About Mac OS Runtime for Java MRJ 2.2.4

Mac OS Runtime for Java (MRJ) 2.2.4 is an upgrade to MRJ 2.2.3 which addresses a security issue affecting our users. In some cases, this would have permitted unauthorized applets to access the local hard drive.

The release notes from MRJ 2.2, MRJ 2.2.2, and MRJ 2.2.3 appear below. Apart from the information above, these release notes still apply.

About Mac OS Runtime for Java MRJ 2.2.3

Mac OS Runtime for Java (MRJ) 2.2.3 is an upgrade to MRJ 2.2.2 that improves memory usage, and provides substantial performance improvements for users who repeatedly access the same JAR files over a network. It also fixes several problems which were affecting users of 2-byte international systems.

MRJ 2.2.3 is Gold Certified for use with Oracle Applications 11i when used with Microsoft Internet Explorer 5.0. It is Bronze Certified for running applications built with Oracle Developer 6i and deployed on Oracle Developer Server using Microsoft Internet Explorer 5.0 to access the client.

Notes

• *JAR caching*
MRJ 2.2.3 introduces JAR caching. Java code is frequently stored on servers in a special type of file called a JAR (for Java Archive). If a Java applet uses many JARs, or if the JARs are very large, it can take considerable time to load these files. JAR caching saves copies of these files on your local hard drive. When you use a JAR again, MRJ checks to see if there is a newer version on the server. If not, it uses the local copy, and your application starts up much faster than it would without caching.

JARs are saved in a folder named “MRJ Cache” located in “System:Preferences”. Over time, this folder will grow, but it will not exceed 100MB. If you want to reclaim some of this space, you can quit all running applications and then drag the “MRJ Cache” folder to the trash. The next time MRJ needs to cache a JAR file, it will create a new “MRJ Cache” folder.

• *Microsoft Internet Explorer 5.0*
MRJ 2.2.3 fixes several of the more prominent bugs exhibited when using MRJ 2.2 and MRJ 2.2.2 with Microsoft Internet Explorer (MSIE) 5.0; other bugs still remain. Apple is working, along with Microsoft, to resolve these problems, and they will be addressed in a future release.

• *Yahoo Games*
If you play Yahoo games in MSIE 5.0, they may crash when you click the “Exit Games”

button. You can avoid this problem by using MSIE 4.5 to play these games.

• *MRJ SDK*
Developers working with MRJ 2.2.3 can continue to use MRJ SDK 2.2. Apple is not releasing a new MRJ SDK with MRJ 2.2.3. You can download MRJ SDK 2.2 from http://developer.apple.com/java/text/download.html.

• *Personal Web Sharing*
If you are using Personal Web Sharing, and want to include Java applets in your web pages, you should package your class files in ZIP or JAR format to avoid a bug in Personal Web Sharing that prevents an applet from running if any of its classes have a "$" in their name. For more information on creating and packaging applets, you can download MRJ SDK 2.2. See the "Web Pages" folder on your desktop for more information about Personal Web Sharing.

• *Misleading "File Not Found" messages*
In some cases Apple Applet Runner may report "File Not Found" when it is unable to read an existing file. This is most common when using an applet is localized in a language different from that in the system. Apple is aware of the problem, and will address it in a future release of MRJ.

• *About MRJ 2.2 and 2.2.2*
The release notes from MRJ 2.2 and MRJ 2.2.2 appear below. Apart from the information above, these release notes still apply.

About Mac OS Runtime for Java MRJ 2.2.2

Mac OS Runtime for Java (MRJ) 2.2.2 is an upgrade to MRJ 2.2 that improves memory usage and addresses security issues.

Notes

• *Microsoft Internet Explorer 5.0*
MRJ 2.2.2 addresses a network security problem which occured when using MSIE 5.0. MRJ 2.2.2 does not address some additional networking problems that users are encountering when using MRJ 2.2 with Microsoft Internet Explorer 5.0. Apple takes these additional problems seriously and is working with Microsoft to address them.

• *Mac OS 8.1 and the Internet Scripting Addition*
The information in "About MRJ 2.2", below is incorrect. It should read: On Mac OS 8.1, MRJ requires that you have the Internet Scripting Addition installed in the Scripting Additions folder in the Extensions folder. If this file is not present, you can re-install it from your Mac OS 8.1 CD. Double click "Install Mac OS 8.1", click "Continue", select the Destination disk, and then select the "Add/Remove" option. On the Custom Installation and Removal screen, check "Internet Access", and then click "Start". This will start the Internet Access installer. Follow the instructions to install all of the Internet Access software, including the Internet Scripting Addition.

• *MRJ SDK*
Developers working with MRJ 2.2.2 can continue to use MRJ SDK 2.2. Apple is not releasing a new MRJ SDK with MRJ 2.2.2.

• *About MRJ 2.2*
The release note originally provided with MRJ 2.2 appears below. Apart from the information above, this release note still applies.

About Mac OS Runtime for Java MRJ 2.2

MRJ is Apple's implementation of Sun Microsystems' Java Virtual Machine (JVM). MRJ 2.2 implements Sun's JDK 1.1.8 specification. MRJ provides the runtime software needed to run Java applets and applications, and the Apple Applet Runner, a simple utility for running applets without the overhead of a browser.

Minimum system requirements

• Macintosh computer with a PowerPC processor
• Mac OS 8.1 or later
• Memory requirements will vary depending on how you are using Java. The minimum requirement for running simple applets is 40 megabytes (MB) of RAM, with virtual memory on and set to at least 44 MB. To run complex applets and applications, 64 MB of RAM is highly recommended. Increasing RAM to 64 MB or more will also improve performance.
• At least 13 MB of free disk space

Installation

If you used Apple's Software Update Facility to upgrade to MRJ 2.2, it has already been installed and you do not need to install again.

• *Installation instructions*
You should follow these installation instructions if you downloaded the MRJ Installer from Apple's web site, obtained it from another source, or if you want to reinstall for any reason.

1. Double click the Installer in the MRJ Install folder.
2. Review the License agreement, and if you agree to its terms, click the "Agree" button. If you do not agree, you can click "Disagree", and the Installer will quit.
3. Use the "Switch Disk" button to select a System Disk on which to install MRJ.
4. Select either the "Easy Install" option or the "Custom Install" option. If you are not certain which files you will need to install, you should choose the "Easy Install" option. See below for more information about these options.
5. Click the "Install" button to begin the installation of the MRJ 2.2 files on the selected hard disk.

• *Easy Install*

The “Easy Install” option will place:
1. The MRJ runtime software inside the “MRJ Libraries” folder in your Extensions folder.
2. The Apple Applet Runner, license agreements, and this document inside the “Mac OS Runtime for Java” folder in your “Apple Extras” folder.
3. The “MRJ Enabler" in the Extensions folder only if you are installing on Mac OS 8.1. This installation will require that you reboot your computer.

• *Custom Install*
Custom Install will allow you to install just the runtime software, just the MRJ Enabler, or just Apple Applet Runner. Selecting the MRJ Enabler will require that you reboot your computer.

New features in MRJ 2.2

MRJ 2.2 is significantly smaller than MRJ 2.1.4. Two major changes contribute to this reduction in size. First, MRJ 2.2 no longer installs the Text Encoding Converter (TEC) and Text Encodings because they are now standard components of all versions of Mac OS supported by MRJ 2.2. Secondly, we’ve moved rarely used classes out of MRJ into the MRJ SDK, which contains software primarily of interest to developers. See Apple’s MRJ developer pages at http://developer.apple.com/java/ if you need more information about these classes or the MRJ SDK.

• *Apple Applet Runner*
MRJ 2.2 includes the Apple Applet Runner. See “Using MRJ with Apple Applet Runner” below, for more information.

• *Signed applets*
MRJ 2.2 enhances support for signed applets. In general, applets are not permitted to access your hard drive, to print, or to connect to sites other than their own. Java enforces these limitations and others to protect you from code that may try to read private information, write unwanted information, or perform other unexpected actions. A signed applet includes a certificate that assures you that the applet was created by someone you trust and has not been altered since they created it. When an applet has been signed, it is no longer subject to restrictions.

MRJ keeps a database of certificates that you trust. If you access a signed applet and the certificate is already in your Java security database, the applet will run without restrictions. If the certificate is not in your Java security database, a dialog box will provide information about the certificate. You can then choose to (1) accept the certificate permanently, thereby adding it to your Java security database, or (2) to run this applet now but not add the certificate to the database, or (3) to reject the certificate.

NOTE: If you reject the certificate, the applet will still run, as long as it does not attempt to perform a restricted activity. If it does attempt to perform a restricted activity, Java will display a security exception and block the action.

NOTE: MRJ’s security database is separate from the database maintained by the browser. In some cases it will be necessary to accept the signature twice: once for the browser to access the site and again for MRJ to run the applet without restrictions.

NOTE: If you want to rescind a certificate you have previously accepted, you will need to delete the security database, “identitydb.obj” which is located in the Preferences folder in the active System Folder. Deleting "identitydb.obj" will delete all of your certificates, so you will have to re-accept any that you still want to use.

Using MRJ

• *Using MRJ in a browser*
Most users will use MRJ from a browser. Currently, Microsoft Internet Explorer (MSIE), HotJava, and iCab all use MRJ as their Java VM. If you are using MSIE 4.0, you will need to set the default Java VM to Apple MRJ. To select MRJ, choose “Preferences...” in the Edit menu. Next choose Java in the Web Browser section of the Internet Explorer Preferences dialog, and then choose Apple MRJ in the Java Virtual Machine popup. MSIE 4.5 is set to use MRJ automatically. Current versions of Netscape Navigator do not use MRJ.

• *Using MRJ with Apple Applet Runner*
The Apple Applet Runner is a utility for running applets without the overhead of a browser. It does not display HTML files, but simply extracts the <applet> tags from the HTML and runs the applets. The “About Apple Applet Runner” document describes new features and contains information on using Apple Applet Runner.

• *Using Java Applications*
Many developers are now creating Java applications that can be run on the Macintosh. These applications look like any other Macintosh application and can be started from the Finder like any other Macintosh application. As long as MRJ is properly installed, you do not have to do anything special to use these applications.

Known issues

• *Mac OS 8.1*
MRJ requires that you have the Internet Scripting AppleScript dictionary installed in the Scripting Additions folder in the Extensions folder. If this file is not present, you can re-run the Mac OS 8.1 installer and reinstall this dictionary.

• *Java epoch date*
Java’s internal clock calculates dates as the time since January 1, 1970. If the system clock on your Macintosh is set to an earlier date, Java applets and applications may hang or exhibit other unusual behavior. Ensure that the current date in your Date & Time Control Panel is set correctly.

• *Corrupt security database*
Occasionally, the Java security database, “identitydb.obj”, may become corrupt. If this occurs, you may see a message stating that the database is corrupt, or you may receive erroneous security errors, which will look similar to the following;

```
java.security.KeyManagementException: name conflict
    at sun.security.provider.IdentityDatabase.addIdentity(IdentityDatabase.java)
```

If this occurs you should delete the security database. See the section above on signed applets

for details.

• *Printing*
If you use your browser's Print command to print a Web page that contains an applet, the page will contain a blank area where the applet should be. If available, use the applet's Print menu to print from the applet.

• *Swing*
MRJ 2.2 is compatible with Swing 1.0.3, Swing 1.1 and Swing 1.1.1. For more information or a copy of the Swing software, see the Sun Microsystems web site at http://java.sun.com/. To run Swing-based applets and applications, place the "swingall.jar" file in the folder "System Folder:Extensions:MRJ Libraries:MRJClasses:".

WARNING: Java technology is not fault tolerant and is not designed, manufactured, or intended for use or resale for online control of equipment in nuclear facilities, aircraft navigation or communication systems, or air traffic control machines in which the failure of the Java technology or Mac OS Runtime for Java could lead directly to death, personal injury, or severe physical or environmental damage.

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