

# TomcatCreateNativeLaunchers

## Native Tomcat Launchers

Sometimes it is convenient to start Tomcat using a native launcher under Windows & Mac OS X

- Clear distinction between other running Tomcat instances
- Integration with desktop application launchers
- Shipping a Tomcat-based product

In my particular use case I was creating native launchers for Apache JSPWiki (see <https://jspwiki.apache.org>)

## Available Options

What options do you have in the open-source world

- for Mac OS and Oracle JDK you can use [AppBundler](http://docs.oracle.com/javase/7/docs/technotes/guides/jweb/packagingAppsForMac.html) (see <http://docs.oracle.com/javase/7/docs/technotes/guides/jweb/packagingAppsForMac.html>)
- for Windows you can use [Launch4J](http://launch4j.sourceforge.net) (see <http://launch4j.sourceforge.net>)

## Mac OS X AppBundler

The following snippet

- defines an Ant task definition "bundleapp"
- invokes the "bundleapp" tasks to create a native Mac OS X launcher
- sets the executable flag of the underlying native launcher (just to make 100% sure the file is executable)

```
<target name="woas:mac-app-oracle-jdk" description="creates an Mac OS X application wrapper for Oracle JDK 1.7+">
  <taskdef
    name="bundleapp"
    classname="com.oracle.appbundler.AppBundlerTask"
    classpath="${basedir}/src/resources/appbundler/appbundler-1.0.jar"
  />
  <bundleapp
    outputdirectory="${jspwiki.woas.assembly.dir}"
    name="woas"
    displayName="Portable JSPWiki"
    identifier="org.apache.jspwiki.jspwiki-portable"
    icon="${basedir}/src/resources/macos/jspwiki.icns"
    shortversion="${jspwiki.woas.version}"
    applicationCategory="public.app-category.developer-tools"
    mainclassname="org.apache.catalina.startup.Bootstrap">
    <classpath file="${basedir}/target/unpack/tomcat/${jspwiki.tomcat.distribution}/bin/bootstrap.jar"/>
    <classpath file="${basedir}/target/unpack/tomcat/${jspwiki.tomcat.distribution}/bin/tomcat-juli.jar"/>
    <option value="-Xmx96m"/>
    <option value="-Duser.dir=$APP_ROOT/.."/>
    <option value="-Dcatalina.home=$APP_ROOT/.."/>
    <option value="-Dcatalina.base=$APP_ROOT/.."/>
    <option value="-Djava.io.tmpdir=$APP_ROOT/./temp"/>
  </bundleapp>
  <chmod file="${jspwiki.woas.assembly.dir}/woas.app/Contents/MacOS/JavaAppLauncher" perm="ugo+X"/>
</target>
```

Some notes along the line

- "APP\_ROOT" is the directory of the Mac OS X launcher and will be expanded accordingly during run-time
- The current working directory is undefined therefore all "important" properties must be provided
- The two referenced JARs are effectively copied into the native launcher
- No JRE is packaged since it is assumed that the JRE is available on the target box
- If you need to change the memory settings for an existing native app then you can edit the "Info.plist" directly
- If the native app is starting at all you get no error message which is a bit annoying - as work-around you can launch at the command line to see the output, e.g. `./woas.app/Contents/MacOS/JavaAppLauncher`

## Windows Launch4J

- Defines an Ant task definition "launch4j"
- Invokes the "launch4j" tasks to create a native Mac OS X launcher

```

<target name="woas:windows-app" description="creates an windows application wrapper">
  <taskdef
    name="launch4j"
    classname="net.sf.launch4j.ant.Launch4jTask"
    classpath="${basedir}/src/resources/launch4j/launch4j-3.1.0-beta2.jar:${basedir}/src/resources/launch4j
/xstream.jar"
  />
  <launch4j>
    <config
      headerType="console"
      outfile="${jspwiki.woas.assembly.dir}/woas.exe"
      errTitle="WikiOnASTick"
      chdir="."
      icon="${basedir}/src/resources/windows/jspwiki.ico"
      jar="${basedir}/src/resources/tomcat/tomcat-launcher-7.0.52.jar"
    >
    <singleInstance mutexName="org.apache.jspwiki.jspwiki-portable" />
    <jre minVersion="1.6.0" />
    <versionInfo
      fileVersion="2.1.10.1"
      txtFileVersion="JSPWiki ${jspwiki.woas.version}"
      fileDescription="WikiOnASTick"
      copyright="Apache Software Licence 2.0"
      productVersion="2.1.10.1"
      txtProductVersion="JSPWiki ${jspwiki.woas.version}"
      productName="WikiOnASTick"
      companyName="Apache Software Foundation"
      internalName="woas"
      originalFilename="woas.exe"
    />
  </config>
</launch4j>
</target>

```

Some notes along the line

- Launch4J allows to set the current working directory of the Tomcat instance therefore all Tomcat properties are bootstrapped for the current working directory
- I cheated here by providing a manually packaged "tomcat-launcher-7.0.52.jar" which contains "bootstrap.jar" and "tomcat-juli.jar" - I think there is a way to avoid this but I have to test it on an Windows box