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
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