Java Platform, Enterprise Edition

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Java Platform, Enterprise Edition or **Java EE** is a widely used computing platform for development and deployment of enterprise software (network and web services).[1] Java EE was formerly known as **Java 2 Platform, Enterprise Edition** or **J2EE**.

The platform uses the object-oriented Java programming language. It is part of the Java software-platform family. Java EE extends the Java Platform, Standard Edition (Java SE),[2] providing an API for object-relational mapping, distributed and multitier architectures, and web services. The platform incorporates a design based largely on modular components running on an application server. The platform emphasizes convention over configuration[3] and annotations for configuration. Optionally XML can be used to override annotations or to deviate from the platform defaults.

Java EE is developed under the Java Community Process.

Contents

Version history

The platform was known as *Java 2 Platform, Enterprise Edition* or *J2EE* from version 1.2, until the name was changed to *Java Platform, Enterprise Edition* or *Java EE* in version 1.5. The current version is called *Java EE 7.*

- J2EE 1.2 (December 12, 1999)
- J2EE 1.3 (September 24, 2001)
- J2EE 1.4 (November 11, 2003)
- Java EE 5 (May 11, 2006)
- Java EE 6 (December 10, 2009)
- Java EE 7 (May 28, 2013,[4] but April 5, 2013 according to spec document. June 12, 2013 was the planned kickoff date[5])
- Java EE 8 (expected by the end of 2017[6])

Standards and specifications

Java EE is defined by its specification. As with other Java Community Process specifications, providers must meet certain conformance requirements in order to declare their products as *Java EE compliant*.

Java EE includes several API specifications, such as RMI, e-mail, JMS, web services, XML, etc., and defines how to coordinate them. Java EE also features some specifications unique to Java EE for components. These include Enterprise JavaBeans, connectors, servlets, JavaServer Pages and several web service technologies.

This allows developers to create enterprise applications that are portable and scalable, and that integrate with legacy technologies. A Java EE application server can handle transactions, security, scalability, concurrency and management of the components it is deploying, in order to enable developers to concentrate more on the business logic of the components rather than on infrastructure and integration tasks.

General APIs

The Java EE APIs includes several technologies that extend the functionality of the base Java SE APIs.

javax/servlet
> The servlet specification defines a set of APIs to service mainly HTTP requests. It includes the JavaServer Pages (JSP) specification.

javax/websocket
> The Java API for WebSocket specification defines a set of APIs to service WebSocket connections.

javax/faces
> This package defines the root of the JavaServer Faces (*JSF*) API. JSF is a technology for constructing user interfaces out of components.

javax/faces/component
> This package defines the component part of the JavaServer Faces API. Since JSF is primarily component oriented, this is one of the core packages. The package overview contains a UML diagram of the component hierarchy.

javax/el
> This package defines the classes and interfaces for Java EE's Expression Language. The Expression Language (*EL*) is a simple language originally designed to satisfy the specific needs of web application developers. It is used specifically in JSF to bind components to (backing) beans and in CDI to name beans, but can be used throughout the entire platform.

javax/enterprise/inject
> These packages define the injection annotations for the Contexts and Dependency Injection (CDI) (http:// jcp.org/en/jsr/detail?id=299) APIs.

javax/enterprise/context
> These packages define the context annotations and interfaces for the Contexts and Dependency Injection (CDI) (http://jcp.org/en/jsr/detail?id=299) API.

javax/ejb
> The Enterprise JavaBean (*EJB*) specification defines a set of lightweight APIs that an object container (the EJB container) will support in order to provide transactions (using JTA), remote procedure calls (using RMI or RMI-IIOP), concurrency control, dependency injection and access control for business objects. This package contains the Enterprise JavaBeans classes and interfaces that define the contracts between the enterprise bean and its clients and between the enterprise bean and the ejb container.

javax/validation
> This package contains the annotations and interfaces for the declarative validation support offered by the Bean Validation API. Bean Validation provides a unified way to provide constraints on beans (e.g. JPA model classes) that can be enforced cross-layer. In Java EE, JPA honors bean validation constraints in the persistence layer, while JSF does so in the view layer.

javax/persistence
> This package contains the contracts between a persistence provider and the managed classes and the clients of the Java Persistence API (JPA).

javax/transaction
> This package provides the Java Transaction API (*JTA*) that contains the interfaces and annotations to interact with the transaction support offered by Java EE. Even though this API abstracts from the really low-level details, the interfaces are also considered somewhat low-level and the average application developer in Java EE is either assumed to be relying on transparent handling of transactions by the higher level EJB abstractions, or using the annotations provided by this API in combination with CDI managed beans.

javax/security/auth/message
> This package provides the core of the Java Authentication SPI (*JASPIC*) that contains the interfaces and classes to build authentication modules for secure Java EE applications. Authentication modules are responsible for the interaction dialog with a user (e.g. redirecting to a Form or to an OpenID provider),

verifying the user's input (e.g. by doing an LDAP lookup, database query or contacting the OpenID provider with a token) and retrieving a set of groups/roles that the authenticated user is in or has (e.g. by again doing an LDAP lookup or database query).

javax/enterprise/concurrent
This package provides the interfaces for interacting directly with Java EE's platform default managed thread pool. A higher-level executor service working on this same thread pool can be used optionally. The same interfaces can be used for user-defined managed thread pools, but this relies on vendor specific configuration and is not covered by the Java EE specification.

javax/jms
This package defines the Java Message Service (*JMS*) API. The JMS API provides a common way for Java programs to create, send, receive and read an enterprise messaging system's messages.

javax/batch/api
This package defines the entry AP for Java EE Batch Applications. The Batch Applications API provides the means to run long running background tasks that possibly involve a large volume of data and which may need to be periodically executed.

javax/resource
This package defines the Java EE Connector Architecture (*JCA*) API. Java EE Connector Architecture (JCA) is a Java-based technology solution for connecting application servers and enterprise information systems (*EIS*) as part of enterprise application integration (*EAI*) solutions. This is a low-level API aimed at vendors that the average application developer typically does not come in contact with.

Web profile

In an attempt to limit the footprint of web containers, both in physical and in conceptual terms, the web profile was created, a subset of the Java EE specifications. The Java EE web profile comprises the following:

Specification ⬍	Java EE 6[7] ⬍	Java EE 7[4] ⬍
Servlet	3.0	3.1
JavaServer Pages (*JSP*)	2.2	2.3
Unified Expression Language (*EL*)	2.2	3.0
Debugging Support for Other Languages (JSR-45)	1.0	1.0
JavaServer Pages Standard Tag Library (*JSTL*)	1.2	1.2
JavaServer Faces (*JSF*)	2.0	2.2
Java API for RESTful Web Services (*JAX-RS*)	1.1	2.0
Java API for WebSocket (*WebSocket*)	n/a	1.0
Java API for JSON Processing (*JSON-P*)	n/a	1.0
Common Annotations for the Java Platform (JSR-250)	1.1	1.2
Enterprise JavaBeans (*EJB*)	3.1 Lite	3.2 Lite
Java Transaction API (*JTA*)	1.1	1.2
Java Persistence API (*JPA*)	2.0	2.1
Bean Validation	1.0	1.1
Managed Beans	1.0	1.0
Interceptors	1.1	1.2
Contexts and Dependency Injection for the Java EE Platform	1.0	1.1
Dependency Injection for Java	1.0	1.0

Certified application servers

Although by definition all Java EE implementations provide the same base level of technologies (namely, the Java EE spec and the associated APIs), they can differ considerably with respect to extra features (like connectors, clustering, fault tolerance, high availability, security, etc.), installed size, memory footprint, startup time, etc.

App Server	Developer	Java EE 7 certified - Full	Java EE 7 certified - Web	Java EE 6 certified - Full Official Oracle page for Java EE Compatibility.	Java EE 6 certified - Web	Java EE 5 certified	J2EE 1.4 certified	Licensing
GlassFish server Open Source Edition	Oracle	Yes v4.0[8]	Yes v4.0[8]	Yes v3.x and upward[9]	Yes v3.x Web Profile	Yes v2.1.x[9]		Free software
Oracle GlassFish Server	Oracle			Yes v3[10] based on the open source GlassFish application server		Yes Sun Java System Application Server v9.0	Yes Sun Java System Application Server v8.2	Proprietary software
Oracle WebLogic Server	Oracle	Yes v12.2.1 [11][12][13]		Yes v12c[14]		Yes v10.3.5.0	Yes v9	Proprietary software
WildFly	Red Hat	Yes v8.0.0.Final[15][16][17]	Yes v8.0.0.Final	Yes v7.1[18]	Yes v6.0[19] and v7.0[20]	Yes v5.1[21][22]	Yes v4.x	Free software
JBoss Enterprise Application Platform	Red Hat	Yes v7.0[23]		Yes v6.0[24]		Yes v5		Source is Free software
IBM WebSphere Application Server	IBM	Yes v9[25]		Yes v8[26]		Yes v7	Yes	Proprietary software
IBM WebSphere Application Server Liberty	IBM	Yes v8.5.5.6 [27][28]			Yes v8.5.5[29]			Proprietary software
IBM WebSphere Application Server Community Edition	IBM			Yes v3.0		Yes v2.1		Proprietary software
Apache Geronimo	Apache			Yes v3.0-beta-1 [1] (http://geronimo.apache.org)[30]		Yes v2.0	Yes v1.0	Free software
JEUS	TmaxSoft	Yes v8[31][32][33]		Yes v7[34][35]		Yes v6	Yes v5	Proprietary software
Cosminexus Application Server	Hitachi	Yes v10[36][37]		Yes v9[38]				Proprietary software
Fujitsu Interstage Application Server[39]	Fujitsu			Yes v1 Azure/v10.1[40][41]		Yes		Proprietary software
WebOTX	NEC			Yes[42]		Yes		Proprietary software

App Server	Developer	Java EE 7 certified - Full	Java EE 7 certified - Web	Java EE 6 certified - Full Official Oracle page for Java EE Compatibility.	Java EE 6 certified - Web	Java EE 5 certified	J2EE 1.4 certified	Licensing
Resin Server	Caucho				Yes v4.0.[43]		Yes	Proprietary software
Apache TomEE[44][45]	Apache		No 7 (Java EE 7 like, but not certified[46])		Yes			Free software
Siwpas	OW2				Yes v6.0[47]			Free software
JOnAS	OW2				Yes v5.3 rc1[48]	Yes	Yes	Free software
SAP NetWeaver	SAP				Yes v2.x[49]	Yes	Yes	Proprietary software
Oracle Containers for Java EE	Oracle					Yes		Proprietary software
Oracle iPlanet Web Server	Oracle						Yes Sun Java System Web Server	Proprietary software
Oracle Application Server 10g	Oracle						Yes	Proprietary software
Pramati Server	Pramati						Yes v5.0	Proprietary software
Trifork T4	Trifork						Yes	Proprietary software
Sybase Enterprise Application Server[50]	Sybase						Yes	Proprietary software

See also

- Web container
- Deployment Descriptor
- Java BluePrints
- Sun Java System Portal Server
- Java EE version history
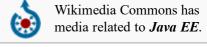- Sun Community Source License
- Java Research License

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External links

- Oracle Technology Network's Java EE (http://www.oracle.com/technetwork/java/javaee/overview/index.html)
- Oracle's Java EE Compatibility page (http://www.oracle.com/technetwork/java/javaee/overview/compatibility-jsp-136984.html) - Certified Java EE Compatible Implementations
- Core J2EE Patterns (http://java.sun.com/blueprints/corej2eepatterns/Patterns/index.html)
- A short tutorial introducing beginning Java EE developers to the Java EE platform (http://docs.oracle.com/javaee/7/firstcup/index.html)

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- Cloud Tutorial - Java EE in a Day (http://www.turngeek.press/javaeeinaday) Java EE Tutorial that embraces the use of a Cloud IDE to let you learn the fundamentals of Java EE in just one day

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