**Steps to install and configure two tomcat7 instances on single server**

Step 1: First install latest java

$sudo apt-get install default-jre

$sudo apt-get install default-jdk

The configuration used for the illustration is Linux Ubuntu server.

Step 2: Download Tomcat from http://tomcat.apache.org/download-60.cgi

Step 3: Extract it into two different folders, let’s say /opt/tomcat1 and /opt/tomcat2

Step 4: Keep tomcat1 instance as is , just assigh internal ip

*<server port="8105" shutdown="SHUTDOWN">*

*.....*

*<Connector port="8181" protocol="HTTP/1.1"*

*address="10.0.0.0"*

*connectionTimeout="20000"*

*redirectPort="8443" />*

*.....*

*<Connector port="8109" protocol="AJP/1.3" redirectPort="8443" />*

Step 5: And change following things in tomcat2 instance, Edit /opt/tomcat2/conf/server.xml and change port number

*<server port="8106" shutdown="SHUTDOWN"*

*.....*

*<Connector port="8182" protocol="HTTP/1.1"*

*address="10.0.0.1"*

*connectionTimeout="20000"*

*redirectPort="8444" />*

*.....*

*<Connector port="8110" protocol="AJP/1.3" redirectPort="8444" />*

Step 6: Create following two scripts to run Tomcat as a service, Create /etc/init.d/tomcat1 with following instructions

*#!/bin/bash*

*# description: Tomcat Start Stop Restart*

*# processname: tomcat*

*# chkconfig: 234 20 80*

*JAVA\_HOME=/usr/lib/jvm/jre-openjdk*

*export JAVA\_HOME*

*PATH=$JAVA\_HOME/bin:$PATH*

*export PATH*

*CATALINA\_HOME=/opt/tomcat1*

*case $1 in*

*start)*

*sh $CATALINA\_HOME/bin/startup.sh*

*;;*

*stop)*

*sh $CATALINA\_HOME/bin/shutdown.sh*

*;;*

*restart)*

*sh $CATALINA\_HOME/bin/shutdown.sh*

*sh $CATALINA\_HOME/bin/startup.sh*

*;;*

*esac*

*exit 0*

Step 7: Create /etc/init.d/tomcat2 with following instructions

*#!/bin/bash*

*# description: Tomcat Start Stop Restart*

*# processname: tomcat*

*# chkconfig: 234 20 80*

*JAVA\_HOME=/usr/lib/jvm/jre-openjdk*

*export JAVA\_HOME*

*PATH=$JAVA\_HOME/bin:$PATH*

*export PATH*

*CATALINA\_HOME=/opt/tomcat2*

*case $1 in*

*start)*

*sh $CATALINA\_HOME/bin/startup.sh*

*;;*

*stop)*

*sh $CATALINA\_HOME/bin/shutdown.sh*

*;;*

*restart)*

*sh $CATALINA\_HOME/bin/shutdown.sh*

*sh $CATALINA\_HOME/bin/startup.sh*

*;;*

*esac*

*exit 0*

Step 8 : Start/Stop Tomcat service ,

*$Service tomcat1 start/stop/restart*

*$Service tomcat2 start/stop/restart*

Step 9: Add Tomcat service in startup

*chkconfig tomcat1 on*

*chkconfig tomcat2 on*

This will enable you to use two instances of Tomcat on a single machine.

**Steps to install and configure apache httpd and make it as load balancer**

Step 1: Download tar

$wget http://mirror.fibergrid.in/apache//httpd/httpd-2.2.31.tar.gz

Step 2: Untar file

$tar zxf httpd-2.2.31.tar.gz

Step 3: Configure through main directory

$cd httpd-2.2.31/

$./configure --enable-proxy --enable-proxy-balancer

$make

$sudo make install

$export APACHE2\_HOME=/usr/local/apache2

$vim $APACHE2\_HOME/conf/httpd.conf

Step 4: Add below lines

Include conf/extra/httpd-proxy-balancer.conf

Step 5: Create new file, httpd-proxy-balancer.conf

$vim $APACHE2\_HOME/conf/extra/httpd-proxy-balancer.conf

Step 6: Aadd below lines

<Proxy balancer://mycluster>

BalancerMember 10.0.0.0:80 loadfactor=3

BalancerMember 10.0.0.1:80 loadfactor=3

lbmethod=byrequests

</Proxy>

ProxyPass /test balancer://mycluster

Step 7: Add below lines in httpd-proxy-balancer.conf for balance management

<Location /balancer-manager>

SetHandler balancer-manager

Order Deny,Allow

Allow from all

</Location>

**Step to install and configure mysql (Cookbook) please find the git repository on below link**

<https://github.com/sagarwaghmare92/MysqlCookbook>

**Steps to Deploy Java app**

Step 1 : Download html file from <http://www.oracle.com/technetwork/java/petstore1-3-1-02-139690.html> to the respective directory

Step 2: Make directory in /opt/tomcat1/webapps/

$cd /opt/tomcat1/webapps/

$mkdir myApp

$wget <http://www.oracle.com/technetwork/java/petstore1-3-1-02-139690.html>

Step 3 : repeat the steps for second instance of tomcat2

Step 2: Make directory in /opt/tomcat1/webapps/

$cd /opt/tomcat2/webapps/

$mkdir myApp

$wget <http://www.oracle.com/technetwork/java/petstore1-3-1-02-139690.html>

**Restart the apache tomcat and apache https service**

We can access the link by browsing below URL

http://host\_ip:port/myApp