

# **JAKARTA 11 / TOMCAT 11**

## **PREVIEW**

# INTRODUCTION

Mark Thomas

markt@apache.org

Hosted at GitHub in the [tomcat-training](#) repository

Pull requests welcome

Tomcat since 2003  
Committer, PMC member

Commons - Daemon, Pool, DBCP, BCEL  
Committer, PMC member

ASF member, ASF security team, ASF infrastructure team,  
Director 2016-19, VP Brand Management since 2018

Java EE Expert Groups for Servlet, WebSocket, Expression Language  
Jakarta Servlet, Pages, WebSocket and Expression Language  
Committer

# AGENDA

Jakarta EE 11

Jakarta Servlet

Jakarta Pages

Jakarta WebSocket

Jakarta Expression Language

Jakarta Authentication

Jakarta Annotations

Tomcat specific changes

# JAKARTA EE 11

42 individual specifications - Tomcat implements 6

Platform specification - Tomcat implements relevant sections

Minimum of Java 21

No SecurityManager support

Testing and Compatibility Kits (TCKs) are being refactored

First milestones due end of November

Final release June/July 2024

# **JAKARTA SERVLET - 6.1**

No major changes

Clarification

Clean-up

Various improvements

# JAKARTA SERVLET - HEADERS

Calls using null for a header name will be NO-OPs

Using null when setting a header value will remove all current values

Calls using null when adding a header value will be NO-OPs

The empty string is a valid value for a header

Any method that sets a header is a NO-OP once the response is committed

Align getDateHeader() and getIntHeader() with getHeader() for multiple values

# **JAKARTA SERVLET - ASYNC**

`dispatch()` and `complete()` close non-blocking output streams

`write()`, `print()`, `println()` and `flush()` are "write operations"



# **JAKARTA SERVLET - REDIRECTS**

Status code can be specified

Response body can be specified

Relative redirects are allowed

# **JAKARTA SERVLET - SECURITY**

Clarify that all ServletContext methods that accept a path bypass security constraints

Remove sensitive HTTP headers from TRACE responses

# **JAKARTA SERVLET - PARAMETERS**

Invalid parameters will always trigger an Exception

# JAKARTA SERVLET - MISCELLANEOUS I

Update HTTP RFC references to latest versions

HTTPS support is now mandatory

New constants for status codes 308, 421, 422 and 426

New request attribute `jakarta.servlet.error.query_string`

Add `ByteBuffer` support to `ServletInputStream` and  
`ServletOutputStream`

Charset support for `setCharacterEncoding()`

# JAKARTA SERVLET - MISCELLANEOUS II

Context root mapping occurs with or without the trailing '/'

Clarify when leading '/' is omitted in  
`HttpServletMapping.getMatchValue()`

Clarify multi-part config sizes are in bytes

Clarify expected behaviour for CONNECT requests

Deprecate and make optional support for HTTP/2 server push

# **JAKARTA SERVLET - IN PROGRESS**

HttpSession access for WebSocket

Require error dispatches to use GET

Clarify behaviour of various methods for include / forward

Support for 1xx responses - particularly early hints

# **JAKARTA PAGES - 4.0**

Depreacted classes and methods have been removed

Updated ErrorData to support the new request attribute  
`jakarta.servlet.error.query_string`

## **JAKARTA WEBSOCKET - 2.2**

Clarified the responsibility for sending Ping messages

Added `getSession()` method to `SendResult`



# **EXPRESSION LANGUAGE - 6.0**

Remove all deprecated classes and methods

Dependency on JavaBeans API is now optional

Added support for `java.util.Optional` via `OptionalELResolver`

# **ANNOTATIONS - 3.0?**

ManagedBean is deprecated

# **JAKARTA AUTHENTICATION - 3.1?**

TBD

# TOMCAT 11

No major changes

Specification / RFC updates

Generally stricter with invalid input

Enhancements and improvements

32-bit Windows no longer supported (no JRE)

# **TOMCAT 11 - SECURITY I**

BASIC authentication uses UTF-8 by default

Update DIGEST auth to RFC 7616

Documentation web application is only accessible from localhost by default

Examples web application is only accessible from localhost by default

# **TOMCAT 11 - SECURITY II**

rejectIllegalHeader hard-coded to true

allowHostHeaderMismatch hard-coded to false

Align AJP connector handling of invalid HTTP headers with HTTP  
connector

Added RateLimitFilter

# HTTP/2

RFC 9218 - HTTP/2 priority frame support

Support for server push has been removed

# **VIRTUAL THREADS**

Virtual thread support - useVirtualThreads on the Connector

Some internal refactoring



# TLS

Log TLS cert info on startup

Dedicated loggers for detailed TLS configuration info

Added TLSCertificateReloadListener

# MISCELLANEOUS

Expose the utility executor to web applications

Tomcat no longer sets `java.protocol.handler.pkgs` when starting

Added `PropertiesRoleMappingListener`

Added `ContextNamingInfoListener`

Add support for loading configuration resources from the web application

**QUESTIONS?**

# TOMCAT RESOURCES

Web site: <https://tomcat.apache.org>

Mailing lists: <https://tomcat.apache.org/lists.html>

Source code: <https://github.com/apache/tomcat>

Issue tracker: <https://bz.apache.org/bugzilla>

Stack overflow

**THANK YOU**

