

# Road map for Java EE6 Web Profile

## Basics of Java EE 6

### Java EE 6 Report Card

This table will be used to track the progress of the Apache Geronimo Java EE 6.0 implementation. The implementation will be staged over builds of the 3.0 release. This incremental rollout will allow users to provide early feedback on the new functions. The milestone driver levels in the table below indicate when the code for a particular function was available. It does not make any indication as to TCK status. The project won't aim to declare overall Java EE 6.0 functional compliance and official TCK certification until Geronimo 3.0 is complete.

Spec	Version	JSR No.	Changes from JEE 5	Latest Package(s)	Milestone Build (Initial Drop)
<b>Web Application Technologies</b>					
Servlet	Servlet 3.0	JSR 315	Upgrade from Servlet 2.5	Tomcat-7.0-SNAPSHOT Jetty-8.0-SNAPSHOT	
Java Server Pages	JSP 2.2	JSR 245	Maintenance update from JSP 2.1	Jasper-7.0.0.0-SNAPSHOT	
Expression Language 2.2	EL 2.2	JSR 245	Maintenance update from JSP 2.1	Jasper-7.0.0.0-SNAPSHOT	
JSP Debug	JSP Debug 1.0	JSR 45	Unchanged for Java EE 6.0	Jasper-7.0.0.0	
Java Server Faces	JSF 2.0	JSR 314	Upgrade from JSF 1.2	Myfaces-impl-2.0.0-SNAPSHOT	
Java Server Pages Standard Tag Library	JSTL 1.2	JSR 52	Unchanged from Java EE5	Glassfish-jstl-1.2	
EJBs in war files	n/a	JSR 316	New support for web profile	Geronimo/OpenEJB 3.1	
Global JNDI additions	n/a	JSR 316	New feature for Java EE 6	Geronimo implementation	
Datasource resource definition	n/a	JSR 316	New feature for Java EE 6	Geronimo implementation	
<b>Enterprise Application Technologies</b>					
JavaBeans Activation Framework	JAF 1.1	JSR 925	Unchanged from Java EE 5	Geronimo implementation	
JavaMail	JavaMail 1.4	JSR 919	Unchanged from Java EE 5	Geronimo implementation	
Java Persistence API	JPA 2.0	JSR 317	Upgrade from JPA 2.0	OpenJPA-2.0.0-M3	
Java Transactions API	JTA 1.1	JSR 907	Unchanged from Java EE 5	Geronimo implementation	
Java Message Service API	JMS 1.1	JSR 914	Unchanged from Java EE 5	Activemq-5.3.0	
Java EE Connector Architecture	JCA 1.6	JSR 322	Upgrade from JCA 1.5	Geronimo implementation	
Java Authorization Contract for Containers	JACC 1.4	JSR 115	Maintenance update	Geronimo implementation	
Java Authorization SPI for Containers	JASPIC 1.0	JSR 196	New for Java EE 6	Geronimo implementation	
Common Annotations for the Java Platform	Annotations 1.1	JSR 250	Upgrade from Annotations 1.0	Geronimo implementation	
Enterprise JavaBeans	EJB 3.1	JSR 318	Upgrade from EJB 3.0	OpenEJB 3.1-Snapshot	
Interceptors	Interceptors 1.1	JSR 318	Upgrade from EJB 3.0	OpenEJB 3.1-Snapshot	
Bean Validation 1.0	Validation 1.0	JSR 302	New for Java EE 5	Glassfish RI	
Managed Beans 1.0	Managed Beans 1.0	JSR 318	New for Java EE 5	OpenEJB 3.1-Snapshot	
Dependency Injection for Java 1.0	DI 1.0	JSR 330	New for Java EE 5	OpenWebBeans	
Contexts and Dependency Injection for Java EE 1.0	CDI 1.0	JSR 299	New for Java EE 5	OpenWebBeans	
<b>Management</b>					
Java EE Management	Java EE Mgmt 1.1	JSR 77	Unchanged from Java EE 5	Geronimo implementation	
Java EE Application Deployment	App Deploy 1.2	JSR 88	Unchanged from Java EE 5	Geronimo implementation	
<b>Web Services - Axis2</b>					
Implementing Web Services	WSEE 1.3-MR2	JSR 109	Maintenance Update for WSEE 1.3	Geronimo implementation	
Java API for XML-Based Web Services	JAX-WS 2.2	JSR 224	New maintenance release	Axis2 implementation	
Java API for RESTful Web Services	JAX-RS 1.1	JSR 311	New for Java EE 6	Wink implementation	
Java Architecture for XML Binding	JAXB 2.2	JSR 222	New maintenance release	Glassfish JAXB Implementation 2.2	
Java API for XML-Based RPC	JAX-RPC 1.1	JSR 101	Same as Java EE 5	Axis2 1.5	
Java API for XML Registries	JAXR 1.0	JSR 93	Same as Java EE 5	Scout 1.1	
Web Service Metadata for the Java platform	WS Metadata 2.1	JSR 181	Unchanged from Java EE 5	Axis2 implementation	
SOAP with Attachments API	SAAJ 1.3	JSR 67	Unchanged from Java EE 5	Axis2 implementation	
Streaming API for XML	STAX 1.0	JSR 173	Unchanged from Java EE 5	Woodstox 3.2.8	
<b>Web Services - CXF</b>					
Implementing Web Services	WSEE 1.2	JSR 109	Maintenance Update from WSEE 1.1	Geronimo implementation	
Java API for XML-Based Web Services	JAX-WS 2.2	Maintenance update from Java EE 5.0	CXF implementation 2.0-incubator-RC-SNAPSHOT		
Java Architecture for XML Binding	JAXB 2.2	JSR 222	New maintenance release	Glassfish JAXB Implementation 2.2	

Java API for XML-Based RPC	JAX-RPC 1.1	JSR 101	Same as Java EE 5	Axis2 1.5	
Java API for XML Registries	JAXR 1.0	JSR 93	Same as Java EE 5	Scout 1.1	
Web Service Metadata for the Java platform	WS Metadata 2.1	JSR 181	Unchanged from Java EE 5.0	CXF implementation - 2.0-incubator-RC-SNAPSHOT	
SOAP with Attachments API	SAAJ 1.3	JSR 67	Unchanged from Java EE 5	Glassfish SAAJ implementation 1.3	
Streaming API for XML	STAX 1.0	JSR 173	New for Java EE 5.0	Woodstox 3.2.8	
<b>Misc</b>					
JDK 5.0 - Corba support		??	Unchanged from Java EE 5.0	Yoko-1.1	
<b>Web Profile Technologies</b>					
Servlet	Servlet 3.0	JSR 315	Upgrade from Servlet 2.5	Tomcat-7.0-SNAPSHOT Jetty-8.0-SNAPSHOT	
EJBs in war files	n/a	JSR 316	New support for web profile	Geronimo/OpenEJB 3.1	
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Common Annotations for the Java Platform	Annotations 1.1	JSR 250	Upgrade from Annotations 1.0	Geronimo implementation	
<a href="#">Enterprise JavaBeans Lite</a>	EJB 3.1 Lite	JSR 318	Upgrade from EJB 3.0	OpenEJB 3.1-Snapshot	
Java Persistence API	JPA 2.0	JSR 317	Upgrade from JPA 2.0	OpenJPA-2.0.0-M3	
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Managed Beans 1.0	Managed Beans 1.0	JSR 318	New for Java EE 5	OpenEJB 3.1-Snapshot	
Dependency Injection for Java 1.0	DI 1.0	JSR 330	New for Java EE 5	OpenWebBeans	
Contexts and Dependency Injection for Java EE 1.0	CDI 1.0	JSR 299	New for Java EE 5	OpenWebBeans	

## Basics of Java EE 6 Web Profile

The Java EE 6 web profile is a specified minimal configuration targeted for small footprint servers that support "typical" web applications. The Web profile is a minimal specification, so an implementation is free to add additional services or allow applications to provision additional services. The required elements of the web profile are:

- Java EE 6 (JSR-316)
- Servlet 3.0 (JSR-315)
- JavaServer Pages (JSP) 2.2 (JSR-245)
- Expression Language (EL) 2.2 (JSR-245)
- Debugging Support for Other Languages 1.0 (JSR-45)
- Standard Tag Library for JavaServer Pages (JSTL) 1.2 (JSR-52)
- JavaServer Faces (JSF) 2.0 (JSR-314)
- Common Annotations for Java Platform 1.1 (JSR-250)
- Enterprise JavaBeans (EJB) 3.1 Lite (JSR-318)
- Java Transaction API (JTA) 1.1 (JSR-907)
- Java Persistence API (JPA) 2.0 (JSR-317)
- Dependency Injection for Java 1.0 (JSR-330)
- Contexts and Dependency Injection for Java EE platform 1.0 (JSR-299)
- Bean Validation 1.0 (JSR-303)
- Managed Beans 1.0 (JSR-316)
- Interceptors 1.1 (JSR-318)

Details on the current state of each of these is traced below. Geronimo is already at the current level for some of these components, for others we'll need to locate updated versions. Hopefully, this will be just new releases of components we already use, but this might also require developing some elements directly as part of Geronimo.

In addition, the Geronimo spec tree contains versions of the API classes for these different interfaces, so we will probably need to develop new versions of the API classes.

As a first step in developing these, we might want to create a plugin group that is an embodiment of the web profile using the Java EE 5 components currently in Geronimo. This will give use a platform for experimenting with how to configure the server for the smaller footprint and how to allow additional services to be added to the minimal profile configuration. Also, as Java EE 6 compatible implementations become available, we can create additional plugins that allow the newer versions to be swapped in to the configurations.

## Additional Component Details

The current known state for each of these components in Geronimo is detailed here. Feel free to update this information as new details emerge.

## Component: Java EE 6

### Global JNDI

New "java:global", "java:app", and "java:module" namespaces will be required for all profiles of Java EE 6. As well @Resource and @EJB have been updated to have a new "lookup" attribute.

Names definable via annotation or in deployment descriptor (application, application-client, web, ejb-jar)

### DataSource Resource Definition

For example:

```
@DataSourceDefinition(name="java:app/MyDataSource",
  className="com.foobar.MyDataSource",
  portNumber=6689,
  serverName="myserver.com",
  user="lance",
  password="secret")
```

Can also be done via xml in deployment descriptor (application, application-client, web, ejb-jar)

### EJBs in .war files

See related section under EJB 3.1

## Component: Servlet 3.0 (JSR-315)

### Current Geronimo Provider

The servlet container can be either Tomcat 7 or Jetty 8? The Tomcat artifact Geronimo uses contains patches applied on top of the Tomcat version.

According to the summary presented here:

[Tomcat Releases](#)

Tomcat servlet 3.0 is actively in the works, with an alpha release planned for around March 1st, 2010.

For Jetty, there is a similar [project plan](#) for an 8.0.x version also planned at the time Servlet 3.0 goes final. Current information suggests an alpha or beta release around March 1st.

### Status of Java EE 6 Activity

Unknown. In the Tomcat community, this appears to have been discussed, but is not really under active development. The Jetty community seems to be tracking the Servlet 3.0 activity a little more closely, but I've not found any projections for availability.

Geronimo trunk is currently building with snapshot versions of both projects, but there are some issues that are being worked.

## Component: JavaServer Pages 2.2 (JSR-245)

### Current Geronimo Provider

Geronimo is currently relying on Jasper for the JSP implementation, which is developed as part of the Tomcat community.

### Status of Java EE 6 Activity

The JSP 2.2 work is complete and passing the TCKs.

## Component: Expression Language (EL) 2.2 (JSR-245)

### Current Geronimo Provider

This is provided by the JSP provider, so they're fairly tightly coupled.

### Status of Java EE 6 Activity

The EL 2.2 work is complete and passing the TCKs.

## Component: Debugging Support for Other Languages 1.0 (JSR-45)

## Current Geronimo Provider

This is really JSP debugging support, and is implemented by the JSP provider. We're currently getting this from Jasper.

## Status of Java EE 6 Activity

Nothing new for Java EE 6 in this area.

## Component: Standard Tag Library for JavaServer Pages (JSTL) 1.2 (JSR-52)

### Current Geronimo Spec Versions

None - We use Sun RI (jstl-1.2.jar)

### Current Geronimo Provider

Sun RI at the 1.2 level

### Status of Java EE 6 Activity

The jstl RI is not provided as a bundle, so Geronimo is using this as a wrapped bundle.

## Component: JavaServer Faces (JSF) 2.0 (JSR-314)

### Current Geronimo Spec Versions

None. We use org.apache.myfaces.core.myfaces-api-2.0.0-SNAPSHOT.jar.

### Current Geronimo Provider

MyFaces 2.0.2, which is at a JSF 2.0 level.

### Status of Java EE 6 Activity

JSF 2.0 is being worked on by the MyFaces community. A beta version of the 2.0 was made available on February 1, 2010, so this activity is well along.

## Component: Common Annotations for Java Platform 1.1 (JSR-250)

### Current Geronimo Provider

Geronimo implemented.

### Status of Java EE 6 Activity

A 1.1 version of the annotations is available, but not currently being used within the Geronimo trunk build.

### Additional Notes

This is really just a set of annotations classes that can be shared across different Java EE components.

## Component: Enterprise JavaBeans (EJB) 3.1 Lite (JSR-318)

### Current Geronimo Provider

OpenEJB

### Status of Java EE 6 Activity

Like the web profile itself, this appears to describe a minimal feature set, but an implementation can provide more than the minimum, if desired. This appears fairly easy to meet, once the 3.1 feature set is implemented. Portions of the 3.1 features have already been implemented in OpenEJB.

The major EJB 3.1 features yet to be completed in OpenEJB are async interfaces, schedule based timers and the no-interface view. Of the three, only the no-interface view is required for EJB Lite. Several updates are required for changes to the EJB 3.1 spec in the last few months mostly around deployment descriptor, additional annotations, Singleton bean lifecycle tweaks and support of the official javax.ejb.embedded.EJBContainer API based on the existing OpenEJB InitialContext/embedded API. Rough estimate of the time required to complete the no-interface view and updates required for the EJB Lite profile are 2-3 weeks and 4-6 weeks respectively. Rough estimate on async invocations/interfaces is 3-5 weeks and schedule based timer support 4-?. The schedule based timer support is the largest undertaking, based on de facto standards like Cron and Quartz, but different enough that it is not possible to use any existing library as-is. Actual completion dates depend on time spent in other priorities.

A major new Java EE 6/EJB/Servlet feature to be completed in Geronimo is the ability to include EJBs in .war files which required as part of the Java EE 6 Web Profile. Any EJBs in the webapp share the classloader of the webapp and the java:comp/env namespace of the webapp. The Geronimo deployment process will also need to be updated to treat all webapps as potential sources for EJBs to support this feature. Rough estimate is 3-4 weeks of likely both David Blevins' and David Jencks' time.

### **Additional Notes**

The embedded version of OpenEJB is capable of handling a dynamic provisioning of the different subsystems from the Lite profile version up to the full capability (minus the CORBA integration, which is handled by Geronimo). It appears there will be some work required on the part of Geronimo to create profiles/plugins that will selectively start the GBeans that integrate different portions of the OpenEJB stack with the configuration. Currently, the Geronimo EJB configuration is an all-or-nothing proposition.

EJB 3.1 API libraries currently being developed in `asf/openejb/trunk/openejb3/api/ejb31-api-experimental/` with plans to move it to `asf/geronimo/specs/trunk/geronimo-ejb_3.1_spec` once the specification closes. Current close date is slated for some time in September 2009.

## **Component: Java Transaction API (JTA) 1.1 (JSR-907)**

### **Current Geronimo Provider**

Implemented by Geronimo directly.

### **Status of Java EE 6 Activity**

No revisions required for Java EE 6,

## **Component: Java Persistence API (JPA) 2.0 (JSR-317)**

### **Current Geronimo Provider**

OpenJPA2.0

### **Status of Java EE 6 Activity**

A beta version of OpenJPA 2.0 should be available in early February 2010. This OpenJPA2 Geronimo plugins are still using an earlier milestone release and will need some updates to use the most current spec and implementation.

## **Component: Dependency Injection for Java 1.0 (JSR-330)**

### **Current Geronimo Provider**

This is a new JEE 6 component, so there is no current provider.

### **Status of Java EE 6 Activity**

JSR 330 is a proper subset of the JSR 299 spec definition, so no additional provider work is required beyond what is already being done to implement JSR 299 and to provide the spec jar file.

## **Component: Contexts and Dependency Injection for Java EE platform 1.0 (JSR-299)**

### **Current Geronimo Provider**

This is a new JEE 6 component, so there is no current provider.

### **Status of Java EE 6 Activity**

The openwebbeans project is working on implementing this component and is already working with the Geronimo and OpenEJB communities to work on the integration issues. There should be a feature complete beta available in February 2010 and it appears the target is for a TCK complete implementation to be available in April. This item will also require a significant amount of Geronimo integration work once it is available.

### **Additional Notes**

A potential fallback might be to use the RI version, which has an ASL license. However, there would still be significant integration work required for using this alternate version. The amount has not been investigated yet, but it is assumed to be similar in extent to the openwebbeans effort + the additional effort required to research how the integration needs to be accomplished.

## **Component: Bean Validation 1.0 (JSR-303)**

## **Current Geronimo Provider**

New component in JEE6, so there is no existing component.

## **Status of Java EE 6 Activity**

There have been numerous discussions about creating an Apache project for implementing a Bean Validation component, but none of these proposals have managed to get off the ground as yet. Currently, using the [reference implementation](#) (which carries an ASL2 license) is looking like the most viable alternative.

## **Component: Interceptor 1.1 (JSR-318)**

### **Current Geronimo Provider**

OpenEJB 31.

### **Status of Java EE 6 Activity**

This work effort is completely contained within the OpenEJB project.

## **Component: JCA 1.6 (JSR 322)**

### **Current Geronimo Provider**

Geronimo Implementation

### **Status of Java EE 6 Activity**

The spec and implementation effort for this item appears complete.

## **Component: JACC 1.4 (JSR 115)**

### **Current Geronimo Provider**

Geronimo Implementation

### **Status of Java EE 6 Activity**

The spec and implementation effort for this item appears complete.

## **Component: JASPIC 1.0 (JSR 196)**

### **Current Geronimo Provider**

Geronimo Implementation

### **Status of Java EE 6 Activity**

The spec and implementation effort for this item appears complete.

## **Component: Web Services for Java EE 1.3-MR2 (JSR 115)**

### **Current Geronimo Provider**

Geronimo Implementation

### **Status of Java EE 6 Activity**

Work has not started yet on this item, but this does not appear to be a large update.

## **Component: JAX-WS 2.2**

### **Current Geronimo Provider**

Currently using both Axis2 and CXF for the JAX-WS implementation.

## **Status of Java EE 6 Activity**

Axis2 is not targeted for completion until October, 2010.

CXF does not currently have a plan in place for delivering JAX-WS-2.2 because of issues with dealing with endorsed dir requirements.

## **Component: JAX-RS 1.1 (JSR 311)**

### **Current Geronimo Provider**

New for Java EE 6. We can chose between Wink and CXF as a JAX-RS provider.

### **Status of Java EE 6 Activity**

The Wink implementation is complete and passes the JAX-RS TCK. CXF has not shipped a release with its JAX-RS stack yet, but it is under active development.