

## Becoming a Tomcat Super User

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## Who am I?

- Tomcat committer
- ASF member
- Infrastructure volunteer (Bugzilla)
- ASF security team member
  
- SpringSource employee



## Agenda

- SVN repository
- Building Tomcat
- Debugging a current bug
- Request processing
- Patching / extending Tomcat



## SVN Repositories

- Master <http://svn.apache.org/>
- Use the EU mirror
  - Bigger machine
  - Much lower load
- <http://svn.eu.apache.org/>
- [.../repos/asf/tomcat](http://svn.eu.apache.org/repos/asf/tomcat)



## SVN Repositories

- Tomcat 7
  - Trunk
- Tomcat 6
  - tc6.0.x
- Tomcat 4 and 5
  - Multiple checkouts required
  - Messy
  - Use externals



## Building Tomcat 4

- `svn co ../tomcat/current-svn15/tc4.1.x`
- Or unpack src distribution
- `cd apache-tomcat-4.1.x/container`
- Set `base.path` in `build.properties`
  - `/Users/mthomas/development/libs`
- `ant download`
  - `assumes windows`
- `ant`



## Running Tomcat 4

- Normal layout in
  - container/build
  - bin/catalina.sh run



## Building Tomcat 5

- `svn co ../tomcat/current-svn15/tc5.5.x`
- Or unpack src distribution
- `cd apache-tomcat-5.5.x/build`
- Set `base.path` in `build.properties`
  - `/Users/mthomas/development/libs`
- `ant download`
  - must use Java 5 due to DBCP
- `ant`





## Running Tomcat 5

- Normal layout in
  - `build/build`
  - `bin/catalina.sh run`
- Note wrong version number
  - See `build.properties.default`



## Building Tomcat 6

- `svn co ../tomcat/tc6.0.x/trunk`
- Or unpack src distribution
- `cd apache-tomcat-6.0.x`
- Set `base.path` in `build.properties`
  - `/Users/mthomas/development/libs`
- `ant download`
  - must use Java 5 due to DBCP
- `ant`



## Running Tomcat 6

- Normal layout in
  - output/build
  - bin/catalina.sh run



## Building Tomcat 7

- `svn co ../tomcat/trunk`
- Set `base.path` in `build.properties`
  - `/Users/mthomas/development/libs`
- `ant download`
  - Must use Java 6
  - Uses a fixed DBCP snapshot
- Ant
  - Must use Java 6



## Running Tomcat 7

- Normal layout in
  - output/build
  - bin/catalina.sh run



## Bug 45774

- JSP issue
- May see init(), destroy(), init()
- Trigger on reload of updated JSP
- Bug contains a test case



## Deploy test case

- Test case is a JSP
- Add it to the ROOT application
- Check that the test case does demonstrate the bug



## Aside: Request processing

- o.a.c.connector.CoyoteAdapter
  - Parses request
  - Validates it
  - Identifies
    - Engine
    - Host
    - Context
    - Wrapper





## Aside: Request processing

- Engine, Host and Context
  - Valves
- Context
  - Filters
- Wrapper
  - Servlet



## Debug

- `./catalina.sh jpda start`
  - Uses Eclipse defaults
- Key break point
  - `o.a.jasper.servlet.JspServletWrapper`
  - Line 193



## Root cause

- After a compile, the wrapper's last modified time for the class file is not updated
- On next access the wrapper thinks the class has been changed and triggers a reload



## Fix

- Updated the wrapper's last modified time for the class on compilation
- o.a.jasper.compiler.Compiler
  - Line ~317
- Patch is attached to bug 41606



## Fix

- Apply the patch
- Rebuild Tomcat
  - Don't forget to stop any running instance
- Start Tomcat
- Run the test case



## Applying to a 'live' server

- Stop the server
- Create the directory structure
  - In lib
  - Mirrors package structure
- Copy the .class file
  - Good idea to copy the .java file too
- Start Tomcat
- Confirm the fix



## Questions

- Slides from:
  - ApacheCon website
  - <http://people.apache.org/~markt>

