



SAP® Web Application Server, the core foundation of SAP NetWeaver™, provides native Web technology based on open standards. With SAP Web Application Server, you have the flexibility, investment protection, and interoperability you need in today's heterogeneous world. You can communicate with any other application adhering to these standards. You can take best advantage of the skills available within your staff and in the open market. Through this standards-based approach, SAP Web Application Server embraces native Web technologies while providing all the benefits of SAP's knowledge and experience.

SAP Technical Brief

SAP® WEB APPLICATION SERVER: SUPPORT FOR OPEN STANDARDS

SAP® Web Application Server is a native Web infrastructure for developing and deploying reliable business applications. It fully embraces all leading open standards and Web services standards and supports the life-cycle management of your business solution. SAP is an active member in the community to drive open standards. Serving as a driving force for industry standards is just one of the ways that SAP works to provide you with the richest set of infrastructure, tools, and applications. SAP uses its experience and widespread knowledge of enterprise business processes to help enhance Java and J2EE technology for reliability and scalability in business applications.

SAP Web Application Server is fully compatible with Java 2 Platform, Enterprise Edition (J2EE). It provides Web services for standards-based communication as well as a standards-based environment for product life-cycle management. SAP's participation in industry standards groups helps ensure that the Java technology underlying SAP Web Application Server continues to evolve as a stable and reliable platform for business solutions.

FULLY J2EE COMPATIBLE

The Java 2 Platform, Enterprise Edition (J2EE) is designed to support the requirements of today's enterprise application systems. J2EE provides a component-based, server-centric application architecture. SAP Web Application Server implements the J2EE interfaces specified by the J2EE standard. The following table lists all J2EE standard services supported by SAP Web Application Server.

WEB SERVICES FOR STANDARDS-BASED COMMUNICATION

Web services encapsulate the relevant aspects of business interaction in a manner that is independent of the technical architecture. A Web service is a self-contained, modularized function that can be published, discovered, and accessed across a network using open standards. It is the implementation of an interface by a component and is an executable entity. For the caller or sender, a Web service is a “black box” that may require input and delivers a result. Web services cover function provision for integration within an enterprise, as well as across enterprises, on any communication technology stack, whether asynchronous or synchronous, in any format. With SAP Web Application Server, you can turn Java or ABAP™ programming language components into Web services.

With SAP Web Application Server, Web services use the Web Services Description Language (WSDL) as a standardized way to describe Web services. All SAP BAPI® programming interfaces can be made available as Web services through WSDL.

To call a business function over the Internet, SAP Web Application Server implements Simple Object Access Protocol (SOAP). SOAP is a lightweight protocol for exchanging information in a decentralized, distributed environment. It is an Extensible Markup Language (XML)-based protocol that is typically used with HyperText Transfer Protocol (HTTP). SOAP includes conventions to represent method calls of objects or function calls and the respective responses, as well as conventions to represent standardized data types.

Standard Interfaces	Version	Description/Benefit
Enterprise JavaBeans (EJB)	EJB 2.0	Enterprise JavaBeans reduces the complexity of developing middleware by providing a standardized component model. Applications written using EJB run in containers, providing automatic support for transactions, security, database connectivity, and more.
J2EE Connector Architecture	J2EE Connector Architecture 1.0	J2EE Connector Architecture enables any application with a compliant resource adapter to integrate with SAP Web Application Server.
Java Naming and Directory Interface (JNDI)	JNDI 1.2	JNDI provides access to existing naming and directory services such as domain name system (DNS), Novell directory services (NDS), and lightweight directory access protocol (LDAP).
Java Database Connectivity (JDBC)	JDBC 2.0	JDBC provides uniform access to relational databases such as DB2, Oracle, Microsoft SQL Server, and SAP DB.
Java Remote Method Invocation (RMI) over Internet Inter-ORB Protocol (IIOP)	RMI-IIOP 1.0	RMI creates remote interfaces for Java-to-Java communication. RMI over IIOP (RMI-IIOP) uses the Common Object Request Broker (CORBA) standard's IIOP communications protocol.
Servlets and JavaServer Pages (JSP)	Servlets 2.3 JSP 1.2	Java Servlet technology provides Web developers with a simple, consistent mechanism for extending the capabilities of a Web server and for accessing existing business systems. JavaServer Pages technology allows Web developers and designers to rapidly develop and easily maintain information-rich, dynamic Web pages that take advantage of existing business systems.

Standard Interfaces	Version	Description/Benefit
Java Message Service (JMS)	JMS 1.0.2	The Java Message Service allows J2EE applications to access enterprise messaging systems. JMS supports both point-to-point and publish-and-subscribe messages.
Java Transaction API (JTA)	JTA 1.0.1	The Java Transaction application programming interface (API) provides a way for J2EE components and clients to manage their own transactions and for multiple components to participate in a single transaction.
JavaMail	JavaMail 1.1	JavaMail provides a protocol-independent framework to build mail and messaging applications.
Java Authentication and Authorization Service (JAAS)	JAAS 1.0	JAAS enables services to authenticate and enforce access controls upon users.

To locate business partners and services in an open Internet environment, you can easily access a Universal Description, Discovery, and Integration (UDDI) business directory. The UDDI project is a sweeping industry initiative to create a platform-independent and open framework for describing Web services, discovering businesses, and integrating business services using the Internet. Another purpose of UDDI is to provide an operational registry, which is already available.

STANDARDS-BASED MANAGEMENT ENVIRONMENT

SAP Web Application Server includes central monitoring capabilities that provide a centralized view of all applications in the IT landscape. Collaboration with existing monitoring and administration tools is possible. Technically, the administrator connects to SAP Web Application Server and sets the server properties, controls the assigned users, and sets the component properties. In keeping with SAP's commitment to open standards, SAP Web Application Server uses industry standards to manage heterogeneous systems.

Goal	Industry Standard	Integration Benefit
Common model of the managed objects	Common Information Model (CIM)	Harmonization of data models
Standard access to information and methods for information distribution	Web-Based Enterprise Management (WBEM) and Windows Management Instrumentation (WMI)	Interoperability of management applications
Standard management interfaces and provider infrastructure	Java Management Extensions (JMX) and Windows Management Instrumentation (WMI)	JMX is a universal, open technology for the integration with management and monitoring frameworks.

SAP'S ROLE IN THE DEVELOPMENT OF BUSINESS AND TECHNICAL STANDARDS

SAP actively participates in important standardization groups. As a proven business-knowledge provider, SAP supports business-oriented initiatives such as the Organization for the Advancement of Structured Information Standards (OASIS) and the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT). OASIS is a not-for-profit, global consortium that drives the development, convergence, and adoption of e-business standards. OASIS produces worldwide standards for security, Web services, XML conformance, business transactions, electronic publishing, topic maps, and interoperability within and between marketplaces.

To bring SAP's business experience into the J2EE world, SAP works under the Java Community Process (JCP) and helps to ensure that Java technology standards continue to evolve to a stable and reliable platform for business solutions. The JCP holds the responsibility for the development of Java technology. An open organization, the JCP primarily guides the development and approval of Java technical specifications. Today, SAP is involved in major Java Specification Requests (JSR) – for example, for the J2EE Connector Architecture, Implementing Enterprise Web Services, Java Data Objects (JDO), and J2EE 1.4.

SAP drives the standardization of Web services as a founding member of the Web Services Interoperability Organization (WS-I) and as a UDDI Business Registry node operator. SAP is also a member of the Web Services Architecture Working Group of the World Wide Web Consortium (W3C). The W3C develops interoperable technologies (specifications, guidelines, software, and tools) to lead the Web to its full potential as a forum for information, commerce, communication, and collective understanding.