

# Java™ Verified Program and Unified Testing Initiative

Bringing Mobile Java Applications —  
Rapidly and Securely to Market



## Highlights

- The Unified Testing Initiative (UTI) is an open industry initiative that drives application quality criteria and the evolution of secure Java™ Platform, Micro Edition (Java ME) services
- The Java Verified Program is a single industry-accepted testing program that:
  - Greatly reduces cost, complexity, and time to market through efficient testing for the deployment of Java ME platform applications
  - Helps reduce the effects of fragmentation and ensures the quality of applications through unified testing
  - Creates signed Java applications that help ensure a higher level of safety and security when using third party applications on handsets



The Java Verified Program and Unified Testing Initiative (UTI) are vehicles used by the mobile phone industry to ensure that Java applications in the marketplace work according to expectations, and are more safe to deploy and use. The program targets:

- Developers of mobile applications running on the Java Platform, Micro Edition (Java ME)
- Network operators deploying Java application services in their networks
- Device manufacturers supporting a Java runtime environment on their devices

During the verification process, applications are evaluated against a set of predefined tests determined by members in the program to ensure a standard level of conformance to usability and security requirements. After passing the tests, an application is signed with a digital signature tied to the Java Verified Root Certificate. This certification verifies that the application has met the test requirements and that it may bear the Java Powered™ logo. The Java Verified Program is a publicly available and well-defined testing process that is engineered for success, reduces the deployment cycle for an application, and consequently reduces the time to market.

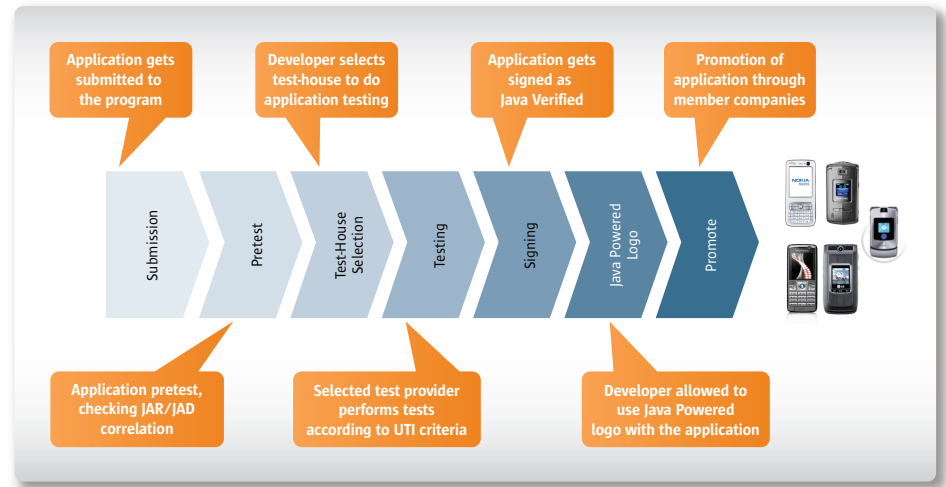
The Java Verified Program is a result of the efforts of respected industry participants, ranging from device manufacturers to network operators and technology developers. Since the inception of the Unified Testing Initiative in late 2002 and the launch of the Java Verified Program in 2004, it has evolved into a trusted means of ensuring adherence to accepted standards of quality and safety for a multitude of Java applications destined for market. By virtue of a network of approved testing facilities, the program offers a solid definition of test and verification criteria for developers, beginning with the process of initial test execution and ending with the signing and Java Powered logo designation for applications that have passed the required tests.

## Providing a valuable service

As the Java ME platform evolves and the number of devices and applications rapidly increases, it becomes increasingly important to streamline the process of bringing an application to market. It is equally important that end users can rapidly find and use high-quality secure services and applications on their handsets. The Java Verified Program offers these benefits to developers, network operators, device manufacturers, and end users in the following ways:

- Developers can approach different channels for deployment with a minimized cost for testing by having an application certified by the program. A single industry-recognized program greatly reduces the time and complexity required to take their applications to market. It can also further the widespread use of each application with a minimum cost for the developer.
- Network operators can expect a consistent level of quality for each application that is verified under the program. This reduces their time to market for new services as well as their cost for internal testing and verification. By participating in the definition of testing criteria, the network operator can influence the resulting criteria and thereby influence the future direction and cost of testing and verification.

- Device manufacturers can benefit from influencing criteria and reducing testing costs on their specific handsets. This helps ensure the optimum performance and functionality of applications on their handsets before hitting the market.
- End users can rapidly access a large number of applications that conform to their expectations of quality and security. A reduction in the cost of developing and deploying platform services and applications for developers and deployers results in an overall reduction in cost of use that is ultimately passed on to end users, making for a business-friendly increase in product acceptance and use.



### Program origination and membership

The UTI was founded in late 2002 by five member companies — Motorola, Nokia, Siemens Mobile, Sony Ericsson, and Sun Microsystems. These companies identified the need for an industry-driven initiative (to streamline the development and implementation of Java applications in the mobile industry) with the following goals:

- Reduce fragmentation by defining requirements that include common criteria
- Develop a rapid and efficient process that reduces costs and streamlines the implementation and introduction of new applications for developers, network operators, and device manufacturers
- Drive Java ME platform application markets by improving the user experience

Today's program membership has expanded to include LG, Orange, Samsung, and Vodafone. Membership is open to a limited number of companies within the mobile Java technology space who can provide a meaningful contribution to the development of the test criteria.

Figure 1. Application verification process

There are now two levels of membership in the program:

- Platinum members define the test criteria and participate in overall management of the program as board members.
- Gold members provide additional support to the program and contribute to the criteria.

All members encourage their business partners — either manufacturers or ISVs — to install the UTI root certificate and test and sign applications using the Java Verified Program. In addition, member companies provide backline support for testing issues on their supported phones.

The UTI operates under the umbrella of its board, which is made up of representatives from the platinum member companies. The UTI is responsible for developing criteria, setting strategic direction for the program, and providing oversight for its implementation.

In support of that effort, functional subcommittees evolve as needed, such as:

- UTC — Works on development of the unified testing criteria (UTC)
- Portal — Requirements gathering and planning for the Java Verified portal
- Signing — Requirements gathering and setting up the signing process

### Unified testing criteria

The Unified Testing Initiative defines the UTC, which is a general set of tests that run against applications to certify them under the Java Verified Program. The UTC subcommittee is made up of one representative from each of the platinum member companies in the program. This subcommittee defines the test criteria and is responsible for continuously updating and expanding tests to facilitate acceptance of applications by network operators and other participants who offer applications to end users.

Test cases are organized into the following 10 categories and goals:

- **Application Characteristics** — Provides testing information about the application to help test houses with their testing work
- **Stability** — Focuses on the application (under test) being stable on the device
- **Application Starting** — Ensures that once an application is loaded, it starts and stops correctly in relation to the device and other applications on the device
- **User Interface Requirements** — Provides general guidelines on user interface design rather than specifying exactly how to design one with the expectation that publishers and network operators will continue to define the look and feel of an application’s user interface to conform to the overall look and feel of applications in the genre
- **Localization** — Checks that an application for deployment to localities other than its point of origin accounts for changes in language, alphabets, date, money formats, and so on

- **Functionality** — From information sources such as user manuals, application specification documents, and online documentation, checks that documented features are implemented in the application and that they work as expected
- **Connectivity** — Ensures that if an application has communication capabilities, it demonstrates the ability to communicate over a network correctly and is capable of dealing with both network and server-side problems
- **Personal Information Management** — Ensures that an application accessing user information is able to do it without destroying the information
- **Security** — Provides the capability to list different security-related issues that are tested in an application
- **Retesting** — Provides facilities to perform designated retesting

### Verification process

The process set up by the Java Verified Program enables an application developer to submit an application for testing, signing, and final verification. Verifying an application assures deployers of Java platform services that the application conforms to all applicable specifications and can operate as a trusted application on the phone. The application verification process leading to certification by the Java Verified Program involves the following main steps:

1. Register for the program
2. Sign a developer agreement
3. Submit an application for certification
4. Pretest the application
5. Test the application at an authorized test facility to verify conformance to the UTC
6. Sign the application
7. Promote the application

Each step in the verification process is tracked on the Java Verified Program Web site, also known as the Java Verified portal. The Java Verified portal provides access to other portals for specific activities such as application testing and signing. The developer can use these facilities to check the status of an application at any time.

### Java Verified test facilities

All testing is done by the test facilities authorized and monitored by the the Java Verified Program. Authorized facilities maintain an inventory of test devices included in the program’s “Supported Devices” list. Developers can find the current list of authorized test facilities at [javaverified.com](http://javaverified.com). Because testing costs vary between facilities, developers are encouraged to contact more than one facility for initial testing. Pricing might also depend on the number and type of languages and the number of versions involved.

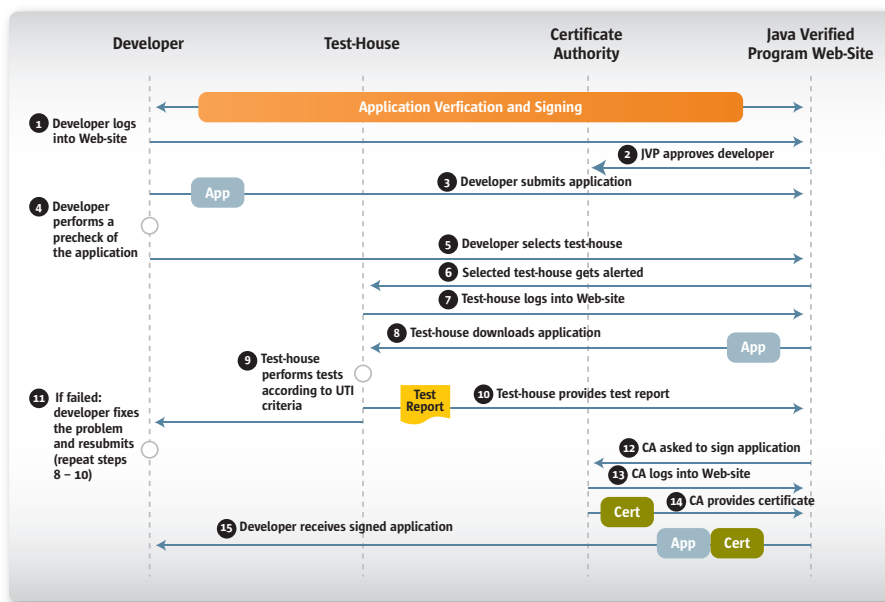


Figure 2. Verification process workflow

### Java Verified portal

The Java Verified portal at javaverified.com contains a number of areas for a variety of purposes. General information pages are available about the program and UTI as well as protected areas where the verification and signing process is handled, described as follows:

- **Java Verified home page** — Includes general information about the program (open to the public) and provides an entry point to protected areas
- **Developer portal** — Provides a protected area for developers (who are registered in the program) to submit and verify applications

### Digital signing of applications

When an application successfully passes the UTI testing criteria, it is digitally signed by a Certificate Authority. The signing ensures that the application did not change between the end of testing and final deployment. After an application is digitally signed and downloaded to a device that holds the corresponding root certificate, the application enters a protection domain that enables it to access related APIs. The Java Verified Root Certificate is supported by most of the major new devices on the market, and the numbers are increasing everyday as this becomes a requirement for a growing number of device manufacturers and network operators.

In addition to providing traceability for the application, a signed application operating in the identified domain is subject to fewer pop-up messages. This can significantly enhance the consumer experience.

### Promotion and marketing

Java applications that successfully pass the UTI testing criteria are authorized to use the Java Powered logo when marketing their application. The logo can also be displayed on the application “splash” screen or the “about” screen for marketing and branding of the application. The program offers developers the added marketing benefit of additional promotion by member companies. Developers who wish to use the Java Powered logo, should embed it in their applications prior to testing and signing as any changes to the application after signing will invalidate the signature.

### How to use the program

The Java Verified Program Web site, located at javaverified.com, provides all the necessary information on how to use the program, including:

- **Developers:** Register to test and sign your applications. There is no cost to join the program. Increase your eligibility for deployment by member and supporting companies by having your applications tested and signed. Review the criteria prior to submission to ensure that your application passes testing on the first round. You can also find information on how to use the Java Powered brand and promote your application through member company catalogs.
- **Operators:** Join the program as a member. Specify the JVP Root Certificate on your handsets. Access tested and signed applications for secure deployment of consumer-ready Java applications by participating in the program.

#### Learn More

For more information on the Java Verified Program and UTI, visit javaverified.com. To learn more about the Java ME platform, visit java.sun.com/javame. And to receive additional information on Sun software, products, programs, and solutions, visit sun.com/software.

- **Device manufacturers:** Join the program as a member. Equip your devices to support Java Verified Program-signed applications by installing the Java Verified Program Root Certificate on your handsets. Get your devices included in the list of mobile phones supported by the program and provide test devices to the authorized test facilities.
- **Technology providers:** Contact the UTI and share your expertise for possible participation in the development of new criteria.

### About Sun

A singular vision, The Network is the Computer™, drives Sun in delivering industry-leading technologies that focus on the whole system — where hardware, software, and services combine. With a proven history of sharing, building communities, and innovation, Sun creates opportunities, both social and economic, around the world.