Apache Tomcat 9

Quick Preview

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Introduction

• Apache Tomcat committer since December 2003
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• Tomcat 8 release manager

• Member of the Servlet, WebSocket and EL expert groups

• Consultant Software Engineer @ Pivotal

• Currently focused on Apache Tomcat 9
## Tomcat versions

<table>
<thead>
<tr>
<th>Tomcat</th>
<th>JavaEE</th>
<th>Minimum Java SE</th>
<th>Servlet</th>
<th>JSP</th>
<th>EL</th>
<th>WebSocket</th>
<th>JASPIC</th>
<th>1st Stable Release</th>
<th>EOL</th>
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<td>4</td>
<td>1.4</td>
<td>2.4</td>
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<td>2.0?</td>
<td>1.1?</td>
<td>Q4 2016?</td>
<td>TBD</td>
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Specifications
Servlet 4.0

• HTTP/2
  - Work in progress
  - Basic requests work (mostly)
  - Async and non-blocking support are next
  - Server push will follow

• HTTP/2 requires ALPN which is not supported by Java 8

• Several possible workarounds
  - APR/native, Java 9, OpenSSL engine for JSSE, Jetty’s JRE patch
Specifications
WebSocket 2.0, EL 3.1 & JSP 2.4

• WebSocket
  – No movement
  – Standardization of extension support?

• EL
  – No movement
  – No obvious, significant changes

• JSP
  – Maintenance mode
Specifications

Other

- **JASPIC**
  - Failed GSoC project
  - Will still be in Tomcat 9.0.x

- **JACC**
  - No demand at all
  - Will look at if there is time

- **Web Profile**
  - TomEE
Tomcat 9 New Features

- Major overhaul of TLS support
  - TLS virtual hosts (multiple certificates per connector)
  - Multiple certificates per host
  - Configuration has had to change
  - Common configuration

- SNI support for all HTTPS connectors

- ALPN support for APR/native

- OpenSSL engine for JSSE
Removed Features

• HTTP BIO and AJP BIO connectors
• Comet
Internal Changes

- Connector refactoring
  - Per connector code to Endpoint
  - Per connection code to SocketWrapper
  - Removed ~2000 ‘duplicate’ lines of code
  - No connector specific HTTP/2 code

- WebSocket goes direct to Tomcat’s internal I/O layer
  - Using the Servlet 3.1 API was a nice idea but not practical

- RFC 6265 cookie processor
Questions