

# MOBILE & EMBEDDED COMMUNITY ON JAVA.NET

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## **Abstract**

The Mobile & Embedded Community is the open source community for the Java™ Platform, Micro Edition (Java ME platform) and related technologies. The purpose of this paper is to introduce the Mobile & Embedded Community, describe the benefits of participating in the community, suggest ways to get involved, and explain the differences between working with the open source implementation and the commercial implementation of the Java ME platform.

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## Chapter 1

# The Mobile & Embedded Community

The Mobile & Embedded Community is a thriving community that enables and empowers developers to collaborate and innovate, driving the evolution and adoption of the Java Platform, Micro Edition (Java ME Platform) for mobile and embedded devices. The Java ME platform is by far the most ubiquitous mobile device application platform today. It provides a robust, flexible environment for applications running on a broad range of other embedded devices such as TV set-top boxes, printers, telematics systems, and PDAs. The Java ME platform includes a flexible user interface, a robust security model, a broad range of built-in network protocols, and extensive support for networked and offline applications that can be downloaded dynamically. The Java ME platform is deployed on billions of devices, supported by leading tool vendors, and used by companies worldwide. In short, it is the platform of choice for today's consumer and embedded devices.

Sun announced its intention to open source the Java platform in May 2006 at the annual JavaOne<sup>SM</sup> conference in San Francisco. Six months later, the Mobile & Embedded Community was launched on Java.net for the Java ME platform and OpenJDK was established for the Java<sup>TM</sup> Platform, Standard Edition (Java SE platform).

The Mobile & Embedded Community (<http://mobileandembedded.org>) provides the opportunity for anyone interested in an application platform for mobile and embedded devices to collaborate and drive the innovation, evolution, and adoption of the Java ME platform. Within the community are open source projects related to Java ME technologies, including the following:

- **phoneME<sup>TM</sup>**. The open source version of Sun Microsystem's Java ME platform implementations based on the Connected Device Configuration and Connected Limited Device Configuration specifications.
- **cqME<sup>TM</sup>**. The open source version of the ME Framework modules and the portal to the JT harness project site.
- **ME application developers**. The project dedicated to the business of application and content development on mobile and embedded Java platforms.

In addition to hosting these prominent projects, the Mobile & Embedded Community is also the home for many other innovative projects related to Java ME technologies.

Sun's vision for this community is to not only evolve and innovate within existing projects, but also to expand the focus to all market segments that might benefit from Java ME technology. Innovation within the community is expected to push Java ME technology into new and emerging markets.

## Chapter 2

# Benefits of Community Participation

The mobile and embedded industry has recently seen a huge advancement in technology. The gap between the capabilities of the desktop world and the mobile world has narrowed, enabling the power of the desktop to be brought to mobile devices. A number of compelling applications and services are being introduced at a rapid rate. The Java ME platform plays a key role in the creation and deployment of these services. The platform is the most ubiquitous mobile device application platform today. With the increased opportunities also come challenges, such as:

- How to provide a consistent application platform for more than a billion devices
- How to continue to provide the most robust, secure, and flexible application platform
- How to enable application development and unified service deployment across three screens (TV, mobile and desktop)

The contribution of the Java platform implementation from Sun to the open source community is expected to encourage innovation and increase the speed with which the Java platform evolves and becomes more widely adopted as a common and consistent Java platform. Through the Mobile & Embedded Community, participation in the innovation and adoption of the platform is now available to developers, independent researchers, small companies, school teachers, university professors, and anyone else interested in working with the Java ME platform. The community enables true global participation from developers everywhere, including emerging countries.

Participating in the community provides a number of benefits to everyone in the mobile and embedded devices ecosystem and to Sun as well. General benefits include:

- Constant access to code
- Ability to influence the development and evolution of the platform
- Ability to collaborate with all segments of the industry around a common set of implementations
- Removal of the barriers and inefficiencies to innovation

In addition, participation helps to promote consistency in the Java ME platform across devices and across industries, which strengthens the relevance and importance of the Java ME platform.

## Device manufacturers and OEMs

Device manufacturers and OEMs benefit from a consistent and reliable platform for their offerings. Benefits of open source include:

- Access to feature-rich and proven implementations and technology stacks
- Early access to released code and code in development
- Significantly reduced development, testing, and maintenance costs
- Easier participation for component partners and the creation of pre-integrated solutions

## Application developers

The platform is of most value when there is compelling content available. In the mobile and embedded industry, success is often measured in terms of how much incremental revenue is being generated by acquiring new customers or increasing revenue from existing customers. Thus, content developers play a key role in the success of service providers and the success of the Java ME platform. The transparency brought about as a result of open source helps application developers plan and prepare for the availability of technology for creating compelling content. Access to the platform enables them to better test and certify their content and applications with the platform and empowers them to influence the future direction of the platform.

Benefits of open source to application developers include:

- Complete access to platform source code, community resources, and support
- Increased platform consistency
- Ability to test and validate applications against the open source code and ultimately reduce porting and testing costs
- Faster time to market with reduced cycles of development and testing

## Service providers

Service providers value how much incremental average revenue per user is generated and the introduction of new services that increase revenue. Therefore, they are dependent on the content developer to create compelling content that can be marketed to the consumers.

Benefits of open source to service providers include:

- Faster innovation of the platform through more compelling content, applications, and services
- Increased consistency, reduced testing, and operational costs

### ISVs, tools providers, and component providers

Other software providers, including ISVs, tools providers, and component vendors, benefit from easy access to the software to help them perform interoperability testing and bundling, and to create tightly integrated solutions.

Benefits of open source to these participants include:

- Direct access to the platform
- Ability to achieve tighter integration
- Faster innovation for platform developer tools

### Sun

As the innovators of Java technology, Sun wants to preserve compatibility, interoperability, and reliability. By open sourcing the Java ME implementations, Sun is taking big steps to make sure Java technology remains compatible, interoperable, and reliable, and that the entire Java community benefits.

Benefits of open source to Sun include:

- Wider adoption of the Java ME platform
- Maintenance and expansion of platform support across a wide range of devices
- Rapid innovation and collaboration in the development of the Java ME platform
- Delivery of high-quality implementations, technology stacks, and solutions with Java ME technologies

## Chapter 3

# Community Resources

The community offers many resources, including the community home page that contains community highlights, news and featured articles, and announcements and news related to the technology and the industry. The community site offers featured blogs from industry experts and has a blog aggregation capability. In addition, targeted forums and mailing lists are monitored and answered by Sun engineers as well as many active participants from the community. The community site also offers wiki pages, which are generally geared towards more detailed project information, and provides an ability to host open source projects.

Using the resources provided, community members can participate in the following ways:

- Access the code
- Report bugs
- Discuss issues with other members
- Start new projects

## Chapter 4

# Getting Involved

Developers and individuals can get involved in the community in several ways. A diverse group of developers are expected to be part of the community, including those who plan to evolve and improve the Java ME platform, those who are implementing or integrating with the technology in devices, and those who are creating content and applications for the Java ME platform. These groups of users include students, researchers, and educators, as well as commercial entities such as handset manufacturers, software and component providers, tools providers, consulting service providers, application developers, and other Java ME enthusiasts.

Anyone can be a community observer and a user with the following privileges:

- Access to the community
- Access to source code or binaries
- Ability to participate in and monitor forum postings and mailing lists
- Ability to submit bugs
- Ability to provide bug fixes or contributions by teaming up with existing developers
- Access to wikis

Developers who want to be more involved in developing and contributing code to the projects in the community can request the Developer role for the specific project within the community. Members with the Developer role can provide bug fixes, contribute changes to the source code repository, and participate in any private mailing lists that might exist.

### Starting a project in the community

One of the most powerful ways to get involved is to start a new project in the community or migrate an existing project into the community. Java.net provides the infrastructure needed to host and run an open source project. All projects in the Mobile & Embedded Community enjoy the benefits of this infrastructure, including the following:

- Complete project ownership and control over the project
- Web presence, if desired
- Complete source code management and repository
- Ability to manage announcements
- Control over project membership

All projects also support dedicated forums, mailing lists, and a bug tracking mechanism. In addition, Java.net provides project owners with statistical information about the project on a regular basis to monitor the activities in the project.

The Mobile & Embedded Community brings many communities together and further extends them. Though they are different communities, they bring together developers interested in the Java ME platform and technologies. You are invited to join in creating the most innovative and widely deployed application platform on the planet. Share your ideas, ask questions, start a project. Your active participation is key to the success of the Mobile & Embedded Community.

## Chapter 5

# Working with the Open Source Software

With the contribution of Sun's Java ME platform implementation and testing tools to open source, all development of the software now happens in the open source community. The open source software includes all of the source code for the Java ME platform that Sun owns and has the rights to distribute as open source software. The only exception is the legally encumbered components to which Sun does not own the rights and therefore cannot include as open source.

### What is included in the Open Source projects

Sun has contributed the following software to the projects in the Mobile & Embedded Community:

- Project phoneME [phoneme.dev.java.net](http://phoneme.dev.java.net)
  - **phoneME Feature:** Sun Java Wireless Client implementation, a leading CLDC/MIDP/MSA-based mass-market phone platform
  - **phoneME Advanced:** Advanced phone implementation, a CDC/FP/PBP-based platform for smart phones, set-top boxes, Blu-Ray, and similar devices
- Project cqME [cqme.dev.java.net](http://cqme.dev.java.net)
  - **ME framework:** foundation for Java ME TCKs
  - **JT harness:** JavaTest™ harness, foundation for testing frameworks
- NetBeans™ Mobility [netbeans.org/products/mobility](http://netbeans.org/products/mobility)

Also available is NetBeans Mobility Pack, in the NetBeans Community. NetBeans Mobility Pack 4.0 is used to write, test, and debug applications for Java technology-enabled mobile devices.

### Licensing

Sun's intention is to make its Java ME implementation available under a genuinely free and open license and, therefore, released its software for the phoneME and cqME projects under the General Public License (GPL) v2. GPL v2 is a license commonly used within free software communities. This license is designed to help advance projects and code commons by requiring innovation sharing with the commons. By design, it minimizes incompatible forks by requiring that all modifications be shared in the open. In addition, GPL v2 is the right license to preserve the trademark Write Once, Run Anywhere™ value proposition of the Java programming language.

The complete license text is available at:[gnu.org/licenses/gpl.txt](http://gnu.org/licenses/gpl.txt).

With the choice of GPL v2, Sun provides simplified access to source code and binaries and encourages transparency with the development of the platform and tools. Now that the Java platform implementations are free software (as defined by the Free Software Foundation), developers and others are encouraged to use the software, participate, and contribute to the projects. Developers can use the open-source Java ME platform code bases in any way that a GPL v2 licensed code base can be used. In working with the software, understand that GPL is a copyleft license, which implies that source code used to create software under a copyleft license must also be released under a copyleft license. Additional software not distributed with this copyleft software can be licensed independently. For the Java ME platform, this includes software distributions such as MIDlets and compatibility and quality tests. For more details on copyleft, see:[gnu.org/copyleft](http://gnu.org/copyleft).

For more details and frequently asked questions on the open source Java ME implementation, see [sun.com/software/opensource/java/faq.jsp](http://sun.com/software/opensource/java/faq.jsp).

### **Contributing to the Open Source projects**

All developers working with the Java ME platform technologies and tools are encouraged to contribute to the projects in a variety of ways, such as fixing bugs, updating existing modules, or even contributing entirely new modules. Every contribution helps to support and complement the platform and tools.

All contributions to the phoneME and cqME projects require a Sun Contributor Agreement to be in place. Such contributor agreements are commonly employed in a large number of open source communities. The agreement serves as a certificate of originality by the contributor and allows the contributors and Sun to share the rights to the contributions. In addition, it also enables Sun to offer community contributions to customers and licensees under Sun's commercial license.

## Chapter 6

# Commercial Products and Services

For commercial customers, Sun offers the most mature implementation of the Java ME platform. Sun is committed to ongoing development of the platform capability and features, which assures that the available products from Sun stay on the cutting edge of technology. Sun's solutions provide high-performance and feature-rich implementations within resource constraints, while reducing porting and deployment costs. Sun is confident that licensees will continue to leverage Java ME commercial products and services that help them deliver an exciting and compelling mobile internet experience to consumers.

Among many others, Sun's commercial licensees enjoy these benefits:

- High quality, optimized performance binaries released on a predictable schedule
- Packaged updates, patches, and security fixes
- Support for fixes, including customer-specific bug fixes delivered out of cycle
- Branding, access to trademark and logo licenses including Java Powered™
- Installation and custom engineering services
- Training and education
- Developer support

Commercial source code licensees can optionally buy additional services and gain additional rights, including:

- Shipping of binaries derived from custom modified source code
- Making of modifications to the source code without putting those modifications back into the open-source code commons
- Use of the Java Compatible™ logo for compliant custom implementations
- Complete access to TCKs
- Porting services
- Custom development and engineering support services
- Upgrades and updates to the source
- Binary support
- Testing services, including TCK testing

## Learn more

For more information on commercial products and services visit [java.sun.com/javame/overview/products.jsp](http://java.sun.com/javame/overview/products.jsp). For any licensing questions, contact Sun sales at: [sun.com/sales/wwsales.jsp](http://sun.com/sales/wwsales.jsp).

## References

<b>Mobile &amp; Embedded Community</b>	<a href="http://mobileandembedded.org">mobileandembedded.org</a>
<b>phoneME project</b>	<a href="http://phoneme.dev.java.net">phoneme.dev.java.net</a>
<b>cqME project</b>	<a href="http://cqme.dev.java.net">cqme.dev.java.net</a>
<b>ME Application Developers project</b>	<a href="http://meapplicationdevelopers.dev.java.net/">meapplicationdevelopers.dev.java.net/</a>
<b>Free and Open Source Java FAQs</b>	<a href="http://sun.com/software/opensource/java/faq.jsp">sun.com/software/opensource/java/faq.jsp</a>
<b>GPL v2</b>	<a href="http://gnu.org/copyleft">gnu.org/copyleft</a>

## About Sun

A singular vision, The Network is the Computer™, drives Sun in delivering industry-leading technologies that focus on the whole system — where computers, software, storage, and services combine. With a proven history of sharing, building communities, and innovation, Sun solutions create opportunities, both social and economic, around the world. You can learn more about Sun at [sun.com](http://sun.com).

