory (RAM) in megabytes to be allocated to the virtual machine.

The recommended memory size is **1024** MB.

4 MB — 8192 MB — 2048 MB

Step 7: Choose create a new virtual hard disk.

Step 8: Click Continue or Next.


Oracle VM VirtualBox Manager
File Machine Help
New Settings Discard Start
Machine Tools Global Tools
Empty
Create Cancel

Create Virtual Machine

Hard disk

If you wish you can add a virtual hard disk to the new machine. You can either create a new hard disk file or select one from the list or from another location using the folder icon.

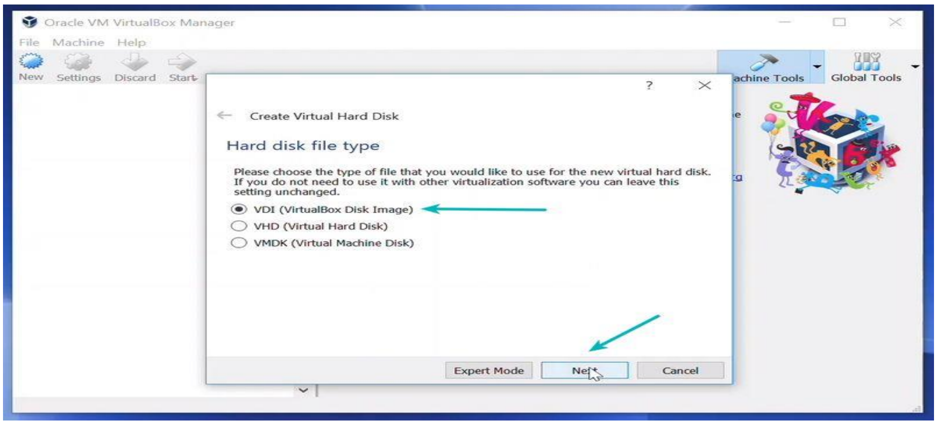
If you need a more complex storage set-up you can skip this step and make the changes to the machine settings once the machine is created.

The recommended size of the hard disk is **10.00 GB**.

○ Do not add a virtual hard disk
● Create a virtual hard disk now
○ Use an existing virtual hard disk file

Step 9: Choose VDI (VirtualBox Disk Image).

Step 10: Click Continue or Next.


Oracle VM VirtualBox Manager
File Machine Help
New Settings Discard Start
Machine Tools Global Tools
Expert Mode Next Cancel

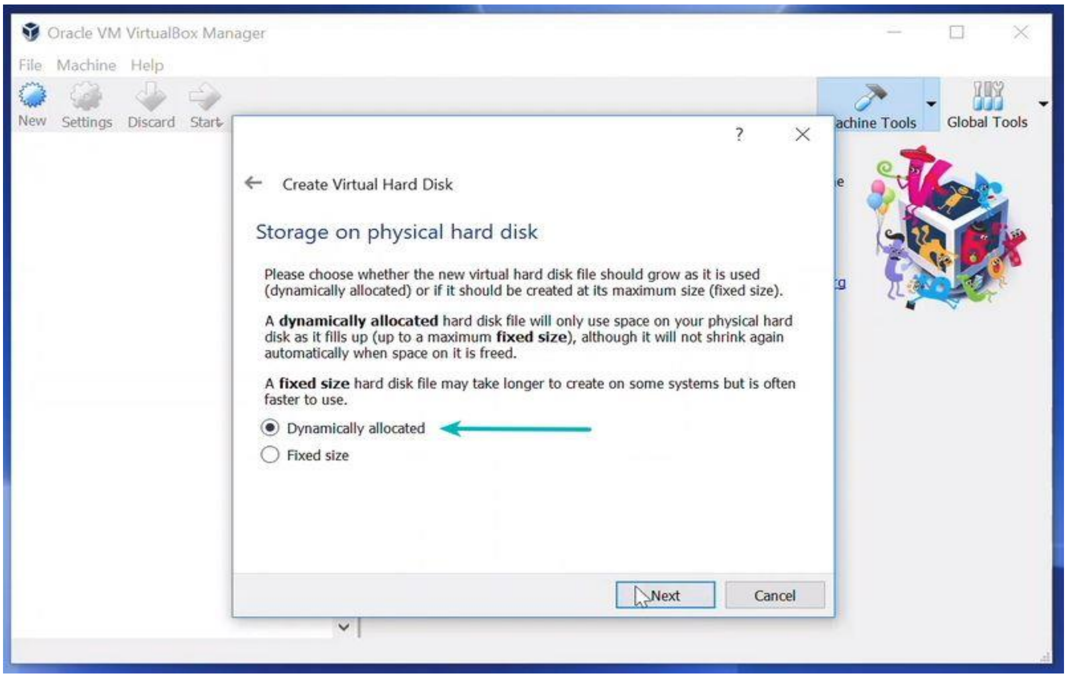
Create Virtual Hard Disk

Hard disk file type

Please choose the type of file that you would like to use for the new virtual hard disk. If you do not need to use it with other virtualization software you can leave this setting unchanged.

● VDI (VirtualBox Disk Image)
○ VHD (Virtual Hard Disk)
○ VMDK (Virtual Machine Disk)

Step 11: Choose “Dynamically Allocated” click continue. This way, the size of your Virtual Hard Disk will grow as you use.



Create Virtual Hard Disk

Storage on physical hard disk

Please choose whether the new virtual hard disk file should grow as it is used (dynamically allocated) or if it should be created at its maximum size (fixed size).

A **dynamically allocated** hard disk file will only use space on your physical hard disk as it fills up (up to a maximum **fixed size**), although it will not shrink again automatically when space on it is freed.

A **fixed size** hard disk file may take longer to create on some systems but is often faster to use.

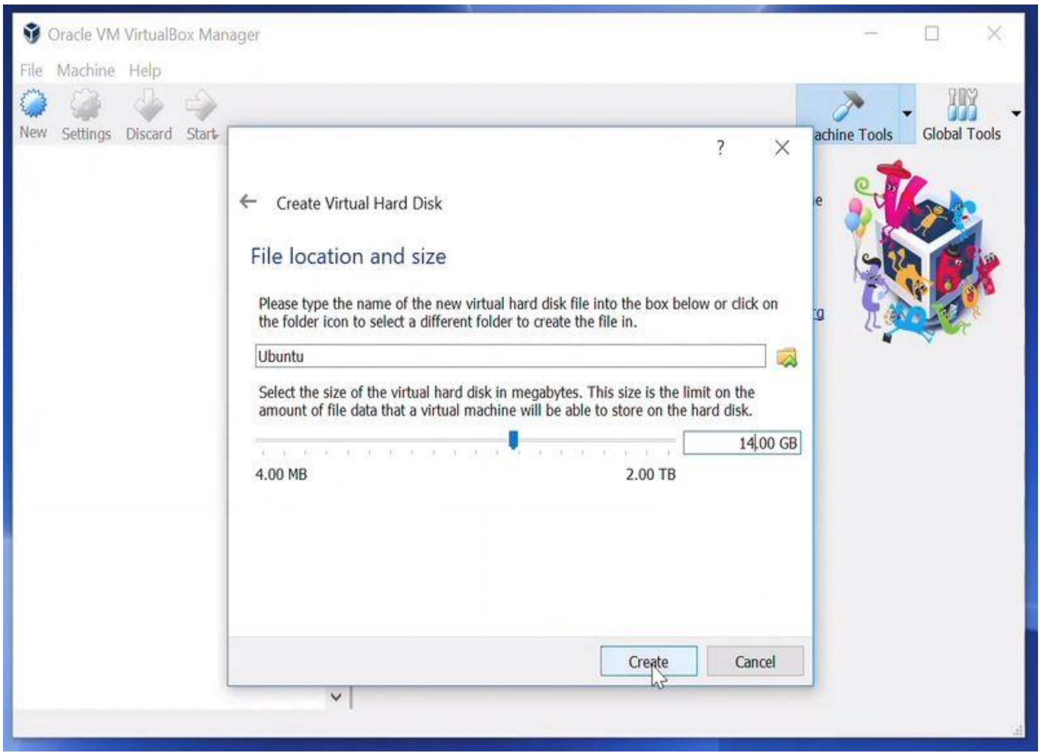
● Dynamically allocated

○ Fixed size

Step 12: Click the folder icon and choose the ubuntu iso file you downloaded.

Step 13: Select the size of the Virtual Disk (8 GB) and click continue.

Step 14: Click Create.



Create Virtual Hard Disk

File location and size

Please type the name of the new virtual hard disk file into the box below or click on the folder icon to select a different folder to create the file in.

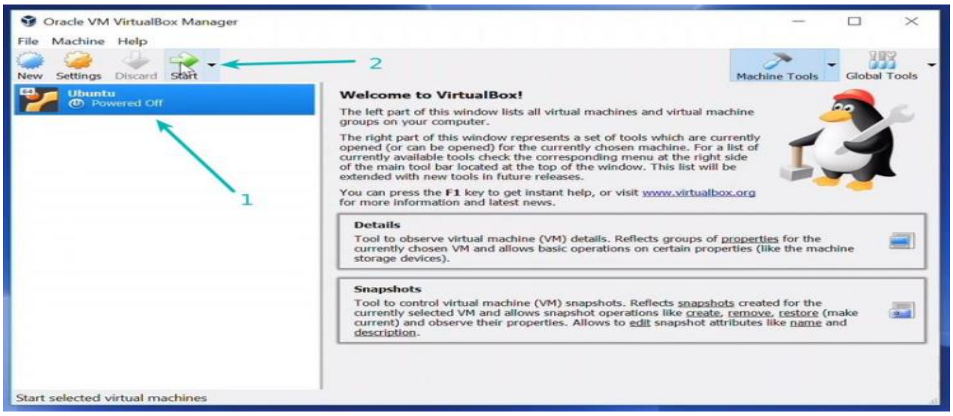
Ubuntu

Select the size of the virtual hard disk in megabytes. This size is the limit on the amount of file data that a virtual machine will be able to store on the hard disk.

14.00 GB

Running Linux:

Step 1: Choose Ubuntu from left column and click Start.



Welcome to VirtualBox!

The left part of this window lists all virtual machines and virtual machine groups on your computer.

The right part of this window represents a set of tools which are currently opened (or can be opened) for the currently chosen machine. For a list of currently available tools check the corresponding menu at the right side of the main tool bar located at the top of the window. This list will be extended with new tools in future releases.

You can press the **F1** key to get instant help, or visit www.virtualbox.org for more information and latest news.

Details

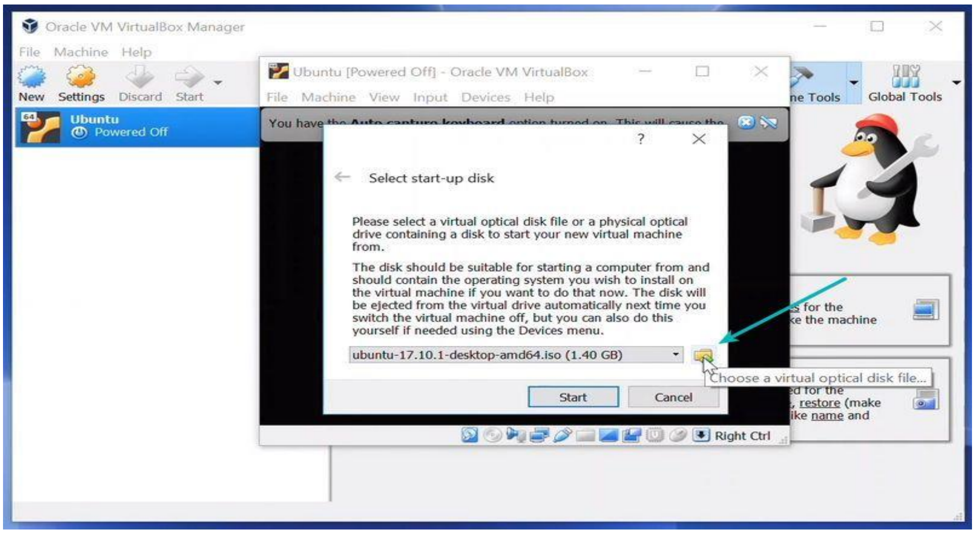
Tool to observe virtual machine (VM) details. Reflects groups of properties for the currently chosen VM and allows basic operations on certain properties (like the machine storage devices).

Snapshots

Tool to control virtual machine (VM) snapshots. Reflects snapshots created for the currently selected VM and allows snapshot operations like create, remove, restore (make current) and observe their properties. Allows to edit snapshot attributes like name and description.

Step 2: Click continue on pop-up window.

Step 3: Click the folder icon and choose the ubuntu iso file you downloaded and click continue and start.


Oracle VM VirtualBox Manager
File Machine Help
New
Settings
Discard
Start
Ubuntu
Powered Off
ne Tools
Global Tools
Ubuntu [Powered Off] - Oracle VM VirtualBox
File Machine View Input Devices Help
?
Start
Cancel
Choose a virtual optical disk file...
Right Ctrl

You have the **Auto capture keyboard** option turned on. This will cause the

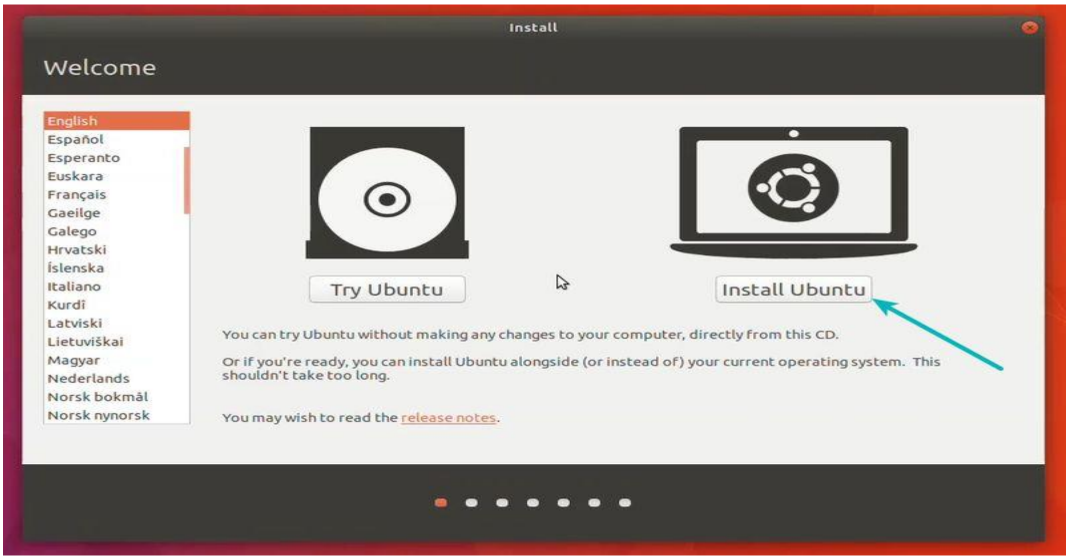
Select start-up disk

Please select a virtual optical disk file or a physical optical drive containing a disk to start your new virtual machine from.

The disk should be suitable for starting a computer from and should contain the operating system you wish to install on the virtual machine if you want to do that now. The disk will be ejected from the virtual drive automatically next time you switch the virtual machine off, but you can also do this yourself if needed using the Devices menu.

ubuntu-17.10.1-desktop-amd64.iso (1.40 GB)

Step 4: Click Install Ubuntu.

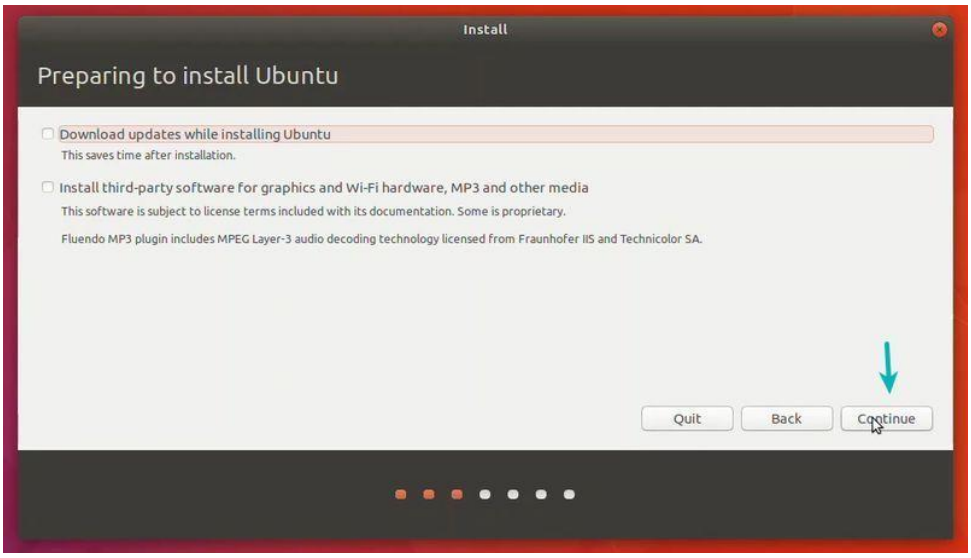


You can try Ubuntu without making any changes to your computer, directly from this CD.

Or if you're ready, you can install Ubuntu alongside (or instead of) your current operating system. This shouldn't take too long.

You may wish to read the release notes.

Step 4: Check "Download updates" and click Forward.

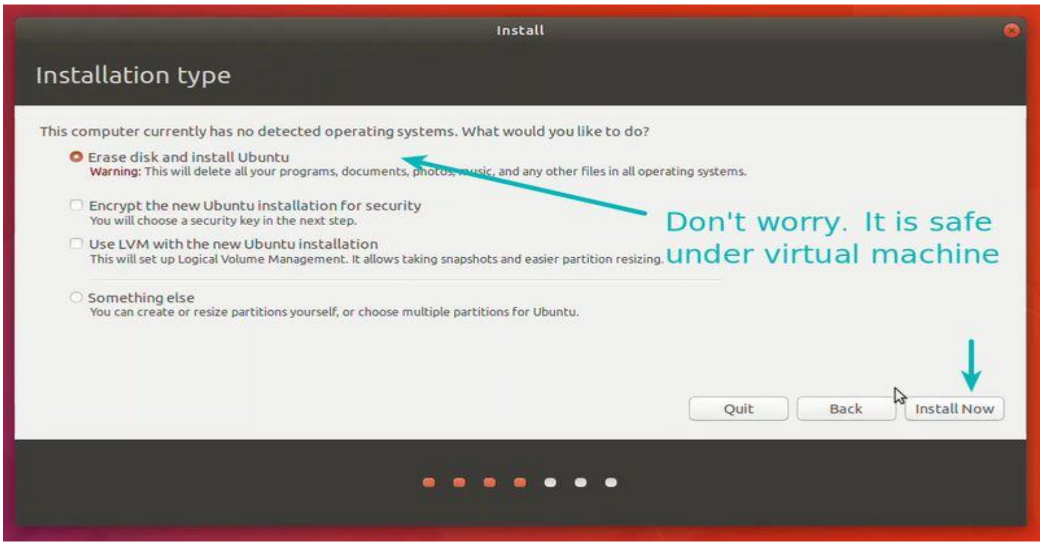


Preparing to install Ubuntu

□ Download updates while installing Ubuntu
This saves time after installation.

□ Install third-party software for graphics and Wi-Fi hardware, MP3 and other media
This software is subject to license terms included with its documentation. Some is proprietary.
Fluendo MP3 plugin includes MPEG Layer-3 audio decoding technology licensed from Fraunhofer IIS and Technicolor SA.

Step 5: Choose "Erase disk and install Ubuntu" and click Forward (Don't worry, it won't wipe your computer).



Installation type

This computer currently has no detected operating systems. What would you like to do?

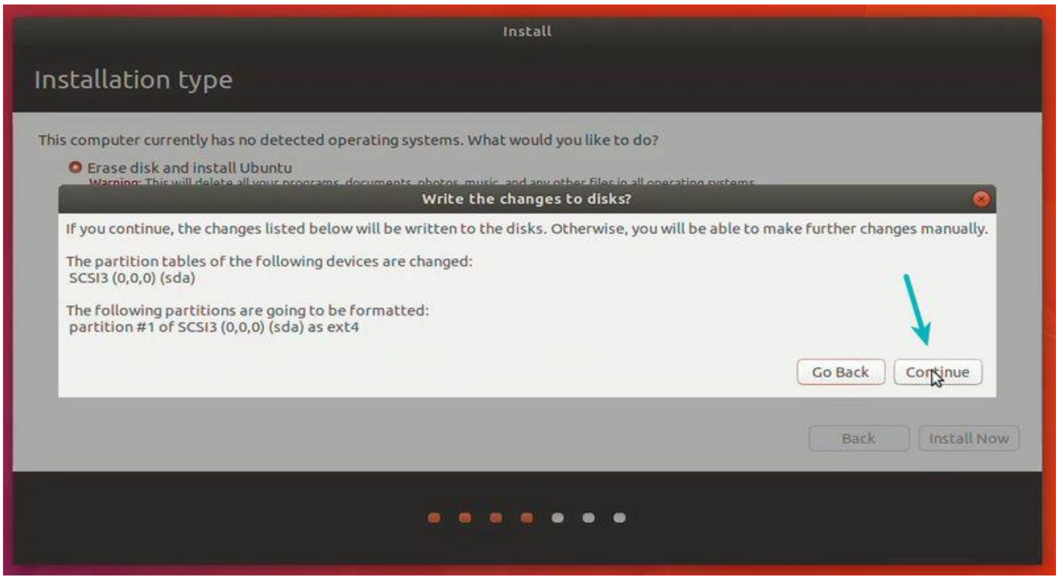
● Erase disk and install Ubuntu
Warning: This will delete all your programs, documents, photos, music, and any other files in all operating systems.

□ Encrypt the new Ubuntu installation for security
You will choose a security key in the next step.

□ Use LVM with the new Ubuntu installation
This will set up Logical Volume Management. It allows taking snapshots and easier partition resizing.

○ Something else
You can create or resize partitions yourself, or choose multiple partitions for Ubuntu.

Don't worry. It is safe under virtual machine



Installation type

This computer currently has no detected operating systems. What would you like to do?

● Erase disk and install Ubuntu
Warning: This will delete all your programs, documents, photos, music, and any other files in all operating systems.

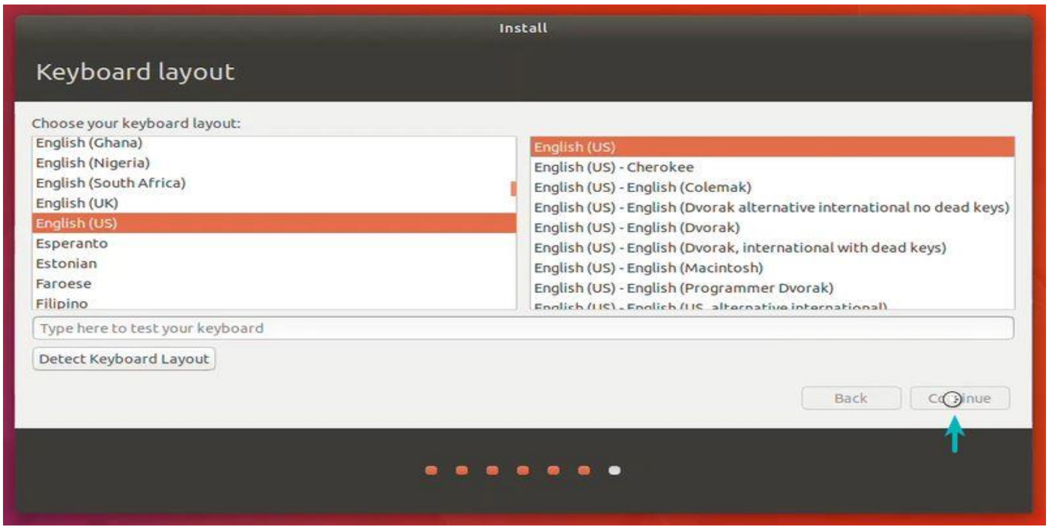
Write the changes to disks?

If you continue, the changes listed below will be written to the disks. Otherwise, you will be able to make further changes manually.

The partition tables of the following devices are changed:
SCSI3 (0,0,0) (sda)

The following partitions are going to be formatted:
partition #1 of SCSI3 (0,0,0) (sda) as ext4

Step 6: Set up the location, Keyboard layout, Profile Creation.



Install

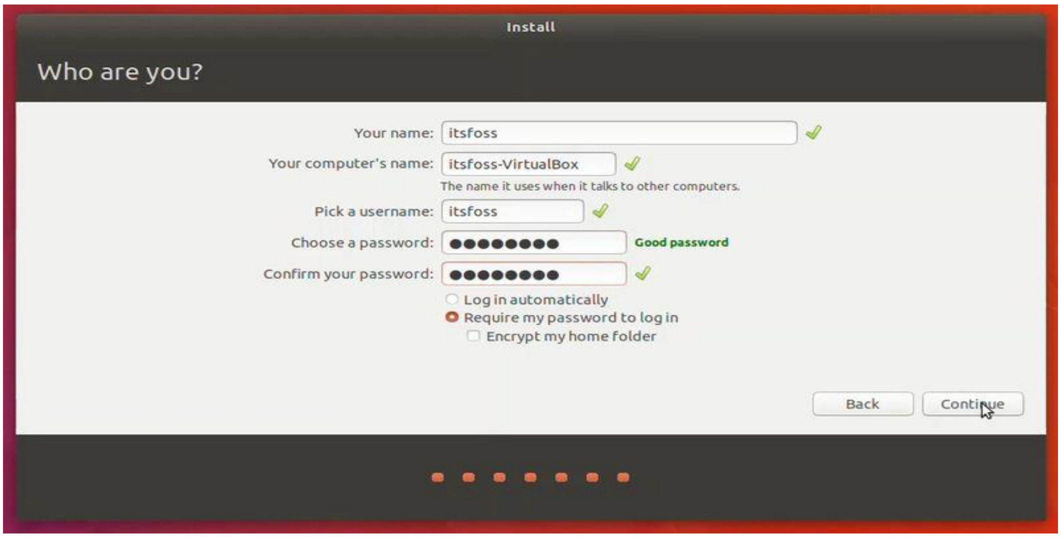
Keyboard layout

Choose your keyboard layout:

English (Ghana)
English (Nigeria)
English (South Africa)
English (UK)
English (US)
Esperanto
Estonian
Faroese
Filipino

English (US)
English (US) - Cherokee
English (US) - English (Colemak)
English (US) - English (Dvorak alternative international no dead keys)
English (US) - English (Dvorak)
English (US) - English (Dvorak, international with dead keys)
English (US) - English (Macintosh)
English (US) - English (Programmer Dvorak)
English (US) - English (US, alternative international)

Type here to test your keyboard

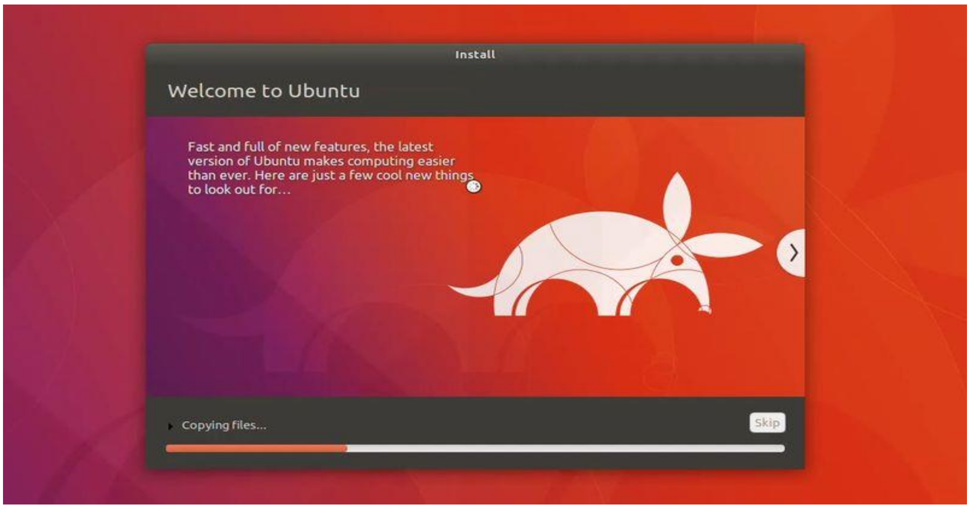


Install

Who are you?

Your name: itsfoss ✓
Your computer's name: itsfoss-VirtualBox ✓
The name it uses when it talks to other computers.
Pick a username: itsfoss ✓
Choose a password: ●●●●●●●● Good password
Confirm your password: ●●●●●●●● ✓
○ Log in automatically
● Require my password to log in
□ Encrypt my home folder

Step 7: Click “Install Now” and wait.



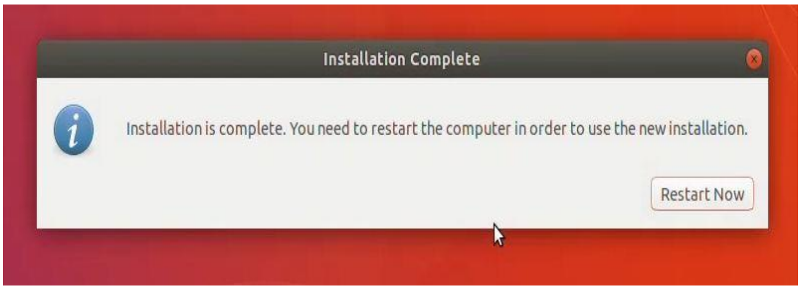
Install

Welcome to Ubuntu

Fast and full of new features, the latest version of Ubuntu makes computing easier than ever. Here are just a few cool new things to look out for...

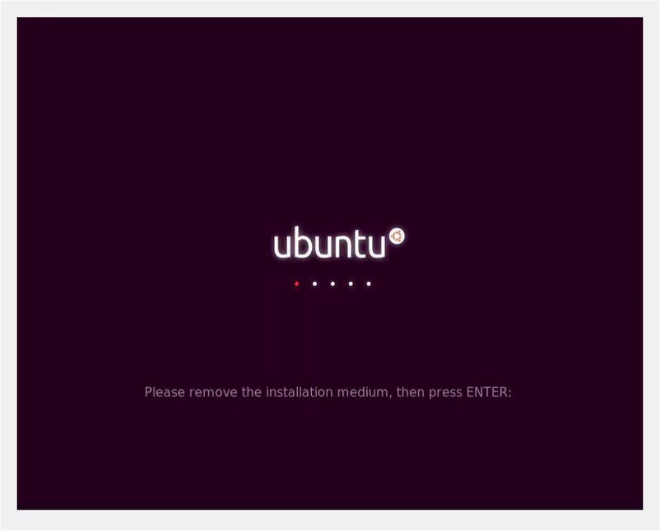
Copying files...

Step 8: When finished, click Restart and press Enter.



Installation Complete

Installation is complete. You need to restart the computer in order to use the new installation.



Please remove the installation medium, then press ENTER:

RESULT:

Thus Virtual box/VMware Workstation with different flavors of Linux or windows OS was successfully installed on top of windows7 or 8.

EX.NO.2 INSTALL A C COMPILER IN THE VIRTUAL MACHINE CREATED USING VIRTUAL BOX AND EXECUTE SIMPLE PROGRAMS

AIM:

To install a C compiler in the virtual machine created using virtual box and execute simple programs.

ALGORITHM:

1. Open the virtual machine
2. Navigate through Ubuntu and open the terminal.
3. To install C compiler enter the following commands

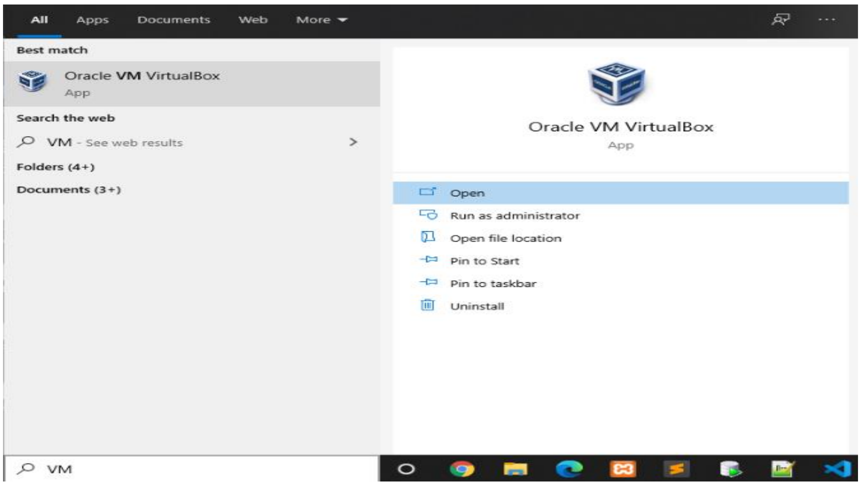
   ```
   $ sudo apt update
   $ sudo apt install build-essential
   ```

4. Open file using the command “gedit&” on the terminal.
5. Type the following program on the gedit

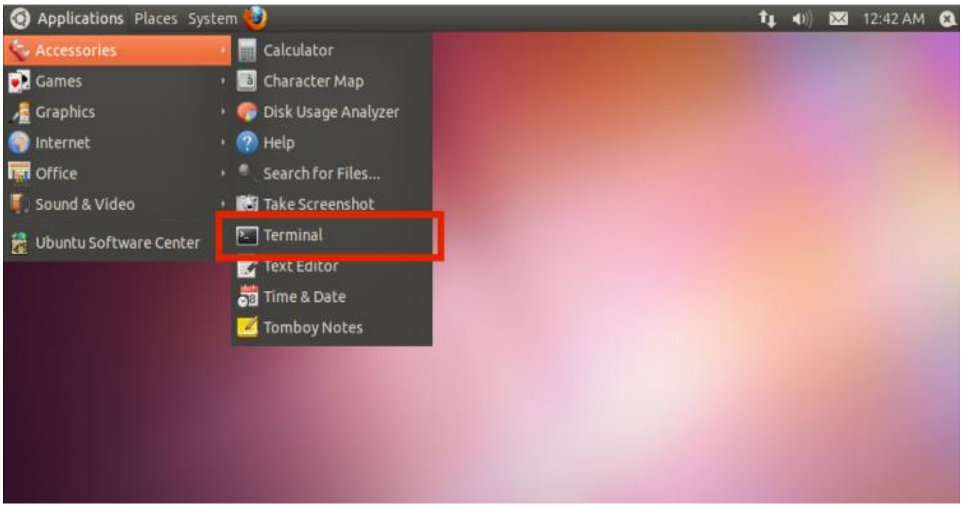
   ```
   #include<stdio.h>
   main()
   {
       printf("Hello World\n");
   }
   ```

6. Save this file as “helloworld.c”
7. Type “gcc helloworld.c” on the terminal to compile the file.
8. Type “./a.out” on terminal to run the program
9. “Hello World” will be printed on the next line of the terminal.
10. End the program.

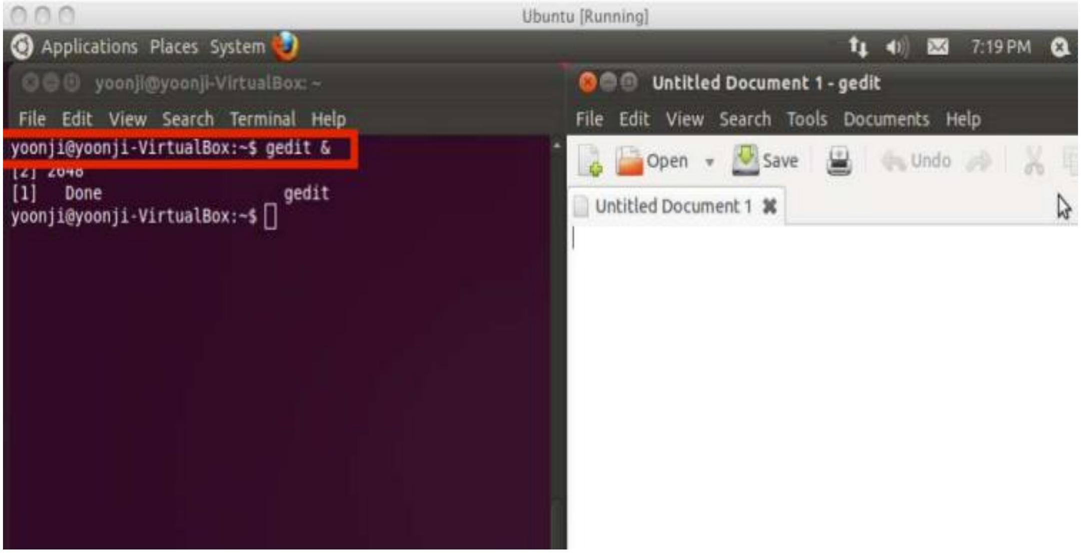
STEP-1:



STEP-2:

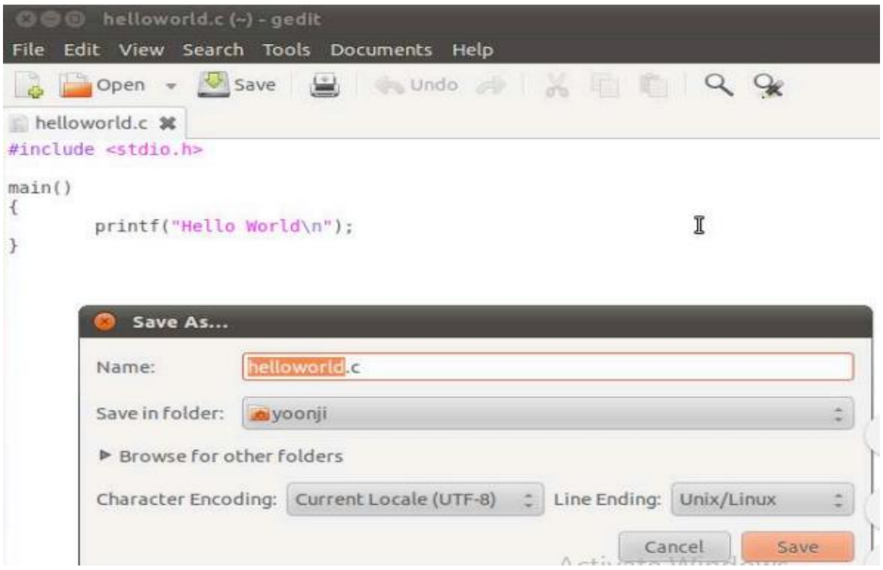


STEP-3 and 4:



```
yoonji@yoonji-VirtualBox:~$ gedit &
[2] 2048
[1]   Done                    gedit
yoonji@yoonji-VirtualBox:~$
```

STEP-5 and 6:



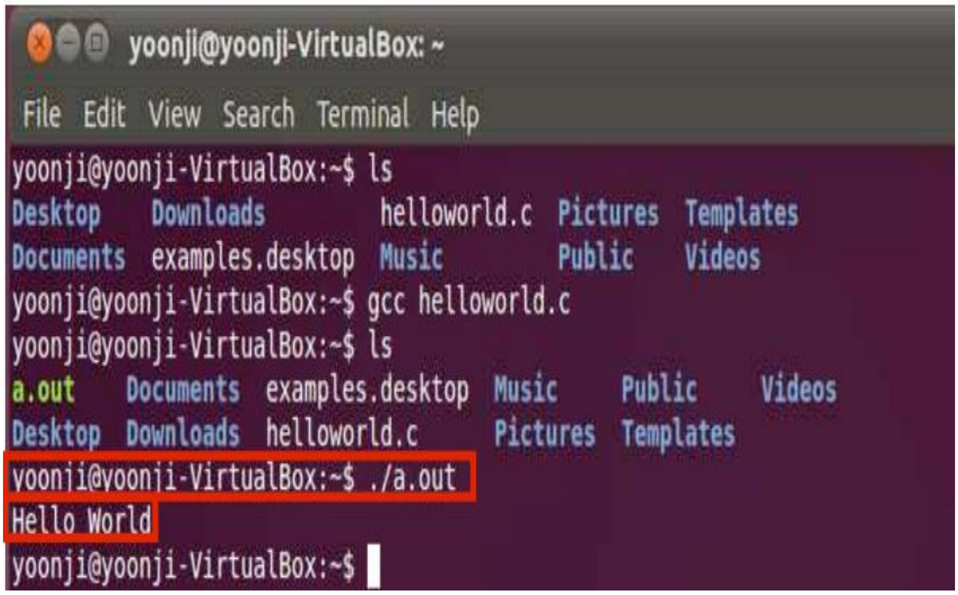
```
#include <stdio.h>

main()
{
        printf("Hello World\n");
}
```

Name: helloworld.c

Save in folder: yoonji

Character Encoding: Current Locale (UTF-8) Line Ending: Unix/Linux

STEP-7, 8 and 9:



yoonji@yoonji-VirtualBox: ~
File Edit View Search Terminal Help

```
yoonji@yoonji-VirtualBox:~$ ls
Desktop    Downloads        helloworld.c  Pictures  Templates
Documents  examples.desktop Music         Public    Videos
yoonji@yoonji-VirtualBox:~$ gcc helloworld.c
yoonji@yoonji-VirtualBox:~$ ls
a.out    Documents  examples.desktop  Music     Public     Videos
Desktop  Downloads  helloworld.c      Pictures  Templates
yoonji@yoonji-VirtualBox:~$ ./a.out
Hello World
yoonji@yoonji-VirtualBox:~$
```

RESULT:

Thus, to install a C compiler in the virtual machine created using virtual box and execute simple programs was successfully implemented and output was successfully obtained and verified.

EX.NO.3 INSTALL GOOGLE APP ENGINE, CREATE HELLO WORLD APP AND OTHER SIMPLE WEB APPLICATION USING PYTHON/JAVA

AIM:

To install Google app engine create hello world app and other simple web application using python/java

ALGORITHM:

1. Download and Install python 3.0.9 in your computer
2. Download the Google App Engine SDK.
   - 2.1. Download the appropriate install package.
   - 2.2. Download the Windows installer – the simplest thing is to download it to your Desktop or another folder that you remember.
   - 2.3. Click through the installation wizard, and it should install the App Engine
3. Creating First application.
   - 3.1. Make a folder for your Google App Engine applications and then make a sub--folder in within previous folder
   - 3.2. Using a text editor, create a file with **.yaml extension** in the sub folder
   - 3.3. Create a python file using .py in the previous file
   - 3.4. Then in cmd as google-cloud-sdk\bin\dev_appserver.py and type folder path and click enter.
4. Server is running at localhost, copy the localhost server and type in browser.
5. Click on the file, you can see the application.

SOURCE CODE (Source code for hello world **)**

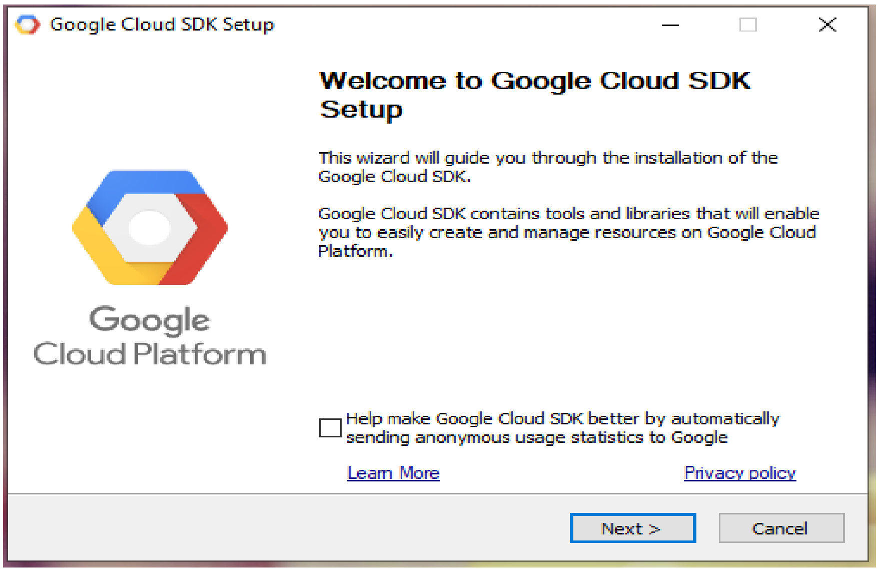
Test.py

```
import webapp2
class MainPage(webapp2.RequestHandler):
def get(self):
self.response.write("hello world")
app = webapp2.WSGIApplication([('/', MainPage),],
debug=True)
```

app.yaml

```
runtime: python27
api_version: 1
threadsafe:  true
handlers:
- url:  /
script: test.app
```

SCREENSHOTS:



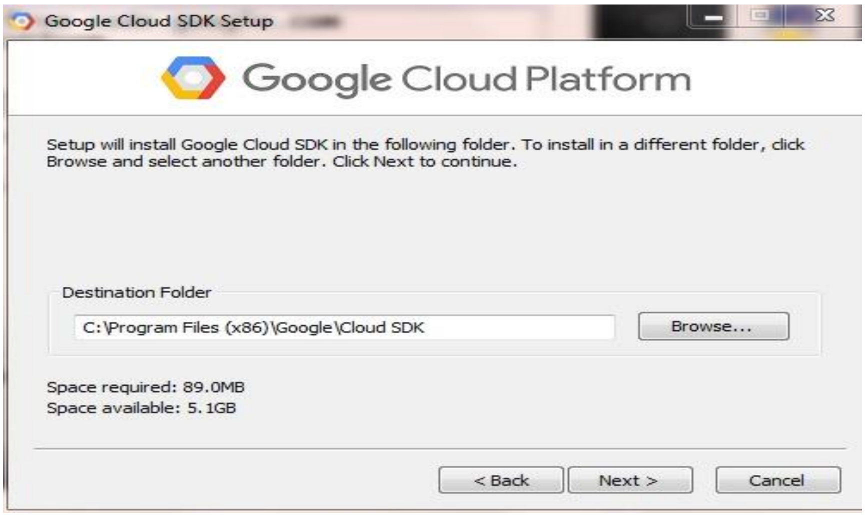
Google Cloud SDK Setup

Welcome to Google Cloud SDK Setup

This wizard will guide you through the installation of the Google Cloud SDK.

Google Cloud SDK contains tools and libraries that will enable you to easily create and manage resources on Google Cloud Platform.

□ Help make Google Cloud SDK better by automatically sending anonymous usage statistics to Google

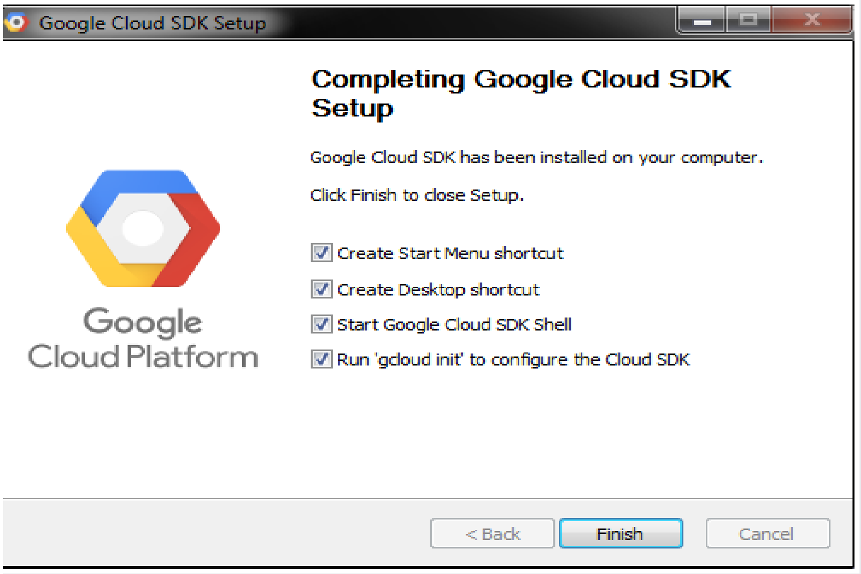


Setup will install Google Cloud SDK in the following folder. To install in a different folder, click Browse and select another folder. Click Next to continue.

Destination Folder

C:\Program Files (x86)\Google\Cloud SDK

Space required: 89.0MB
Space available: 5.1GB

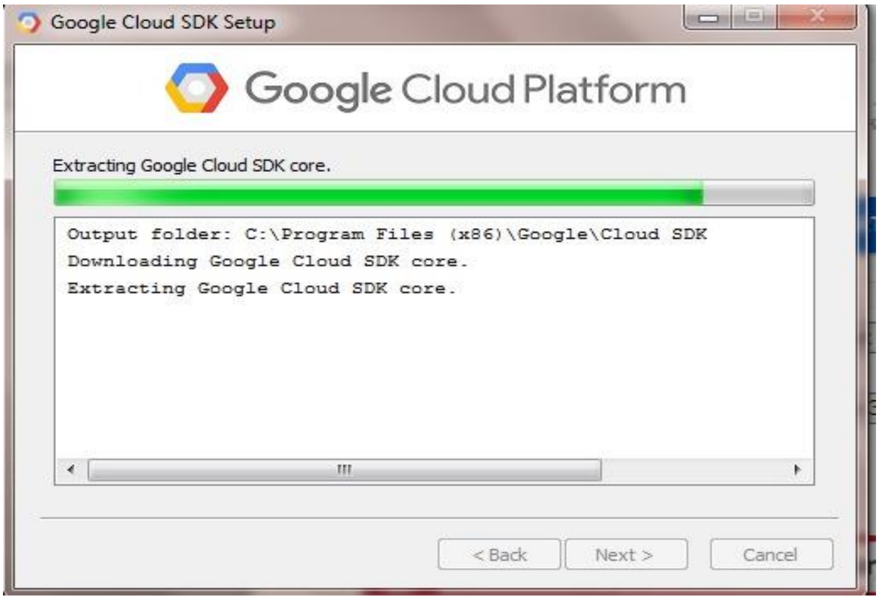


Completing Google Cloud SDK Setup

Google Cloud SDK has been installed on your computer.

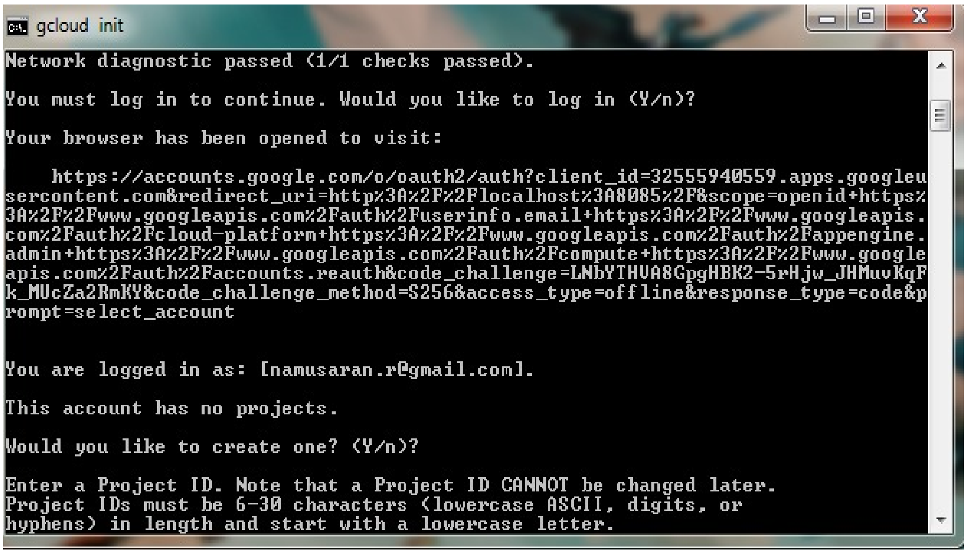
Click Finish to close Setup.

☑ Create Start Menu shortcut
☑ Create Desktop shortcut
☑ Start Google Cloud SDK Shell
☑ Run 'gcloud init' to configure the Cloud SDK

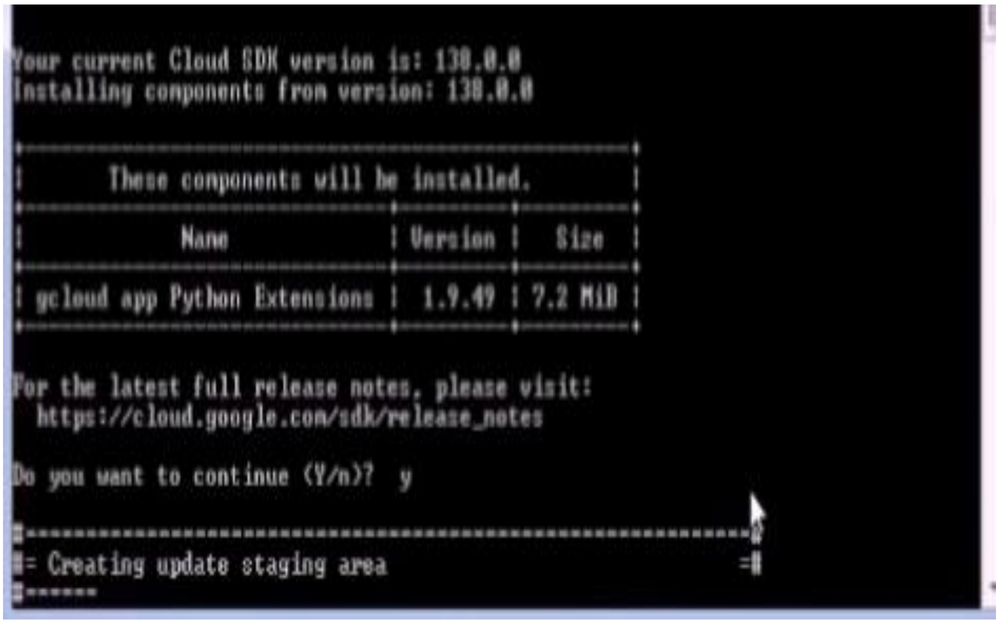


Extracting Google Cloud SDK core.

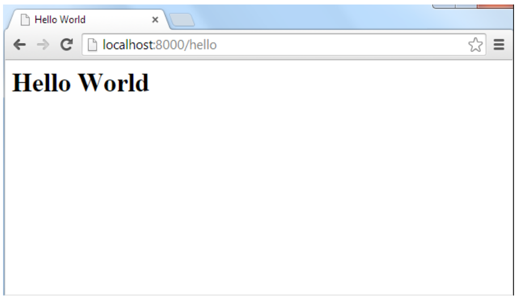
```
Output folder: C:\Program Files (x86)\Google\Cloud SDK
Downloading Google Cloud SDK core.
Extracting Google Cloud SDK core.
```



```
Network diagnostic passed (1/1 checks passed).

You must log in to continue. Would you like to log in (Y/n)?

Your browser has been opened to visit:

    https://accounts.google.com/o/oauth2/auth?client_id=32555940559.apps.googleu
sercontent.com&redirect_uri=http%3A%2F%2Flocalhost%3A8085%2F&scope=openid+https%
3A%2F%2Fwww.googleapis.com%2Fauth%2Fuserinfo.email+https%3A%2F%2Fwww.googleapis.
com%2Fauth%2Fcloud-platform+https%3A%2F%2Fwww.googleapis.com%2Fauth%2Fappengine.
admin+https%3A%2F%2Fwww.googleapis.com%2Fauth%2Fcompute+https%3A%2F%2Fwww.google
apis.com%2Fauth%2Faccounts.reauth&code_challenge=LNbYTHVA8GpgHBK2-5rHjw_JHMuvKqF
k_MUcZa2RmKY&code_challenge_method=S256&access_type=offline&response_type=code&p
rompt=select_account


You are logged in as: [namusaran.r@gmail.com].

This account has no projects.

Would you like to create one? (Y/n)?

Enter a Project ID. Note that a Project ID CANNOT be changed later.
Project IDs must be 6-30 characters (lowercase ASCII, digits, or
hyphens) in length and start with a lowercase letter.
```



```
Your current Cloud SDK version is: 138.0.0
Installing components from version: 138.0.0

+----------------------------------------------------+
|         These components will be installed.        |
+-----------------------------+------------+---------+
|             Name            |  Version   |  Size   |
+-----------------------------+------------+---------+
| gcloud app Python Extensions |  1.9.49   | 7.2 MiB |
+-----------------------------+------------+---------+

For the latest full release notes, please visit:
  https://cloud.google.com/sdk/release_notes

Do you want to continue (Y/n)?  y

#============================================================#
#= Creating update staging area                             =#
#======
```



Hello World

RESULT:

Thus, to install Google app engine create hello world app and other simple web application using python/java has been executed successfully.

EX.NO.4 USE GOOGLE APP ENGINE LAUNCHER TO LAUNCH WEB APPLICATION

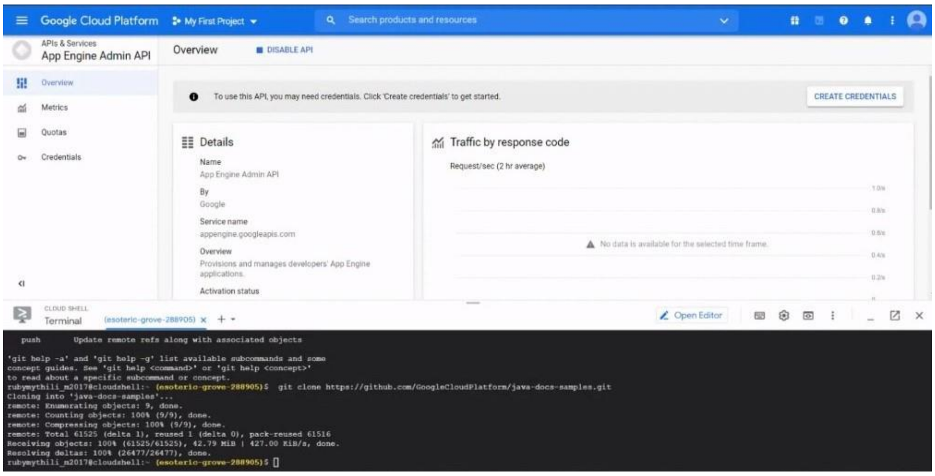
AIM:

To use Google app engine launcher to launch the web application

ALGORITHM:

1. Install Google App Engine, cloud SDK, tomcat and Maven into local machine
2. Create cloud account and enter a name for cloud project and click create.
3. Enable App engine for cloud project.
4. Create a maven project and include Java servlet API in maven repository. Use,gcloud components install app-engine-java
5. Adding the app engine maven plugin in pom.xml file
   ```
   <plugin>
   <groupId>com.google.cloud.tools</groupId>
   <artifactId>appengine-maven-plugin</artifactId>
   <version>2.2.0</version>
   </plugin>
   ```
6. To run a web project, create an environment using tomcat and include the tomcat plug-in in maven pom.xml file.
7. Buildthe app in the environment,mvn package appengine:deployDapp.deploy.projectId=PROJECT_ID
8. Run the command in app.yaml file terminal, gcloud app deploy and source file will be uploaded to Google cloud storage

STEP-1:



To use this API, you may need credentials. Click 'Create credentials' to get started.

Name: App Engine Admin API

By: Google

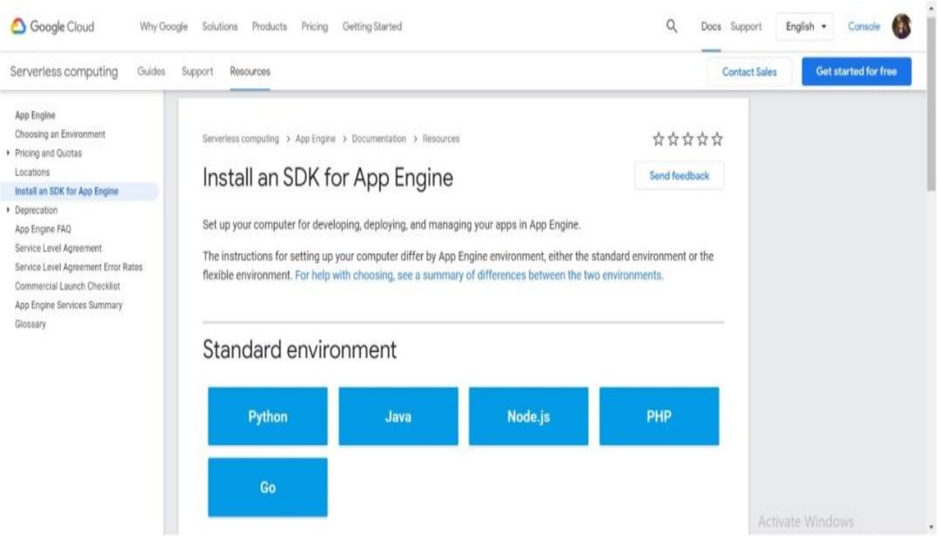
Service name: appengine.googleapis.com

Overview: Provisions and manages developers' App Engine applications.

Activation status

No data is available for the selected time frame.

```
   push       Update remote refs along with associated objects

'git help -a' and 'git help -g' list available subcommands and some
concept guides. See 'git help <command>' or 'git help <concept>'
to read about a specific subcommand or concept.
rubymythili_m2017@cloudshell:~ (esoteric-grove-288905)$  git clone https://github.com/GoogleCloudPlatform/java-docs-samples.git
Cloning into 'java-docs-samples'...
remote: Enumerating objects: 9, done.
remote: Counting objects: 100% (9/9), done.
remote: Compressing objects: 100% (9/9), done.
remote: Total 61525 (delta 1), reused 1 (delta 0), pack-reused 61516
Receiving objects: 100% (61525/61525), 42.79 MiB | 427.00 KiB/s, done.
Resolving deltas: 100% (26477/26477), done.
rubymythili_m2017@cloudshell:~ (esoteric-grove-288905)$ 
```

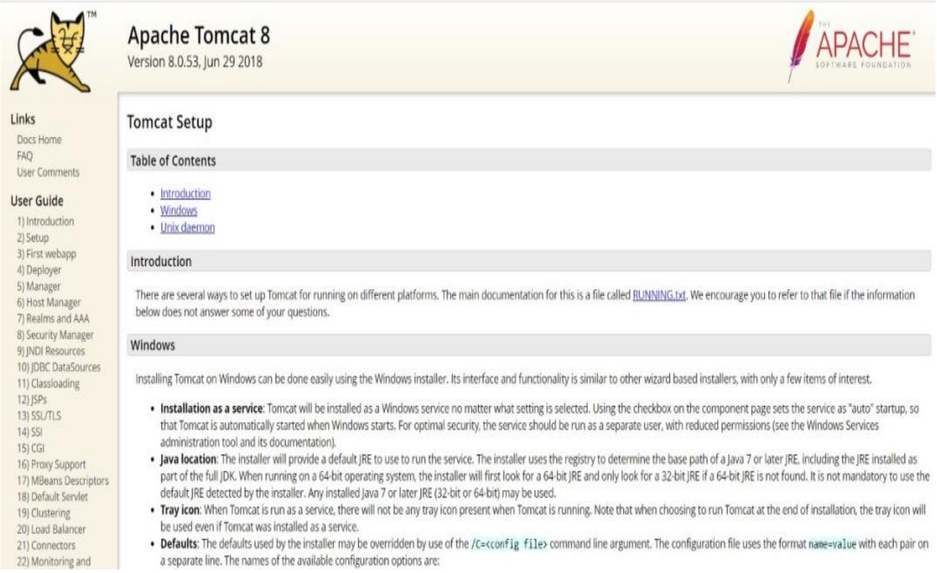


Install an SDK for App Engine

Set up your computer for developing, deploying, and managing your apps in App Engine.

The instructions for setting up your computer differ by App Engine environment, either the standard environment or the flexible environment. For help with choosing, see a summary of differences between the two environments.

Standard environment



Apache Tomcat 8

Version 8.0.53, Jun 29 2018

Tomcat Setup

Table of Contents

- Introduction
- Windows
- Unix daemon

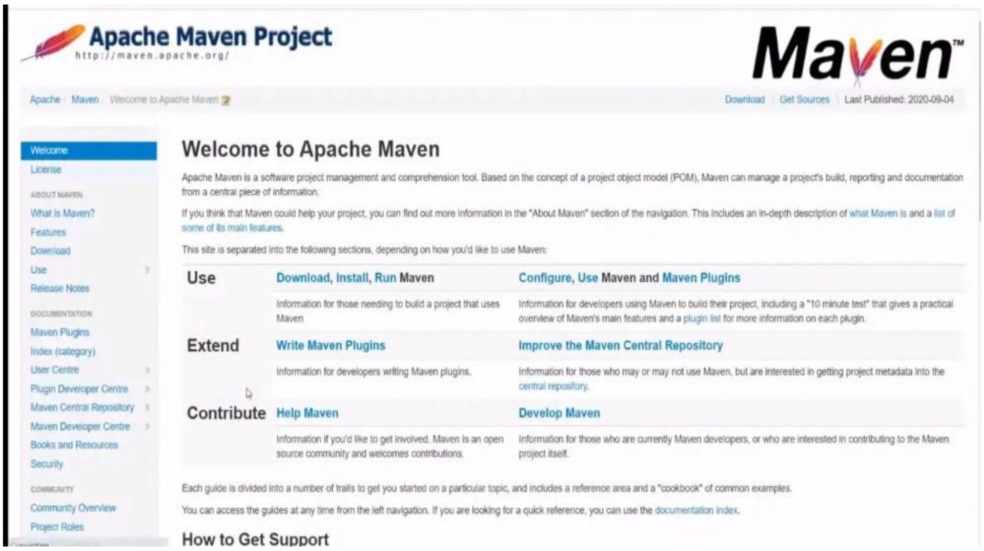
Introduction

There are several ways to set up Tomcat for running on different platforms. The main documentation for this is a file called RUNNING.txt. We encourage you to refer to that file if the information below does not answer some of your questions.

Windows

Installing Tomcat on Windows can be done easily using the Windows installer. Its interface and functionality is similar to other wizard based installers, with only a few items of interest.

- **Installation as a service**: Tomcat will be installed as a Windows service no matter what setting is selected. Using the checkbox on the component page sets the service as "auto" startup, so that Tomcat is automatically started when Windows starts. For optimal security, the service should be run as a separate user, with reduced permissions (see the Windows Services administration tool and its documentation).
- **Java location**: The installer will provide a default JRE to use to run the service. The installer uses the registry to determine the base path of a Java 7 or later JRE, including the JRE installed as part of the full JDK. When running on a 64-bit operating system, the installer will first look for a 64-bit JRE and only look for a 32-bit JRE if a 64-bit JRE is not found. It is not mandatory to use the default JRE detected by the installer. Any installed Java 7 or later JRE (32-bit or 64-bit) may be used.
- **Tray icon**: When Tomcat is run as a service, there will not be any tray icon present when Tomcat is running. Note that when choosing to run Tomcat at the end of installation, the tray icon will be used even if Tomcat was installed as a service.
- **Defaults**: The defaults used by the installer may be overridden by use of the `/C=<config file>` command line argument. The configuration file uses the format `name=value` with each pair on a separate line. The names of the available configuration options are:



Welcome to Apache Maven

Apache Maven is a software project management and comprehension tool. Based on the concept of a project object model (POM), Maven can manage a project's build, reporting and documentation from a central piece of information.

If you think that Maven could help your project, you can find out more information in the "About Maven" section of the navigation. This includes an in-depth description of what Maven is and a list of some of its main features.

This site is separated into the following sections, depending on how you'd like to use Maven:

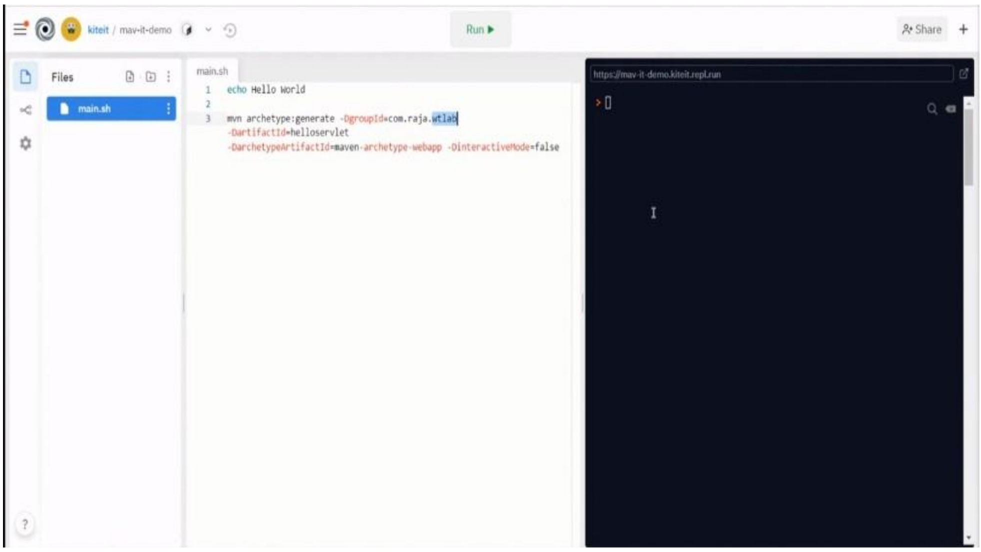
Use	Download, Install, Run Maven	Configure, Use Maven and Maven Plugins
	Information for those needing to build a project that uses Maven	Information for developers using Maven to build their project, including a "10 minute test" that gives a practical overview of Maven's main features and a plugin list for more information on each plugin.
Extend	Write Maven Plugins	Improve the Maven Central Repository
	Information for developers writing Maven plugins.	Information for those who may or may not use Maven, but are interested in getting project metadata into the central repository.
Contribute	Help Maven	Develop Maven
	Information if you'd like to get involved. Maven is an open source community and welcomes contributions.	Information for those who are currently Maven developers, or who are interested in contributing to the Maven project itself.

Each guide is divided into a number of trails to get you started on a particular topic, and includes a reference area and a "cookbook" of common examples.

You can access the guides at any time from the left navigation. If you are looking for a quick reference, you can use the documentation index.

How to Get Support

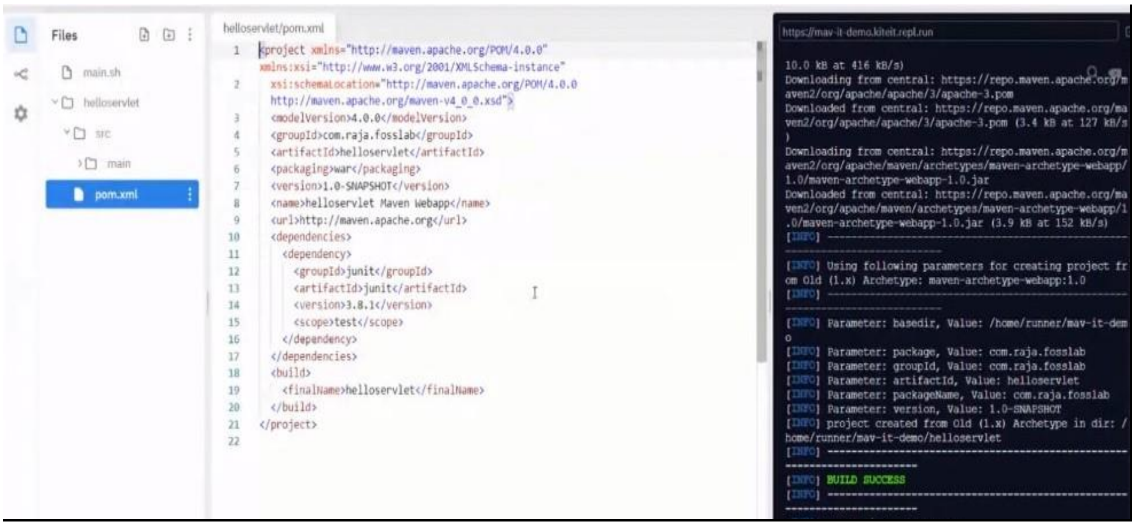
STEP-2:



main.sh

```
echo Hello World

mvn archetype:generate -DgroupId=com.raja.wtlab
-DartifactId=helloservlet
-DarchetypeArtifactId=maven-archetype-webapp -DinteractiveMode=false
```

STEP-3:

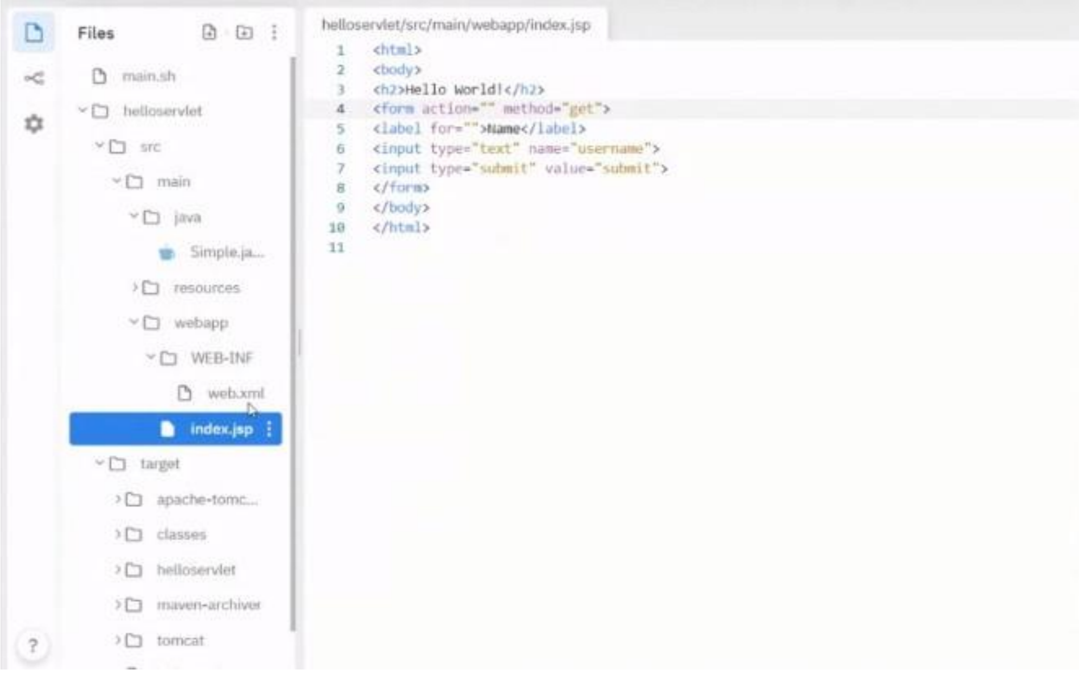


helloservlet/pom.xml

```
<project xmlns="http://maven.apache.org/POM/4.0.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://maven.apache.org/POM/4.0.0
  http://maven.apache.org/maven-v4_0_0.xsd">
  <modelVersion>4.0.0</modelVersion>
  <groupId>com.raja.fosslab</groupId>
  <artifactId>helloservlet</artifactId>
  <packaging>war</packaging>
  <version>1.0-SNAPSHOT</version>
  <name>helloservlet Maven Webapp</name>
  <url>http://maven.apache.org</url>
  <dependencies>
    <dependency>
      <groupId>junit</groupId>
      <artifactId>junit</artifactId>
      <version>3.8.1</version>
      <scope>test</scope>
    </dependency>
  </dependencies>
  <build>
    <finalName>helloservlet</finalName>
  </build>
</project>
```

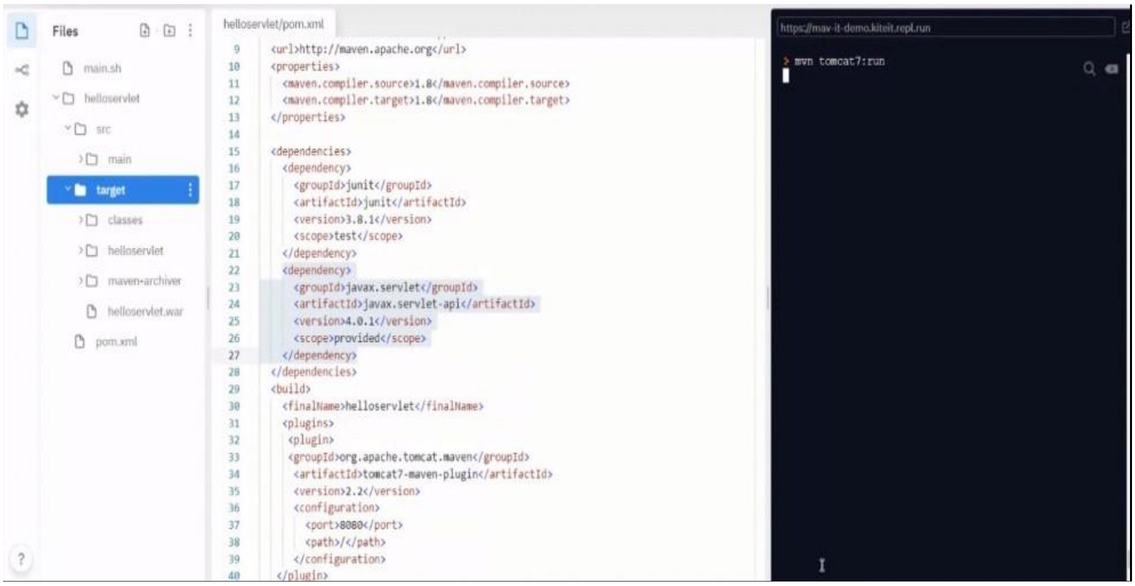
```
10.0 kB at 416 kB/s)
Downloading from central: https://repo.maven.apache.org/m
aven2/org/apache/apache/3/apache-3.pom
Downloaded from central: https://repo.maven.apache.org/ma
ven2/org/apache/apache/3/apache-3.pom (3.4 kB at 127 kB/s
)
Downloading from central: https://repo.maven.apache.org/m
aven2/org/apache/maven/archetypes/maven-archetype-webapp/
1.0/maven-archetype-webapp-1.0.jar
Downloaded from central: https://repo.maven.apache.org/ma
ven2/org/apache/maven/archetypes/maven-archetype-webapp/1
.0/maven-archetype-webapp-1.0.jar (3.9 kB at 152 kB/s)
[INFO] ----------------------------------------------------
--------------------------
[INFO] Using following parameters for creating project fr
om Old (1.x) Archetype: maven-archetype-webapp:1.0
[INFO] ----------------------------------------------------
--------------------------
[INFO] Parameter: basedir, Value: /home/runner/mav-it-dem
o
[INFO] Parameter: package, Value: com.raja.fosslab
[INFO] Parameter: groupId, Value: com.raja.fosslab
[INFO] Parameter: artifactId, Value: helloservlet
[INFO] Parameter: packageName, Value: com.raja.fosslab
[INFO] Parameter: version, Value: 1.0-SNAPSHOT
[INFO] project created from Old (1.x) Archetype in dir: /
home/runner/mav-it-demo/helloservlet
[INFO] ----------------------------------------------------
--------------------------
[INFO] BUILD SUCCESS
[INFO] ----------------------------------------------------
--------------------------
```

STEP-4:



```
<html>
<body>
<h2>Hello World!</h2>
<form action="" method="get">
<label for="">Name</label>
<input type="text" name="username">
<input type="submit" value="submit">
</form>
</body>
</html>
```

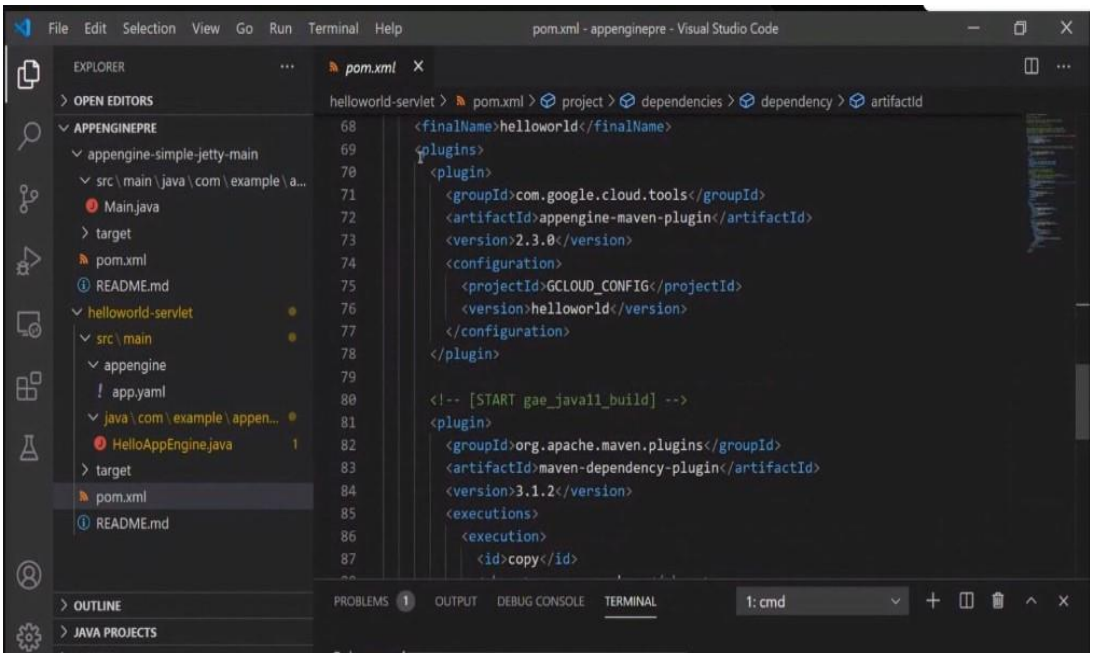
STEP-5:



```
<url>http://maven.apache.org</url>
<properties>
  <maven.compiler.source>1.8</maven.compiler.source>
  <maven.compiler.target>1.8</maven.compiler.target>
</properties>

<dependencies>
  <dependency>
    <groupId>junit</groupId>
    <artifactId>junit</artifactId>
    <version>3.8.1</version>
    <scope>test</scope>
  </dependency>
  <dependency>
    <groupId>javax.servlet</groupId>
    <artifactId>javax.servlet-api</artifactId>
    <version>4.0.1</version>
    <scope>provided</scope>
  </dependency>
</dependencies>
<build>
  <finalName>helloservlet</finalName>
  <plugins>
   <plugin>
   <groupId>org.apache.tomcat.maven</groupId>
    <artifactId>tomcat7-maven-plugin</artifactId>
    <version>2.2</version>
    <configuration>
      <port>8080</port>
      <path>/</path>
    </configuration>
  </plugin>
```

```
> mvn tomcat7:run
```

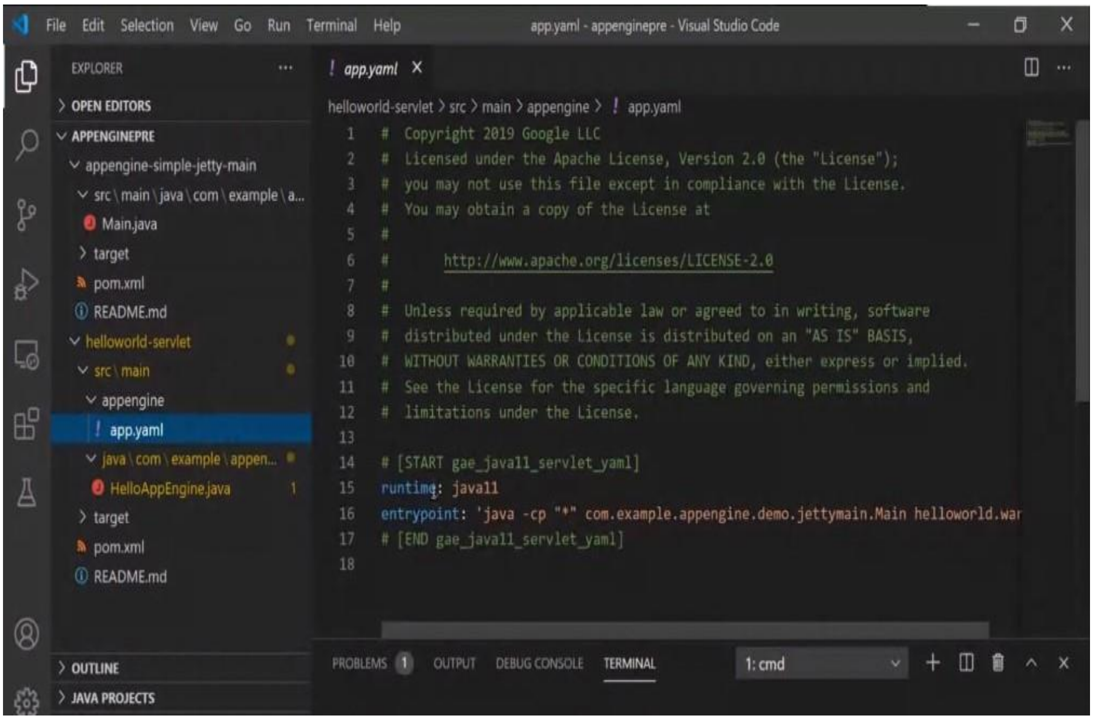
STEP-6:



```
    <finalName>helloworld</finalName>
    <plugins>
      <plugin>
        <groupId>com.google.cloud.tools</groupId>
        <artifactId>appengine-maven-plugin</artifactId>
        <version>2.3.0</version>
        <configuration>
          <projectId>GCLOUD_CONFIG</projectId>
          <version>helloworld</version>
        </configuration>
      </plugin>

      <!-- [START gae_java11_build] -->
      <plugin>
        <groupId>org.apache.maven.plugins</groupId>
        <artifactId>maven-dependency-plugin</artifactId>
        <version>3.1.2</version>
        <executions>
          <execution>
            <id>copy</id>
```

File Edit Selection View Go Run Terminal Help
pom.xml - appenginepre - Visual Studio Code
EXPLORER
OPEN EDITORS
APPENGINEPRE
appengine-simple-jetty-main
src \ main \ java \ com \ example \ a...
Main.java
target
pom.xml
README.md
helloworld-servlet
src \ main
appengine
app.yaml
java \ com \ example \ appen...
HelloAppEngine.java
target
pom.xml
README.md
OUTLINE
JAVA PROJECTS
pom.xml
helloworld-servlet > pom.xml > project > dependencies > dependency > artifactId
PROBLEMS 1
OUTPUT
DEBUG CONSOLE
TERMINAL
1: cmd

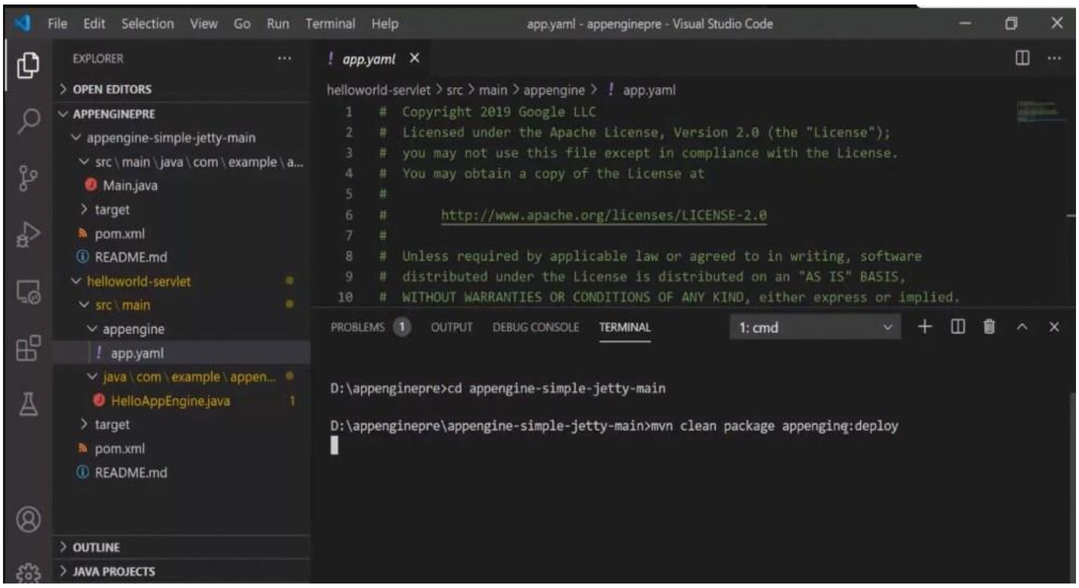
STEP-7:



```
#  Copyright 2019 Google LLC
#  Licensed under the Apache License, Version 2.0 (the "License");
#  you may not use this file except in compliance with the License.
#  You may obtain a copy of the License at
#
#       http://www.apache.org/licenses/LICENSE-2.0
#
#  Unless required by applicable law or agreed to in writing, software
#  distributed under the License is distributed on an "AS IS" BASIS,
#  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
#  See the License for the specific language governing permissions and
#  limitations under the License.

# [START gae_java11_servlet_yaml]
runtime: java11
entrypoint: 'java -cp "*" com.example.appengine.demo.jettymain.Main helloworld.war
# [END gae_java11_servlet_yaml]
```

File Edit Selection View Go Run Terminal Help
app.yaml - appenginepre - Visual Studio Code
EXPLORER
OPEN EDITORS
APPENGINEPRE
appengine-simple-jetty-main
src \ main \ java \ com \ example \ a...
Main.java
target
pom.xml
README.md
helloworld-servlet
src \ main
appengine
app.yaml
java \ com \ example \ appen...
HelloAppEngine.java
target
pom.xml
README.md
OUTLINE
JAVA PROJECTS
app.yaml
helloworld-servlet > src > main > appengine > app.yaml
PROBLEMS 1
OUTPUT
DEBUG CONSOLE
TERMINAL
1: cmd

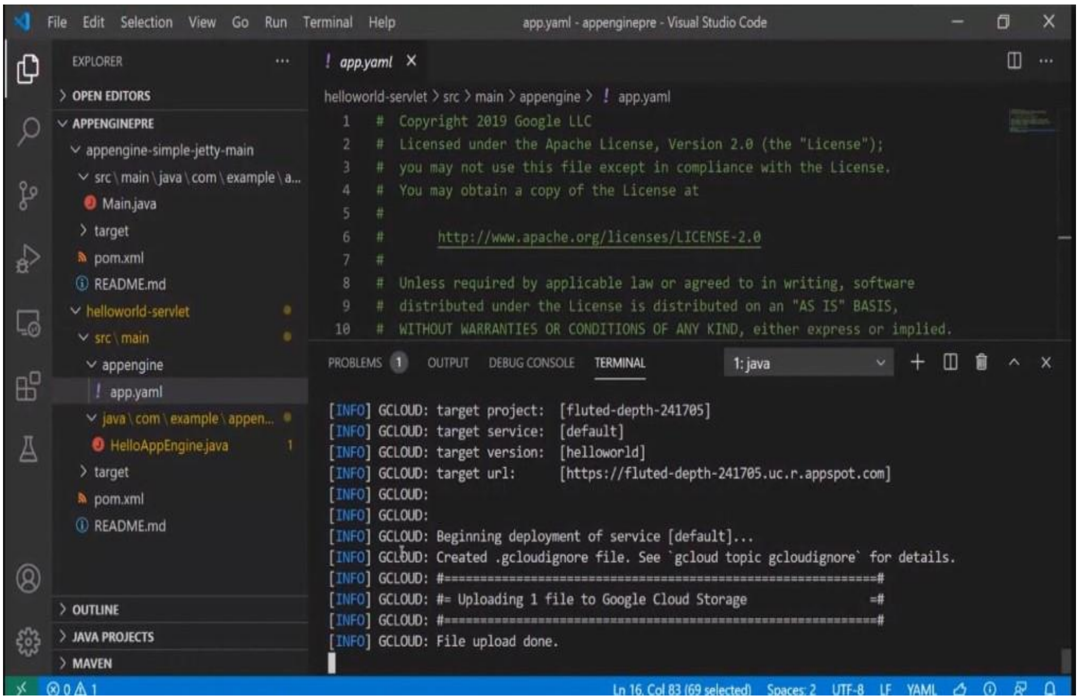
STEP-8:


File Edit Selection View Go Run Terminal Help
app.yaml - appenginepre - Visual Studio Code
EXPLORER
OPEN EDITORS
APPENGINEPRE
appengine-simple-jetty-main
src \ main \ java \ com \ example \ a...
Main.java
target
pom.xml
README.md
helloworld-servlet
src \ main
appengine
app.yaml
java \ com \ example \ appen...
HelloAppEngine.java
target
pom.xml
README.md
OUTLINE
JAVA PROJECTS
app.yaml
helloworld-servlet > src > main > appengine > ! app.yaml
PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL
1: cmd

```
#  Copyright 2019 Google LLC
#  Licensed under the Apache License, Version 2.0 (the "License");
#  you may not use this file except in compliance with the License.
#  You may obtain a copy of the License at
#
#      http://www.apache.org/licenses/LICENSE-2.0
#
#  Unless required by applicable law or agreed to in writing, software
#  distributed under the License is distributed on an "AS IS" BASIS,
#  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
```

```
D:\appenginepre>cd appengine-simple-jetty-main

D:\appenginepre\appengine-simple-jetty-main>mvn clean package appengine:deploy
```

STEP-9:


File Edit Selection View Go Run Terminal Help
app.yaml - appenginepre - Visual Studio Code
EXPLORER
OPEN EDITORS
APPENGINEPRE
appengine-simple-jetty-main
src \ main \ java \ com \ example \ a...
Main.java
target
pom.xml
README.md
helloworld-servlet
src \ main
appengine
app.yaml
java \ com \ example \ appen...
HelloAppEngine.java
target
pom.xml
README.md
OUTLINE
JAVA PROJECTS
MAVEN
app.yaml
helloworld-servlet > src > main > appengine > ! app.yaml
PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL
1: java
Ln 16, Col 83 (69 selected) Spaces: 2 UTF-8 LF YAML

```
#  Copyright 2019 Google LLC
#  Licensed under the Apache License, Version 2.0 (the "License");
#  you may not use this file except in compliance with the License.
#  You may obtain a copy of the License at
#
#      http://www.apache.org/licenses/LICENSE-2.0
#
#  Unless required by applicable law or agreed to in writing, software
#  distributed under the License is distributed on an "AS IS" BASIS,
#  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
```

```
[INFO] GCLOUD: target project:  [fluted-depth-241705]
[INFO] GCLOUD: target service:  [default]
[INFO] GCLOUD: target version:  [helloworld]
[INFO] GCLOUD: target url:      [https://fluted-depth-241705.uc.r.appspot.com]
[INFO] GCLOUD:
[INFO] GCLOUD:
[INFO] GCLOUD: Beginning deployment of service [default]...
[INFO] GCLOUD: Created .gcloudignore file. See `gcloud topic gcloudignore` for details.
[INFO] GCLOUD: #============================================================#
[INFO] GCLOUD: #= Uploading 1 file to Google Cloud Storage                 =#
[INFO] GCLOUD: #============================================================#
[INFO] GCLOUD: File upload done.
```

RESULT:

Thus the procedure to use Google app engine launcher to launch the web application had been executed successfully.

EX.NO.5 SIMULATE A CLOUD SCENARIO USING CLOUDSIM

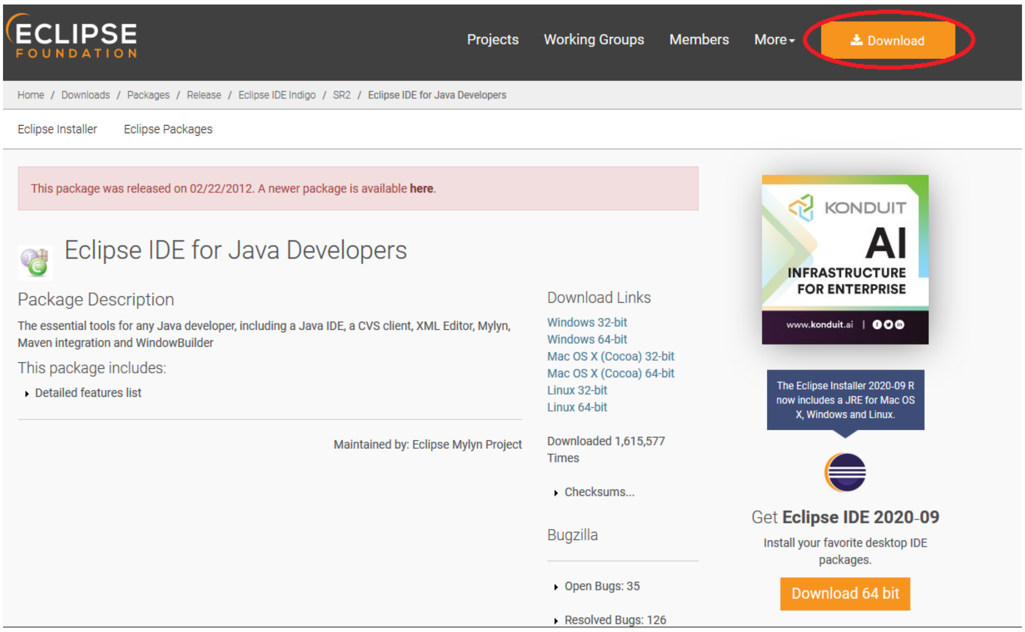
AIM:

To Simulate a cloud scenario using CloudSim and run a Scheduling algorithm that is not present in CloudSim.

ALGORITHM:

1. Download the pre-requisites for Cloudsim
2. Pre-requisites are Eclipse for java developers, Java Development kit & Java Runtime Environment should be same versions, cloudsim 3.0.3, common math.
3. After extraction open eclipse and create new java project.
4. Below the name of project select cloudsim from the source folder where it is saved.
5. Then to add common math, select add external library and get the common math(JAR file) from the source folder where it is saved.
6. Finish the project. After the project gets opened, right click on project and select properties.
7. Select java compiler and enable the project specific settings and click select jdk compliance version above 1.5 to avoid errors in project.
8. Select an example from the and run it.

Step-1:


ECLIPSE FOUNDATION
Projects
Working Groups
Members
More
Download
Home / Downloads / Packages / Release / Eclipse IDE Indigo / SR2 / Eclipse IDE for Java Developers
Eclipse Installer
Eclipse Packages
KONDUIT AI INFRASTRUCTURE FOR ENTERPRISE
www.konduit.ai
Download 64 bit

This package was released on 02/22/2012. A newer package is available **here**.

Eclipse IDE for Java Developers

Package Description

The essential tools for any Java developer, including a Java IDE, a CVS client, XML Editor, Mylyn, Maven integration and WindowBuilder

This package includes:

- Detailed features list

Maintained by: Eclipse Mylyn Project

Download Links

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Mac OS X (Cocoa) 32-bit
Mac OS X (Cocoa) 64-bit
Linux 32-bit
Linux 64-bit

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- Checksums...

Bugzilla

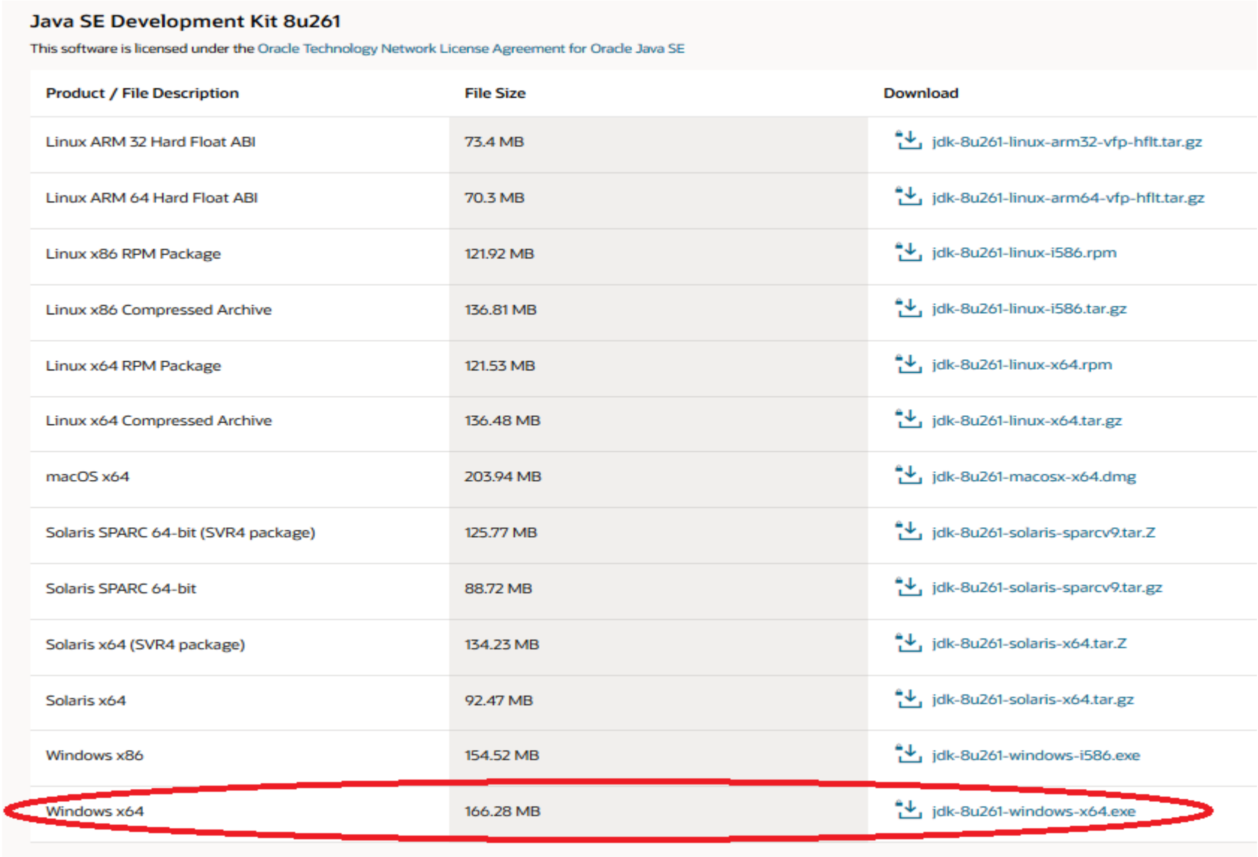
- Open Bugs: 35
- Resolved Bugs: 126

The Eclipse Installer 2020-09 R now includes a JRE for Mac OS X, Windows and Linux.

Get **Eclipse IDE 2020-09**

Install your favorite desktop IDE packages.

Step-2:



Java SE Development Kit 8u261

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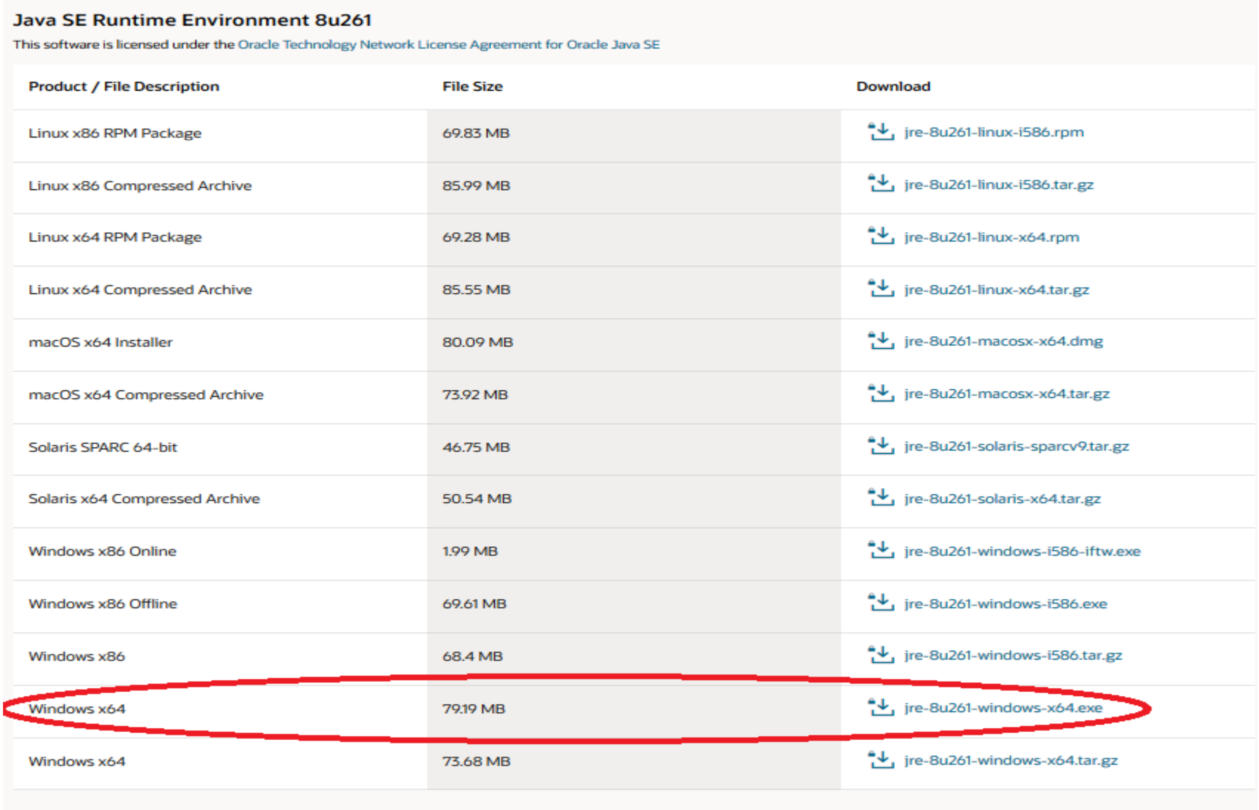
Product / File Description	File Size	Download
Linux ARM 32 Hard Float ABI	73.4 MB	jdk-8u261-linux-arm32-vfp-hflt.tar.gz
Linux ARM 64 Hard Float ABI	70.3 MB	jdk-8u261-linux-arm64-vfp-hflt.tar.gz
Linux x86 RPM Package	121.92 MB	jdk-8u261-linux-i586.rpm
Linux x86 Compressed Archive	136.81 MB	jdk-8u261-linux-i586.tar.gz
Linux x64 RPM Package	121.53 MB	jdk-8u261-linux-x64.rpm
Linux x64 Compressed Archive	136.48 MB	jdk-8u261-linux-x64.tar.gz
macOS x64	203.94 MB	jdk-8u261-macosx-x64.dmg
Solaris SPARC 64-bit (SVR4 package)	125.77 MB	jdk-8u261-solaris-sparcv9.tar.Z
Solaris SPARC 64-bit	88.72 MB	jdk-8u261-solaris-sparcv9.tar.gz
Solaris x64 (SVR4 package)	134.23 MB	jdk-8u261-solaris-x64.tar.Z
Solaris x64	92.47 MB	jdk-8u261-solaris-x64.tar.gz
Windows x86	154.52 MB	jdk-8u261-windows-i586.exe
Windows x64	166.28 MB	jdk-8u261-windows-x64.exe

Step-3:



Java SE Runtime Environment 8u261

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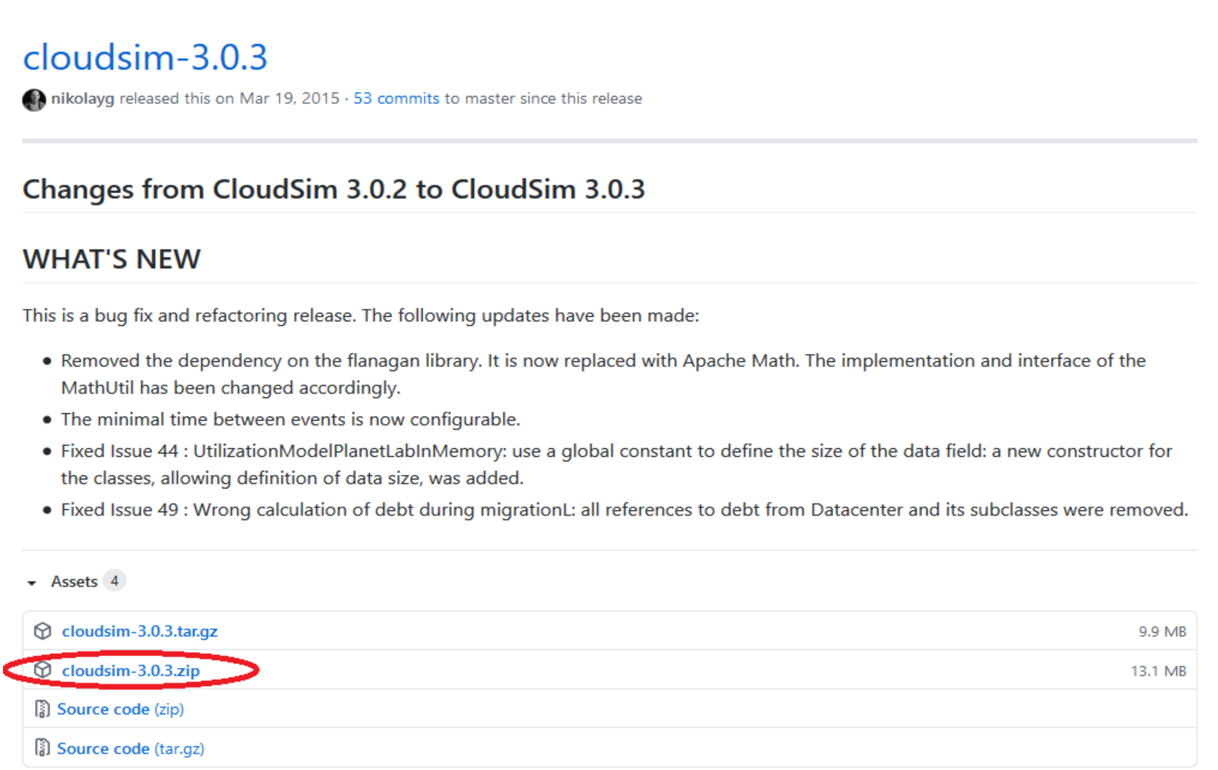
Product / File Description	File Size	Download
Linux x86 RPM Package	69.83 MB	jre-8u261-linux-i586.rpm
Linux x86 Compressed Archive	85.99 MB	jre-8u261-linux-i586.tar.gz
Linux x64 RPM Package	69.28 MB	jre-8u261-linux-x64.rpm
Linux x64 Compressed Archive	85.55 MB	jre-8u261-linux-x64.tar.gz
macOS x64 Installer	80.09 MB	jre-8u261-macosx-x64.dmg
macOS x64 Compressed Archive	73.92 MB	jre-8u261-macosx-x64.tar.gz
Solaris SPARC 64-bit	46.75 MB	jre-8u261-solaris-sparcv9.tar.gz
Solaris x64 Compressed Archive	50.54 MB	jre-8u261-solaris-x64.tar.gz
Windows x86 Online	1.99 MB	jre-8u261-windows-i586-iftw.exe
Windows x86 Offline	69.61 MB	jre-8u261-windows-i586.exe
Windows x86	68.4 MB	jre-8u261-windows-i586.tar.gz
Windows x64	79.19 MB	jre-8u261-windows-x64.exe
Windows x64	73.68 MB	jre-8u261-windows-x64.tar.gz

Step-4:



cloudsim-3.0.3

nikolayg released this on Mar 19, 2015 · 53 commits to master since this release

Changes from CloudSim 3.0.2 to CloudSim 3.0.3

WHAT'S NEW

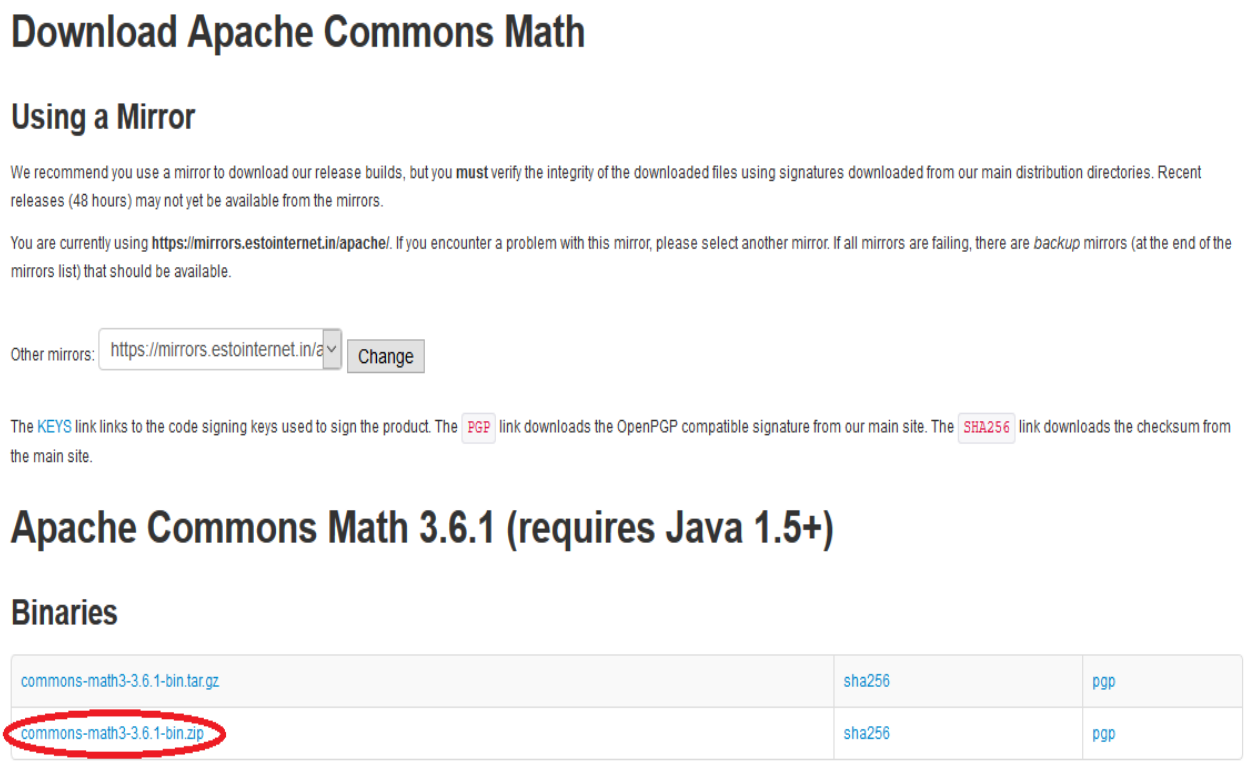
This is a bug fix and refactoring release. The following updates have been made:

- Removed the dependency on the flanagan library. It is now replaced with Apache Math. The implementation and interface of the MathUtil has been changed accordingly.
- The minimal time between events is now configurable.
- Fixed Issue 44 : UtilizationModelPlanetLabInMemory: use a global constant to define the size of the data field: a new constructor for the classes, allowing definition of data size, was added.
- Fixed Issue 49 : Wrong calculation of debt during migrationL: all references to debt from Datacenter and its subclasses were removed.

Assets 4

cloudsim-3.0.3.tar.gz	9.9 MB
cloudsim-3.0.3.zip	13.1 MB
Source code (zip)	
Source code (tar.gz)	

Step-5:



Download Apache Commons Math

Using a Mirror

We recommend you use a mirror to download our release builds, but you **must** verify the integrity of the downloaded files using signatures downloaded from our main distribution directories. Recent releases (48 hours) may not yet be available from the mirrors.

You are currently using **https://mirrors.estointernet.in/apache/**. If you encounter a problem with this mirror, please select another mirror. If all mirrors are failing, there are *backup* mirrors (at the end of the mirrors list) that should be available.

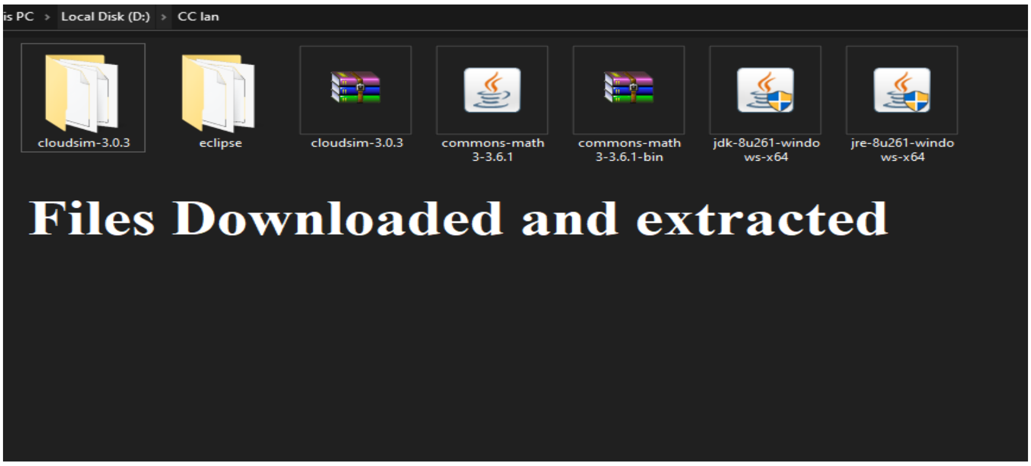
The KEYS link links to the code signing keys used to sign the product. The `PGP` link downloads the OpenPGP compatible signature from our main site. The `SHA256` link downloads the checksum from the main site.

Apache Commons Math 3.6.1 (requires Java 1.5+)

Binaries

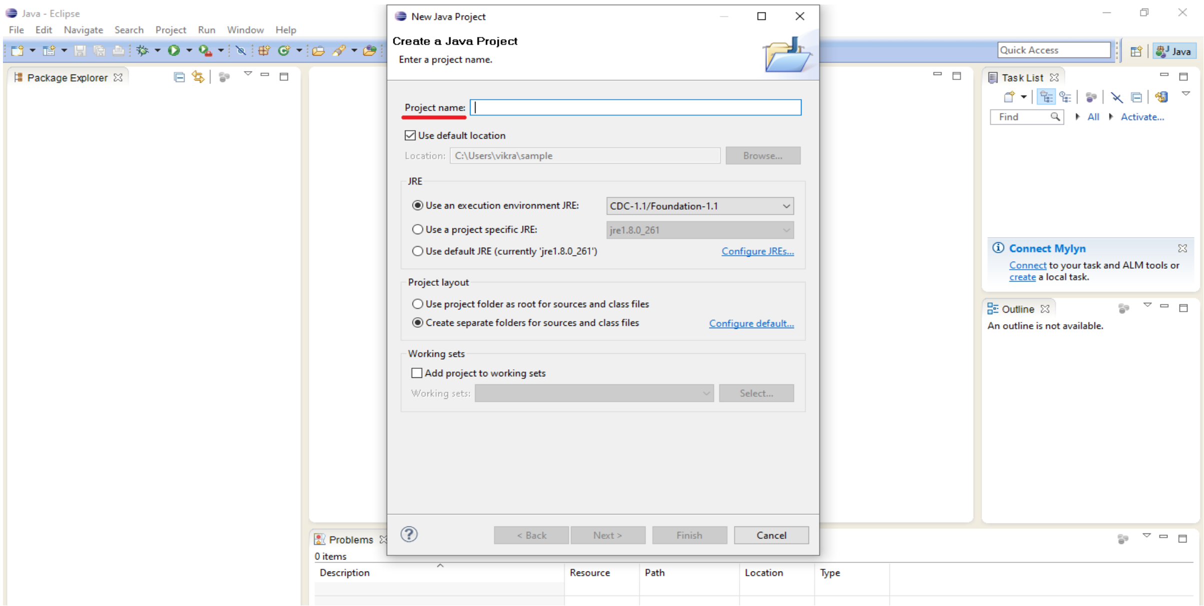
commons-math3-3.6.1-bin.tar.gz	sha256	pgp
commons-math3-3.6.1-bin.zip	sha256	pgp

Step-6:



Files Downloaded and extracted

Step-7:



New Java Project

Create a Java Project

Enter a project name.

Project name:

☑ Use default location

Location: C:\Users\vikra\sample Browse...

JRE

● Use an execution environment JRE: CDC-1.1/Foundation-1.1

○ Use a project specific JRE: jre1.8.0_261

○ Use default JRE (currently 'jre1.8.0_261') Configure JREs...

Project layout

○ Use project folder as root for sources and class files

● Create separate folders for sources and class files Configure default...

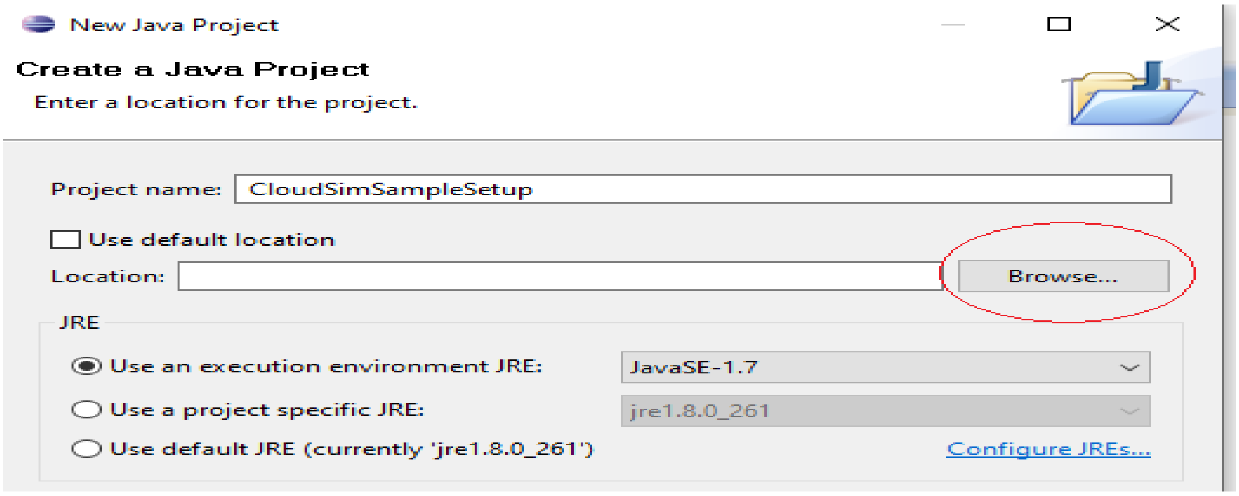
Working sets

□ Add project to working sets

Working sets: Select...

< Back Next > Finish Cancel

Step-8:



New Java Project

Create a Java Project

Enter a location for the project.

Project name: CloudSimSampleSetup

□ Use default location

Location: Browse...

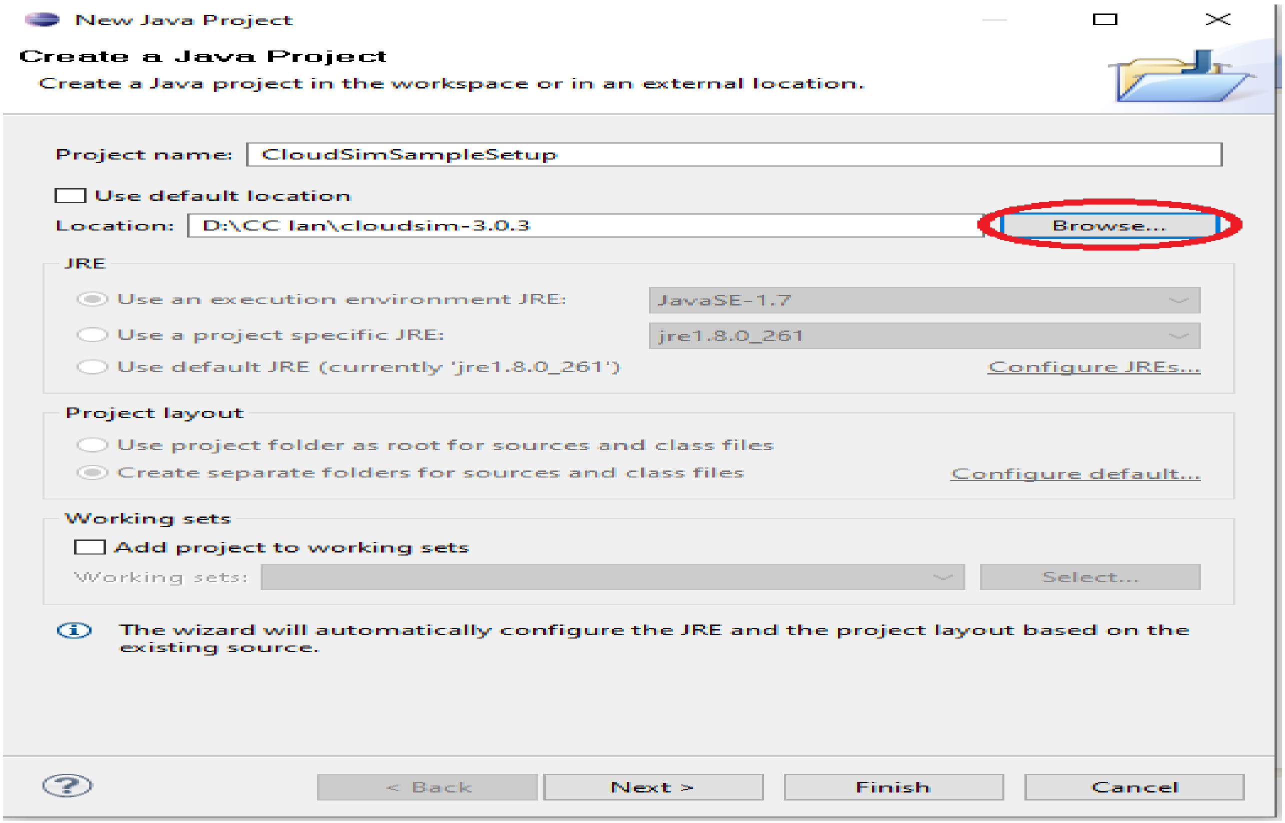
JRE

● Use an execution environment JRE: JavaSE-1.7

○ Use a project specific JRE: jre1.8.0_261

○ Use default JRE (currently 'jre1.8.0_261') Configure JREs...

Step-9:



New Java Project

Create a Java Project

Create a Java project in the workspace or in an external location.

Project name: CloudSimSampleSetup

□ Use default location

Location: D:\CC lan\cloudsim-3.0.3

JRE

● Use an execution environment JRE: JavaSE-1.7

○ Use a project specific JRE: jre1.8.0_261

○ Use default JRE (currently 'jre1.8.0_261')

Project layout

○ Use project folder as root for sources and class files

● Create separate folders for sources and class files

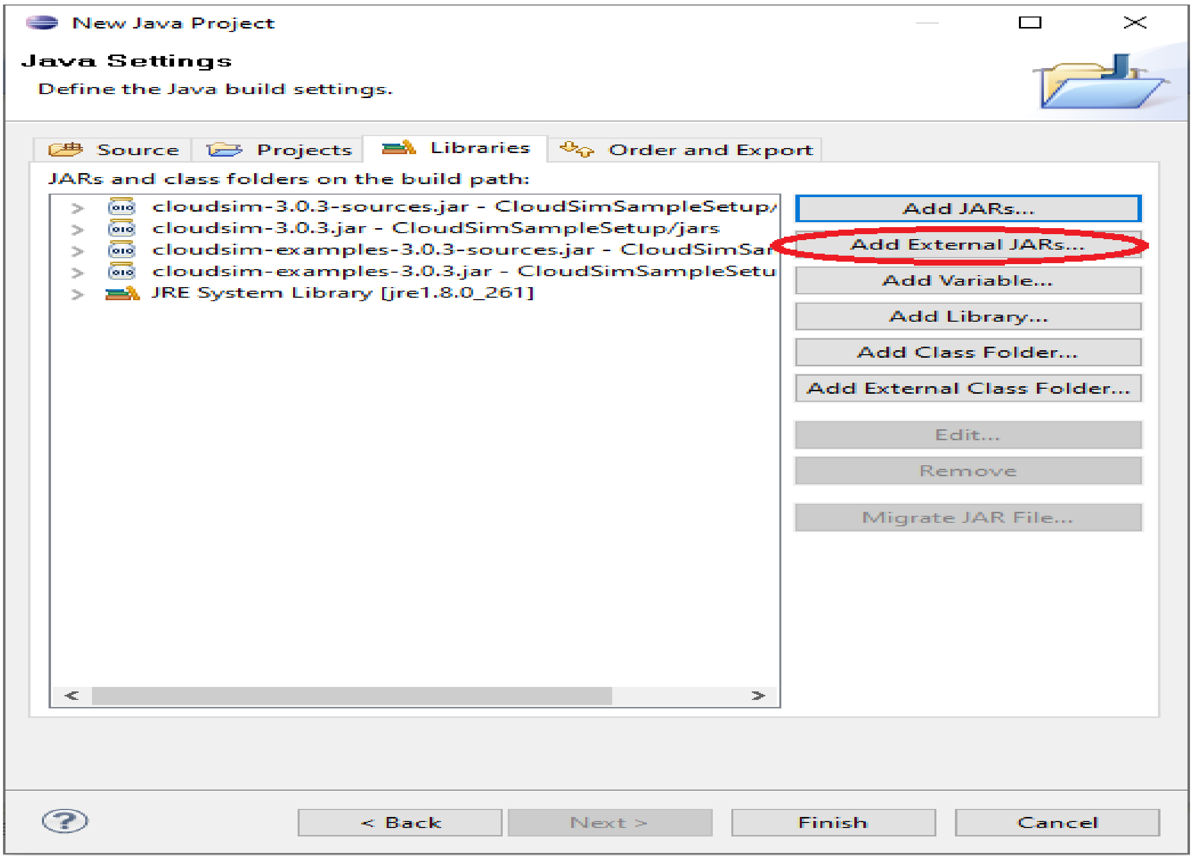
Working sets

□ Add project to working sets

Working sets:

The wizard will automatically configure the JRE and the project layout based on the existing source.

Step-10:



New Java Project

Java Settings

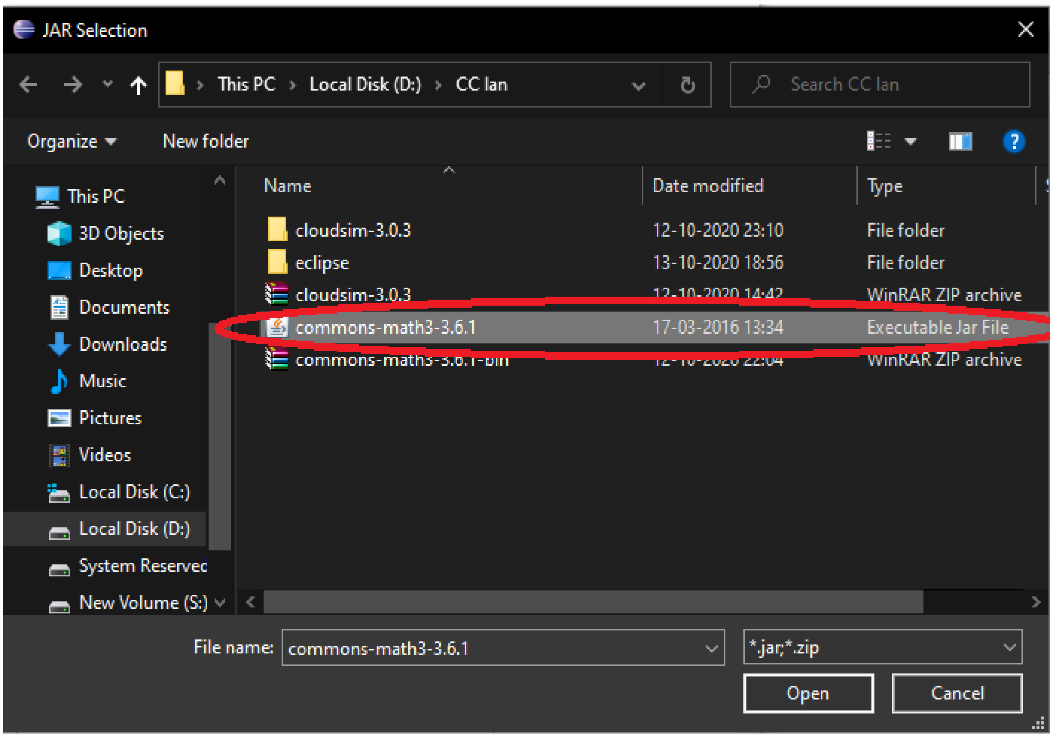
Define the Java build settings.

Source | Projects | Libraries | Order and Export

JARs and class folders on the build path:

- cloudsim-3.0.3-sources.jar - CloudSimSampleSetup/
- cloudsim-3.0.3.jar - CloudSimSampleSetup/jars
- cloudsim-examples-3.0.3-sources.jar - CloudSimSar
- cloudsim-examples-3.0.3.jar - CloudSimSampleSetu
- JRE System Library [jre1.8.0_261]

Step-11:

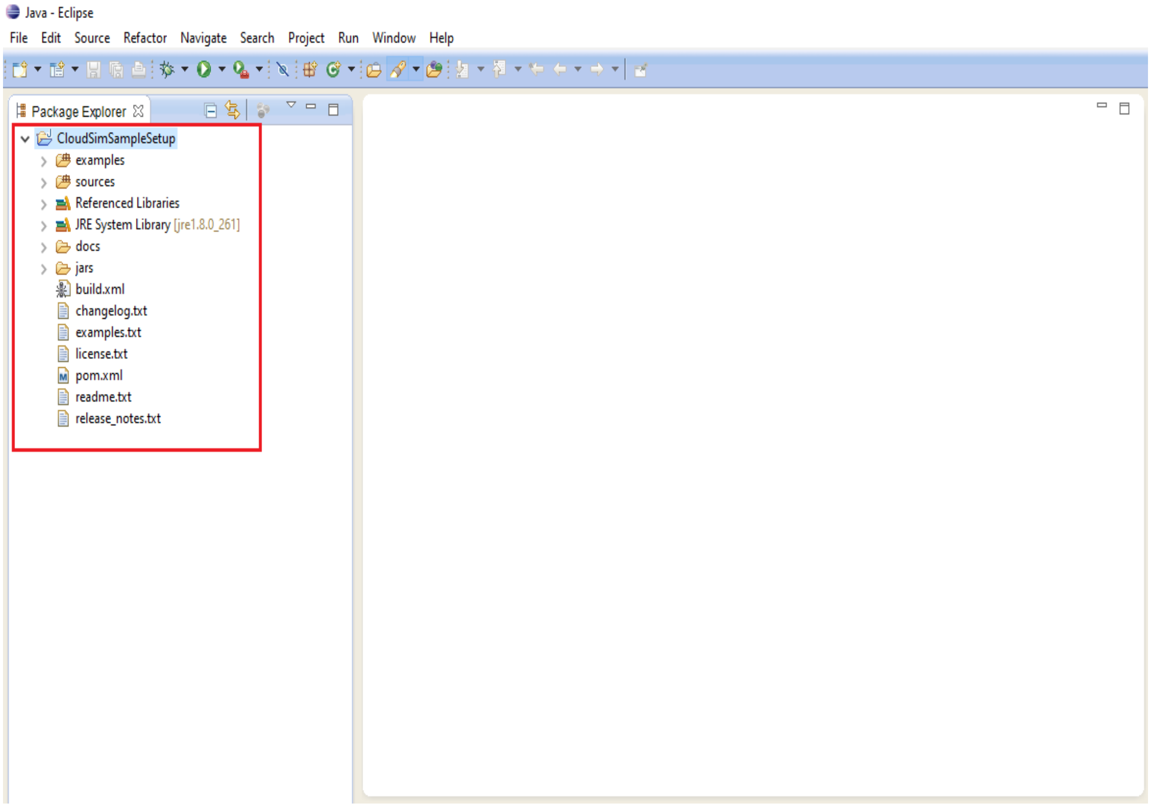


Name	Date modified	Type
cloudsim-3.0.3	12-10-2020 23:10	File folder
eclipse	13-10-2020 18:56	File folder
cloudsim-3.0.3	12-10-2020 14:42	WinRAR ZIP archive
commons-math3-3.6.1	17-03-2016 13:34	Executable Jar File
commons-math3-3.6.1-bin	12-10-2020 22:04	WinRAR ZIP archive

File name: commons-math3-3.6.1

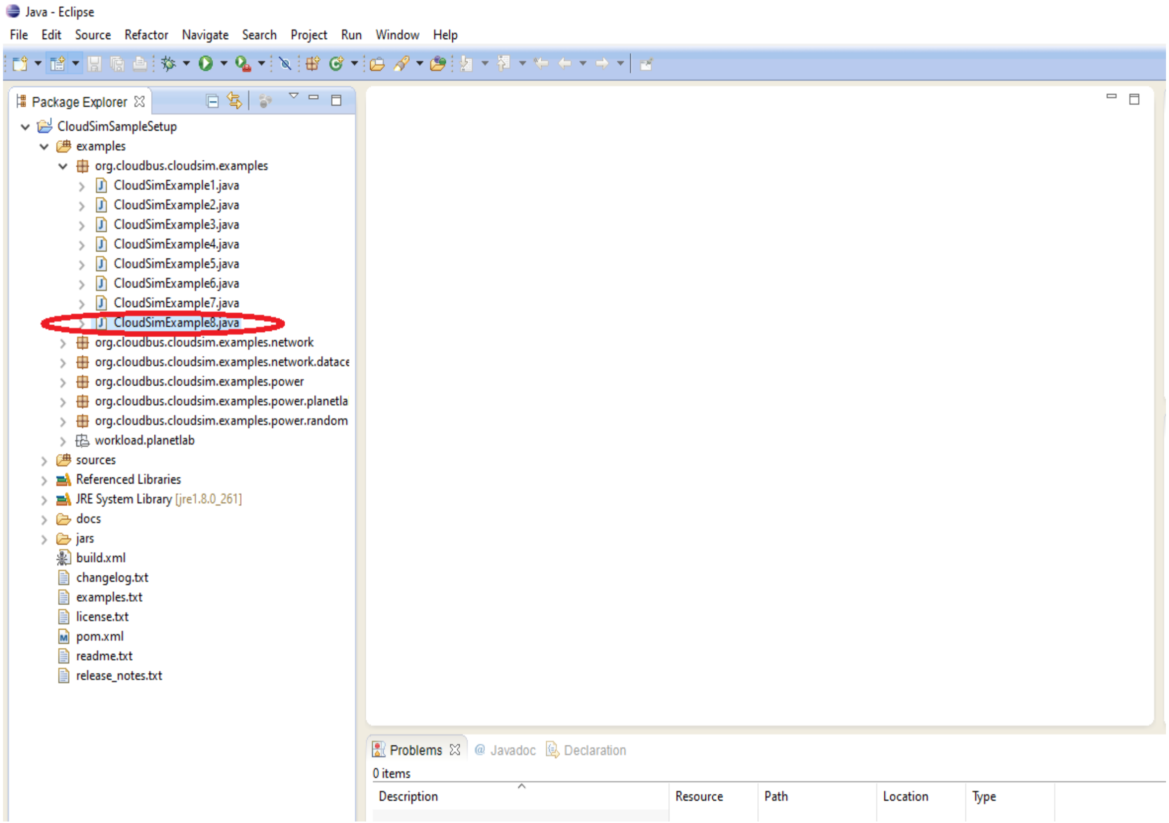
.jar;.zip

Step-12:

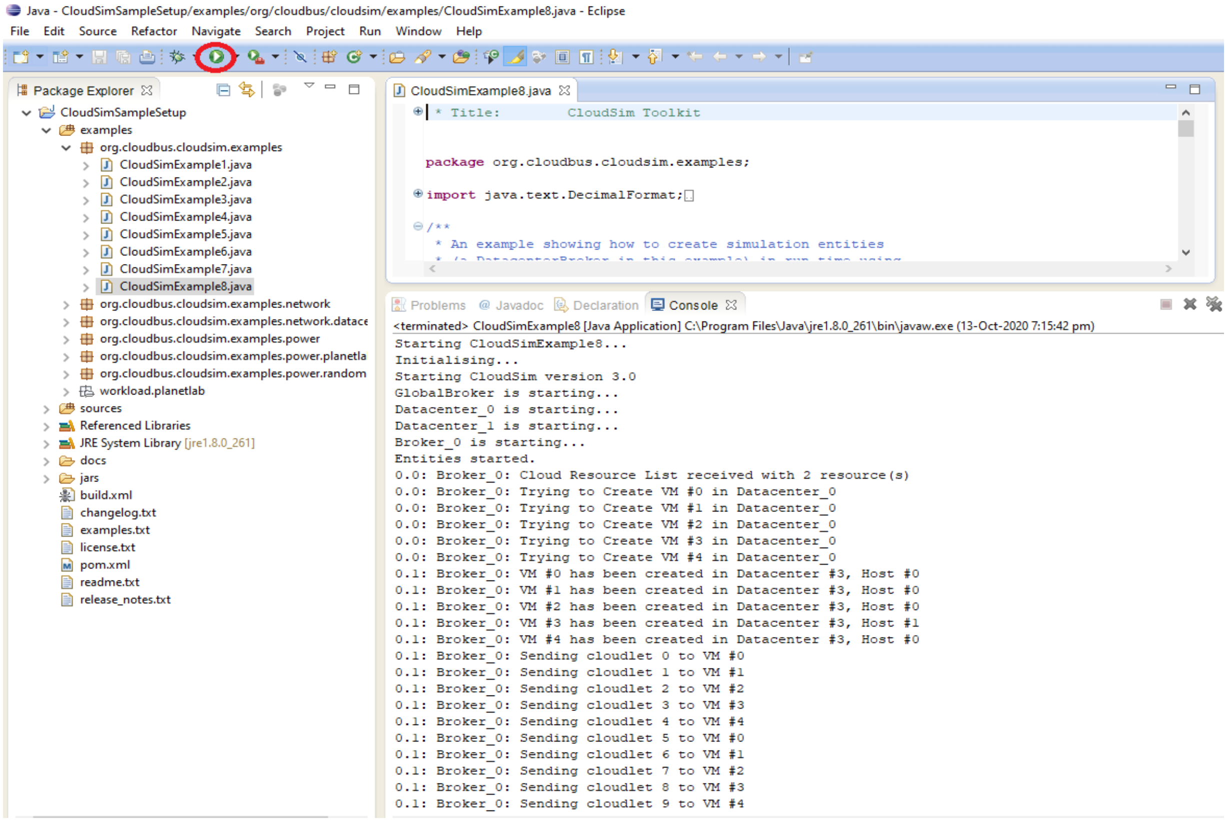


- CloudSimSampleSetup
  - examples
  - sources
  - Referenced Libraries
  - JRE System Library [jre1.8.0_261]
  - docs
  - jars
  - build.xml
  - changelog.txt
  - examples.txt
  - license.txt
  - pom.xml
  - readme.txt
  - release_notes.txt

Step-13:



Step-14:

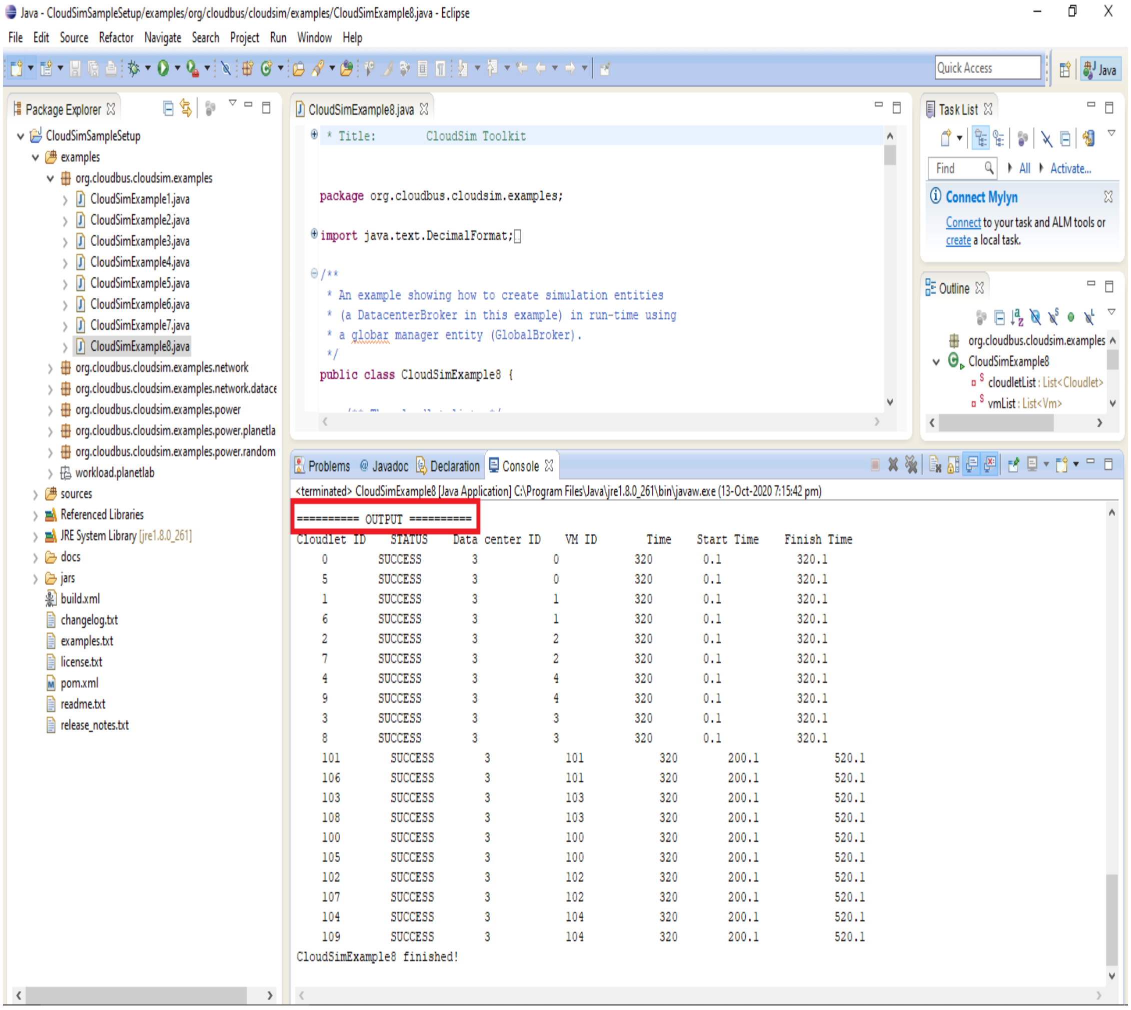

Java - CloudSimSampleSetup/examples/org/cloudbus/cloudsim/examples/CloudSimExample8.java - Eclipse
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer
CloudSimSampleSetup
examples
org.cloudbus.cloudsim.examples
CloudSimExample1.java
CloudSimExample2.java
CloudSimExample3.java
CloudSimExample4.java
CloudSimExample5.java
CloudSimExample6.java
CloudSimExample7.java
CloudSimExample8.java
org.cloudbus.cloudsim.examples.network
org.cloudbus.cloudsim.examples.network.datace
org.cloudbus.cloudsim.examples.power
org.cloudbus.cloudsim.examples.power.planetla
org.cloudbus.cloudsim.examples.power.random
workload.planetlab
sources
Referenced Libraries
JRE System Library [jre1.8.0_261]
docs
jars
build.xml
changelog.txt
examples.txt
license.txt
pom.xml
readme.txt
release_notes.txt
CloudSimExample8.java
Problems
Javadoc
Declaration
Console

```
 * Title:         CloudSim Toolkit

package org.cloudbus.cloudsim.examples;

import java.text.DecimalFormat;

/**
 * An example showing how to create simulation entities
```

<terminated> CloudSimExample8 [Java Application] C:\Program Files\Java\jre1.8.0_261\bin\javaw.exe (13-Oct-2020 7:15:42 pm)

```
Starting CloudSimExample8...
Initialising...
Starting CloudSim version 3.0
GlobalBroker is starting...
Datacenter_0 is starting...
Datacenter_1 is starting...
Broker_0 is starting...
Entities started.
0.0: Broker_0: Cloud Resource List received with 2 resource(s)
0.0: Broker_0: Trying to Create VM #0 in Datacenter_0
0.0: Broker_0: Trying to Create VM #1 in Datacenter_0
0.0: Broker_0: Trying to Create VM #2 in Datacenter_0
0.0: Broker_0: Trying to Create VM #3 in Datacenter_0
0.0: Broker_0: Trying to Create VM #4 in Datacenter_0
0.1: Broker_0: VM #0 has been created in Datacenter #3, Host #0
0.1: Broker_0: VM #1 has been created in Datacenter #3, Host #0
0.1: Broker_0: VM #2 has been created in Datacenter #3, Host #0
0.1: Broker_0: VM #3 has been created in Datacenter #3, Host #1
0.1: Broker_0: VM #4 has been created in Datacenter #3, Host #0
0.1: Broker_0: Sending cloudlet 0 to VM #0
0.1: Broker_0: Sending cloudlet 1 to VM #1
0.1: Broker_0: Sending cloudlet 2 to VM #2
0.1: Broker_0: Sending cloudlet 3 to VM #3
0.1: Broker_0: Sending cloudlet 4 to VM #4
0.1: Broker_0: Sending cloudlet 5 to VM #0
0.1: Broker_0: Sending cloudlet 6 to VM #1
0.1: Broker_0: Sending cloudlet 7 to VM #2
0.1: Broker_0: Sending cloudlet 8 to VM #3
0.1: Broker_0: Sending cloudlet 9 to VM #4
```

Step-15:


Java - CloudSimSampleSetup/examples/org/cloudbus/cloudsim/examples/CloudSimExample8.java - Eclipse
File Edit Source Refactor Navigate Search Project Run Window Help
Quick Access
Java
Package Explorer
CloudSimSampleSetup
examples
org.cloudbus.cloudsim.examples
CloudSimExample1.java
CloudSimExample2.java
CloudSimExample3.java
CloudSimExample4.java
CloudSimExample5.java
CloudSimExample6.java
CloudSimExample7.java
CloudSimExample8.java
org.cloudbus.cloudsim.examples.network
org.cloudbus.cloudsim.examples.network.datace
org.cloudbus.cloudsim.examples.power
org.cloudbus.cloudsim.examples.power.planetla
org.cloudbus.cloudsim.examples.power.random
workload.planetlab
sources
Referenced Libraries
JRE System Library [jre1.8.0_261]
docs
jars
build.xml
changelog.txt
examples.txt
license.txt
pom.xml
readme.txt
release_notes.txt
CloudSimExample8.java
Task List
Find
All
Activate...
Connect Mylyn
Connect to your task and ALM tools or create a local task.
Outline
org.cloudbus.cloudsim.examples
CloudSimExample8
cloudletList : List<Cloudlet>
vmList : List<Vm>
Problems
Javadoc
Declaration
Console

```
 * Title:        CloudSim Toolkit


package org.cloudbus.cloudsim.examples;

import java.text.DecimalFormat;

/**
 * An example showing how to create simulation entities
 * (a DatacenterBroker in this example) in run-time using
 * a globar manager entity (GlobalBroker).
 */
public class CloudSimExample8 {
```

```
<terminated> CloudSimExample8 [Java Application] C:\Program Files\Java\jre1.8.0_261\bin\javaw.exe (13-Oct-2020 7:15:42 pm)
========== OUTPUT ==========
Cloudlet ID    STATUS    Data center ID    VM ID        Time    Start Time    Finish Time
    0        SUCCESS        3            0            320        0.1            320.1
    5        SUCCESS        3            0            320        0.1            320.1
    1        SUCCESS        3            1            320        0.1            320.1
    6        SUCCESS        3            1            320        0.1            320.1
    2        SUCCESS        3            2            320        0.1            320.1
    7        SUCCESS        3            2            320        0.1            320.1
    4        SUCCESS        3            4            320        0.1            320.1
    9        SUCCESS        3            4            320        0.1            320.1
    3        SUCCESS        3            3            320        0.1            320.1
    8        SUCCESS        3            3            320        0.1            320.1
    101        SUCCESS        3            101            320        200.1            520.1
    106        SUCCESS        3            101            320        200.1            520.1
    103        SUCCESS        3            103            320        200.1            520.1
    108        SUCCESS        3            103            320        200.1            520.1
    100        SUCCESS        3            100            320        200.1            520.1
    105        SUCCESS        3            100            320        200.1            520.1
    102        SUCCESS        3            102            320        200.1            520.1
    107        SUCCESS        3            102            320        200.1            520.1
    104        SUCCESS        3            104            320        200.1            520.1
    109        SUCCESS        3            104            320        200.1            520.1
CloudSimExample8 finished!
```

RESULT:

The given project to simulate a cloud scenario using CloudSim and run a scheduling algorithm has successfully executed.

EX.NO. 6 PROCEDURES TO TRANSFER THE FILES FROMONE VIRTUAL MACHINE TO HOST MACHINE

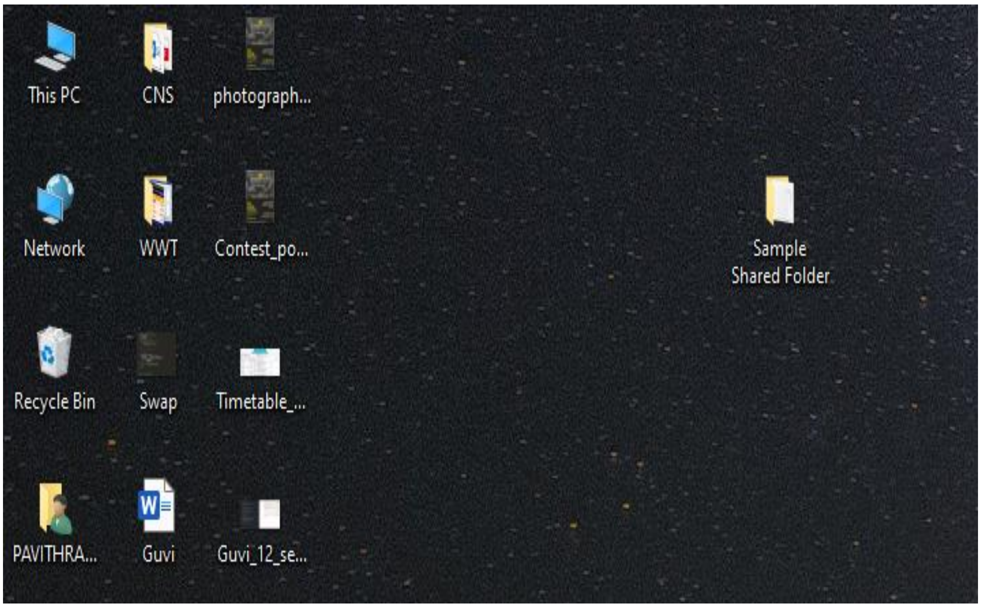
AIM:

To find a procedure to transfer the files from one virtual machine to host machine.

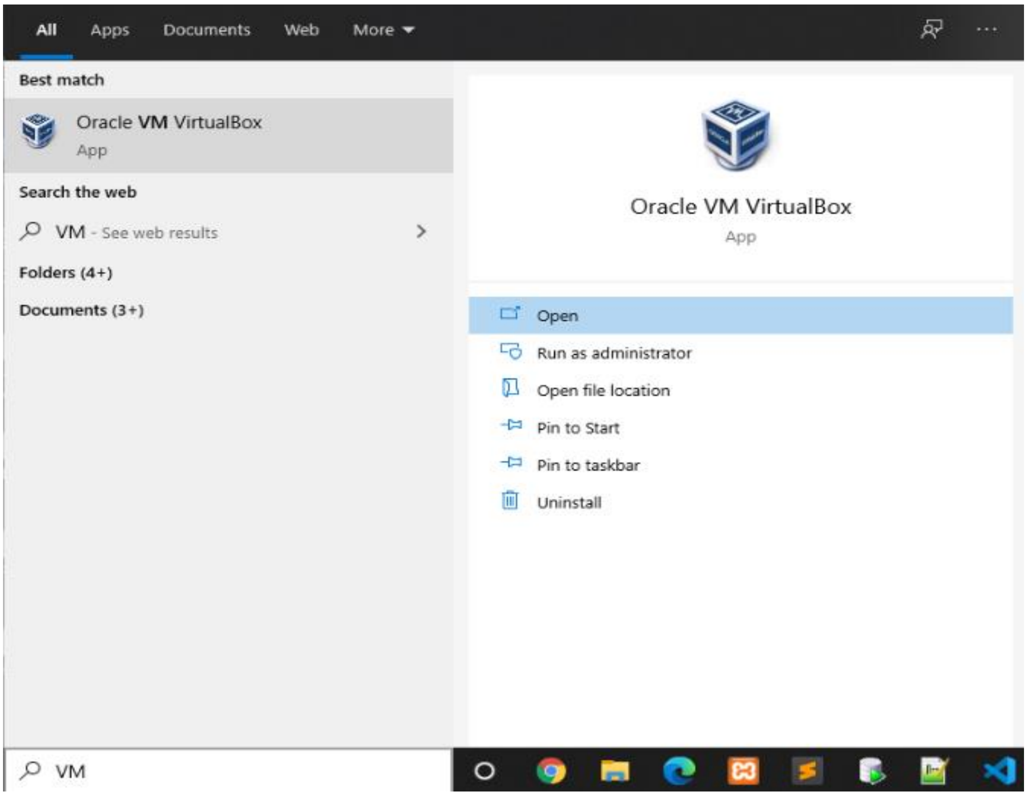
ALGORITHM:

1. Login to the host machine and create a folder in ‘desktop’ named ‘Shared Folder’
2. Open the virtual machine.
3. Click the settings ---> Shared Folders.
4. In order to select the shared folder path click (Folder with ‘+’ symbol).
5. Select the path Desktop ---> Shared Folders and select checkbox ‘auto mount’ click OK.
6. Start the Guest OS which is present in the Virtual Machine.
7. Shared Folder Icon will be displayed in the Guest OS which is present inside the VM.
8. Create a file inside the shared folder it will be updated in guest and host machine.

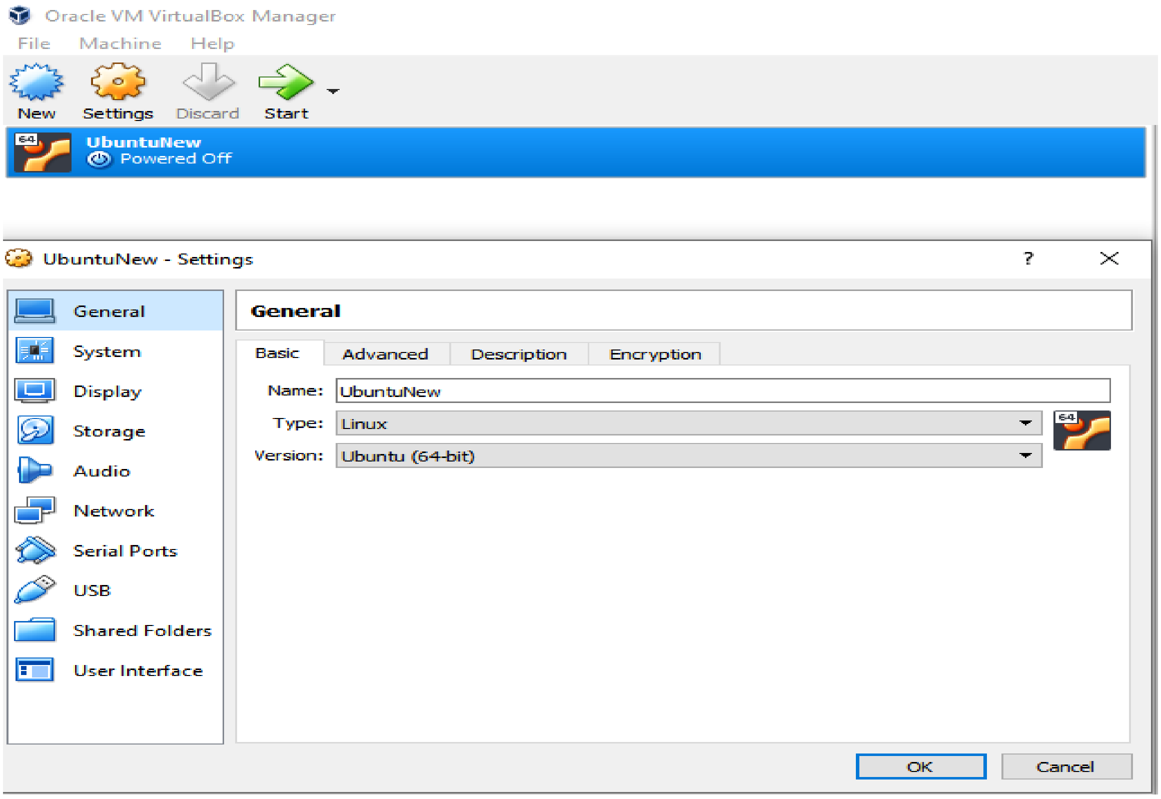
STEP-1:



STEP-2:

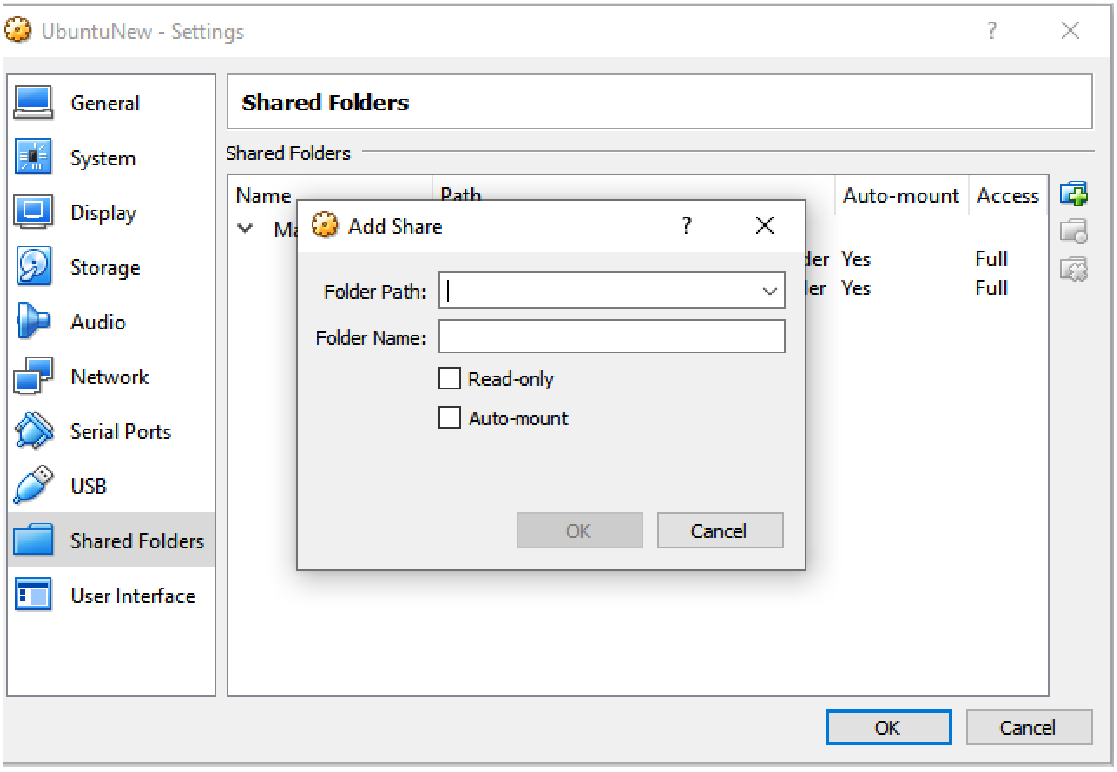


STEP-3:



Name: UbuntuNew
Type: Linux
Version: Ubuntu (64-bit)

STEP-4:



Name	Path	Auto-mount	Access
Ma	der	Yes	Full
	der	Yes	Full

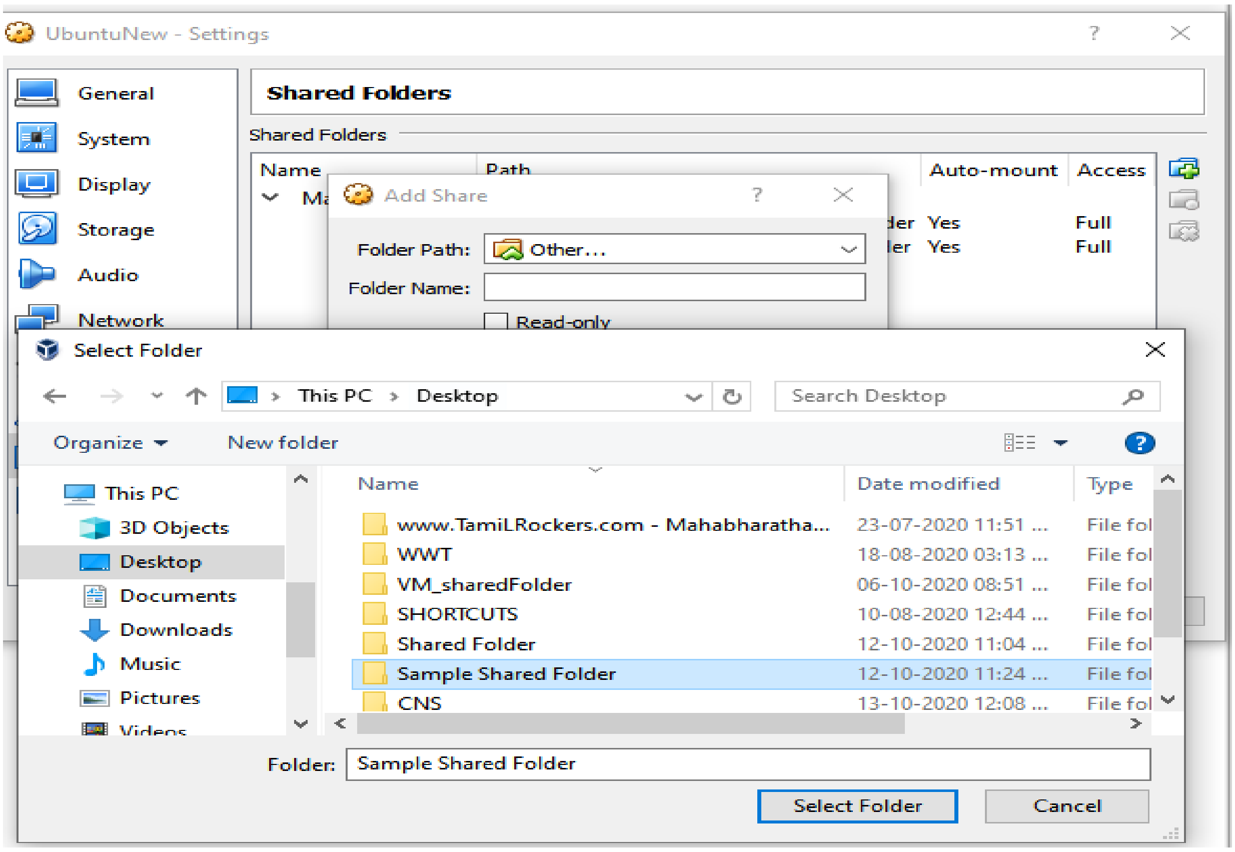
Folder Path:

Folder Name:

□ Read-only

□ Auto-mount

STEP-5:



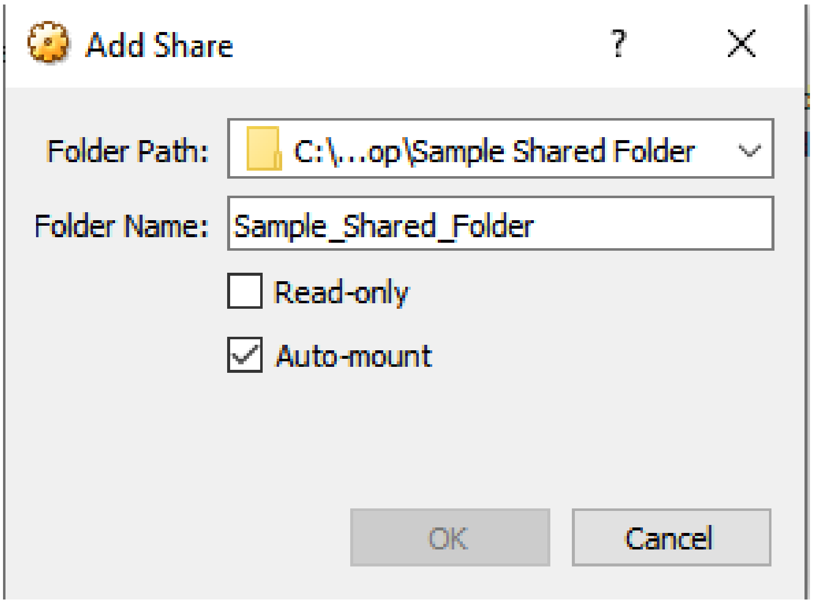
Folder Path: Other...

Folder Name:

□ Read-only

Name	Date modified	Type
www.TamilRockers.com - Mahabharatha...	23-07-2020 11:51 ...	File fol
WWT	18-08-2020 03:13 ...	File fol
VM_sharedFolder	06-10-2020 08:51 ...	File fol
SHORTCUTS	10-08-2020 12:44 ...	File fol
Shared Folder	12-10-2020 11:04 ...	File fol
Sample Shared Folder	12-10-2020 11:24 ...	File fol
CNS	13-10-2020 12:08 ...	File fol

Folder: Sample Shared Folder



Add Share

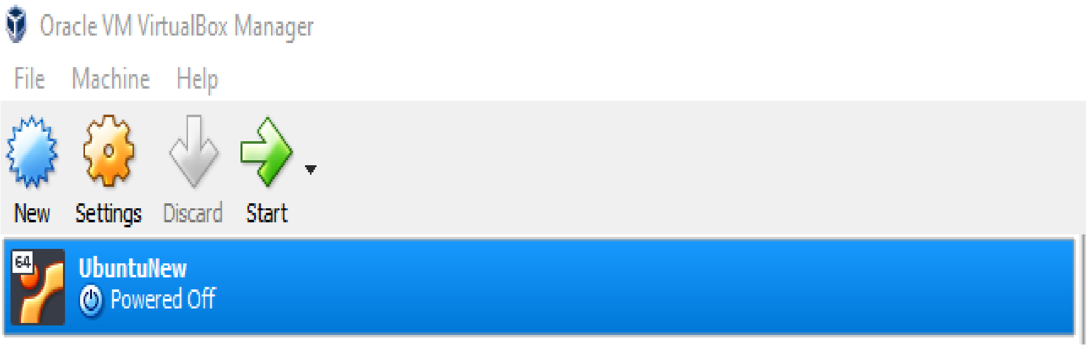
Folder Path: C:\...op\Sample Shared Folder

Folder Name: Sample_Shared_Folder

□ Read-only

☑ Auto-mount

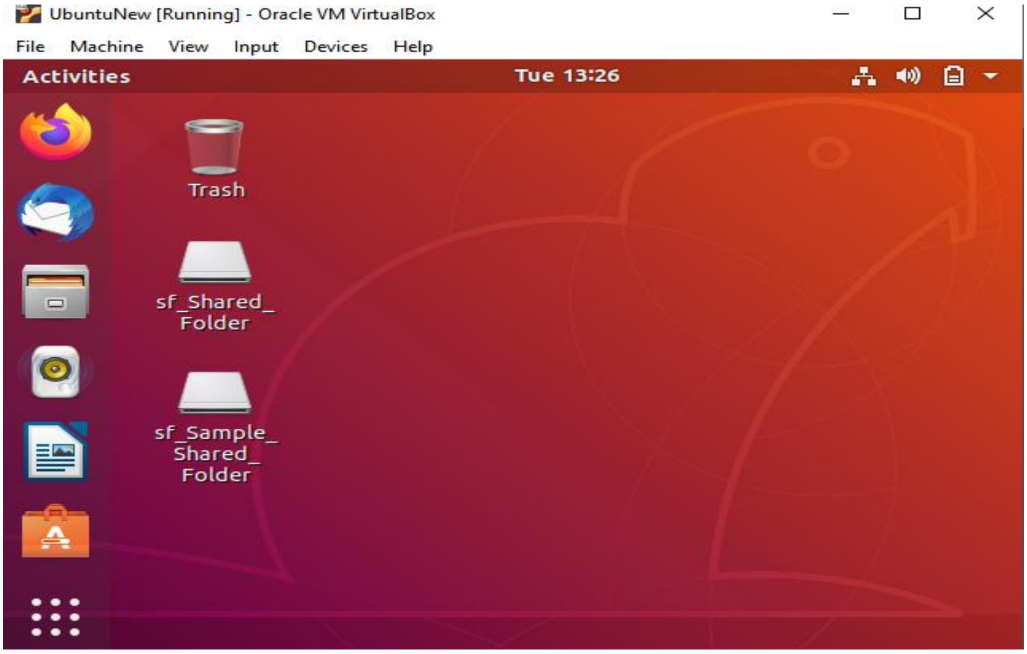
STEP-6:



UbuntuNew

Powered Off

STEP-7:

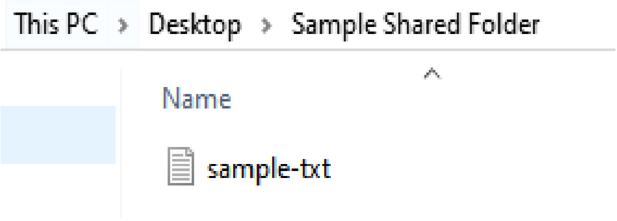


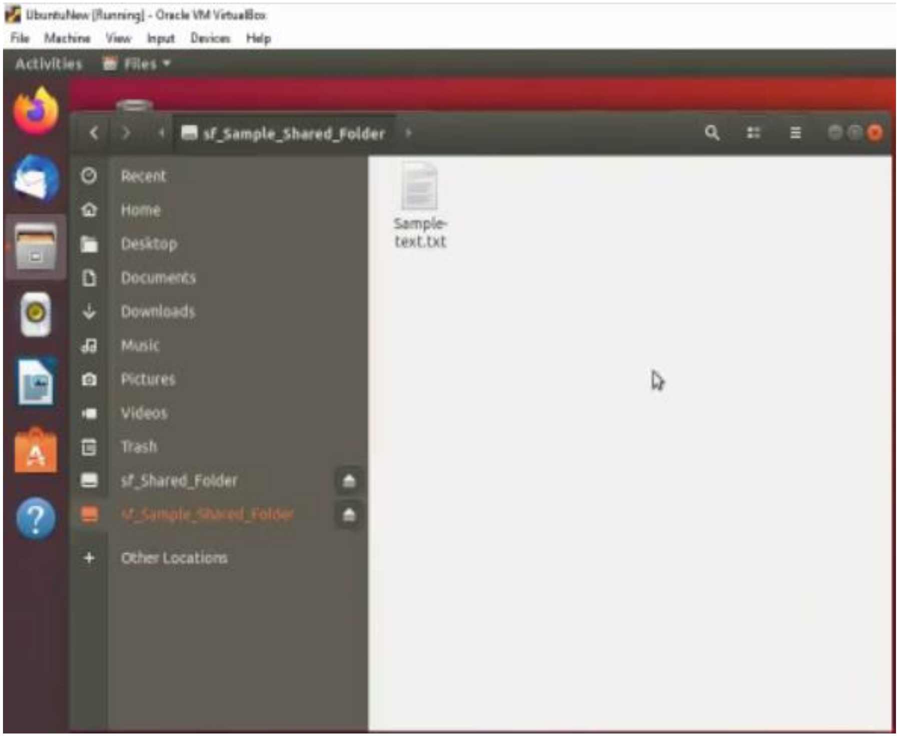
UbuntuNew [Running] - Oracle VM VirtualBox

sf_Shared_Folder

sf_Sample_Shared_Folder

STEP-8:





RESULT:

Thus, the procedure to transfer the files from one virtual machine to host machine had been executed successfully.

EX.NO. 7 PROCEDURES TO LAUNCH VIRTUAL MACHINE TRYSTACK (ONLINE OPENSTACK DEMO VERSION)

AIM:

To create a procedure to launch virtual machine using try stack.

ALGORITHM:

1. In order to try OpenStack in TryStack, you must register by joining TryStack FacebookGroup
2. **Create Network**
   2.1. Go to **Network > Networks** and then click **Create Network**. In **Network** tab, fill **Network Name** for example internal and then click **Next**
   2.2. In **Subnet** tab,
      2.1 Fill **Network Address** with appropriate CIDR, for example 192.168.1.0/24. Use private network CIDR block as the best practice.
      2.2 Select **IP Version** with appropriate IP version, in this case IPv4.
      2.3 Click **Next**.
      2.4 In **Subnet Details** tab, fill **DNS Name Servers** with 8.8.8.8 (Google DNS) and then click **create**.
3. **Create Instance**
   3.1. Go to **Compute > Instances** and then click **Launch Instance**.
   3.2. In **Details** tab,
      3.2.1. Fill **Instance Name**, for example Ubuntu 1.
      3.2.2. Select **Flavor**, for example m1.medium.
      3.2.3. Fill **Instance Count** with **1**.
      3.2.4. Select **Instance Boot Source** with **Boot from Image**.
      3.2.5. Select **Image Name** with **Ubuntu 14.04 amd64 (243.7 MB)** if you want install Ubuntu 14.04 in your virtual machine.
   3.3. In **Access & Security** tab,
      3.3.1. Click [+] button of **Key Pair** to import key pair. This key pair is a public and private key that we will use to connect to the instance from our machine.

3.3.2. In **Import Key Pair** dialog,

3.3.2.1. Fill **Key Pair Name** with your machine name (for example Edward-Key).

3.3.2.2. Fill **Public Key** with your **SSH public key** (usually is in ~/.ssh/id_rsa.pub). See description in Import Key Pair

3.3.2.3. dialog box for more information. If you are using Windows, you can use **Puttygen**to generate key pair.

3.3.2.4. Click **Import key pair**.

3.3.3. In **Security Groups**, mark/check **default**.

3.4. In **Networking** tab,

3.4.1. In **Selected Networks**, select network that have been created in Step 1, for example internal.

3.5. Click **Launch**.

3.6. If you want to create multiple instances, you can repeat step 1-5. I created one more instance with instance name Ubuntu 2.

4. **Create Router**

4.1. Go to **Network > Routers** and then click **Create Router**

4.2. Fill **Router Name** for example router1 and then click **Create router**

4.3. Click on your **router name link**, for example router1, **Router Details** page

4.4. Click **Set Gateway** button in upper right:

4.4.1. Select **External networks** with **external**

4.4.2. Then **OK**

4.5. Click **Add Interface** button

4.5.1. Select **Subnet** with the network that you have been created in Step 1

4.5.2. Click **Add interface**

4.6. Go to Network > Network Topology. You will see the network topology. In the example, there are two networks, i.e. external and internal, those are bridged by a router. There are instances those are joined to internal network

5. **Configure Floating IP Address**

5.1. Go to **Compute > Instance**

5.2. In one of your instances, click **More > Associate Floating IP**

5.3. In **IP Address**, click Plus [+]

5.4. Select **Pool** to **external** and then click **Allocate IP**

5.5. Click **Associate**

5.6. Now you will get a public IP, e.g. 8.21.28.120, for your instance

6. **Configure Access & Security**

6.1. Go to **Compute > Access & Security** and then open **Security Groups** tab.

6.2. In **default** row, click **Manage Rules**.

6.3. Click **Add Rule**, choose **ALL ICMP** rule to enable ping into your instance, and then click **Add**.

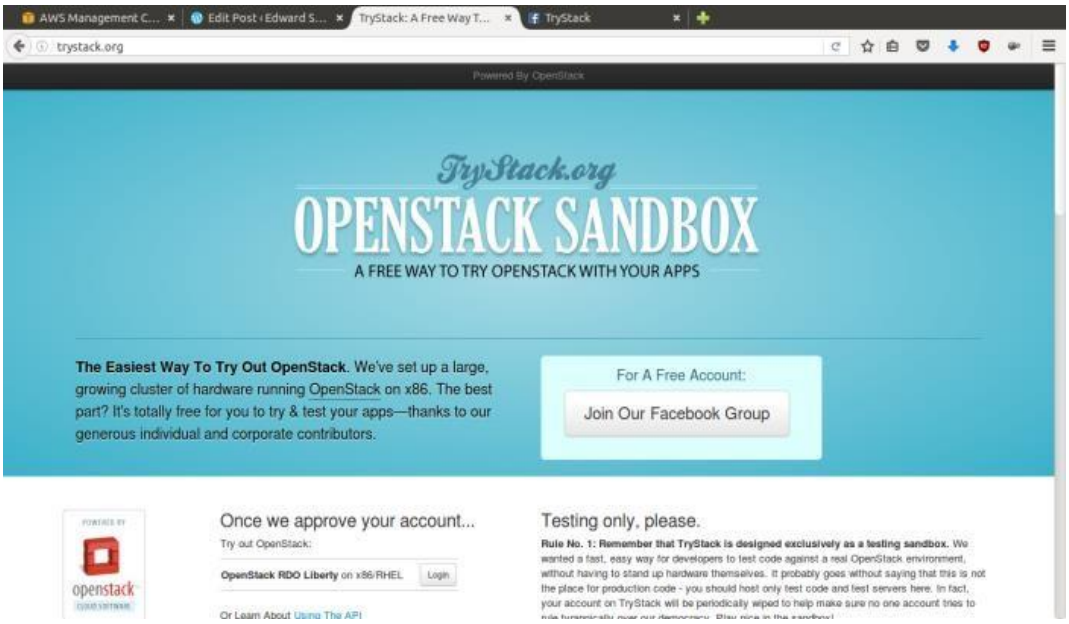
6.4. Click **Add Rule**, choose **HTTP** rule to open HTTP port (port 80), and then click **Add**.

6.5. Click **Add Rule**, choose **SSH** rule to open SSH port (port 22), and then click **Add**.

6.6. You can open other ports by creating new rules

7. **SSH to Your Instance -** Now, you can SSH your instances to the floating IP address that you got in the step 4. If you are using Ubuntu image, the SSH user will be ubuntu

STEP:1



The Easiest Way To Try Out OpenStack. We've set up a large, growing cluster of hardware running OpenStack on x86. The best part? It's totally free for you to try & test your apps—thanks to our generous individual and corporate contributors.

Once we approve your account...

Try out OpenStack:

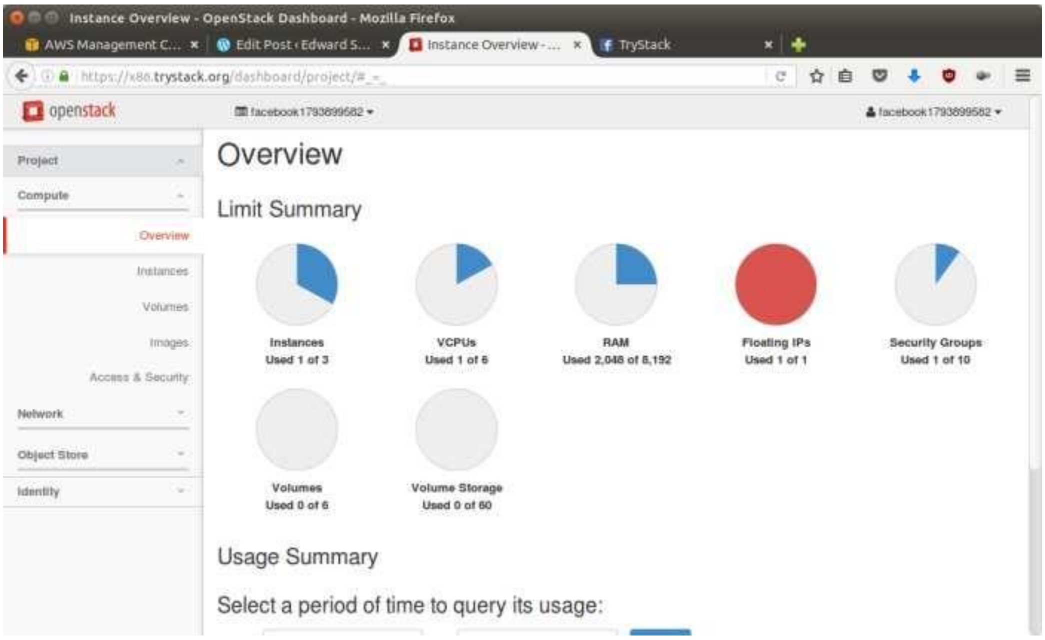
OpenStack RDO Liberty on x86/RHEL

Or Learn About Using The API

Testing only, please.

Rule No. 1: Remember that TryStack is designed exclusively as a testing sandbox. We wanted a fast, easy way for developers to test code against a real OpenStack environment, without having to stand up hardware themselves. It probably goes without saying that this is not the place for production code - you should host only test code and test servers here. In fact, your account on TryStack will be periodically wiped to help make sure no one account tries to rule tyrannically over our democracy. Play nice in the sandbox!

STEP:2



Overview

Limit Summary

Instances Used 1 of 3

VCPUs Used 1 of 6

RAM Used 2,048 of 8,192

Floating IPs Used 1 of 1

Security Groups Used 1 of 10

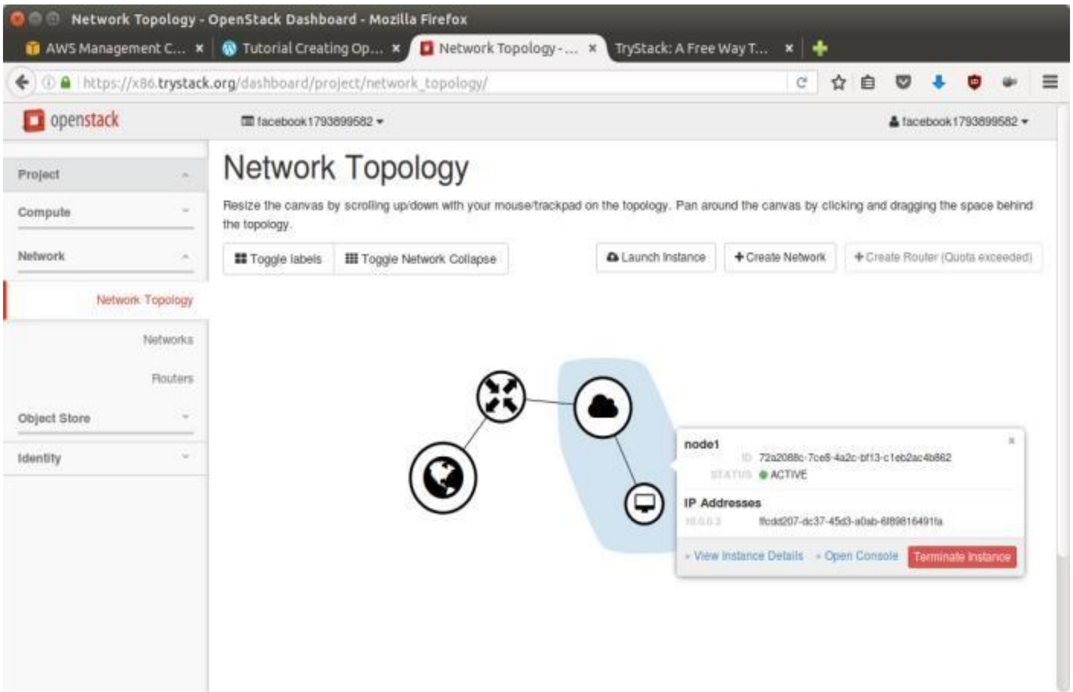
Volumes Used 0 of 6

Volume Storage Used 0 of 60

Usage Summary

Select a period of time to query its usage:

STEP:3



Network Topology

Resize the canvas by scrolling up/down with your mouse/trackpad on the topology. Pan around the canvas by clicking and dragging the space behind the topology.

node1

ID 72a2088c-7ce8-4a2c-bf13-c1eb2ac4b882

STATUS ● ACTIVE

IP Addresses

10.0.0.3 ffcdd207-dc37-45d3-a0ab-6f89816491fa

RESULT:

Thus, the procedure to find a procedure to launch virtual machine using trystack has been successfully executed.

EX.NO. 8 INSTALL HADOOP SINGLE NODE CLUSTER AND RUN SIMPLE APPLICATIONS LIKE WORDCOUNT

AIM:

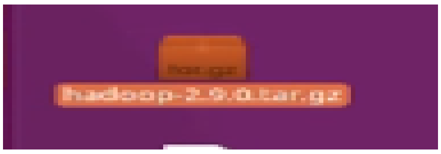
To install Hadoop Single node cluster and run simple Application like wordcount

ALGORITHM:

1. Download the Java 8 Package. Save this file in your home directory
2. Extract the Java Tar File
3. Download the Hadoop 2.7.3 Package
4. Extract the Hadoop tar File
5. Add the Hadoop and Java paths in the bash file(.bashrc)
6. Edit the **Hadoop Configuration files**.
7. Open core-site.xml and edit the property mentioned below inside configuration tag
8. Edit hdfs-site.xml and edit the property mentioned below inside configuration tag
9. Edit the mapred-site.xml file and edit the property mentioned below inside configuration tag
10. Edit yarn-site.xml and edit the property mentioned below inside configuration tag
11. Edit hadoop-env.sh and add the Java Path as mentioned below
12. Go to Hadoop home directory and format the NameNode
13. Once the NameNode is formatted, go to hadoop-2.7.3/sbin directory and start all the daemons
14. To check that all the Hadoop services are up and running, run the below command
15. Now open the Mozilla browser and gotolocalhost:50070/dfshealth.html to check the NameNode interface

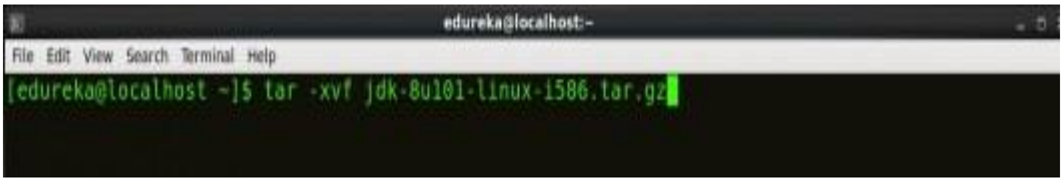
STEP 1:

After download



STEP 2:

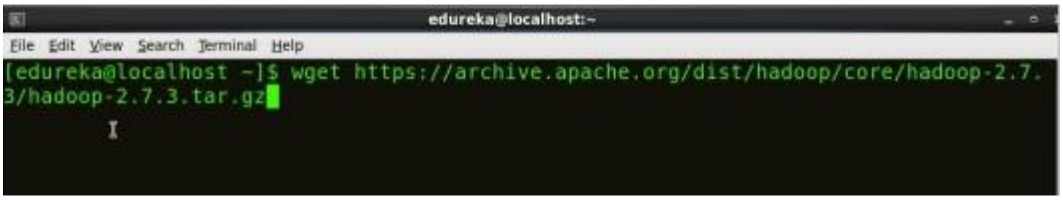
Hadoop Installation – Extracting Java Files



```
[edureka@localhost ~]$ tar -xvf jdk-8u101-linux-i586.tar.gz
```

STEP 3:

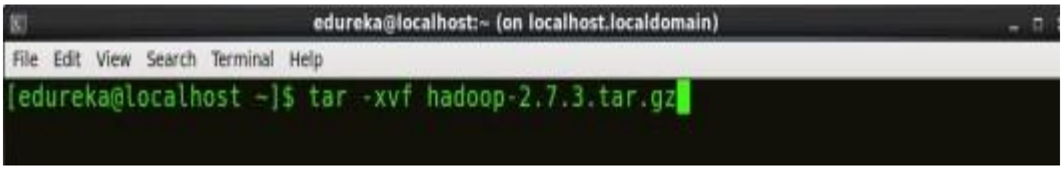
Hadoop Installation – Downloading Hadoop



```
[edureka@localhost ~]$ wget https://archive.apache.org/dist/hadoop/core/hadoop-2.7.
3/hadoop-2.7.3.tar.gz
```

STEP 4:

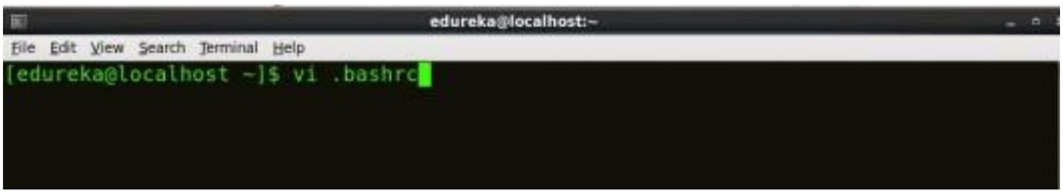
Hadoop Installation – Extracting Hadoop Files


edureka@localhost:~ (on localhost.localdomain)
File Edit View Search Terminal Help

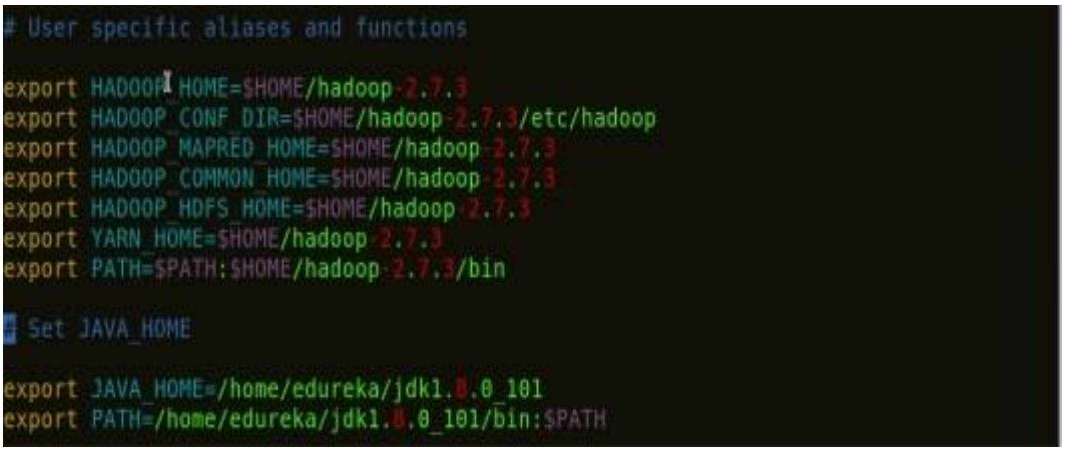
```
[edureka@localhost ~]$ tar -xvf hadoop-2.7.3.tar.gz
```

STEP 5:

Hadoop Installation – Setting Environment Variable



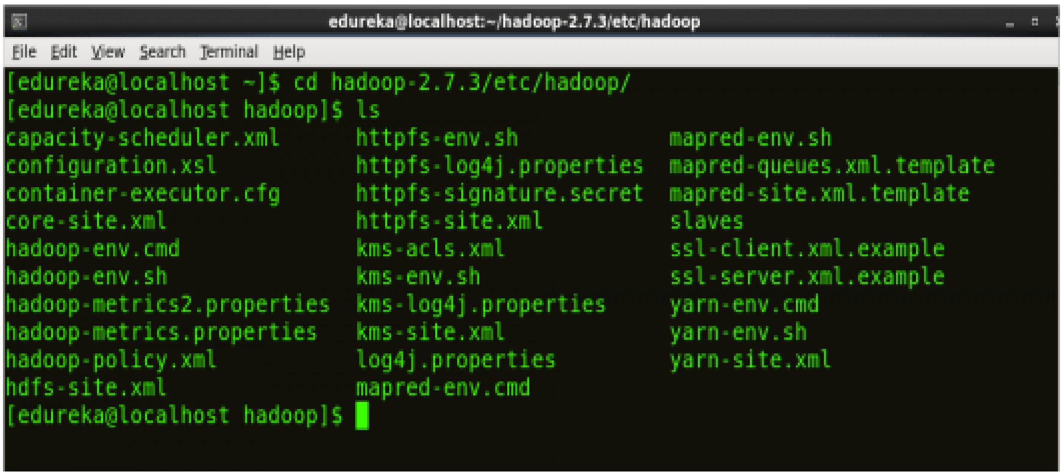
```
[edureka@localhost ~]$ vi .bashrc
```



```
# User specific aliases and functions

export HADOOP_HOME=$HOME/hadoop-2.7.3
export HADOOP_CONF_DIR=$HOME/hadoop-2.7.3/etc/hadoop
export HADOOP_MAPRED_HOME=$HOME/hadoop-2.7.3
export HADOOP_COMMON_HOME=$HOME/hadoop-2.7.3
export HADOOP_HDFS_HOME=$HOME/hadoop-2.7.3
export YARN_HOME=$HOME/hadoop-2.7.3
export PATH=$PATH:$HOME/hadoop-2.7.3/bin

# Set JAVA_HOME

export JAVA_HOME=/home/edureka/jdk1.8.0_101
export PATH=/home/edureka/jdk1.8.0_101/bin:$PATH
```

STEP 6:

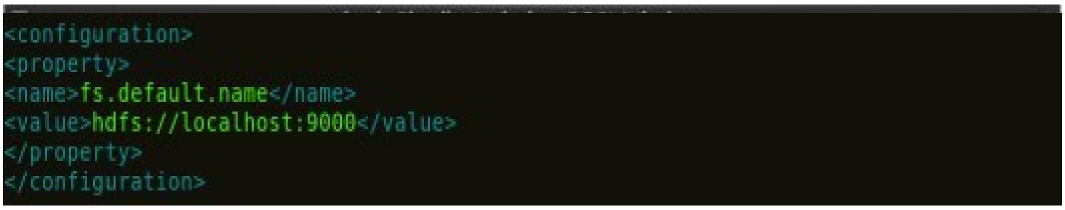
Hadoop Installation – Hadoop Configuration Files


edureka@localhost:~/hadoop-2.7.3/etc/hadoop
File Edit View Search Terminal Help

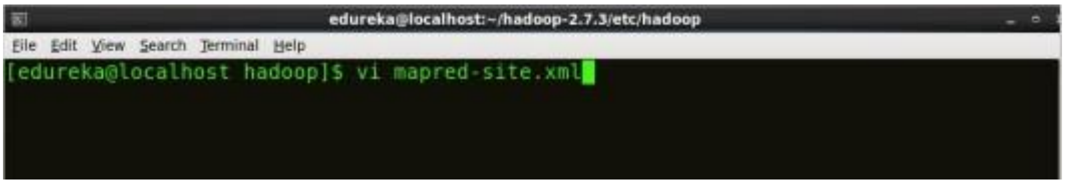
```
[edureka@localhost ~]$ cd hadoop-2.7.3/etc/hadoop/
[edureka@localhost hadoop]$ ls
capacity-scheduler.xml      httpfs-env.sh              mapred-env.sh
configuration.xsl           httpfs-log4j.properties    mapred-queues.xml.template
container-executor.cfg      httpfs-signature.secret    mapred-site.xml.template
core-site.xml               httpfs-site.xml            slaves
hadoop-env.cmd              kms-acls.xml               ssl-client.xml.example
hadoop-env.sh               kms-env.sh                 ssl-server.xml.example
hadoop-metrics2.properties  kms-log4j.properties       yarn-env.cmd
hadoop-metrics.properties   kms-site.xml               yarn-env.sh
hadoop-policy.xml           log4j.properties           yarn-site.xml
hdfs-site.xml               mapred-env.cmd
[edureka@localhost hadoop]$
```

STEP 7:

Hadoop Installation – Configuring core-site.xml



```
<configuration>
<property>
<name>fs.default.name</name>
<value>hdfs://localhost:9000</value>
</property>
</configuration>
```

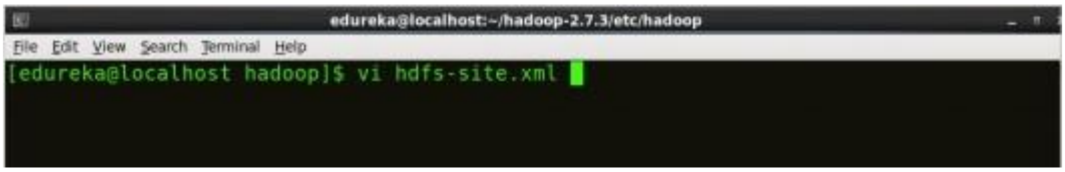

edureka@localhost:~/hadoop-2.7.3/etc/hadoop
File Edit View Search Terminal Help

```
[edureka@localhost hadoop]$ vi mapred-site.xml
```

STEP 8:

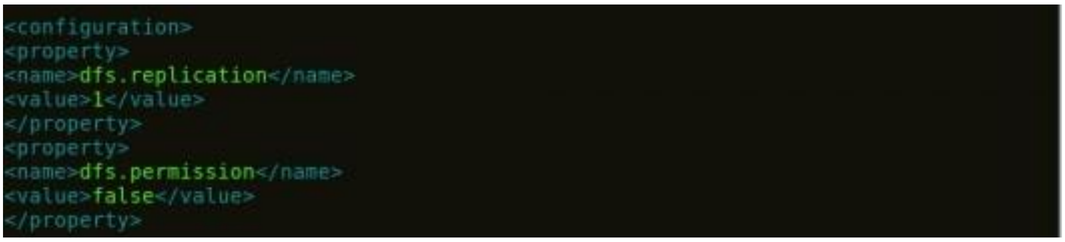
Hadoop Installation – Configuring hdfs-site.xml

```
<?xmlversion="1.0"encoding="UTF-8"?>
<?xml-stylesheettype="text/xsl"href="configuration.xsl"?>
<configuration>
<property>
<name>fs.default.name</name>
<value>hdfs://localhost:9000</value>
</property>
</configuration>
```



edureka@localhost:~/hadoop-2.7.3/etc/hadoop
File Edit View Search Terminal Help

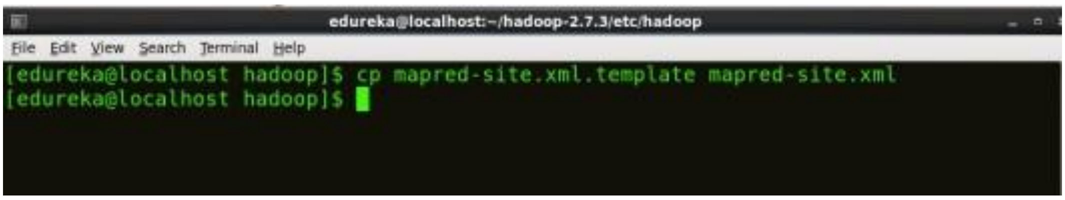
```
[edureka@localhost hadoop]$ vi hdfs-site.xml
```



```
<configuration>
<property>
<name>dfs.replication</name>
<value>1</value>
</property>
<property>
<name>dfs.permission</name>
<value>false</value>
</property>
```

```
<?xmlversion="1.0"encoding="UTF-8"?>
<?xml-stylesheettype="text/xsl"href="configuration.xsl"?>
<configuration>
<property>
<name>dfs.replication</name>
<value>1</value>
</property>
<property>
<name>dfs.permission</name>
<value>false</value>
```

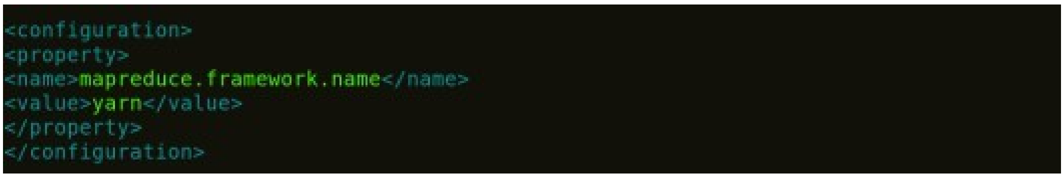
STEP 9:



edureka@localhost:~/hadoop-2.7.3/etc/hadoop
File Edit View Search Terminal Help

```
[edureka@localhost hadoop]$ cp mapred-site.xml.template mapred-site.xml
[edureka@localhost hadoop]$
```

Hadoop Installation – Configuring mapred-site.xml

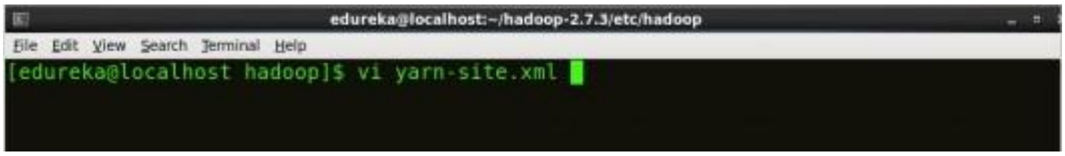


```
<configuration>
<property>
<name>mapreduce.framework.name</name>
<value>yarn</value>
</property>
</configuration>
```

```
<?xmlversion="1.0"encoding="UTF-8"?>
<?xml-stylesheettype="text/xsl"href="configuration.xsl"?>
<configuration>
<property>
<name>mapreduce.framework.name</name>
<value>yarn</value>
</property>
</configuration>
```

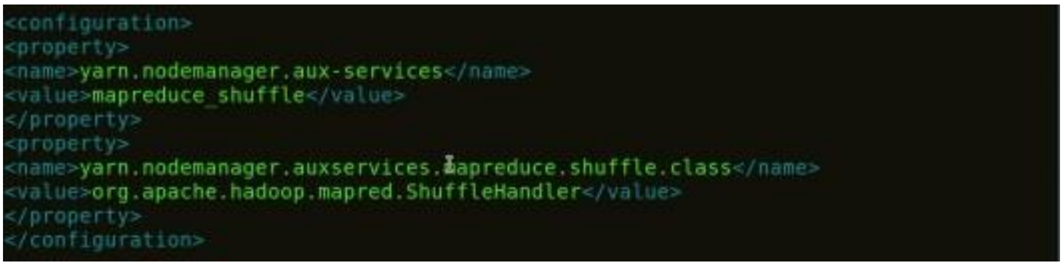
STEP 10:

Hadoop Installation – Configuring yarn-site.xml



edureka@localhost:~/hadoop-2.7.3/etc/hadoop
File Edit View Search Terminal Help

```
[edureka@localhost hadoop]$ vi yarn-site.xml
```

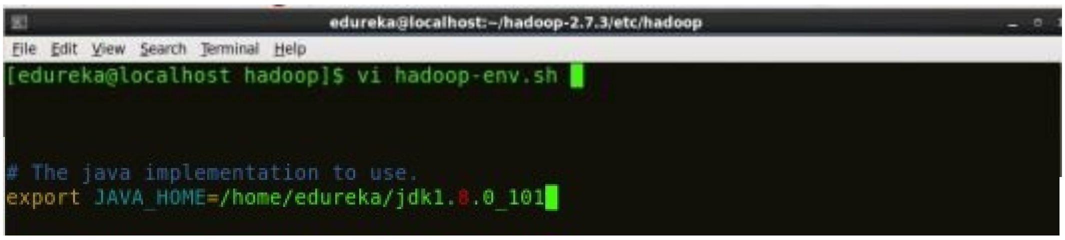


```
<configuration>
<property>
<name>yarn.nodemanager.aux-services</name>
<value>mapreduce_shuffle</value>
</property>
<property>
<name>yarn.nodemanager.auxservices.mapreduce.shuffle.class</name>
<value>org.apache.hadoop.mapred.ShuffleHandler</value>
</property>
</configuration>
```

```
<?xmlversion="1.0">
<configuration>
<property>
<name>yarn.nodemanager.aux-services</name>
<value>mapreduce_shuffle</value>
</property>
<property>
<name>yarn.nodemanager.auxservices.mapreduce.shuffle.class</ name>
<value>org.apache.hadoop.mapred.ShuffleHandler</value>
</property>
</configuration>
```

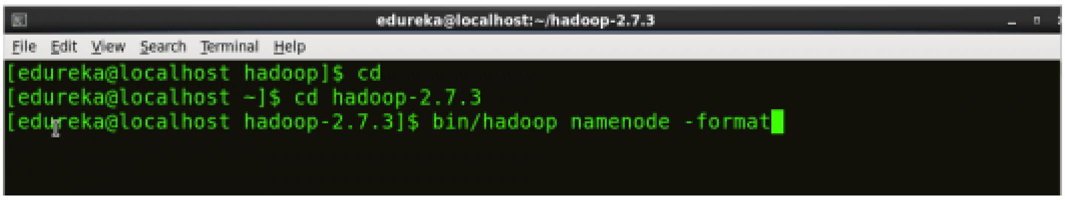
STEP 11:

Hadoop Installation – Configuring hadoop-env.sh


edureka@localhost:~/hadoop-2.7.3/etc/hadoop
File Edit View Search Terminal Help

```
[edureka@localhost hadoop]$ vi hadoop-env.sh


# The java implementation to use.
export JAVA_HOME=/home/edureka/jdk1.8.0_101
```

STEP 12:

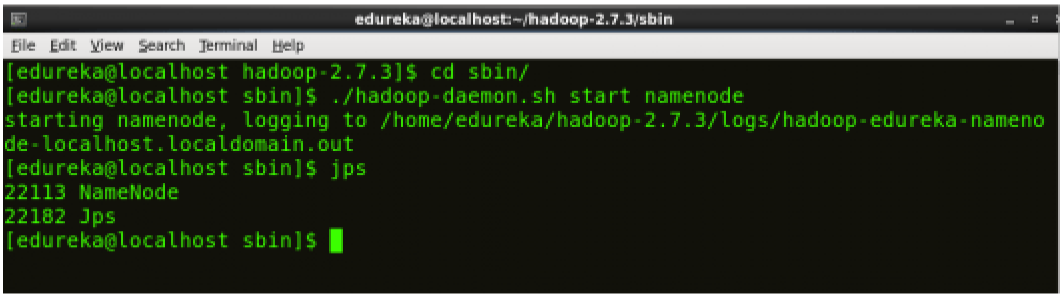

edureka@localhost:~/hadoop-2.7.3
File Edit View Search Terminal Help

```
[edureka@localhost hadoop]$ cd
[edureka@localhost ~]$ cd hadoop-2.7.3
[edureka@localhost hadoop-2.7.3]$ bin/hadoop namenode -format
```

Installation – Formatting NameNode

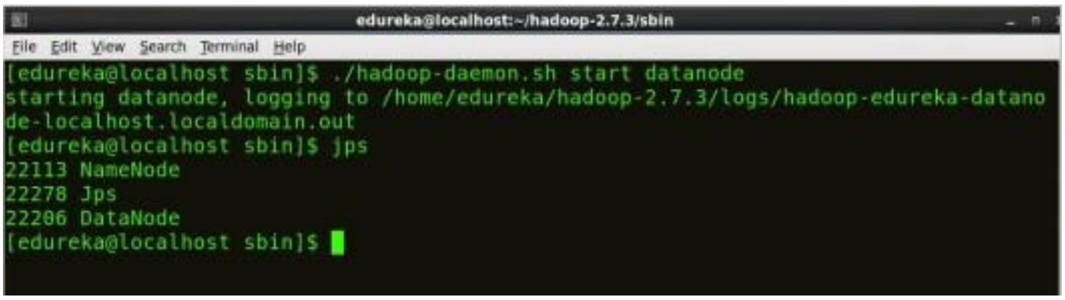
STEP 13:

Hadoop Installation – Starting NameNode

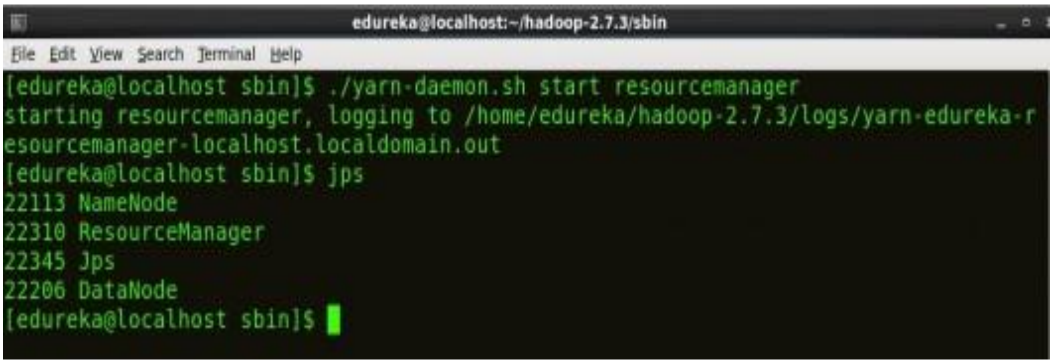

edureka@localhost:~/hadoop-2.7.3/sbin
File Edit View Search Terminal Help

```
[edureka@localhost hadoop-2.7.3]$ cd sbin/
[edureka@localhost sbin]$ ./hadoop-daemon.sh start namenode
starting namenode, logging to /home/edureka/hadoop-2.7.3/logs/hadoop-edureka-nameno
de-localhost.localdomain.out
[edureka@localhost sbin]$ jps
22113 NameNode
22182 Jps
[edureka@localhost sbin]$
```

Hadoop Installation – Starting DataNode


edureka@localhost:~/hadoop-2.7.3/sbin
File Edit View Search Terminal Help

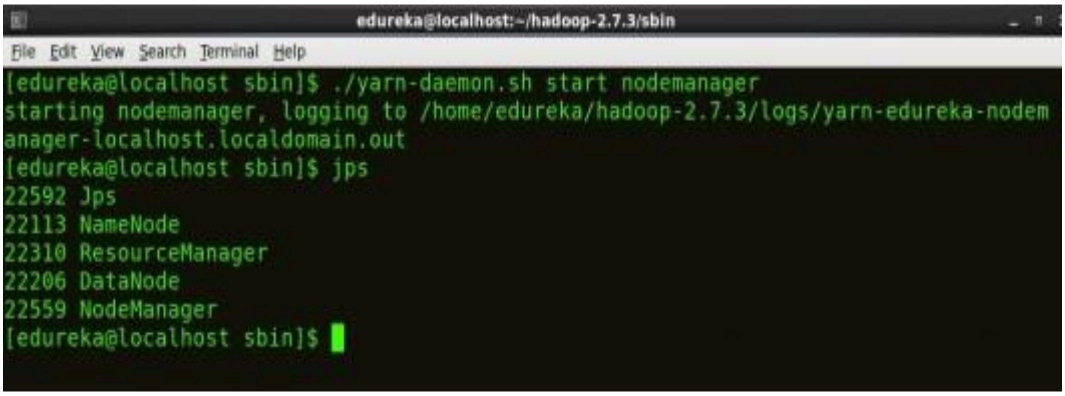
```
[edureka@localhost sbin]$ ./hadoop-daemon.sh start datanode
starting datanode, logging to /home/edureka/hadoop-2.7.3/logs/hadoop-edureka-datano
de-localhost.localdomain.out
[edureka@localhost sbin]$ jps
22113 NameNode
22278 Jps
22206 DataNode
[edureka@localhost sbin]$
```


edureka@localhost:~/hadoop-2.7.3/sbin
File Edit View Search Terminal Help

```
[edureka@localhost sbin]$ ./yarn-daemon.sh start resourcemanager
starting resourcemanager, logging to /home/edureka/hadoop-2.7.3/logs/yarn-edureka-r
esourcemanager-localhost.localdomain.out
[edureka@localhost sbin]$ jps
22113 NameNode
22310 ResourceManager
22345 Jps
22206 DataNode
[edureka@localhost sbin]$
```

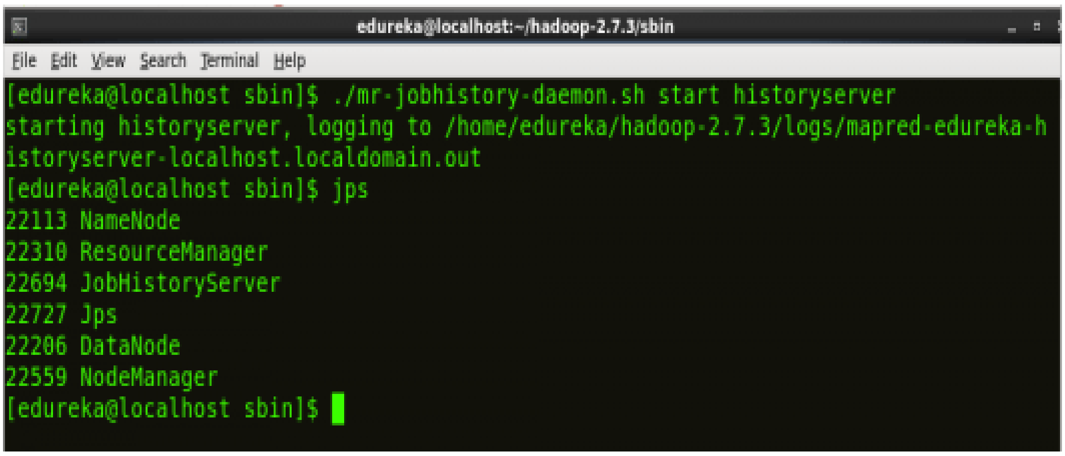
Hadoop Installation – Starting ResourceManager

Hadoop Installation – Starting NodeManager


edureka@localhost:~/hadoop-2.7.3/sbin
File Edit View Search Terminal Help

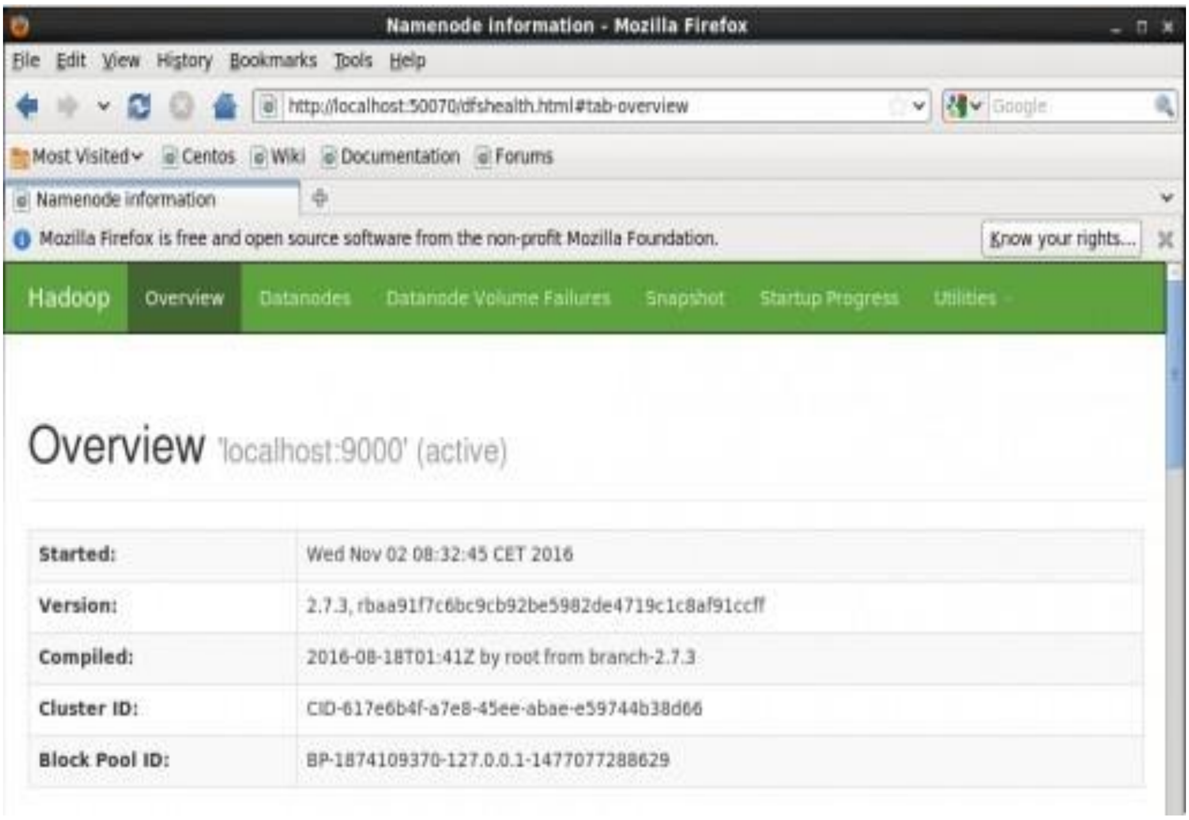
```
[edureka@localhost sbin]$ ./yarn-daemon.sh start nodemanager
starting nodemanager, logging to /home/edureka/hadoop-2.7.3/logs/yarn-edureka-nodem
anager-localhost.localdomain.out
[edureka@localhost sbin]$ jps
22592 Jps
22113 NameNode
22310 ResourceManager
22206 DataNode
22559 NodeManager
[edureka@localhost sbin]$
```

Hadoop Installation – Checking Daemons


edureka@localhost:~/hadoop-2.7.3/sbin
File Edit View Search Terminal Help

```
[edureka@localhost sbin]$ ./mr-jobhistory-daemon.sh start historyserver
starting historyserver, logging to /home/edureka/hadoop-2.7.3/logs/mapred-edureka-h
istoryserver-localhost.localdomain.out
[edureka@localhost sbin]$ jps
22113 NameNode
22310 ResourceManager
22694 JobHistoryServer
22727 Jps
22206 DataNode
22559 NodeManager
[edureka@localhost sbin]$
```

Hadoop Installation – Starting WebU


Namenode information - Mozilla Firefox
File Edit View History Bookmarks Tools Help
http://localhost:50070/dfshealth.html#tab-overview
Google
Most Visited Centos Wiki Documentation Forums
Namenode information
Mozilla Firefox is free and open source software from the non-profit Mozilla Foundation.
Know your rights...
Hadoop Overview Datanodes Datanode Volume Failures Snapshot Startup Progress Utilities

Overview 'localhost:9000' (active)

Started:	Wed Nov 02 08:32:45 CET 2016
Version:	2.7.3, rbaa91f7c6bc9cb92be5982de4719c1c8af91ccff
Compiled:	2016-08-18T01:41Z by root from branch-2.7.3
Cluster ID:	CID-617e6b4f-a7e8-45ee-abae-e59744b38d66
Block Pool ID:	BP-1874109370-127.0.0.1-1477077288629

RESULT:

The given experiment to install Hadoop Single node cluster and run simple application has executed successfully.