

# Tomcat 5.5.x and OS X Tiger Server

Installation and Configuration  
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- Apache Tomcat is used in OS X Server distributions as part of the application server. It is the servlet container that is used in the official Reference Implementation for the Java Servlet and JavaServer Pages technologies.
- Apache Tomcat is developed in an open and participatory environment and released under the Apache Software License. Apache Tomcat is intended to be a collaboration of the best-of-breed developers from around the world.

In this presentation, the following will be covered:

- How to install Tomcat 5.5.x on OS X Server as a standalone application.
- How to develop and install a basic web application
- Some configuration quirks.

# Installation

- Download Tomcat 5.5.x from <http://tomcat.apache.org/download-55.cgi> (get the core binary installation)
- Expand and copy to /Library/apache-tomcat-5.5.x/
- create a symbolic link (ln -s apache-tomcat-5.5.x Tomcat)

# Installation (cont.)

- If you haven't run software update, do so to get JRE 5. Java 5 is required for tomcat 5.5 and greater.
- Create a StartupItem and then add an entry in /etc/hostconf to start tomcat at boot time (see next slide)

```
#!/bin/sh

##
# Tomcat Java Application Server
##

./etc/rc.common

StartService ()
{
    if [ "${TOMCAT:=-NO-}" = "-YES-" ]; then
        ConsoleMessage "Starting UOnline Tomcat"
        /Library/Tomcat/bin/startup.sh
    fi
}

StopService ()
{
    ConsoleMessage "Stopping UOnline Tomcat"
    /Library/Tomcat/bin/shutdown.sh
}

RestartService ()
{
    if [ "${TOMCAT:=-NO-}" = "-YES-" ]; then
        ConsoleMessage "Restarting Tomcat Instances"
        /Library/Tomcat/bin/shutdown.sh
        sleep 2
        /Library/Tomcat/bin/startup.sh
    else
        StopService
    fi
}

JAVA_HOME=/Library/Java/Home; export JAVA_HOME
RunService "$1"
```

/System/Library/StartupItems/Tomcat/StartupParameters.plist

```
{
    Description = "Tomcat Servers";
    Provides = ("Tomcat");
    Requires = ("Resolver"); # If MySQL is used by tomcat, add "MySQL" also.
    OrderPreference = "None";
    Messages =
    {
        start = "Starting Tomcat Servers";
        stop = "Stopping Tomcat Servers";
    };
}
```

Edit /etc/hostconf... add the following to the end:

**TOMCAT=-YES-**

# Start Tomcat

- You can start Tomcat manually at this point.
- `cd /Library/Tomcat/bin`
- `chmod 755 startup.sh`
- `chmod 755 shutdown.sh`
- `./startup.sh`
- Open browser to <http://localhost/>





## Apache Tomcat/5.5.17



The Apache Software Foundation

<http://www.apache.org/>**Administration**[Status](#)[Tomcat Administration](#)[Tomcat Manager](#)**Documentation**[Release Notes](#)[Change Log](#)[Tomcat Documentation](#)**Tomcat Online**[Home Page](#)[FAQ](#)[Bug Database](#)[Open Bugs](#)[Users Mailing List](#)[Developers Mailing List](#)[IRC](#)**Examples**[JSP Examples](#)[Servlet Examples](#)[WebDAV capabilities](#)

If you're seeing this page via a web browser, it means you've setup Tomcat successfully. Congratulations!

As you may have guessed by now, this is the default Tomcat home page. It can be found on the local filesystem at:

```
 $CATALINA_HOME/webapps/ROOT/index.jsp
```

where "\$CATALINA\_HOME" is the root of the Tomcat installation directory. If you're seeing this page, and you don't think you should be, then either you're either a user who has arrived at new installation of Tomcat, or you're an administrator who hasn't got his/her setup quite right. Providing the latter is the case, please refer to the [Tomcat Documentation](#) for more detailed setup and administration information than is found in the INSTALL file.

**NOTE:** This page is precompiled. If you change it, this page will not change since it was compiled into a servlet at build time. (See `$CATALINA_HOME/webapps/ROOT/WEB-INF/web.xml` as to how it was mapped.)

**NOTE:** For security reasons, using the administration webapp is restricted to users with role "admin". The manager webapp is restricted to users with role "manager". Users are defined in `$CATALINA_HOME/conf/tomcat-users.xml`.

Included with this release are a host of sample Servlets and JSPs (with associated source code), extensive documentation (including the Servlet 2.4 and JSP 2.0 API JavaDoc), and an introductory guide to developing web applications.

Tomcat mailing lists are available at the Tomcat project web site:

- [users@tomcat.apache.org](mailto:users@tomcat.apache.org) for general questions related to configuring and using Tomcat
- [dev@tomcat.apache.org](mailto:dev@tomcat.apache.org) for developers working on Tomcat

Thanks for using Tomcat!

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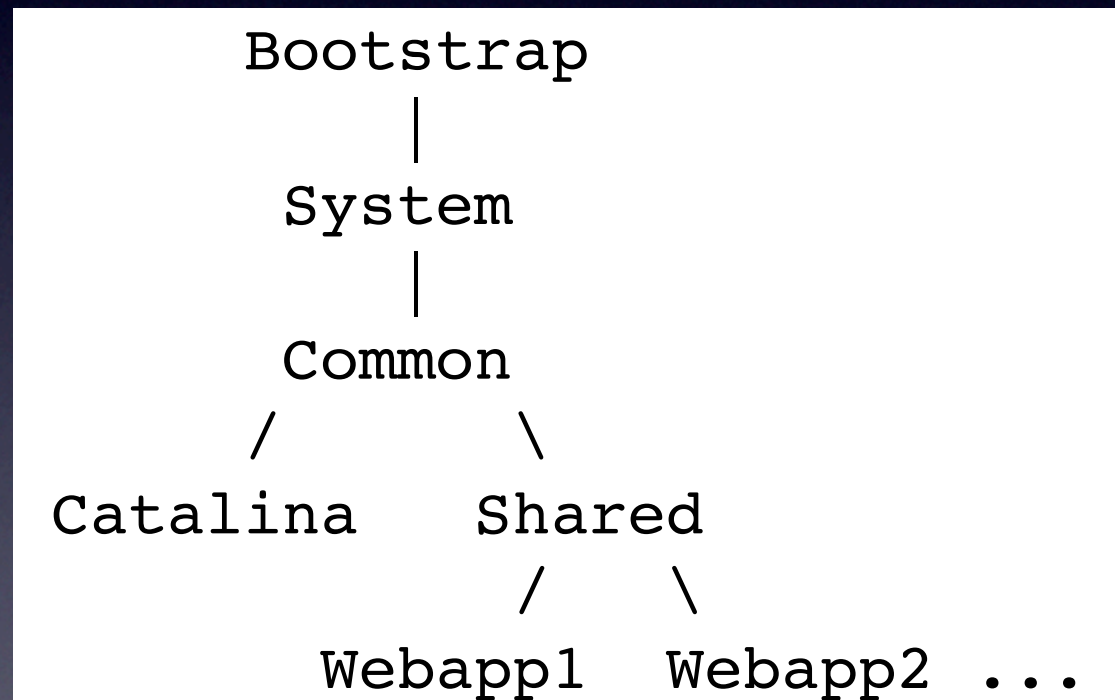
TOMCAT

# Configure Tomcat

- Stop Tomcat ([Catalina\_Home]/bin/shutdown.sh)
- Directory Structure

```
-rw-r--r--  | garyg  admin  | 1357 Mar 26 2005 LICENSE
-rw-r--r--  | garyg  admin   688 Mar 26 2005 NOTICE
-rw-r--r--  | garyg  admin  6383 Mar 26 2005 RELEASE-NOTES
-rw-r--r--  | garyg  admin  7031 Mar 26 2005 RUNNING.txt
drwxr-xr-x  26 garyg  admin   884 Apr 17 18:21 bin      // Contains Executables
drwxr-xr-x   6 garyg  admin   204 Mar 26 2005 common  // Classes common to all Webapps
drwxr-xr-x  21 garyg  admin   714 Jun 19 15:21 conf    // Configuration files live here
drwxr-xr-x   8 garyg  admin   272 Jun 19 15:10 logs    // Log directory
drwxr-xr-x   5 garyg  admin   170 Mar 26 2005 server  // Classes that belong to all of Tomcat
drwxr-xr-x   4 garyg  admin   136 Mar 26 2005 shared  // Classes that are shared across webapps
drwxr-xr-x   2 garyg  admin    68 Mar 26 2005 temp    // Server temp directory
drwxr-xr-x   8 garyg  admin   272 Mar 26 2005 webapps  // Contexts (web applications) live here
drwxr-xr-x   3 garyg  admin   102 Jun 10 2005 work    // Directory used to compile jsps
```

# Class Hierarchy



# Configure (cont.)

- Edit [Catalina\_Home]/conf/server.xml
- You can change ports to standards 80 and also enable ssl (not covered in this presentation, but covered well in tomcat documentation.)

# Configure (cont.)

server.xml

Based on server-minimal.xml

```
<Server port="8005" shutdown="SHUTDOWN">

  <GlobalNamingResources>
    <!-- Used by Manager webapp -->
    <Resource name="UserDatabase" auth="Container"
      type="org.apache.catalina.UserDatabase"
      description="User database that can be updated and saved"
      factory="org.apache.catalina.users.MemoryUserDatabaseFactory"
      pathname="conf/tomcat-users.xml" />
  </GlobalNamingResources>

  <Service name="Catalina">
    <Connector port="8080" />

    <!-- This is here for compatibility only, not required -->
    <Connector port="8009" protocol="AJP/1.3" />

    <Engine name="Catalina" defaultHost="localhost">
      <Realm className="org.apache.catalina.realm.UserDatabaseRealm"
        resourceName="UserDatabase" />
      <Host name="localhost" appBase="webapps" />
    </Engine>

  </Service>
</Server>
```

# Security - Very Brief

- Remove all contents of the webapps directory.
- Change server.xml entry `<Server port="8005" shutdown="SHUTDOWN">` to something arbitrary, such as:
  - `<Server port="800521" shutdown="SHUTDOWNasdfk">`
- Run as non-privileged user

# Webapps

- Webapps are called contexts.
- Contexts live in the webapps directory
- You can drop a webarchive.war into the webapps directory to deploy a context.

# Webapps- Creating

- A web application jar (name.war) is a standard jar file that has the following minimal contents

```
-rw-r--r-- 1 garyg garyg 52 Jun 20 12:35 index.jsp // main access point
drwxr-xr-x 5 garyg garyg 170 Jun 20 12:38 WEB-INF // contains web app information
drwxr-xr-x 5 garyg garyg 170 Jun 20 12:38 WEB-INF/classes // Webapp classes
drwxr-xr-x 5 garyg garyg 170 Jun 20 12:38 WEB-INF/lib // Webapp libraries
drwxr-xr-x 5 garyg garyg 170 Jun 20 12:38 WEB-INF/web.xml // Webapp configuration file
```



# Conf Quirks

- Context definitions can be in several different places:
- `/conf/Catalina/localhost/context.xml` (recommended)
- `/conf/server.xml`
- `webapp/contextName/WEB-INF/context.xml`
- localhost webapp path must be defined and moved from the default `/webapps` directory when configuring virtual hosts (for more on virtual host configuration, see documentation).
- It is better to map servlets than to use the servlet invoker (commented out by default in `/conf/web.xml`).