Oracle Java Micro Edition Software Development Kit 8 (Oracle Java ME SDK 8)

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JAVA EMBEDDED

Oracle Java Platform, Micro Edition (Java ME) Software Development Kit (SDK) 8 provides dedicated tooling for embedded software, including device emulation, a standalone development environment, and a set of utilities for rapid development. It also supports integration with popular Java IDEs such as NetBeans and Eclipse, offering a seamless development experience across all Java platforms.
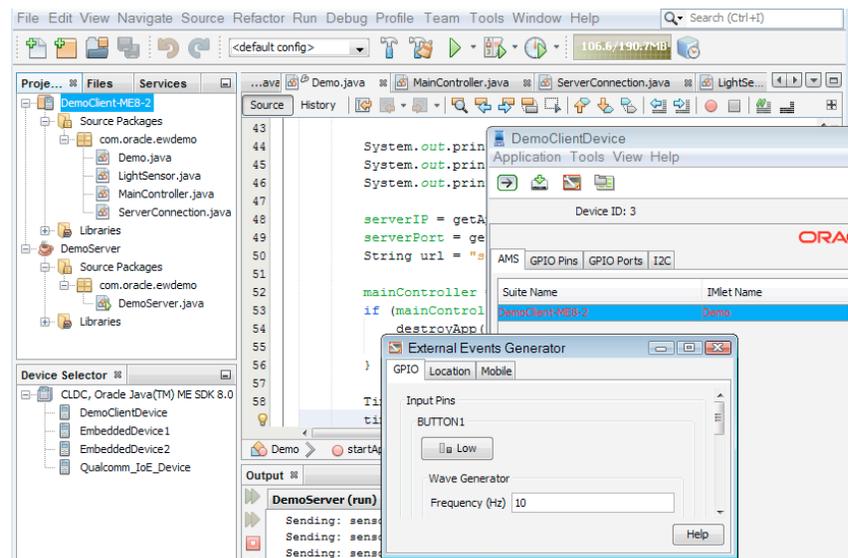

Figure 1. Oracle Java ME SDK 8 delivers an integrated and complete embedded tool chain

A STATE-OF-THE-ART TOOLSET FOR DEVELOPING JAVA ME EMBEDDED 8 APPLICATIONS

KEY FEATURES

• A single SDK for application development for the entire range of Java ME target devices

• Built-in emulators and custom devices for application prototyping

• Emulation and graphical representation of peripheral devices backed by Device I/O API

• Plugins for integration with popular Java IDEs such as NetBeans and Eclipse

• Enhanced on-device tooling for remote application management and debugging

• On-device application management via UI and integrated command line interface (CLI)

• Developer Agent functionality to access device functionality and properties

• Application profiling, network monitoring, and memory monitoring

• Available for desktop systems running Windows 7 32 bit or 64 bit

Facilitating Embedded Application Development

Oracle Java ME SDK 8 is a comprehensive tool-chain for Java ME 8 development. With one tool, developers can write, edit, compile, package, and sign embedded applications. On-device tooling is available for embedded applications, so they can be tested on an emulator, then deployed and tested on the real devices.

Same Runtime for Emulation and the Device

Oracle Java ME SDK 8 includes a number of options for developing and running application projects, including several emulators for different platform targets as well as execution of the application projects directly on the Java ME 8 –based target devices. The emulators included in the Oracle Java ME SDK 8 are built using the same code base that Oracle licenses to device manufacturers for use on real devices, so the fidelity is very high and developers will benefit from improved portability when deploying content into the market.

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Oracle is a leader in the embedded Java market, offering an extensive family of Java platforms which support a wide range of embedded environments with varying requirements in terms of memory constraints, chipsets, OS's and industry vertical specific requirements. The Java platforms are specifically designed to meet the needs of different classes of devices; Java Card (from 16 KB/8 KB ROM/RAM), Java ME Embedded (from 128 KB RAM) and Java SE (from 11 MB RAM). Oracle is also the number one embedded data-base vendor on the market, with C and Java databases for resource-constrained environments (Berkeley DB).

Device Manager and Device Selector

At the heart of the system is the Device Manager. It registers emulators and devices, and retains knowledge of their properties. Using the Device Selector the developer can easily switch between targets during development in order to develop and test the code on all project targets, both emulated and real, at the push of a button.

Application Management Interface

The application management functionality is available as a graphical user interface as well as a command-line interface (CLI). Developers can easily access all application management capabilities of the Java ME 8 platform, including installation, update, or removal of applications and software components as well as viewing the state of all applications and starting and stopping applications to control the behavior of the system.

On-device Tooling (ODT)

On-device tooling (ODT) enables live testing and analysis on the target device. The Java Virtual Machine on the device contains an ODT agent, which receives requests from the Oracle Java ME SDK 8 to provide breakpoint functionality, access to variables and data structures, and other runtime information. This allows developers to fully debug and investigate software behavior at the Java source level directly on the target device from the comfort of their IDE.

Custom Device Editor

With the Custom Device Editor developers can create customized device emulations that mimic the actual target device, allowing software development to start early in the project life cycle without the final target hardware being available. Custom device emulations can include specific sets of functionality and APIs, as well as custom interfaces and peripheral device hardware, down to emulation of emulation of peripherals themselves.

Connectivity Emulation Tool

The Connectivity Emulation Tool allows developers to emulate properties of all key network functionality, such as the number and type of network interfaces as well as events such as switching of network modes, wireless strength, roaming state and more. This allows developer to test their applications under realistic connectivity scenarios.

Dedicated Support for Embedded Devices

The Oracle Java ME SDK 8 provides a complete development environment for Java ME 8 platforms, designed to meet the needs of intelligent and connected services on resource constrained devices, such as those found in Wireless Modules, Building and Industrial Controllers, Smart Meters, Tracking Systems, Environmental Monitors, Healthcare, Home Automation devices ,Vending Machines, and more.

IDE Plugins

Oracle Java ME SDK 8 supports popular Java Integrated Development Environments (IDEs) such as NetBeans and Eclipse. Once you install the SDK, you can install plugins for the IDE, which provide deep integration with the full Oracle Java ME SDK 8 feature set, and start developing, debugging, and profiling your embedded application right from within the IDE, by simply selecting the platform target.

Profiling and Monitoring

Built-in profiling and monitoring utilities makes it easy to investigate performance and memory use of embedded applications and optimize your software to run best on a specific embedded target device.

CPU Profiler

Oracle Java ME SDK 8 supports performance profiling for Java ME 8 software. This allows developers to analyze and tune performance bottlenecks in their applications.

Memory Monitor

The Memory Monitor shows dynamic memory use as an application runs. Developers can use this information to optimize memory use, which is critical for resource-constrained devices.

Network Monitor

The Network Monitor tracks network traffic on different protocols. This allows developers to optimize applications for situations where network connectivity may be limited or expensive.

Update Center

The update center provides notifications when there are updates to core Oracle Java ME SDK 8 components, tools, or the runtime. This ensures that developers are working with the latest and greatest versions of Oracle Java ME SDK 8.

Supported Application Programming Interfaces (APIs)

Embedded Platform	Optional JSRs and APIs
Java ME 8 • JSR 360, Java ME Connected Limited Device Configuration (CLDC) 8 • JSR 361, Java ME Embedded Profile (MEEP) 8	JSRs • JSR 075, File I/O • JSR 120, Wireless Messaging API • JSR 172, Web Services • JSR 177, SATSA • JSR 179, Location • JSR 280, XML API Oracle APIs • Device I/O API • JSON API • HTTP Client API • OAuth 2.0 API

[Note] List of JSRs is subject to change.

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