Java™ 2 Platform, Micro Edition (J2ME™) Web Services Specification

For the Java™ 2 Platform, Micro Edition

Key feature highlights

– Extends the Web services platform to include Java™ 2 Platform, Micro Edition (J2ME™) client devices

– Specifies XML Processing APIs and RPC-based Web services access APIs for J2ME technology

– Allows the same service to be deployed on many types of clients and platforms through a consistent Java Web services programming model

– Lowers the cost of developing, maintaining, and debugging programs for diverse mobile devices that require access to enterprise data and applications

Developers serve an ever-growing market that comprises not only existing servers and PCs, but also diverse emerging products, including set-top boxes, embedded devices, and wireless mobile electronics such as cell phones and PDAs. While each of these new conveniences requires access over the Internet to back-end data and functionality, they also all use different technologies, protocols, and formats.

In the past, specialists in developing Java™ 2 Platform, Micro Edition (J2ME™) technology-based clients for enterprise services lacked a standard, nonproprietary method for communicating with Web services. As a result, developers faced the prospect of having to write, maintain, and debug unique code for every conceivable type of consumer electronics platform. Custom development proved so expensive and impractical that mobile and embedded devices effectively lay beyond the reach of the Web services that already support servers and PCs. In short, a major divide in networking capabilities opened between consumer electronics equipment and the rest of the enterprise infrastructure.

The JSR 172 J2ME Web Services Specification

To close the gap between consumer and enterprise products, the Java Specification Request (JSR) 172 J2ME Web Services Specification defines two new optional packages:

• XML Processing APIs
• RPC-based access to Web Services

The JSR 172 J2ME Web Services Specification is delivered as part of the Java Community Process. Developed by an expert group of mobile device manufacturers, wireless operators, and Web services platform experts, the specification provides a standardized, open platform that streamlines the deployment and support of Web services-capable J2ME clients. JSR 172 continues to add capabilities to the J2ME platform, enabling richer end-to-end applications.

J2ME Web Services Specification Key Technologies

As the number of deployed J2ME devices rapidly approaches hundreds of millions, software developers have expressed growing interest in broadening enterprise services to cover J2ME clients. To allow these proliferating devices to act as clients to Web services, the J2ME Web Services Specification specifies a subset of the APIs that the Java API for XML Processing (JAXP) defines for the basic manipulation of structured XML data. The specification further identifies the subset of APIs and conventions that the Java API for XML-based RPC (JAX-RPC) uses to permit XML-based RPCs from the J2ME platform.

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Together, the JAXP and JAX-RPC subsets enable J2ME software to provide basic XML processing capabilities — the means for programming J2ME clients of enterprise services — and a consistent development model for all J2ME clients to communicate with Web services. The two new technologies also ensure the interoperability of J2ME clients with Web services, and enable developers to reuse Web services components when they design these clients for enterprise services.

In addition, JSR 172 J2ME Web Services Specification versions of JAXP and JAX-RPC bring J2ME technology into conformity with standards and conventions that are gaining increased acceptance among Java and Web services developers.

JSR 172 provides a stub compiler that creates all the code J2ME applications need to execute simple programmatic calls to an existing Web service. The specification also allows stubs to be independent of implementation, so these applications can be dynamically provisioned to — and run effectively on — any J2ME technology-supported platform. In short, the applications can be portable.

Benefits for Developers

With the JSR 172 J2ME Web Services Specification, J2ME client communication with Web services has gained a programming model that is consistent with its counterparts for other clients, such as Java 2 Platform, Standard Edition (J2SE™) technology. Services and clients no longer have to be implemented on the same platform or by the same implementer.

Rather, a standard end-to-end architecture for using J2ME technology as a Web services client enables developers to create a service once and then deploy it many times to diverse clients on diverse platforms. Because JSR 172 formally defines interactions with Web services, an implementation of the specification also can call a service without regard for its platform or implementation.

Freed from having to produce different software for every type of mobile device that requires access to enterprise data, developers can now program much less expensively than they did with home-grown Web services communication layers. Maintenance and debugging also drop sharply in cost. The result is a well-defined Web services platform that improves the development community's return on investment, accelerates its time to market, increases its productivity, and reduces its application footprint.

About Sun™ Software

From the desktop to the data center, the focus of Sun™ software is on delivering the most complete, end-to-end solution for enabling customers to reduce complexity, provide continuous access to Web services, and lower the cost of computing. Whether it's development, deployment, or management, Sun's award-winning software — including Java technology, the Solaris™ Operating System, Sun ONE middleware, and N1 — continues to revolutionize the industry and create new value for customers.

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For More Information

To learn more about the JSR 172 J2ME Web Services Specification, visit java.sun.com/j2me.