**Tomcat – Multiple Instances**

Listed below are default folders in Tomcat

**bin** -  contains binary and script files for running tomcat.  
**lib** - contains shared libraries used for tomcat  
**conf** - contains configuration information like tomcat ports, context paths etc.  
**logs** - contain log details  
**temp** - used for temporary files purpose  
**webapps** - contains application war files.  
**work** - jsp is translated and converted into servlet in this folder.

Tomcat uses 5 environment variables.

1) CATALINA\_HOME

2) CATALINA\_BASE

3) CATALINA\_TMPDIR

4) JRE\_HOME/JAVA\_HOME

5) CLASSPATH

In the above list CATALINA\_HOME and JAVA\_HOME are mandatory environment variables. All others are optional.

**CATALINA\_HOME** - this environment variable should point to tomcat installation folder, where tomcat binary are installed/extracted. Based on CATALINA\_HOME we can get **bin** and **lib** folders

**CATALINA\_BASE** - This variable points to conf and webapps folder. Based on this variable server locates **conf, logs, temp, webapps, work** folders.

Usual ways to run tomcat is to set CATALINA\_HOME environment variable and run the **startup.sh** script file. startup.sh file automatically assigns the values of other variables what we are not set.

startup.sh file set the environment variable and  then calls catalina.sh script.

server.xml inside $CATALINA\_BASE/conf contains all configuration information. like shutdown port, connector post, host name, application folder etc.

If we set the $CATALINA\_BASE explicitly then tomcat will use the server.xml file from our target place, which we specified in CATALINA\_BASE.

CATALINA\_HOME points to Tomcat installation folder.

Following are the steps

**STEP 1:**

Untar/install Tomcat tar/rpm to /opt/app/tomcat. This directory will be set as CATALINA\_HOME

**STEP 2:**

Create one folder named /opt/app/**tomcat-instance1** and copy **conf, temp, webapps and logs**  folder from CATALINA\_HOME folder

**STEP 3:**

Change conf/server.xml file in **tomcat-instance1**. we need to change 3 port shutdown port, connector port and ajp port.

**shutdown port** - this port is used for shutdown the tomcat. when we call the shutdown.sh script they send signal to shutdown port. this port listen by tomcat java process. if signal is received the that process then its cleanup and exit by itself.

**connector Port** -This port is actual port to expose the application to outside client.

**ajp port** - this port is used to apache httpd server  communicate to tomcat. this port used when we setup load balanced server.

**STEP 4:**

now we can create two script file for startup and shutdown the tomcat-instance1.

startup-instance1.sh  
  
JAVA\_HOME=/usr/java/jdk  
export CATALINA\_HOME=/opt/app/tomcat  
export CATALINA\_BASE= /opt/app/tomcat-instance1  
export CATALINA\_OPTS=" -Xmx1600m -Xms600m "  
export CATALINA\_PID=/opt/app/ tomcat-instance1/bin/tam\_brandedgui.pid  
$CATALINA\_HOME/bin/startup.sh  
  
shutdown-instance1.sh  
  
JAVA\_HOME=/usr/java/jdk  
export CATALINA\_HOME=/opt/app/tomcat  
export CATALINA\_BASE= /home/ramki/tomcat-instance1  
export CATALINA\_OPTS=" -Xmx1600m -Xms600m "  
export CATALINA\_PID=/opt/app/ tomcat-instance1/bin/tam\_brandedgui.pid  
$CATALINA\_HOME/bin/shutdown.sh

Line 1 : JAVA HOME is set

Line 2: CATALINA\_HOME is set to Tomcat executables and libraries

Line 3 : CATALINA\_BASE is set for conf, webapps, logs, temp and work directories

Line 4: Set Java Heap size and other variables related to JAVA\_OPTS/CATALINA\_OPTS

Line 5: Set tomcat instance PID – CATALINA\_PID

Line 6 : Run startup/shutdown scripts

Above steps (2, 3 & 4) are repeated for creating multiple tomcat instances

Based on above technique we can create many instance folder and change conf/server.xml file port values and run that instance with own newly created script files.