

Softwares and Packages Required

Exercise 1 : Web Services

1. Net Beans IDE 7.0 or 8.1

Exercise 2: Web Services using Apache Axis

1. Net Beans IDE 8.1 / eclipse-jee-neon-1-RC3-linux-gtk-x86_64.tar.gz
2. Apache axis Plugins / package
3. Tomcat Server
4. Java Package
5. WAR.zip file to be downloaded from Internet and place it in below path
/home/Tomcat/webapps

Create a folder named **websvc** under
/home/.netbeans/8.1/config/preferences/org/netbeans/modules/ directory. Place the file
axis2.properties in websvc

Exercise 3: Creation of Virtual Machine and Running a Web Service in Virtual Machines

1. Virtual Box
2. Ubuntu 14.04 Desktop.iso from amd64
3. Install Netbeans 8.1 inside Virtual Machine

Network Configuration

IP Address: 10.6.3. 100 to 10.6.3.200
Netmask : 255.255.128.0
Gateway : 10.6.0.1
DNS Server list: 192.168.1.4

Exercise 4: File Transfer between Virtual Machines using SCP

1. Virtual Box
2. Ubuntu 16.04 server .iso for amd64
3. Install openssh-server

Network Configuration in /etc/network/interfaces

address 10.6.3. 100 to 10.6.3.200
netmask 255.255.128.0
gateway 10.6.0.1
DNS server list 192.168.1.4

Network Configuration in /etc/resolv.conf

nameserver 192.168.1.4

Exercise 5.a.: Private Cloud Setup using OpenNebula

1. Virtual Box
2. Ubuntu 14.04 Desktop.iso from amd64

Exercise 5.b.: Private Cloud Setup using Eucalyptus

1. Virtual Box
2. Ubuntu 10.04 server .iso for amd64
3. One VM with Ubuntu 10.04 server .iso amd64 for Cloud Controller, Cluster Controller, Walrus and Storage Controller
4. One VM with Ubuntu 10.04 server .iso amd64 for Node Controller
5. One VM with 14.04 Ubuntu Desktop .iso for Client accessing Cloud Controller

Exercise 6: Creation of Virtual Machine Template, Installing C Compiler, Attaching Virtual Block and Remote Login using ssh

1. Virtual Box
2. Ubuntu 14.04 Ubuntu Desktop .iso for amd64
3. Install openssh-server

Remote login using SSH command

1. Virtual Box
2. Ubuntu 16.04 Ubuntu Server .iso for amd64
3. Install openssh-server
4. Use ssh command to login remotely with password
5. For remote login without password.
 - i. Create ssh keypair.
 - ii. Copy id_rsa.pub from VM1 to VM2
 - iii. Use ssh command to login remotely

Exercise 7: Live Migration of Virtual Machine

1. Virtual Box
2. Ubuntu 14.04 Desktop.iso for amd64
3. Opennebula installation
4. Deploy and Migration Commands

Exercise 8: Installation of Single Node Hadoop and Executing WordCount Program

1. Virtual Box
2. Ubuntu 14.04 Desktop.iso for amd64
3. jdk-8u45-linux-x64.tar.gz
4. hadoop-2.7.1.tar.gz
5. wordcount.jar

Exercise 9: Mount Hadoop using FUSE

1. Virtual Box
2. Ubuntu 14.04 Desktop.iso for amd64
3. jdk-8u45-linux-x64.tar.gz
4. hadoop-2.7.1.tar.gz
5. hdfs-fuse-0.2.linux2.6-gcc4.1-x86.tar.gz

Exercise 10: Installation of Globus Toolkit

1. Virtual Box
2. Ubuntu 14.04 Desktop.iso for amd64
3. globus-toolkit-repo_latest_all.deb
4. Use update command
5. Install Globus Components using commands

Exercise 11: GridFTP

Study Experiment

Exercise 12: Remote login into a VM

1. Virtual Box
2. Ubuntu 16.04 server .iso for amd64
3. Install openssh-server

Network Configuration in /etc/network/interfaces

```
address 10.6.3. 100 to 10.6.3.200  
netmask 255.255.128.0  
gateway 10.6.0.1  
DNS server list 192.168.1.4
```

Network Configuration in /etc/resolv.conf

```
nameserver 192.168.1.4
```