



### Installations Instructions: QuickTime 4D Plugins

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#### Mac OS 9:

(1) To install ImageJ, please follow the instructions at the ImageJ web site, which includes instructions regarding the Macintosh Runtime for Java (MRJ) classes:

<http://rsb.info.nih.gov/ij/docs/install/mac.html>

(2) Once you have MRJ and ImageJ installed, you will need to add the Swing classes .jar file ("swingall.jar" ) to the MRJClasses folder within the MRJ Libraries folder in your Extension folder (System Folder-> Extensions -> MRJ Libraries -> MRJClasses -> swingall.jar). You can find this file here:

<http://worms.zoology.wisc.edu/ImageJ/swingall.jar>

(3) In addition, QuickTime for Java must be installed under MRJ by doing a custom install of QuickTime from the QuickTime control panel and selecting QuickTime for Java. If you have successfully done so, the file "QTJava.zip" will be in your MRJClasses folder (System Folder-> Extensions -> MRJ Libraries -> MRJClasses -> QTJava.zip).

(4) Place the QT4D plugins in your plugins folder within the ImageJ folder.

(5) Access the all of the MRJ features requires a restart under OS 9. After restarting, start up ImageJ, and you should be able to access the relevant plugins within the "Plugins" menu, where you should find a submenu entitled "QT4D".

Known limitations: Mac OS 9 only has partial support for Java, and does not support Java 2 or greater. However, it does support most Swing classes, which QT4D Player relies on. The timer classes that support continuous movement forward and backward in time or up or down by holding the mouse down in the relevant buttons or near the edges of the movie window do not work in OS 9 due Java limitations. In addition, the toolset menu/button functionality likely doesn't work in versions of ImageJ that support OS 9.

### **Mac OS X:**

(1) Installation is actually easiest under Mac OS X. To install ImageJ, please follow the instructions at the ImageJ web site:

<http://rsb.info.nih.gov/ij/docs/install/osx.html>

On Mac OS X 10.2 (Panther) or 10.3 (Jaguar), most users will have Java 1.41 or Java 1.42 installed. As described on the ImageJ web site, there are two options for running ImageJ on OS X: Java 1.41+ or Java 1.31. The normal installation is designed to run under Java 1.41+, but older OS X machines Mac OS X retains Java 1.31, allowing you to run ImageJ under the Java 1.31 virtual machine (VM). There are certain stability advantages to using 1.3.1 VM, but several new features of Java itself are not supported (scroll wheels, etc.). One can actually have two separate ImageJ installations, one that takes advantage of the 1.4+ or 1.5+ VM, and one that uses the 1.3.1 VM for stability and backwards compatibility.

For compatibility with the newest version of ImageJ, I recommend using the 1.5 VM that comes with OS X 10.4 (Tiger). Wayne Rasband has a downloadable ImageJ package that uses the 1.5 VM on the ImageJ website. This version of ImageJ can take advantage of the toolset macros that I provide for my plugins.

(2) Place the plugins into the plugins folder in your main ImageJ directory (or the subfolder of your choice) and restart ImageJ. New plugins should now be available from the "Plugins" menu. Alternatively, you can compile from source using the "Compile and Run..." command in ImageJ.

**October 2007 - Important note for Mac OS X users: The latest update to QuickTime (7.2) can result in non-functional QuickTime for Java when a Mac was updated first using the QuickTime 7.2 updater and then the OS X 10.4.10 combined updater.** The latter overwrites some newer QTJ files that are installed as part of the QuickTime 7.2 update. If this happenedn to you, download the QuickTime 7.2 updater as a standalone application at:

<http://www.apple.com/support/downloads/quicktime72formac.html>

Then reinstall the QuickTime 7.2 update. This seems to fix this problem on the occasional machine I have encountered that displays this behavior.

Known limitations:

(1) **Apple's decision to deprecate many of the QuickTime for Java classes under the 1.4.1+ VM and QuickTime for Java 6.1+ for OS X (which comes standard with QuickTime 6.5 and higher) made the transition to the new underlying architecture very difficult.** The updated plugins under Mac OS X/Java 1.4.1+ VM/QTJ 6.1 are mostly functional, but several features of the QT4D Movie plugin that were very convenient under the older implementation are not supported:

(a) Most significantly, support for resizing of movies by using the magnifying glass tool to enlarge the movie further broke irrevocably. I have replaced this with a drag and resize feature that does what the older functionality did for the most part.

(b) In addition, because of a bug in QTJ under the 1.4.2. VM and higher, the standard compression dialog in the QT4D Writer plugin does not display key frame and frame rate information. This information is entered in a subsequent dialog. The same plugin will run under Windows and Mac OS X (1.3.1 VM), and can detect the underlying OS, so that this extra kludge is not required.

**Windows:**

(1) Installation is somewhat more involved under Windows than under OS X. To install ImageJ, please follow the instructions at the ImageJ web site:

<http://rsb.info.nih.gov/ij/docs/install/windows.html>

(2) Using these plugins requires installation of QuickTime for Java, which is typically NOT installed using the standard QuickTime installer for Windows. To install Quicktime for Java for Windows, please see the instructions at:

<http://rsb.info.nih.gov/ij/plugins/qt-install.html>

(3) Place the plugins into your plugins folder of your ImageJ folder (or the subfolder of your choice) and restart ImageJ. New plugins should now be available from the "Plugins" menu. Alternatively, you can compile from source using the "Compile and Run..." command in ImageJ.

**Oct. 9, 2007 - Important note for Windows users: If you have multiple version fop the Java Runtime Environment (JRE) or the Java Software Development Kit (SDK) on your machine, Apple's automatic updater software only updates the highest version number of your Java installations with the newest version of the QTJava.zip file.** To use other versions, such as the javac compiler that can be downloaded for use with ImageJ, you must manually update QTJava.zip by putting the newest version in your folder ->jre->lib->ext.

Known limitations:

(1) Due to compatibility issues with Mac OS X (see above), support for resizing of movies by using the magnifying glass tool to enlarge the movie does not work, as it did in earlier, unpublished versions of these plugins. I have replaced this with a drag and resize feature that does what the older functionality did for the most part.

(2) Compiling plugins that use QuickTime for Java using the built-in compiler features of ImageJ for Windows apparently require that you add QTJava.zip to the classpath of the compiler. The only I could figure out how to do this is to edit the ImageJ.cfg file, and add the path to QTJava.zip to the "cp" statement in the file. Moreover, to make it easier for myself, I added a copy of QTJava.zip to the main ImageJ directory for this purpose. Even after this, compiling renders ImageJ unusable for further compiles. Quitting and restarting ImageJ fixes this for the next single use compile. Once compiled, the plugins seem to work fine.

Here is what my ImageJ.cfg file looks like after the change:

```
.  
jre\bin\javaw.exe  
-Xmx426m -cp ij.jar;QTJava.zip ij.ImageJ
```

**For usage information, see the provided "Getting started" document. Good luck!**