



## What's New for Version 6.2

**Note**

Before using this information and the product it supports, read the information in the Notices section of this document.

**Second Edition (April 2008)**

This edition applies to version 6.2 of the IBM WebSphere Everyplace Micro Environment (WEME) and WebSphere Everyplace Custom Environment (WECE) and to all subsequent releases and modifications until otherwise indicated in new editions.

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## Preface

IBM® WebSphere® Everyplace® Micro Environment (WEME) and WebSphere Everyplace Custom Environment (WECE) are runtime environments that provides the foundation for the deployment of applications to a variety of mobile devices.

This document describes the new features and enhancements for WEME and WECE version 6.2.

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## Who should read this guide

This guide is intended for application programmers developing embedded applications for this product.

Readers should be familiar with the following:

- Java™ related concepts, terminology, and programming fundamentals
- The features and capabilities for developing and deploying embedded applications provided with WEME and WECE version 6.1.2

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## What this guide contains

This book contains the following sections:

- “J9 VM, version 2.4.1 enhancements” on page 3
- “JCL enhancements for WEME 6.2 and WECE 6.2” on page 7
- “JCL enhancements specific to WECE 6.2” on page 9
- “Notices” on page 11

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## Contacting software support

Before contacting IBM Software Support with a problem:

- For WEME, refer to the IBM WEME Software Support site at the following Web site: <http://www.ibm.com/software/wireless/weme/support.html>
- For WECE refer to the IBM WECE Software Support site at the following Web site: <http://www-306.ibm.com/software/wireless/wece/support.html>

On these Web sites, you can search for technical notes, white papers and other content related to the IBM WEME and WECE. For additional help, contact software support by using the methods described in the IBM Software Support Guide at the following Web site: <http://techsupport.services.ibm.com/guides/handbook.html>

The guide provides the following information:

- Registration and eligibility requirements for receiving support
- Telephone numbers, depending on the country in which you are located

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## Conventions used in this guide

The following typeface conventions are used in this guide:

- **Bold** - Lowercase commands or mixed case commands that are difficult to distinguish from surrounding text, keywords, parameters, options, names of Java classes, and objects are in bold.

- *Italic* - Variables, titles of publications, and special words or phrases that are emphasized are in italic.
- Monospace - Code examples, command lines, screen output, file and directory names that are difficult to distinguish from surrounding text, system messages, text that the user must type, and values for arguments or command options are in monospace.

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## J9 VM, version 2.4.1 enhancements

This section describes J9 VM 2.4.1 enhancements for WEME/WECE 6.2.

- “User configurable VM defaults”
- “Tools” on page 5

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### User configurable VM defaults

A default options file is added. This enhancement gives users the ability to control different aspects of the VM defaults on a per executable basis.

Below is a summary of changes for J9 2.4.1:

#### Options defined in an options file can now be overridden on the command line.

The `-Xoptionsfile=<file>` is used to specify VM options. However, in J9 2.4 the options file arguments are parsed last - and thus override any previous options. This has the non-intuitive side effect of overriding command line options.

For example if the options file has `-Xmx8MB` and the command line has `-Xoptionsfile=file -Xmx1GB` the value from the options file will win. Whereas if `-Xmx8MB -Xmx1GB` was specified then the rightmost argument would have won.

In J9 2.4 when the `-Xoptionsfile=<file>` argument is parsed, the command line options stored in `<file>` are inserted into the command line stream starting at the position of the `-Xoptionsfile=<file>` argument.

**-Xdbginfo: / -dbginfo: is no longer supported in 2.4 and will now cause the error:**

JVMJ9VM007E Command-line option unrecognized: -Xdbginfo:

#### VM Option to not memory map JXEs

There are some device environments where reading from disk can cause the application to suspend. In J9 2.4 stream we started memory mapping JXEs automatically vs. reading them all into memory. The VM now accepts a new command line option to prohibit the VM from memory mapping JXEs.

`-Xjxe:[map=none|map=shared]` - new command line option to turn off memory mapping of JXEs (they are

`-Xjxe:map=shared` - current default behavior

#### -Xcheck option reorganized

In J9 2.4 a variety of problem diagnosis command-line options are available to VM and application developers. These all enable additional diagnostics in the VM to detect internal errors and errors in user code. They include:

- `-Xcheck:jni`
- `-memorycheck`

- -Xrunj9gcchk23

and new functionality for classpath checking (see below).

All these options were combined under the -Xcheck option so they share functionality and a common user interface. They now also provide default settings and help output.

- Xcheck usage:

Table 1.

Command	Description
-Xcheck:help	Print general Xcheck help
-Xcheck:none	Ignore all previous/default Xcheck options
-Xcheck:<component>:help	Print detailed Xcheck help
-Xcheck:<component>:none	Ignore previous Xcheck options of this type

Xcheck enabled components:

- classpath
- gc
- jni
- memory

### New option for classpath checking

New command-line option: -Xcheck:classpath

Usage: -Xcheck:classpath[:help|none]

This option provides validation of user-supplied classpath entries, in particular warnings if elements on the classpath do not exist.

**Note:** this covers only the application class path, not the bootstrap class path.

### JVMTI option

Command line: -agentlib: <agent> [= <options> ]

See Java6 diagnostics guide for details: <http://publib.boulder.ibm.com/infocenter/javasdk/v6r0/index.jsp?topic=/com.ibm.java.doc.diagnostics.60/diag/tools/jvmti.html>

### RAS dump option

Command line: -Xdump[<options> ]

See Java6 diagnostics guide for details: [http://publib.boulder.ibm.com/infocenter/javasdk/v6r0/index.jsp?topic=/com.ibm.java.doc.diagnostics.60/diag/tools/dump\\_agents.html](http://publib.boulder.ibm.com/infocenter/javasdk/v6r0/index.jsp?topic=/com.ibm.java.doc.diagnostics.60/diag/tools/dump_agents.html)

### RAS trace option

Command line: -Xtrace[<options> ]



See Java6 diagnostics guide for details: <http://publib.boulder.ibm.com/infocenter/javasdk/v6r0/index.jsp?topic=/com.ibm.java.doc.diagnostics.60/diag/tools/tracing.html>

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## Tools

WEME/WECE 6.2 includes 2 changes to tools:

### J9Profile

New profiling agent for Eclipse TPTP

- Native profiling agent: j9profile.dll
- Preprocessor / Agent Proxy: j9profiled.exe
- The Trace and Profiling component of the Eclipse Test and Performance Tools Platform (TPTP)

### Japt

New stronger reduction algorithm ITA ( instantiated type analysis)

See Japt documentation: <http://home.ottawa.ibm.com/teams/SmartLinker/web/Japt/reduction/reduction.htm>

**fix for bug: Japt removes "protected" and "static" flags from inner classes**

To accomodate this fix, the options for jar generation are changed:

-noStripDebugInfo no longer applies to inner classes, deprecated or synthetic attributes

new option -noStripInfo prevents the stripping of: InnerClasses, Synthetic, Deprecated, EnclosingMethod, Signature

new option -removeAttribute allows the user to explicitly remove attributes

### New option for the japt load extension

-unresolvedReferenceFile xxx

- Create the named file listing of unresolved references
- When the load extensions has completed loading, it will create the named file



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## JCL enhancements for WEME 6.2 and WECE 6.2

This section describes JCL enhancements for WEME 6.2 and WECE 6.2.

### Configuration flag changes:

- -jcl:cldc is now equivalent to -jcl:cldc11 (-jcl:cldcng and cldc10 are no longer supported)
- -jcl:midp is now equivalent to -jcl:midp20 (-jcl:midpng and -jcl:mdp10 are no longer supported)
- -jcl:dee for new DesktopEE configuration (see below)

### Locale Data Update

#### New Locales:

- Serbia: sh\_RS

#### New Variants:

- Cyril
- Latn

### Native Character Converter Support

Starting with 2.4 J9 will try to load the native character converter if the character converter class is not found (neither in classes.zip nor in charconv.zip) and if the platform supports native character converters and the converter is installed on the device. J9 2.4 supports native converters on Windows® x32 and Windows Mobile and some other embedded devices.

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## Security

Security enhancements:

- "Java Secure Socket Extension (JSSE)"

### Java Secure Socket Extension (JSSE)

New javax.net.ssl.SSLSessionContext system properties

`javax.net.ssl.SSLSessionContext.timeout`

Sets the time in seconds that a session will be cached in the table before it is removed. The time is measured from the sessions creation time. The default is 86400 (24 hours). This value comes from JDK 1.5.0 and a recommendation in the book "SSL and TLS: Designing and Building Secure Systems" by Eric Rescorla. A value of 0 means that sessions will never time out. For a value of < 0 the default value is applied.

`javax.net.ssl.SSLSessionContext.cachesize`

Sets the number of sessions that can be stored in the session table before it becomes full. A value of 0 (or < 0) means there is no maximum table size. The default is 0. A full table would mean only that new SSL sessions would not be resumable. This only means that each new connection would

do the full (slow) SSL handshake instead of the faster resume SSL handshake. SSL connections could still be made.

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## JCL enhancements specific to WECE 6.2

This section describes JCL enhancements for WECE 6.2.:

- “Embedded Java/J9 - jclDesktop/DesktopEE”

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### Embedded Java/J9 - jclDesktop/DesktopEE

DesktopEE drop for Lotus® Expeditor

#### DesktopEE

DesktopEE 6.2 is able to consume class files compiled for Java 5 and **supports the new Java 5 language features:**

- Performance improvement in String concatenation (java.lang.StringBuilder)
- Enhanced for loop (for :each)
- Auto-boxing/Unboxing
- Type Safe Enums including new collections java.util.EnumMap and java.util.EnumSet
- Variable argument length (Varargs)
- Static Imports (import static final)
- Annotations (including access at run-time with Class.getAnnotations() etc.)
- Generics (access through reflection is not supported)

Other new features:

- Full java.nio support
- nio buffers and channels code and natives
- nio.charset implemented with J9 character converters
- New java.util.concurrent package plus required base additions:
- com.ibm.oti.vm.Unsafe plus VM natives
- New collections java.util.Queue, AbstractQueue and PriorityQueue



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