

1. About Fiji

Fiji is a freely available public domain software application derived from ImageJ. It runs on Mac OSX, Windows and Linux because it is written in Java. It performs many operations on images such as viewing, editing, creating, annotating, as well as quantitative analysis and conversion between file formats. Fiji can replace Photoshop for many applications.

Although Fiji provides many common image operations through menu commands, it can easily be extended for custom operations or to automate repetitive actions with a built-in macro language. More sophisticated operations can be controlled by plugins written in one of the Java programming environments integrated in Fiji.

2. Installation

Requirements:

1. Java 8 (also known as version 1.8);
2. Current version of Fiji;
3. Update plugins for added capabilities;
4. Install custom macros.

2.1 Install or update to Java 8.

Java software development kit installation instructions:

https://java.com/en/download/help/mac_install.xml

Briefly:

1. Download the latest Java SE Development Kit (SDK) for your operating system:
<http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html>
2. Check the 'Accept License Agreement' then click on the link in the right hand column for your operating system;
3. Open the downloaded file and install by following the instructions;
Note: the runtime version of Java is only for web browsers and will not support Fiji.

NOTE: There are some odd issues with the Mac OSX and Java that may affect you. Updating Java to version 1.8, update 045 (jdk-8u045) or newer, resolves most of them. These issues are discussed here:

<https://imagej.net/MacOS>

2.2 Install Fiji.

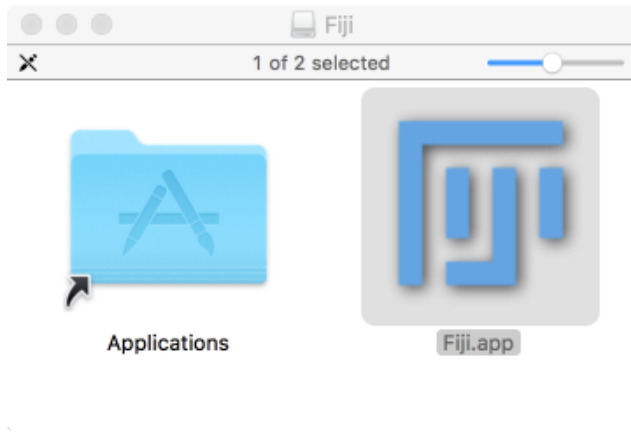
This website guides you through installation of Fiji:

<http://fiji.sc/>

Briefly:

1. Download the installer;
2. Double click on the downloaded installer to open;
3. Drag the Fiji icon to the destination folder;
4. Optionally, create an alias in the Dock (Mac) or pin to the Task Bar (Windows);
5. Change Fiji's memory allocation - Open Fiji, Edit>Options>Memory& Threads;
 - a. Set memory to no more than 75% of installed RAM
6. Close Fiji and re-open;

Windows users should pay attention to the recommendation to install Fiji in your user account and not into the Program Files directory. The permissions settings on the Program Files directory may block updates made from non-Administrator accounts.



2.2.1 Macintosh

The disk image (fiji-macosx.dmg) opens a window with an alias to the Applications folder and an icon for the Fiji application. Drag the Fiji icon into the Applications alias.

2.3 Install plugins with the Fiji updater

Fiji has a built-in updater for its core components and plugins that have been registered with the Fiji developers. A few additional plugins should be installed.

1. Start Fiji;
2. Help>Update... (**not** any other update command);
3. Click on 'Manage update sites';
4. Select 'Bio-Formats', 'FFMPEG', and 'Slidebook';
 - a. Leave the default update sites selected
5. Click on 'Close' to dismiss this window;
6. Click on 'Apply Changes' button;
7. Quit Fiji when prompted and re-open;

2.3.1 Plugin notes.

Bio-Formats plugin. Bundled with Fiji to enable opening images in over 150 different file formats. Selecting the updater ensures having the latest bug fixes and support for new formats.

Slidebook plugin. Allows Fiji to read the .sld format used by Slidebook, including metadata. Details for setting up Fiji, with screen shots, from the Slidebook website:

<https://support.intelligent-imaging.com/techanswers.php#SLDinFiji>

FFMPEG plugin. Imports and exports several movie formats.

2.4 Install Macros

Macros are text files ending in ".txt" or ".ijm". Most macros are stored in the Fiji 'macros' directory. These macros are loaded as needed by the menu command Plugins>Macros>Install...'. Commonly used macros may be stored in a sub-directory called 'toolsets' that allows them to be quickly installed from the Fiji tool bar.

Documentation on macros:

<https://imagej.nih.gov/ij/docs/guide/146-31.html#toc-Subsection-31.1>

Commands in an installed macro appear as a list under Plugins>Macros. A macro with multiple commands creates a list in the Macros menu. Run a command by selecting it from the list. Macro commands may have a 'short cut key' displayed as a single letter or number, such as "[2]" or "[b]" enclosed in square brackets. Run these commands by simply pressing the key enclosed in the brackets. Additionally, some macro commands may ask for a numerical input, tell you to perform some operation such as set a threshold or present a dialog interface with multiple options.

2.4.1 Fiji -Mac

1. Open the Applications folder;
2. Right click on Fiji.app and select 'Show Package Contents';
3. Open the macros folder;
4. Select the macro to install from its source;
5. Copy to the Macros directory, or Macros>toolsets sub-directory on your computer.

2.4.2 FIJI - Windows

1. Open the Program Files folder;
2. Open Fiji.app folder;
3. Select the macro to install;
4. Copy to the ImageJ>Macros directory, or ImageJ>Macros>toolsets sub-directory.

2.4.3 Running a macro in the 'macros' directory

1. Open Plugins>Macros>Install...;
2. Select macro from the directory;
3. Click on 'Close';
4. Commands in the macro will appear in Plugins>Macros;
5. Select the command to run it;
6. If the macro command has a short cut key, simply press the key.

NOTE: Macros, like most menu commands, may operate on the active window even it is not the one you want, like a dialog window.

2.4.4 Running a macro in the 'toolsets' directory

1. Press the red ">>" icon at right end of Fiji toolbar;
2. Select macro from the directory;
3. Press the shortcut key to run that command, or select commands from Plugins>Macros.

2.5 Import Channel Order Macro – to import Olympus OIB and OIF.

This macro was written by DMC staff to import Olympus files with automated control over channel color, merge, type of projections and performing batch operations. Always use the highest version number that does not say "Beta".

A list of commands will appear in Plugins>Macros.
Press '4' to get a help window for this macro.

2.5.1 Install Import Channel Order macro

1. Copy to the Macros>toolsets directory on your computer;
2. Press '4' to get help on this macro's commands.

3. Fiji – Getting Help

3.1 Links in the Fiji Help menu

3.1.1 Fiji wiki:

<http://fiji.sc/> or <https://imagej.net/Fiji>

Search by name of plugin or operation you wish to perform.

3.1.2 ImageJ Documentation:

<https://imagej.nih.gov/ij/docs/>

The ImageJ User Guide is an online document organized by menu and is frequently updated. The downloadable .pdf version is also searchable, but a copy on your computer may become outdated quickly as new features are added.

3.1.3 ImageJ Mailing List

An email listserver for discussing ImageJ, Fiji and image analysis. Freely searchable, however posting requires a free subscription. A valuable resource for beginners and advanced Fiji users.

3.1.4 Fiji Forum through Imagej.net.

A discussion group requiring no subscription. Select the category into which you think your question best fits. Searches will run through all categories. Don't worry about getting the category right in your first posts.

3.1.5 Plugins>Utilities>Find commands...

Looking for a command? Open 'Find commands' and enter the name of the command or type of operation desired.

3.1.6 Help>About Plugins

Many plugins place a link here to a website with documentation.

3.2 A new book on Fiji

[Fiji Training Notes](#) by Cameron Newell, Monash University, Melbourne, 493 pages.

This book covers topics for beginners to power users. It is big, almost 100 Mb, so takes a while to download.

goo.gl/ioB06O

The first few pages describe Fiji installation.