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# Java Info.plist Key Reference for Mac OS X

Java



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# Introduction

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## Who Should Read This Document?

This document is for the Java developer interested in writing Java applications for Mac OS X version 10.5 with J2SE 5.0 or Java SE 6.

Here you will find the keys needed in an `Info.plist` information property list file, used when packaging your Java application as a double-clickable application for use in Mac OS X.

## See Also

For more information on Java Development for Mac OS X, read *Java Development Guide for Mac OS X*.

This document and other Java documentation for Mac OS X, including the Javadoc API reference, is available in the Java Reference Library. A subset of this documentation is installed in `/Developer/Documentation/` on a Mac OS X system with the Xcode Tools installed. You can view this documentation through a web browser or through Xcode (from Xcode's Help menu, choose Documentation and then click Java).

General information on previous versions of Java for Mac OS X can be found in the Java Release Notes.

The main Apple website for Java technology, <http://developer.apple.com/java/>, contains links to information about Java development in Mac OS X.

The `java-dev` mailing list is a great source of information on a wide range of Java development topics in Mac OS X. You can sign up for this list at <http://lists.apple.com/mailman/listinfo/java-dev>.

Sun's Java web site, <http://java.sun.com/> is the essential reference point for Java development in general.

## Filing and Tracking Bugs

If you find issues with the implementation of Java that are not covered in this document or you want to follow the resolution of an issue, you may do so online through Radar, Apple's bug tracking system. To access Radar, you need an Apple Developer Connection (ADC) account. You can view the ADC membership options, including the free online membership, at <http://developer.apple.com/membership/>. With an ADC membership, you can file and view bugs at <http://bugreport.apple.com/>. When filing new bugs for Java in Mac OS X, please select `Java` from the Product field and enter `X` in the Version/Build Number field.





# Java Dictionary Info.plist Keys

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The `Info.plist` file is an XML property list file in a native Mac OS X application bundle. It defines certain attributes of the application for use by the operating system. The `Info.plist` file for a Java application wrapped as a Mac OS X application bundle contains a Java dictionary. This dictionary is just a subset of the `Info.plist` file that begins with:

```
<key>Java</key>
  <dict>
```

and ends with

```
</dict>
```

The Java dictionary allows you to set certain Java-specific attributes of your Mac OS X application.

Inside this Java dictionary you can have key and string combinations or key and dictionary combinations, as illustrated in [Listing 1](#) (page 9).

## Listing 1 Sample Info.plist Java dictionary

```
<key>Java</key>
  <dict>
    <key>JVMVersion</key>
    <string>1.5+</string>
    <key>MainClass</key>
    <string>com.yourCompanyName.YourApplication</string>
    <key>Properties</key>
    <dict>
      <key>apple.laf.useScreenMenuBar</key>
      <string>>true</string>
    </dict>
    <key>VMOptions</key>
    <string>-Xmx512m</string>
  </dict>
```

Note that each key tag has a corresponding string or dict tag. Each dict tag surrounds other key/string or key/dict combinations.

## Creating an Info.plist file with Jar Bundler

Mac OS X v10.5 and later include the Jar Bundler application, located in `/usr/share/java/Tools`. Jar Bundler enables you to create a Mac OS X application bundle for your Java application, complete with an automatically generated `Info.plist` file. You can specify keys for the `Info.plist` file in the Properties tab of Jar Bundler, or you can easily modify the file to suit your needs with the Property List Editor application (also located in `/Developer/Applications/Utilities`) after generating the bundle.

For more information on Jar Bundler, see *Jar Bundler User Guide*.

## Variables

In the Java dictionary of an `Info.plist` file, two special variables are used to specify pathnames:

`$JAVAROOT`

The default Java root directory for an application bundle is `Contents/Resources/Java`. Use this variable to refer to that directory.

`$APP_PACKAGE`

This variable expands into the path to the root directory of the application bundle.

## Keys and Values

This section lists the keys and their valid settings for the Java dictionary of the `Info.plist` file.

`MainClass`

This is a required key. It designates the name of the class containing the application's `main` method. If the classes are included in your application as a JAR file, use the main class's fully qualified class name, including its package, to locate the class within the JAR file.

`JVMVersion`

This key is recommended in any Java application's `Info.plist` file. It specifies the earliest version of Java that is compatible with the application. Table 1 lists valid strings for the `JVMVersion` key along with a description of which version of Java is used. Specifying a string with the asterisk (\*) symbol is not recommended, because it may prevent your application from running in the latest Java VM available.

**Note:** If you do not set the `JVMVersion` key in a double-clickable application, it runs in the first compatible version of Java specified by the user in the precedence list in the Java Preferences application.

**Table 1** Values for specifying the Java version in Mac OS X

String	Java version used	Notes
1.4*	1.4.2	Specifies the highest version of Java 1.4 available. If no version of Java 1.4 is present, the default version of Java in Java Preferences is used. This string is not recommended.
1.4+	5.0	Specifies the highest version of Java above 1.4. Note that if Java is updated in future releases of Mac OS X, the latest version of Java is used.
1.5*	5.0	Specifies the highest version of J2SE 5.0 available. If no version of J2SE 5.0 is present, the default version of Java in Java Preferences is used. This string is not recommended.
1.5+	5.0	Specifies the highest version of Java above 5.0. Note that if Java is updated in future releases of Mac OS X, the latest version of Java is used.
1.6*	6	Specifies the highest version of Java SE 6 available. If no version of Java SE 6 is present, the default version of Java in Java Preferences is used. This string is not recommended.
1.6+	6	Specifies the highest version of Java above Java SE 6. Note that if it is updated in future releases of Mac OS X, the latest version of Java is used.

**Note:** The Java Preferences application, in `/Applications/Utilities/Java/`, determines how these keys are interpreted. Users can change a precedence list that determines how the keys ending in a plus sign are interpreted. If a user places J2SE 1.4.2 over J2SE 5.0 in the precedence list, the `1.4+` key results in J2SE 1.4.2 being used for the application.

#### ClassPath

The path for required directories or JAR files. If you do not set this, the default class path is the root of the application bundle (`$APP_PACKAGE`).

#### WorkingDirectory

The current working directory for the application from the default working directory at the root of the application bundle (`$APP_PACKAGE`).

#### Arguments

A string or array of strings where each string is a space-separated list of arguments to pass to `main` as a `String[]`. This is useful if your application expects to receive arguments passed in from the command line.

### Properties

A subdictionary of the Java dictionary. Valid keys for the Properties dictionary are system properties that you might pass into `java` from the command line with the `-D` flag. A list of Apple-specific properties is available in *Java System Property Reference for Mac OS X*.

Since the Properties key designates a dictionary, make sure to begin and end it with the `dict` keyword. "[What is an Info.plist Java Dictionary Key?](#)" (page 9) shows an example of how to use the Properties dictionary.

### VMOptions

An array of string elements in which each string is an option for the Java virtual machine. For example:

```
<key>VMOptions</key>
<array>
<string>-Xms512m</string>
<string>-Xmx1024m</string>
</array>
```

A list of Apple-specific Java VM options is available in *Java Virtual Machine Option Reference for Mac OS X*.

### JVMArchs

A list of the architectures preferred by the application. (Deprecated. Use the `lipo` tool or the `LSArchitecturePriority` key instead.)

**Note:** The preferred way to express an architecture dependency is to use the `lipo` tool to remove the unsupported architectures from the `JavaApplicationStub` included in the application bundle. Developers should also use the `LSArchitecturePriority` key in the top level of the `Info.plist` file, as native Mac OS X applications do. See *Launch Services Release Notes* for more information.

# Document Revision History

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This table describes the changes to *Java Info.plist Key Reference for Mac OS X*.

Date	Notes
2009-03-04	First version as a separate document. Formerly part of "Java Property, VM Option, and Info.plist Key Reference for Mac OS X".

