ORACLE JAVA MICRO EDITION EMBEDDED CLIENT

Proven, deployment-ready Java implementation, heavily optimized for resource-constrained embedded devices

Oracle Java ME Embedded Client Advantage

The Oracle Java Micro Edition (ME) Embedded Client is an application runtime that builds on the popular Java ME specification and has been designed for resource-constrained devices like e-book readers, Blu-ray Disc players, Voice Over IP telephones, televisions, set-top boxes, printers, residential gateways and more. Java ME is the best technology for resource-constrained embedded devices and has seen widespread deployment across mobile handsets and digital television devices. Java ME provides device manufacturers with the full power of the Java language, a comprehensive set of APIs, industry-leading security and access to more developers than any other platform

Through its compatibility with the Java Platform Standard Edition (Java SE), the Java ME Embedded Client inherits familiar Java features and benefits from a rich development ecosystem that enables Java developers to hit the ground running. An extensive range of tools, such as the NetBeans IDE, provides sophisticated power for creating and debugging applications. At the same time, the Oracle Java ME Embedded Client capitalizes on its Java ME heritage by being specially designed for speed and efficiency on devices with limited processing power and memory.

Stack Overview

The Oracle Java ME Embedded Client features a compatible subset of the Java SE environment carefully optimized for the needs of embedded devices including the following:

- Connected Device Configuration (CDC) 1.1.2
- Foundation Profile (FP) 1.1.2
- Personal Basis Profile (PBP) 1.1
- Optional packages: JDBC (JSR-169), RMI (JSR-66), Java TV (JSR-927), XML APIs (JSR-280)
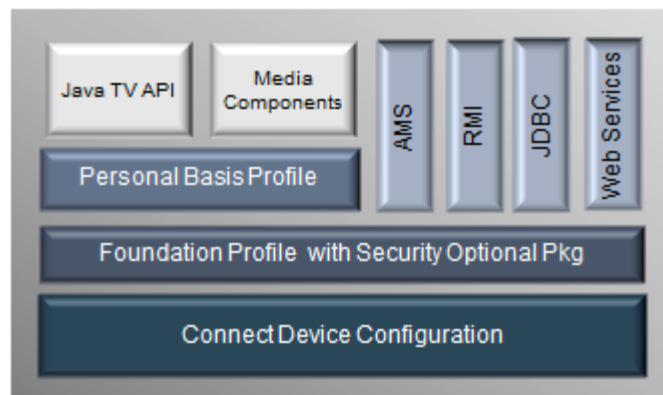- Additional packages from Java ME & Java SE

Figure 1. Oracle Java ME Embedded Client Architecture

Just In Time (JIT) compiler
• Space efficient
• Fast, Reliable, and Portable
• Configurable

Ahead Of Time compilation (AOT)
• Fast VM Startup time

Interpreter
• Optimal speed
• Uses GCC extensions

Class Preloading (Romization)
• Space saving
• Data sharing
• In-place execution from ROM
• Faster startup time
• Avoids fragmentation

Process-based multi application support
• Leverage OS copy on fork capability
• Secure and efficient

Runtime
• Fast startup and shutdown
• No resource leaks
• Small class footprint for both dynamically loaded and preloaded classes
• Native and software floating point support

Memory management
• Heap management
• Fast generational garbage collector

Thread support
• Fast locking
• Scalable and robust in heavily threaded scenarios
• C stack safety for tight memory conditions
• Porting layer supports native threads

Standard JVM interfaces
• Policy-based security model
• Java Native Interface (JNI) native method support
• JVMTI for debugging and profiling support

Additional features for media-enabled devices

The Oracle Java ME Embedded Client includes a rich feature set for media-enabled and connected devices and it does so with minimal footprint impact. In addition to an advanced Application Management System (AMS), it offers a flexible graphics paradigm that is suitable for target devices ranging from low-end to high-end:

- AWT subset support with Personal Basis Profile (PBP)
- Advanced 2D support, high-level user interface components and image processing with Advanced Graphics and User Interface (JSR 209), and optional optimizations for e-ink displays
- Lightweight User Interface Toolkit (LWUIT)
- Media Support: Live broadcast, streaming audio/video, network video-on-demand, trick plays and controls
- Service provider interfaces for runtime control over system resources
- Pluggable optional packages on a wide range of additional platforms Ready to integrate with leading standards-based solutions: Globally Executable Multimedia Home Platform (GEM), GEM Internet Protocol Television (IPTV), Association of Radio Industries and Businesses (ARIB), tru2way, Blu-Ray Disc Java (BD-J), Ginga-J & OSGi

Comprehensive tool-chain improves developer productivity

Oracle's Java Platform, Micro Edition (Java ME) Software Development Kit (SDK) provides a complete development environment for Oracle Java ME Embedded Client. With the Java ME SDK, embedded developers can write, edit, compile, package, sign and obfuscate their applications. The applications can then be tested and debugged on Windows or Mac OS X desktops using included device emulators and built-in profiling support. The Java ME SDK also includes the ability to monitor networking and memory usage to enable developers to produce better quality, higher performance applications.

Supported Platforms*	
Hardware	
Processors	ARM, MIPS (Broadcom, Sigma), PowerPC, x86
Software	
Operating systems	Linux
Graphics	DirectFrameBuffer , Microwindows, X11, DirectX (WinCE/Windows), GDI (WinCE/Windows), GDK
Service Platform	OSGi, Jetty Web Server

*Please contact us for platforms not listed above

The commercial licensing model for Oracle Java ME Embedded Client has been specifically tailored to support the embedded market providing you with a cost effective model to utilize Java in your solutions. Our dedicated team of Java Technology Representatives will work with you to guide you to the commercial model that best suits your business needs. If you are developing embedded solutions, please contact us to discuss licensing of the Java ME Embedded Client.

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Jave ME Embedded Client System Requirements		
Java ME Embedded Client on ARM Linux		
CPU	ARM v5	ARM v6/v7
OS	Linux: kernel 2.6.22 or higher; glibc 2.9 or higher	Linux: kernel 2.6.35 or higher; glibc 2.12.1 or higher
FP	Soft Float	Soft Float
Headful	No	No
RAM	8MB or more for Java	8MB or more for Java
ROM/ Flash/ Disk	5MB or more for Java	5MB or more for Java
Java ME Embedded Client on Power Architecture and MIPS and x86, Linux		
CPU	X86	MIPS32 74K (MIPS)
OS	Linux: kernel 2.6.32 or higher; glibc 2.10.2 or higher	Linux: kernel 2.6.22 or higher; glibc 2.8 or higher
FP	Soft Float	Soft Float
Headful	No	No
RAM	8MB or more for Java	8MB or more for Java
ROM/ Flash/ Disk	5MB or more for Java	5MB or more for Java

Contact Us

For more information about Java ME Embedded Client visit http://www.oracle.com/technetwork/java/embedded/overview/index.html or call +1.800.ORACLE1 to speak to an Oracle representative.

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