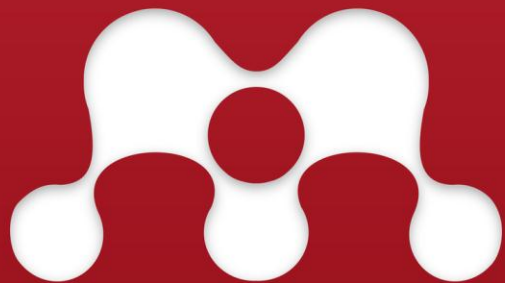


# Computer Applications

ImageJ 9

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MENDELEY



ImageJ

Image Processing & Analysis in Java



# ImageJ installation

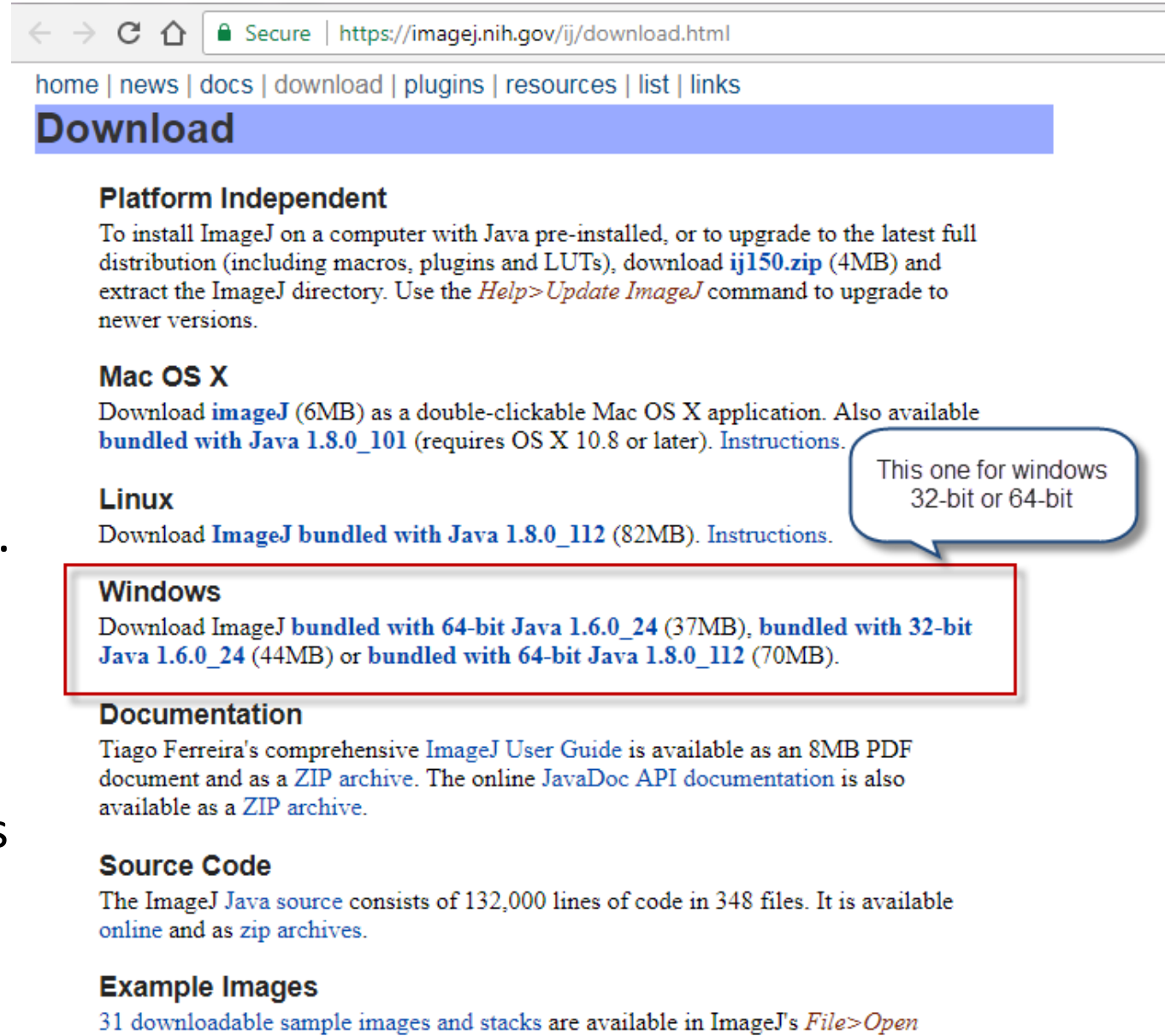
❖ Download from:

<http://imagej.nih.gov/ij/download.html> .

❖ Decompress the file and start working.

❖ Details on how to install ImageJ on Linux, Mac OS 9, Mac OS X and Windows are available at:

<http://imagej.nih.gov/ij/docs/install>



The screenshot shows the 'Download' page of the ImageJ website. The page has a navigation bar with links for 'home', 'news', 'docs', 'download', 'plugins', 'resources', 'list', and 'links'. The 'Download' section is highlighted in blue. It contains several subsections: 'Platform Independent', 'Mac OS X', 'Linux', 'Windows', 'Documentation', 'Source Code', and 'Example Images'. The 'Windows' subsection is highlighted with a red border and includes a callout bubble that says 'This one for windows 32-bit or 64-bit'. The 'Platform Independent' section describes how to install ImageJ on a computer with Java pre-installed. The 'Mac OS X' section describes how to download ImageJ as a double-clickable application. The 'Linux' section describes how to download ImageJ bundled with Java. The 'Documentation' section describes the availability of the ImageJ User Guide and JavaDoc API documentation. The 'Source Code' section describes the availability of the ImageJ Java source code. The 'Example Images' section describes the availability of downloadable sample images and stacks.

← → ↻ 🏠 Secure | <https://imagej.nih.gov/ij/download.html>

[home](#) | [news](#) | [docs](#) | [download](#) | [plugins](#) | [resources](#) | [list](#) | [links](#)

## Download

### Platform Independent

To install ImageJ on a computer with Java pre-installed, or to upgrade to the latest full distribution (including macros, plugins and LUTs), download [ij150.zip](#) (4MB) and extract the ImageJ directory. Use the *Help>Update ImageJ* command to upgrade to newer versions.

### Mac OS X

Download [imageJ](#) (6MB) as a double-clickable Mac OS X application. Also available [bundled with Java 1.8.0\\_101](#) (requires OS X 10.8 or later). [Instructions](#).

### Linux

Download [ImageJ bundled with Java 1.8.0\\_112](#) (82MB). [Instructions](#).

### Windows

Download ImageJ [bundled with 64-bit Java 1.6.0\\_24](#) (37MB), [bundled with 32-bit Java 1.6.0\\_24](#) (44MB) or [bundled with 64-bit Java 1.8.0\\_112](#) (70MB).

This one for windows 32-bit or 64-bit

### Documentation

Tiago Ferreira's comprehensive [ImageJ User Guide](#) is available as an 8MB PDF document and as a [ZIP archive](#). The online [JavaDoc API documentation](#) is also available as a [ZIP archive](#).

### Source Code

The ImageJ [Java source](#) consists of 132,000 lines of code in 348 files. It is available [online](#) and as [zip archives](#).

### Example Images

31 downloadable sample images and stacks are available in ImageJ's *File>Open*

# ImageJ installation

## Drag and Drop

The Windows version of ImageJ opens images, folders of images, text files, ROIs and LUTs dropped on the "ImageJ" window or on the ImageJ application icon.

## Upgrading to a Newer Version of Java

This is what you need to do to upgrade to a newer version of Java:

Download and install the latest JDK from

[www.oracle.com/technetwork/java/javase/downloads/](http://www.oracle.com/technetwork/java/javase/downloads/)

Go to the ImageJ folder and delete or rename the jre folder Delete the ImageJ.cfg file then Restart ImageJ and the launcher (ImageJ.exe) will generate a new ImageJ.cfg that uses the Java you just installed.

# ImageJ installation

## Contents of ImageJ Folder

### **ij.jar**

This JAR (Java Archive) file is the platform-independent core of ImageJ. It is the only file changed when you upgrade using the Help>Update ImageJ command.

### **ImageJ.exe**

This is the ImageJ launcher.

**jre (optional):** This folder contains the Java runtime.

### **macros**

This folder contains example macros. The StartupMacros.txt file in this folder contains macros and macro tools that are automatically installed when ImageJ launches. To run a macro, drag and drop it on the ImageJ window and run it by pressing ctrl-r (Macros>Run Macro).

### **plugins**

This folder contains a small sample of the hundreds of plugins available for ImageJ. Plugins, macros and scripts in this folder, and immediate sub-folders, are installed in the Plugins menu when ImageJ launches.

### **luts**

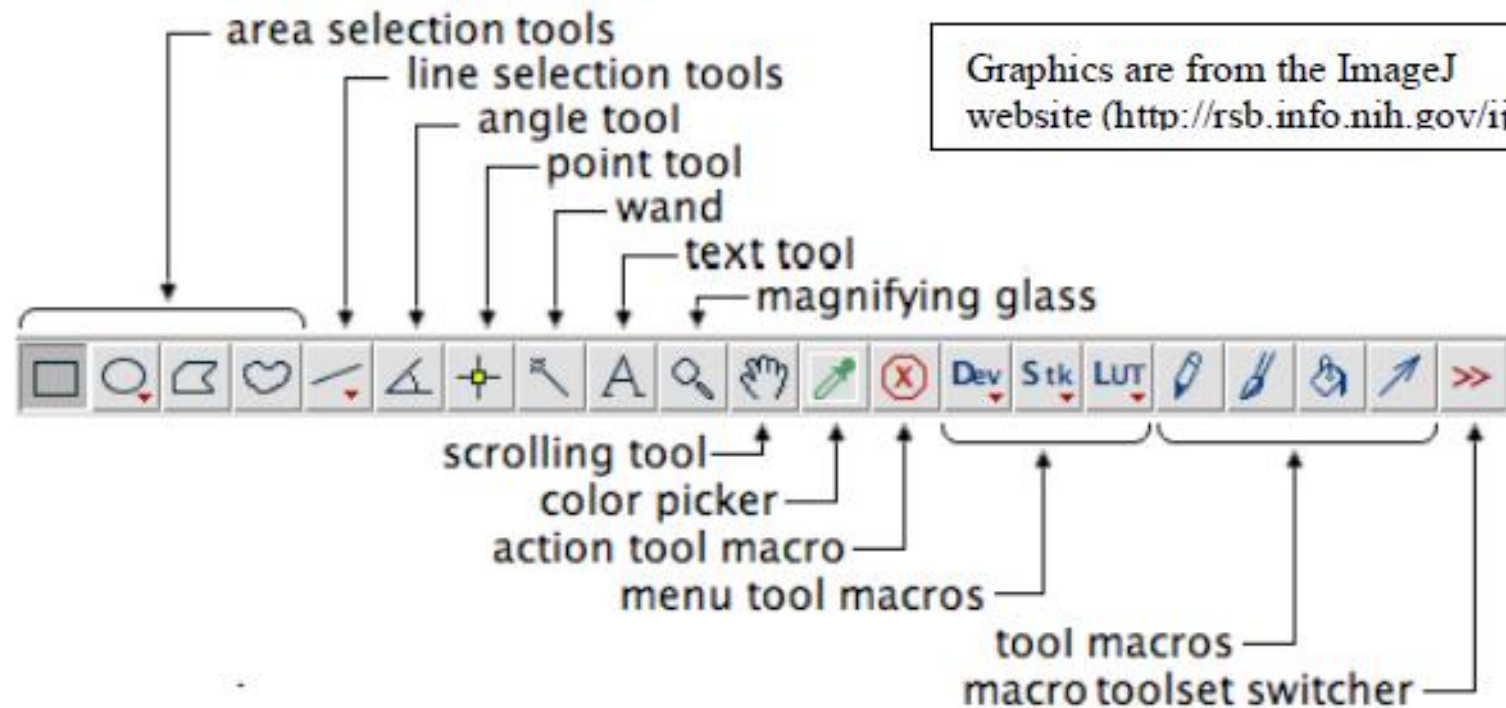
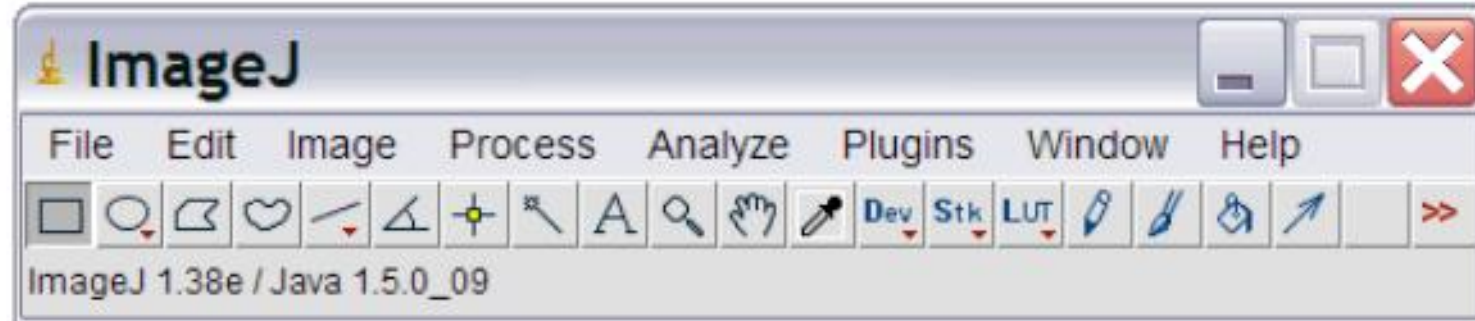
This folder contains LUTs (LookUp Tables) that are installed at startup in the Image>Lookup Tables menu. Use the Image>Color>Display LUTs command to view all the LUTs in this menu.

# ImageJ user interface

Menu Bar →

Tool Bar →

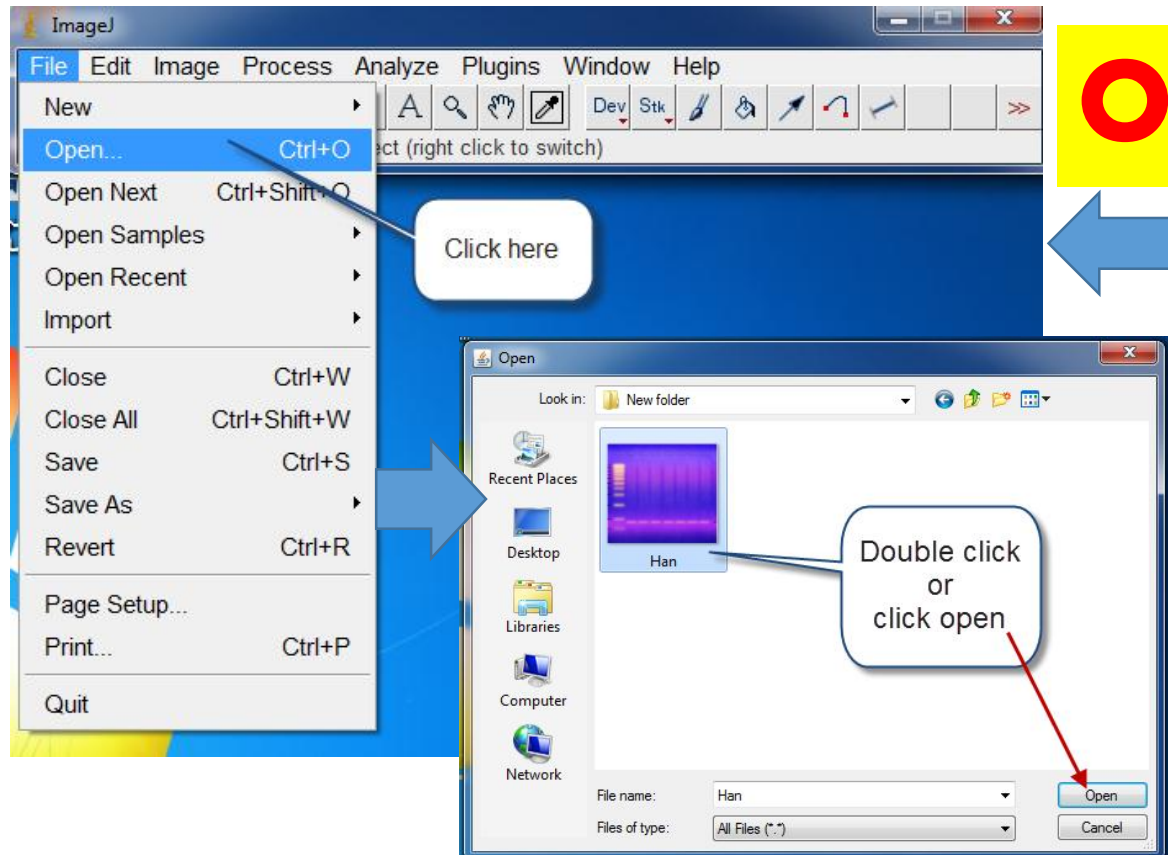
Status Bar →



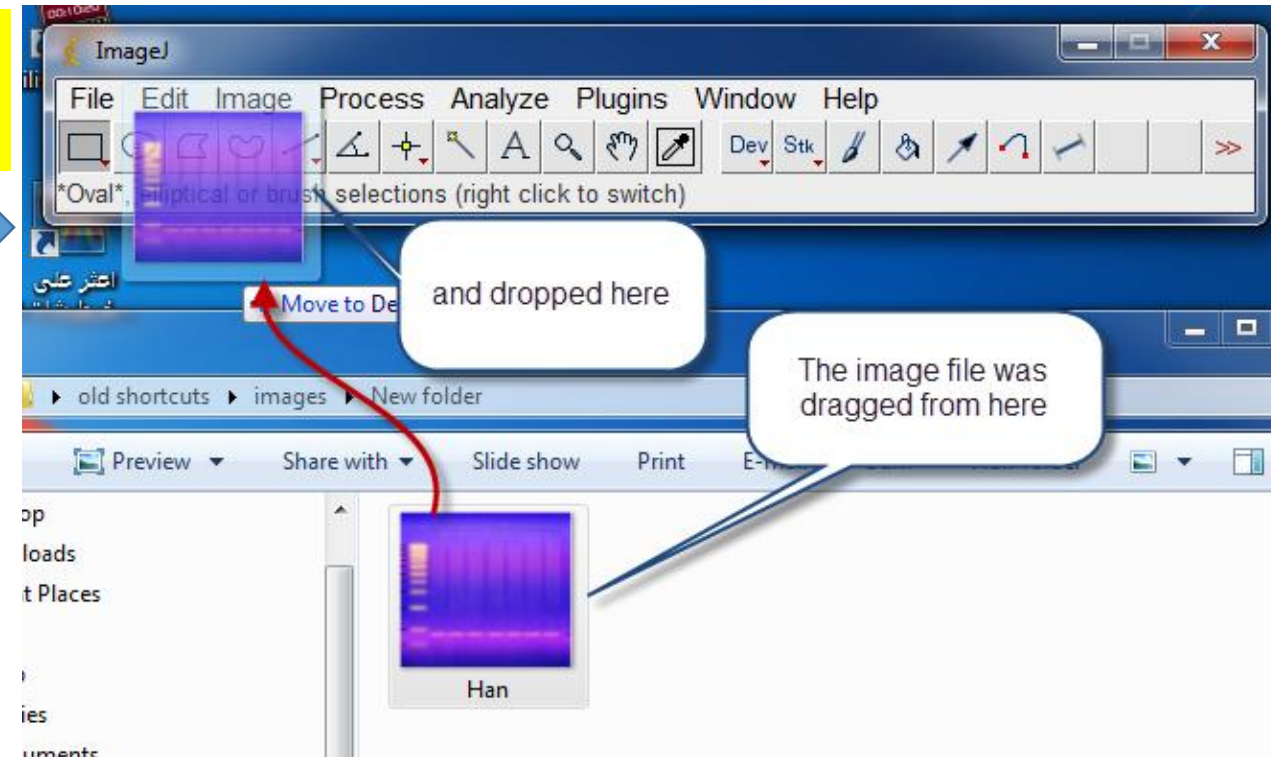
Graphics are from the ImageJ website (<http://rsb.info.nih.gov/ij/>).

# Opening file

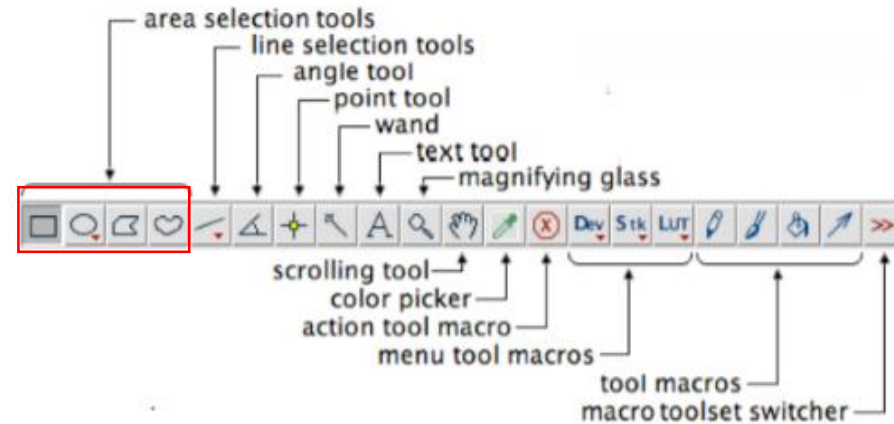
- ❖ Select **File** → **Open** from the menu bar to open a stored image file.
- ❖ Or drag the image and drop it in image J bar.



OR



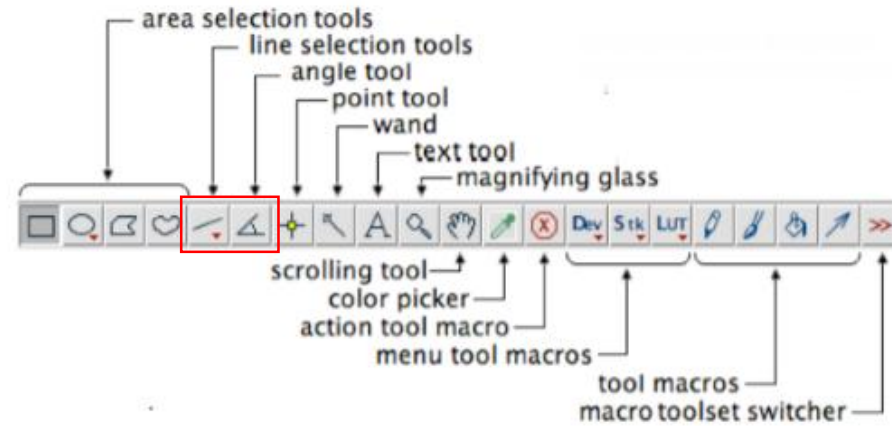
# Tools Bar



The various buttons on the tool bar allow you measure, draw, label, fill, etc. A right click or a double left-click may expand your options with some of the tool buttons.

❖ **Area Selection Tools:** The first four buttons on the tool bar allow you to surround an area on the image with a rectangle, oval, polygon or freehand shape. After selection, these areas may be altered, analyzed, copied, etc. using the menu commands. Note that the status bar, below the tool bar, gives information such as the coordinates (xx, yy) of the selection on the frame.

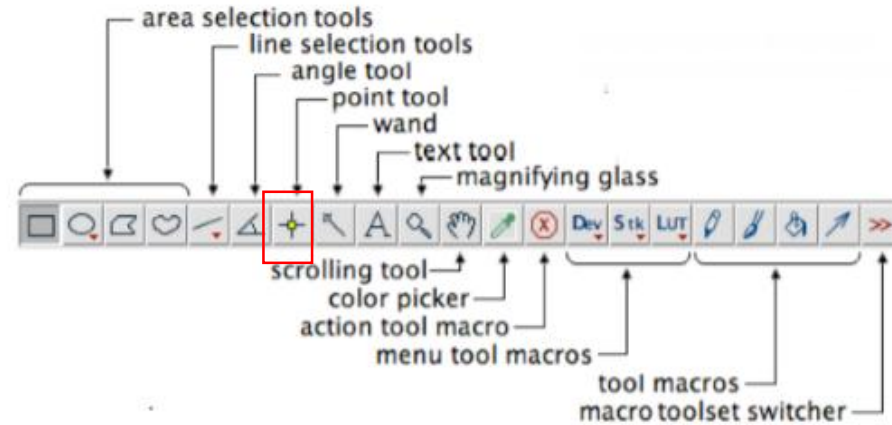
# Tools Bar



- ❖ **Line Selection Tool:** This button allows you to create straight, segmented or freehand lines (right-click to select line type). Information about the line is displayed on the status bar. Double-click on the button to alter the line width, select **Analyse → Measure** (or Ctrl+M) to record a line length and **Edit → Draw** (or Ctrl+D) to make a line permanent.
- ❖ **Angle Tool:** Draws two intersecting lines and measures the formed angle.

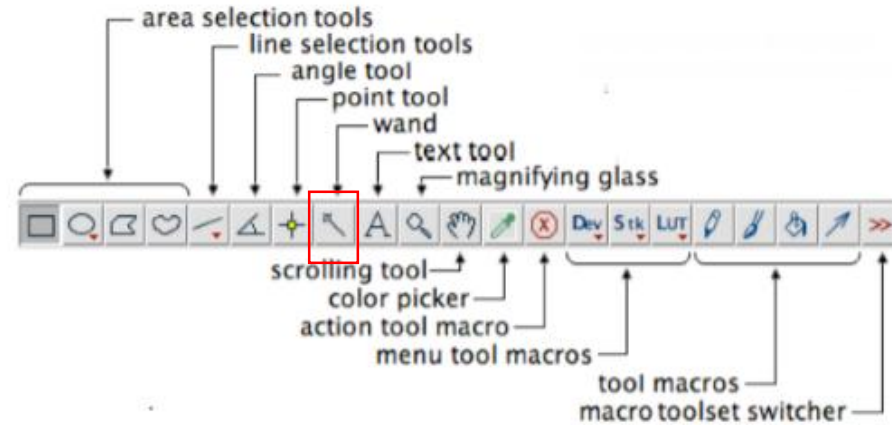


# Tools Bar



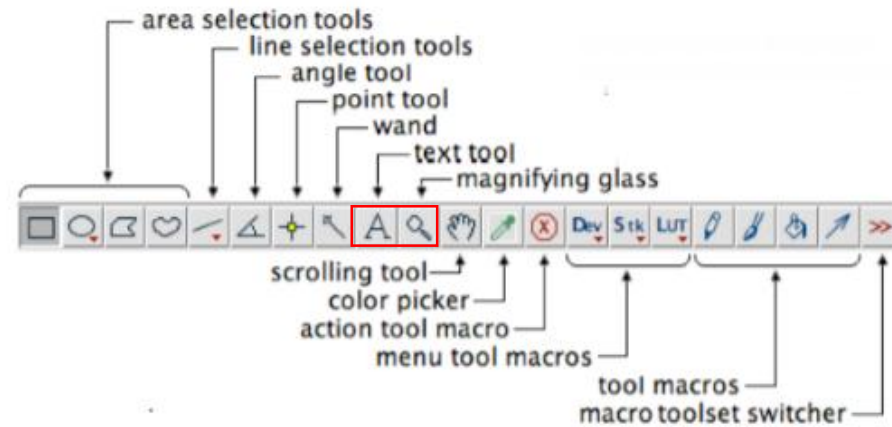
- ❖ **Point Tool:** When 'Auto-Measure' is selected, this tool allows you to mark locations on an image; with each click the coordinates of the mark (xx, yy) and brightness values (0-255) are recorded in a data window. Color images will have three brightness readings displayed on the status bar, one each for the red, green and blue channels, however only a single grayscale brightness value will appear in the data window.

# Tools Bar



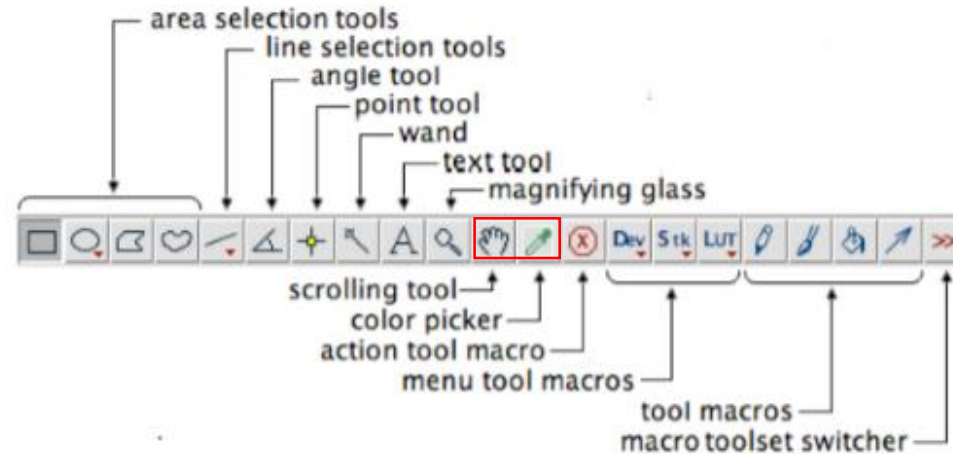
- ❖ **Wand Tool:** This tool automatically finds the edge of an object and traces its shape. It works best with high contrast images. Place the wand to the left of an edge; click and the algorithm will search to the right for an edge. It will then trace along the edge of the object until it returns to the starting point.

# Tools Bar



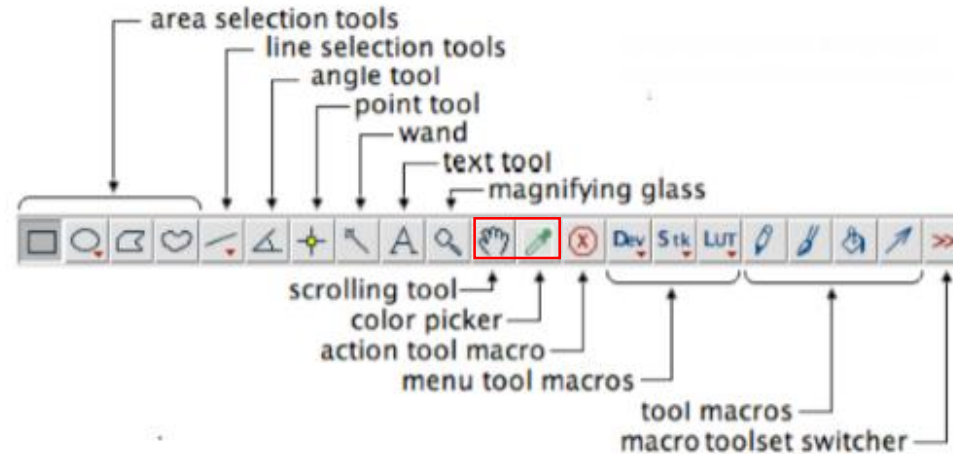
- ❖ **Text Tool:** Double click on this button to select a font and size. A large font size will probably be required for an image from a high resolution digital camera. Single click the button, click- drag a text box and type the label. Move the box to the desired location and permanently set the text in place with **Edit → Draw** (or Ctrl+D). Use the color picker tool to select font color.
- ❖ **Magnifying Glass:** Left-click on the image to magnify; right-click to reduce the image size.

# Tools Bar



- ❖ **Scrolling Tool:** This button allows you to move an image if it is larger than the window. Pressing the keyboard space bar is a shortcut that temporarily activates this tool.
- ❖ **Color Picker:** This tool sets the foreground drawing/text color when a color on an image is 'picked up' with the eyedropper. Colors also may be selected from the Colors window by double-clicking the color picker button (or via **Image → Color → Color Picker**). Use Alt+click to change the background color. The icon for this tool (eye dropper) shows the current foreground color while the frame around it shows the background color

# Tools Bar



❖ **Other Tools:** The remaining tool buttons are similar to those found in drawing programs (spray can, flood fill, etc.) and can be easily used after a bit of experimentation.