Using ImageJ with OMERO 5.1

This initial section covers both OMERO version 5.1.x and version 5.0.x and assumes you have never installed ImageJ or Fiji before.

For OMERO version 4.4.x see - imagej-4.pdf at:

http://downloads.openmicroscopy.org/help/pdfs/imagej-4.pdf

You can tell what version your OMERO is from the fine print at the bottom of the login screen.



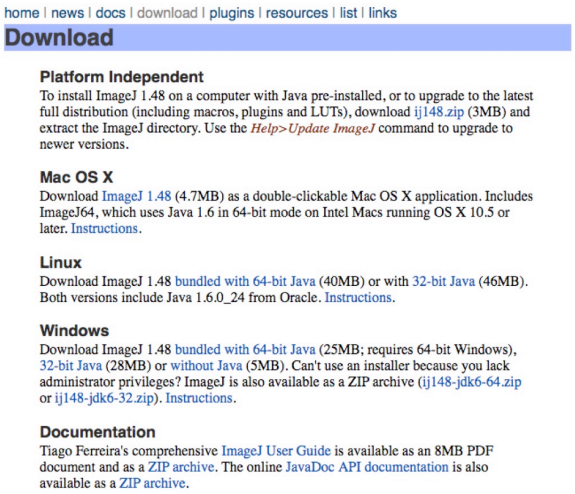
Upgrading from OMERO version 4.4.x to OMERO version 5.1.x is dealt with in a later section.

In order to connect to an OMERO server and use the data stored there directly in ImageJ and Fiji, plugins have to be installed. The following instructions guide you through the download and installation and use of ImageJ, Fiji and the plugins.

Downloading and installing ImageJ

1 Download the latest version of ImageJ for your platform from the website:

http://rsbweb.nih.gov/ij/download.html



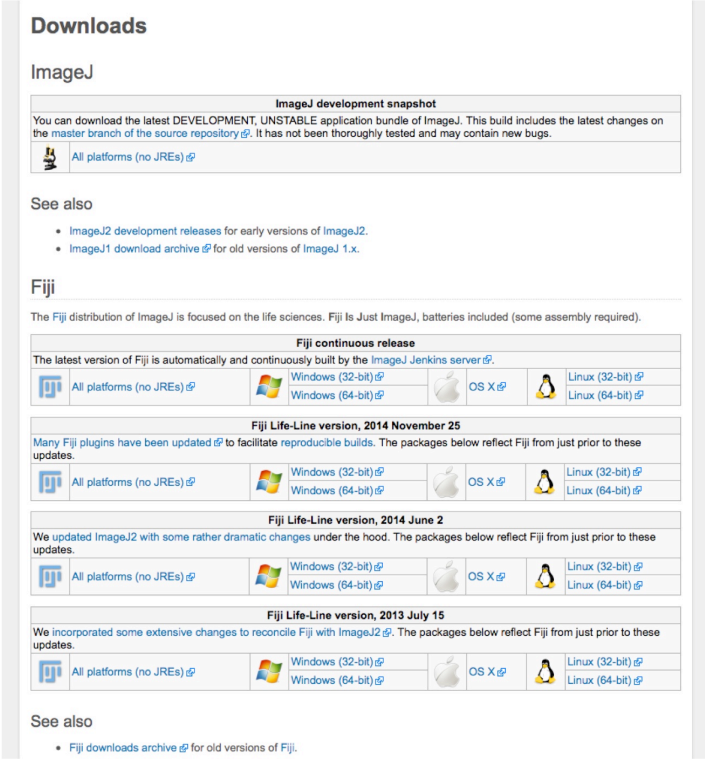
2 On Windows, run the set-up programme (either from the Downloads folder or when prompted by the download Wizard) and follow instructions, and security prompts as appropriate, to install ImageJ.
On Mac OS X, extract the .zip archive and drag the ImageJ folder to your applications folder.
On Linux, extract the .gz archive and double click the “run” script.
Further installation instructions can be found on the ImageJ web site (URL above).

Downloading and Installing Fiji

Fiji (Fiji is Just ImageJ) is a distribution of ImageJ together with Java, Java3D and a lot of plugins organized into a coherent menu structure.

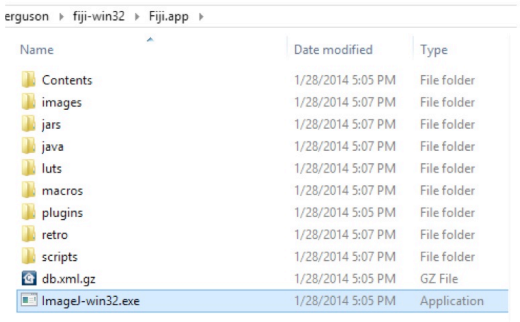
1 Download the latest version of Fiji for your platform from the website:

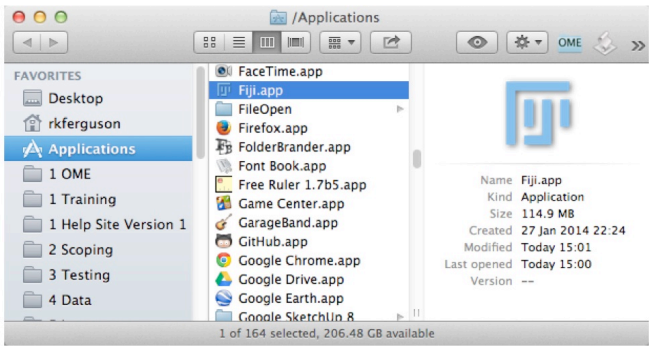
http://fiji.sc/Downloads



2 The Fiji downloads page includes installation instructions.
On Windows it is recommended you install the Fiji executable within your user space cyfor example: `C:\Users\[your name]\Fiji.app`, not in the normal `C:\Programs` directory, otherwise future updating may fail.
On Mac OS X, mount the .dmg and drag the Fiji folder to your applications folder.
On Linux extract the .gz archive and double click the “run” script.

3 On Windows, depending on how the downloaded archive was expanded, the ImageJ executable can appear one level deeper in the Fiji.app folder than in ImageJ.
On Mac OS X, Fiji.app appears as a single .app.





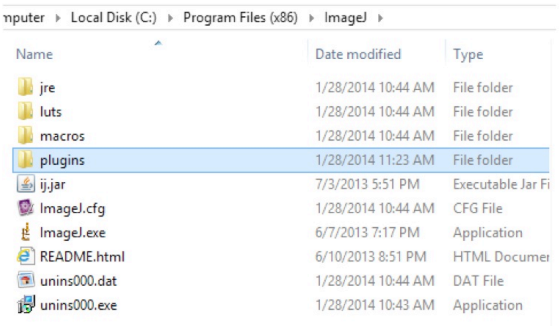
Installing Plugins for ImageJ and Fiji

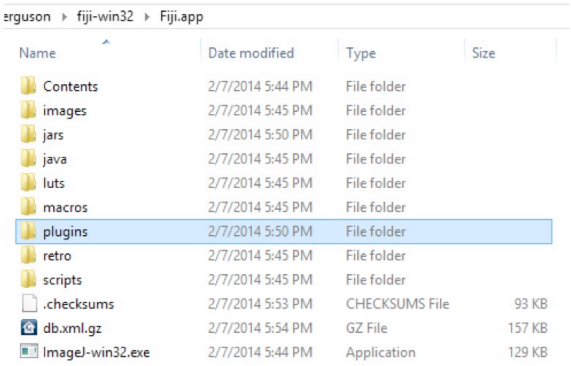
The location for the plugins in ImageJ and Fiji are essentially the same, with the following differences in gaining access to them:

- on Windows, Fiji sometimes has an additional level of hierarchy, depending on how the downloaded archive was expanded, for example:

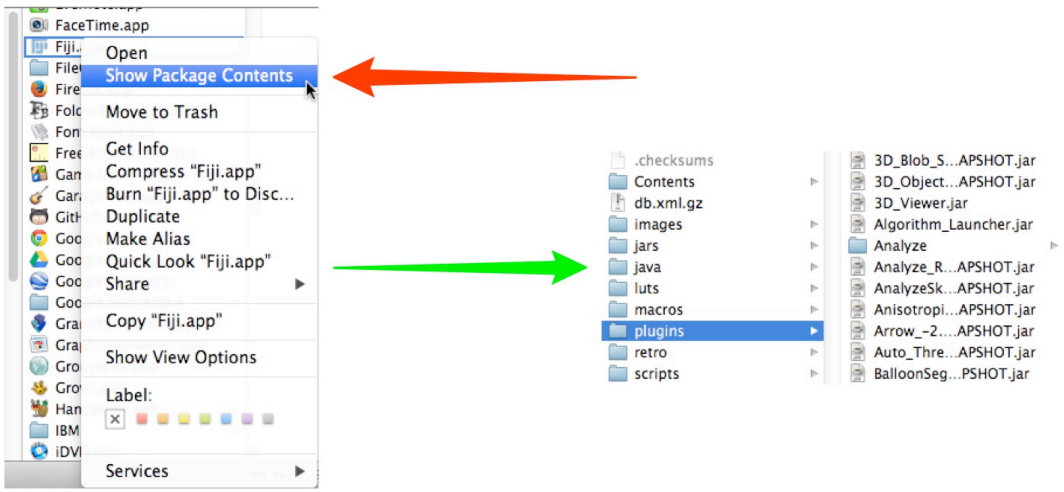
  ImageJ - Windows (32 bit):
  `Local Disk (C:) > Program Files (x86) > ImageJ > plugins`

  Fiji - Windows (32 bit):
  `Local Disk (C:) > username > Fiji-win32 > Fiji.app > plugins`





- on Mac OS X, Fiji is an .app package, so to see the plugins folder you must right-click the Fiji.app and select **Show Package Contents**:



Note: After installing or upgrading plugins, you need to restart ImageJ or Fiji to be able to use the plugins.

Using ImageJ with OMERO

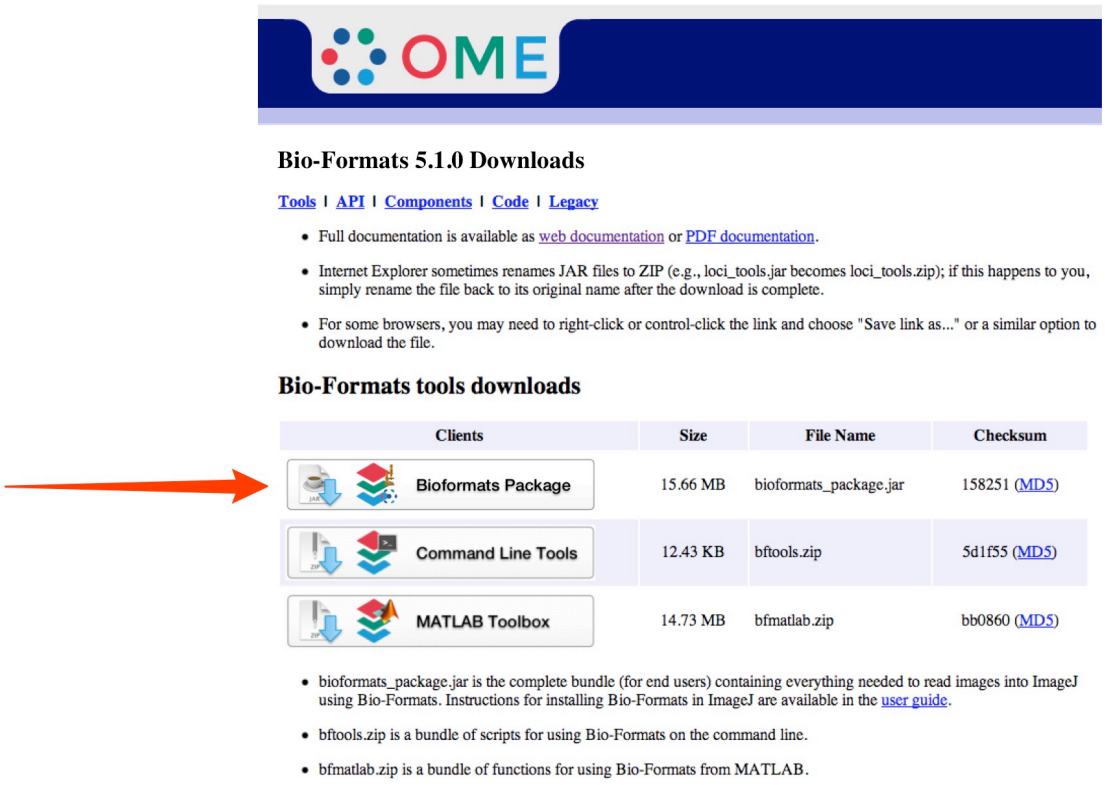
Two plugins are required:

- `bioformats_package.jar`
- `OMERO.insight-ij`

1 Download the latest 5.1.x version of the **Bioformats Package** plugin from:

http://downloads.openmicroscopy.org/latest/bio-formats5

Check there is a “Bio-Formats 5.1.x Downloads” heading on the page.



Bio-Formats 5.1.0 Downloads

Tools | API | Components | Code | Legacy

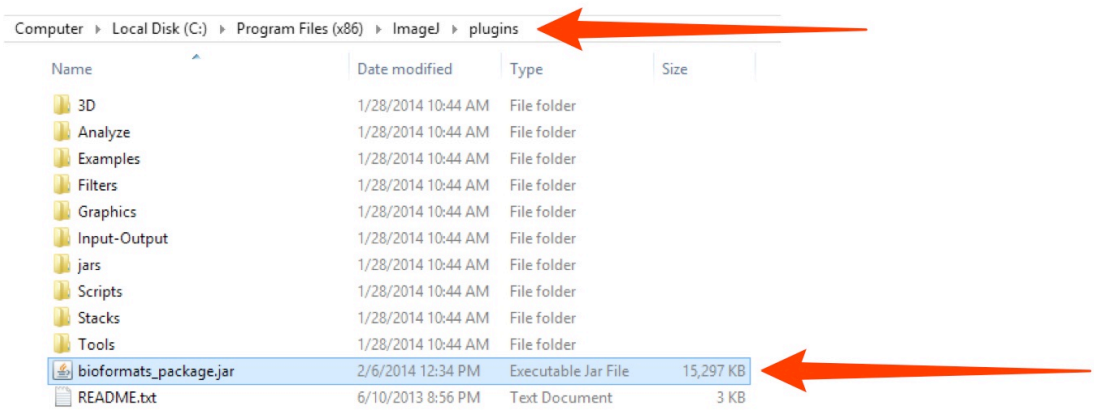
- Full documentation is available as web documentation or PDF documentation.
- Internet Explorer sometimes renames JAR files to ZIP (e.g., loci_tools.jar becomes loci_tools.zip); if this happens to you, simply rename the file back to its original name after the download is complete.
- For some browsers, you may need to right-click or control-click the link and choose "Save link as..." or a similar option to download the file.

Bio-Formats tools downloads

Clients	Size	File Name	Checksum
Bioformats Package	15.66 MB	bioformats_package.jar	158251 (MD5)
Command Line Tools	12.43 KB	bftools.zip	5d1f55 (MD5)
MATLAB Toolbox	14.73 MB	bfmatlab.zip	bb0860 (MD5)

- bioformats_package.jar is the complete bundle (for end users) containing everything needed to read images into ImageJ using Bio-Formats. Instructions for installing Bio-Formats in ImageJ are available in the user guide.
- bftools.zip is a bundle of scripts for using Bio-Formats on the command line.
- bfmatlab.zip is a bundle of functions for using Bio-Formats from MATLAB.

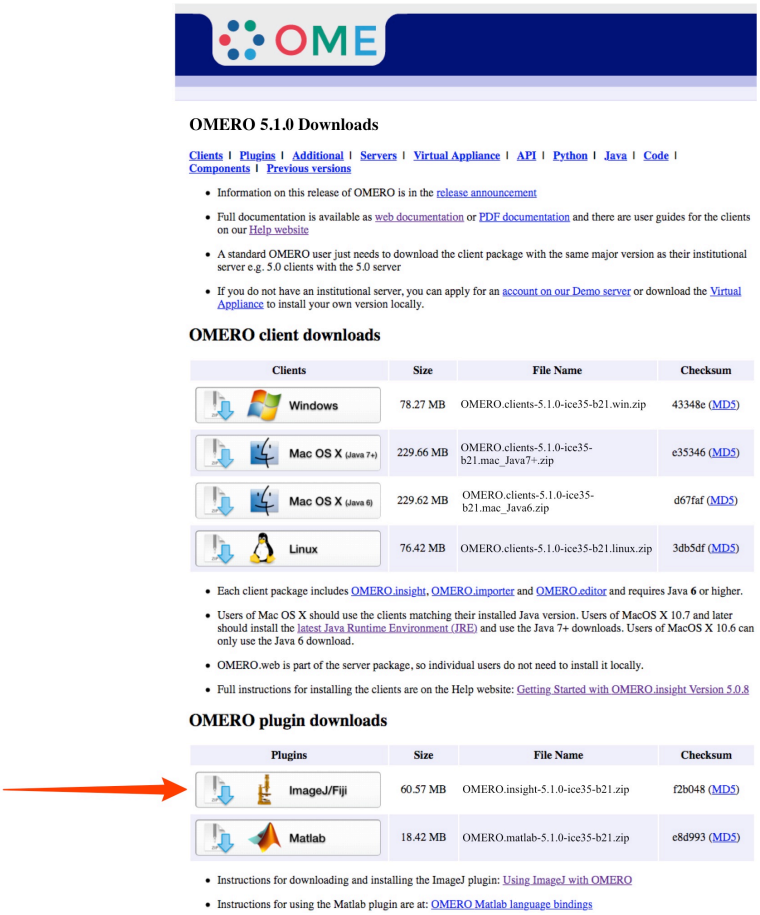
2 Save or move the downloaded file into the `ImageJ > plugins` folder.



3 Download the latest 5.1.x version of the `OMERO.insight-ij` plugin from:

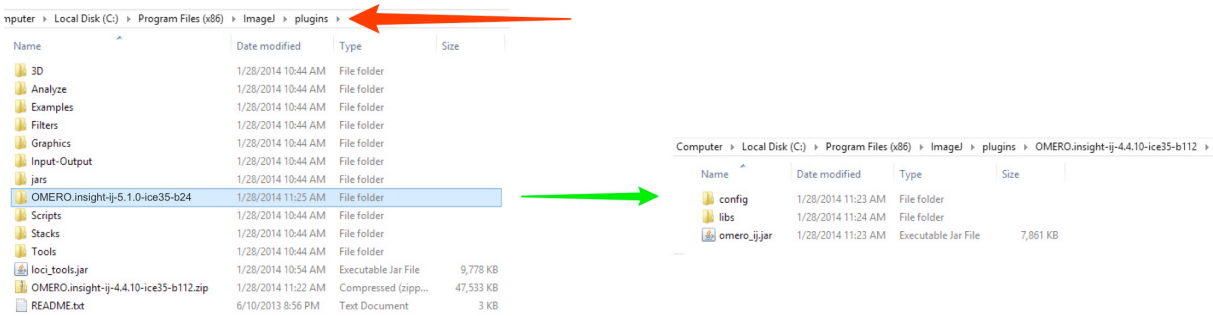
http://downloads.openmicroscopy.org/latest/omero5

Check there is a “OMERO 5.1.x Downloads” heading on the page.



4 Save or move the .zip archive to the `ImageJ > plugins` folder.
Extract the archive into the plugins folder to give a folder named “`OMERO.insight-ij-x`” where x is the version number.
Leave the complete `OMERO.insight-ij plugin` folder with its components in the `ImageJ > plugins` folder.

Note: Some Windows unzip apps create a double folder enclosing the plugin. Check, and if this has happened, copy the inner `OMERO.insight-ij-5.1.x` folder into the `ImageJ > plugins` folder.



The `OMERO.insight-ij-5.1.x.zip` archive can be left in the plugins folder or deleted.

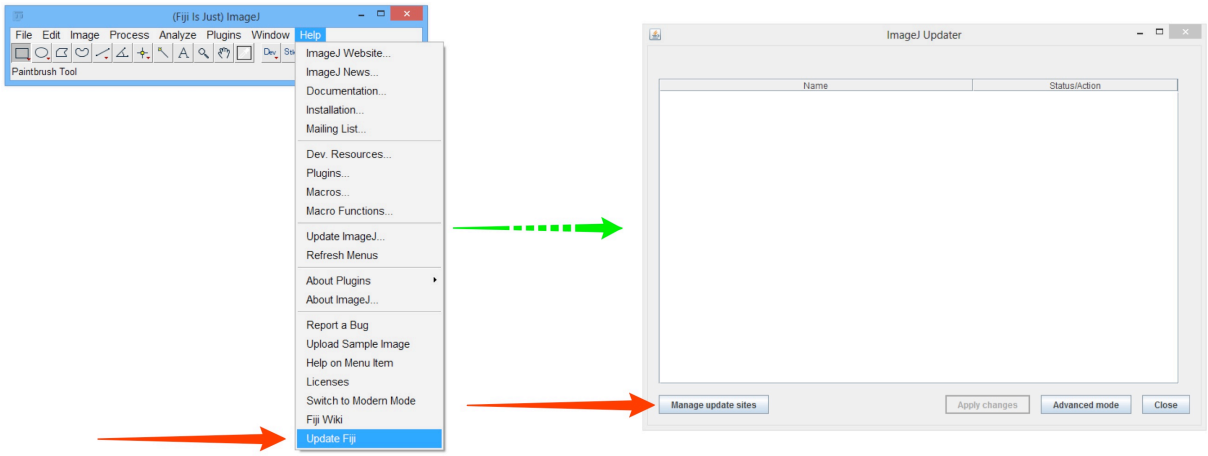
Using Fiji with OMERO

As Fiji comes bundled with the components of Bioformats Package, there is no need to download and install this plugin.

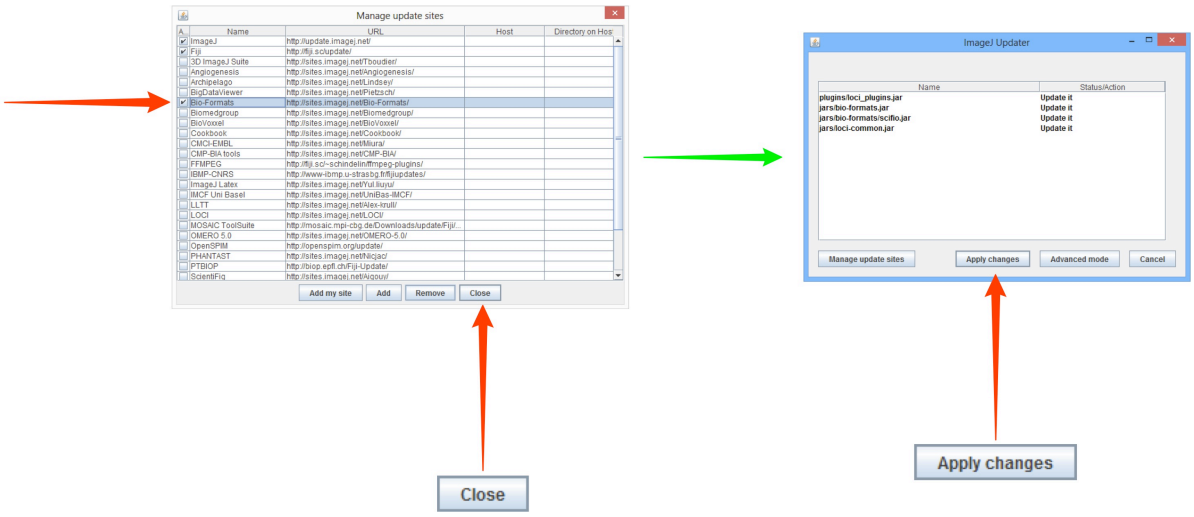
Two actions are required for both a fresh installation and to upgrade from version 4.4.x:

- select the Bio-Formats jars using the update menu
- add the `OMERO.insight-ij` plugin

1 Select **Help > Update Fiji**.
Fiji will check for updates and after following prompts you will end up at the ImageJ Updater Window.
Click on **Manage update sites**.



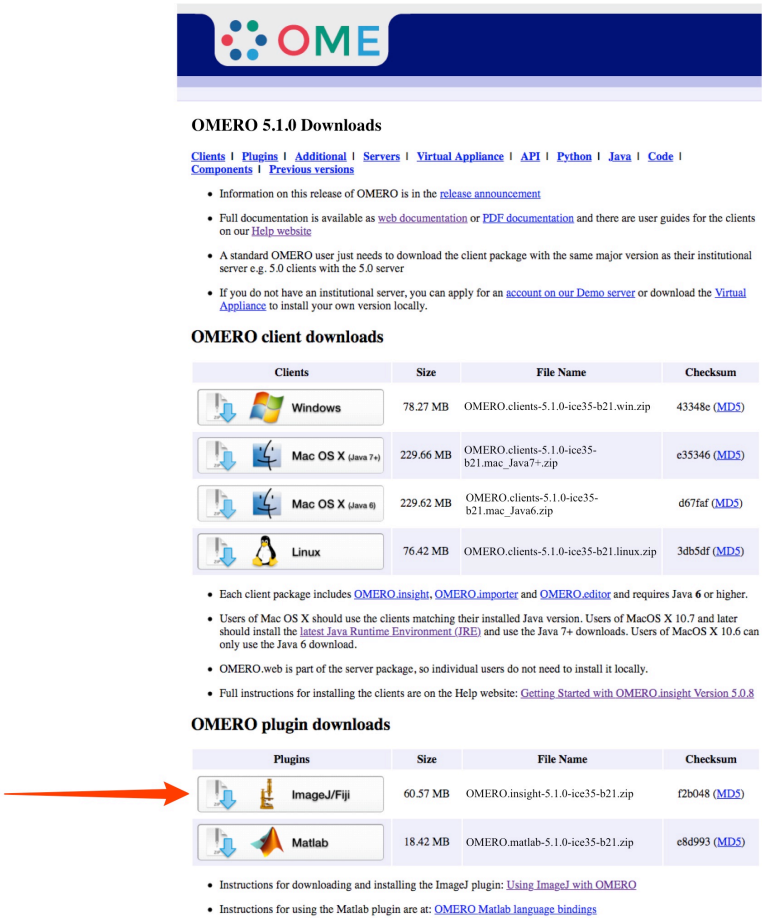
2 In the Manage update site window, select **Bio-Formats 5**.
Click **Close**.
Click **Apply Changes**.
Fiji will fetch and install the updates.



3 Download the latest 5.1.x version of the `OMERO.insight-ij` plugin from:

http://downloads.openmicroscopy.org/latest/bio-formats5

Check there is a “OMERO 5.1.x Downloads” heading on the page.



OME

OMERO 5.1.0 Downloads

Clients | Plugins | Additional | Servers | Virtual Appliance | API | Python | Java | Code | Components | Previous versions

- Information on this release of OMERO is in the release announcement
- Full documentation is available as web documentation or PDF documentation and there are user guides for the clients on our Help website
- A standard OMERO user just needs to download the client package with the same major version as their institutional server e.g. 5.0 clients with the 5.0 server
- If you do not have an institutional server, you can apply for an account on our Demo server or download the Virtual Appliance to install your own version locally.

OMERO client downloads

Clients	Size	File Name	Checksum
Windows	78.27 MB	OMERO.clients-5.1.0-ice35-b21.win.zip	43348e (MD5)
Mac OS X (Java 7+)	229.66 MB	OMERO.clients-5.1.0-ice35-b21.mac_Java7+.zip	e35346 (MD5)
Mac OS X (Java 6)	229.62 MB	OMERO.clients-5.1.0-ice35-b21.mac_Java6.zip	d67faf (MD5)
Linux	76.42 MB	OMERO.clients-5.1.0-ice35-b21.linux.zip	3db5df (MD5)

- Each client package includes OMERO.insight, OMERO.importer and OMERO.editor and requires Java **6** or higher.
- Users of Mac OS X should use the clients matching their installed Java version. Users of MacOS X 10.7 and later should install the latest Java Runtime Environment (JRE) and use the Java 7+ downloads. Users of MacOS X 10.6 can only use the Java 6 download.
- OMERO.web is part of the server package, so individual users do not need to install it locally.
- Full instructions for installing the clients are on the Help website: Getting Started with OMERO.insight Version 5.0.8

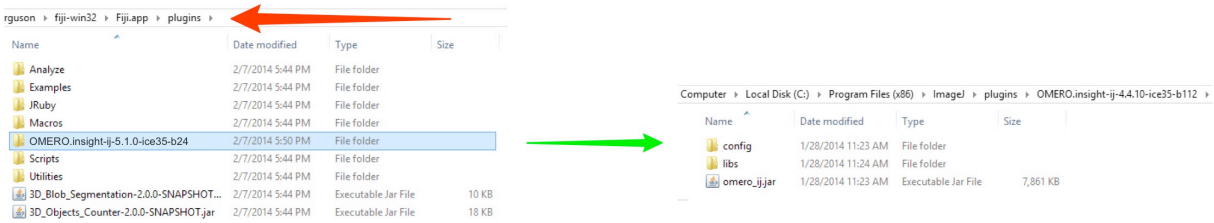
OMERO plugin downloads

Plugins	Size	File Name	Checksum
ImageJ/Fiji	60.57 MB	OMERO.insight-5.1.0-ice35-b21.zip	f2b048 (MD5)
Matlab	18.42 MB	OMERO.matlab-5.1.0-ice35-b21.zip	e8d993 (MD5)

- Instructions for downloading and installing the ImageJ plugin: Using ImageJ with OMERO
- Instructions for using the Matlab plugin are at: OMERO Matlab language bindings

4 Save or move the .zip archive to the `Fiji.app > plugins` folder.
If upgrading delete the 4.4.x version of `OMERO.insight-ij`.
Extract the archive into the plugins folder to give a folder named “`OMERO.insight-ij-x`” where x is the version number.
Leave the complete `OMERO.insight-ij` plugin folder with its components in the `Fiji.app > plugins` folder.

Note: Some Windows unzip apps create a double folder enclosing the plugin. Check, and if this has happened, copy the inner `OMERO.insight-ij-5.1.x` folder into the `Fiji.app > plugins` folder.



rguson ▸ fiji-win32 ▸ Fiji.app ▸ plugins ▸

Name	Date modified	Type	Size
Analyze	2/7/2014 5:44 PM	File folder	
Examples	2/7/2014 5:44 PM	File folder	
JRuby	2/7/2014 5:44 PM	File folder	
Macros	2/7/2014 5:44 PM	File folder	
OMERO.insight-ij-5.1.0-ice35-b24	2/7/2014 5:50 PM	File folder	
Scripts	2/7/2014 5:44 PM	File folder	
Utilities	2/7/2014 5:44 PM	File folder	
3D_Blob_Segmentation-2.0.0-SNAPSHOT...	2/7/2014 5:44 PM	Executable Jar File	10 KB
3D_Objects_Counter-2.0.0-SNAPSHOT.jar	2/7/2014 5:44 PM	Executable Jar File	18 KB

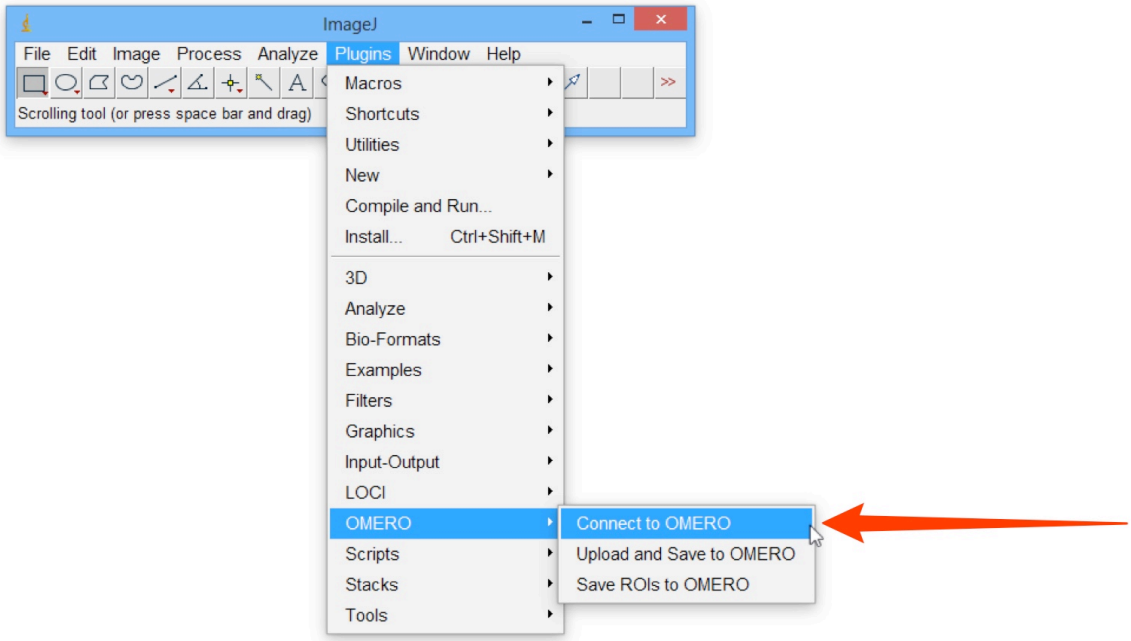
Computer ▸ Local Disk (C:) ▸ Program Files (x86) ▸ ImageJ ▸ plugins ▸ OMERO.insight-ij-4.4.10-ice35-b112 ▸

Name	Date modified	Type	Size
config	1/28/2014 11:23 AM	File folder	
libs	1/28/2014 11:24 AM	File folder	
omero_ij.jar	1/28/2014 11:23 AM	Executable Jar File	7,861 KB

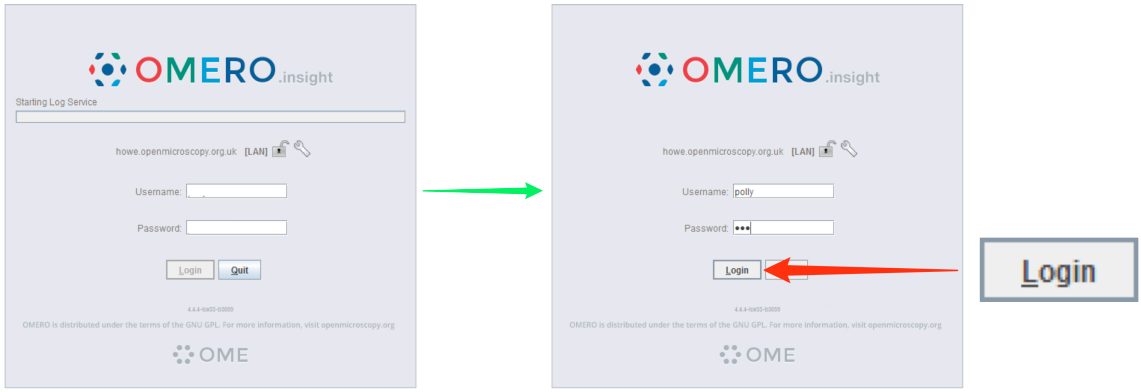
Delete the `OMERO.insight-ij-5.1.x.zip` archive from the plugins folder.

Accessing OMERO using ImageJ and Fiji

1 Launch the ImageJ or Fiji application and click on the **Plugins** menu.
Select **OMERO > Connect to OMERO**.
A version of OMERO.insight will open and can be used as normal.



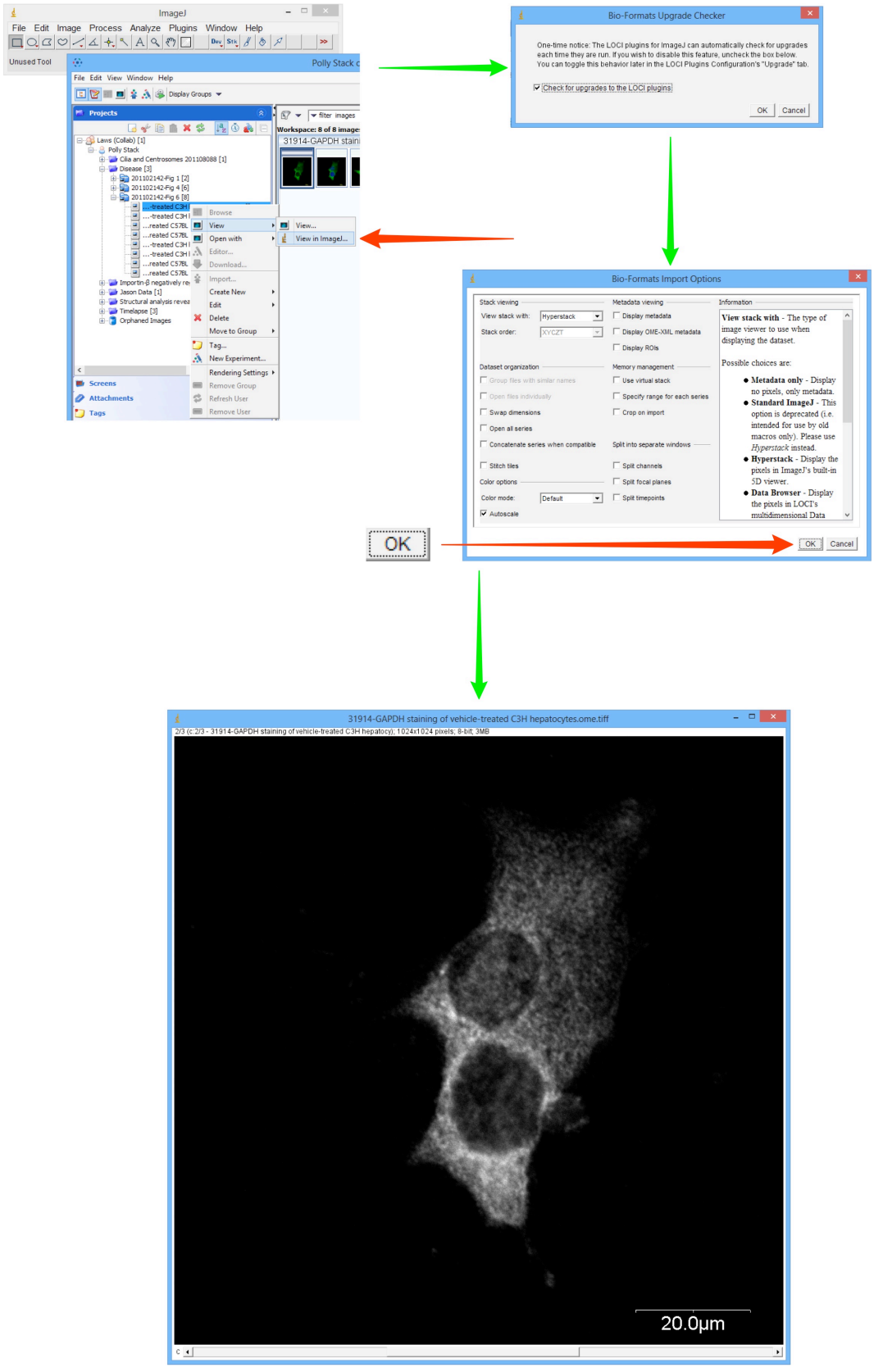
2 As ImageJ needs to load the plugin software, it can take a minute or two for the OMERO login screen to appear, and then another minute for the progress bar to start moving and complete.
Enter your OMERO server address, if needed, and **Username** and **Password**.
Click **Login**.



You will then be taken to the OMERO.insight Data Manager screen.

Note: If you quit OMERO.insight and then connect again during the same ImageJ session, logging in and launching the OMERO plugin will be much quicker. So if you intend using the OMERO plugin through ImageJ again soon, it may be worth leaving your ImageJ application running.

3 Double click on the image in the data tree or select the image and **View > View in ImageJ** in the contextual menu.
Select the check box to set Bio-Formats to automatically check for updates.
Click **OK** and the Bio-Formats Import Options window opens.
Set parameters and click **OK**.
Your image will open in the ImageJ viewer.



Saving images from ImageJ to OMERO

With OMERO version 5.1, it is possible to save images directly from ImageJ or Fiji to your OMERO server.

Use ImageJ or Fiji to open an image from a local disk.

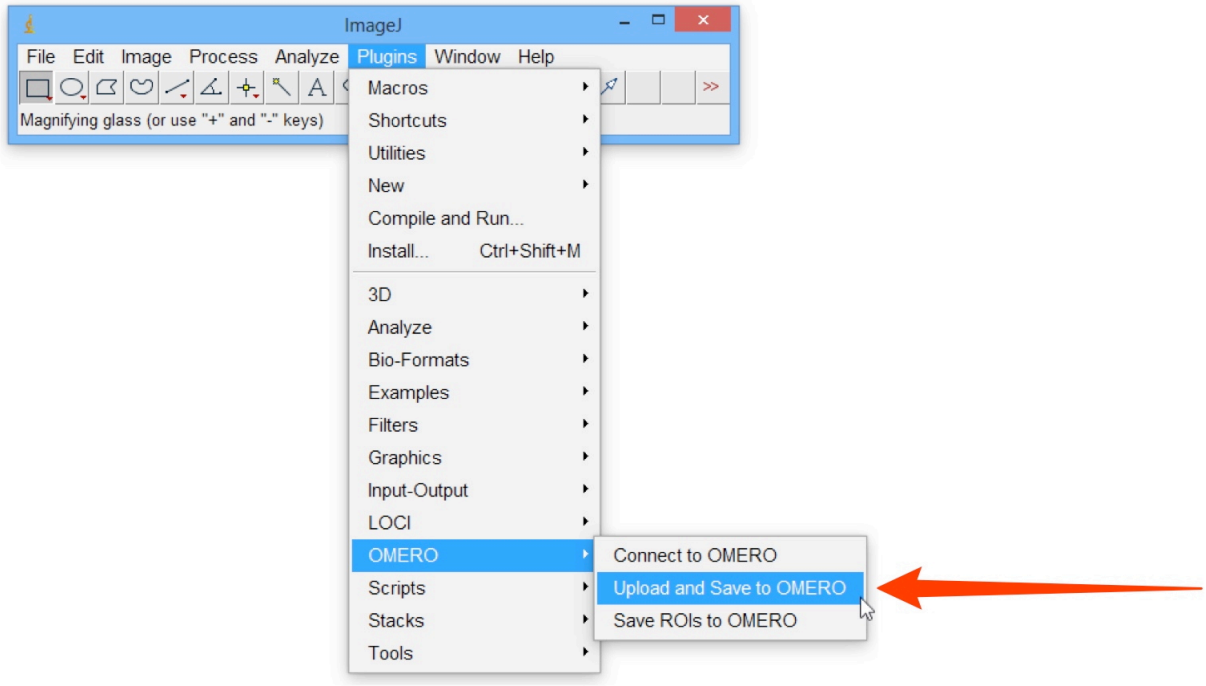
Select

Plugins > OMERO > Upload and Save to OMERO

A version of OMERO.insight will open automatically.

The image will be imported into OMERO in it's original format.

If the image has been modified, e.g. a cropped image, it will be imported as an OME-TIFF.



Note: Normal ImageJ conventions with respect to overlays and ROIs are respected when saving to the OMERO server.

Saving ROIs drawn in ImageJ to OMERO

Use ImageJ or Fiji to open an image from a local disk or from the OMERO server as described above.

Draw ROIs in ImageJ or Fiji as normal.

If the image is from a local disk select

Plugins > OMERO > Upload and Save to OMERO

A version of OMERO.insight will open automatically and the image, including the ROIs, will be imported.

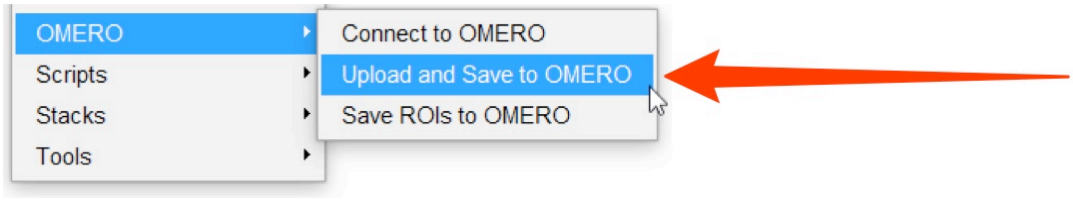
If the image is from the OMERO.server select

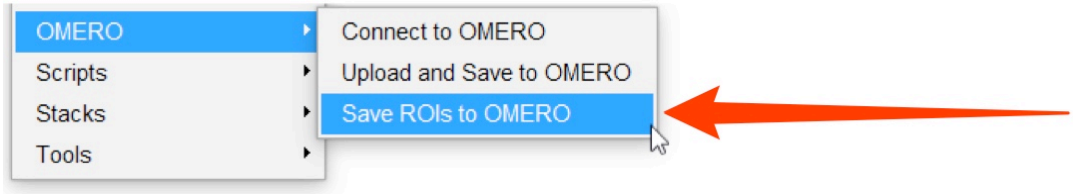
Plugins > OMERO > Save ROIs to OMERO

Once saved to the OMERO server the ROIs become standard OMERO ROIs and can be used as normal.

Any existing ROIs on an image in the OMERO server will be displayed and can be manipulated as normal in ImageJ.

Note: There is no duplication of data, new or existing ROIs are saved back to the original image on the OMERO server.





Upgrading ImageJ from 4.4.x to 5.1.x

To upgrade ImageJ for use with an OMERO version 5 server, you need to:

1 Go to the `ImageJ > plugins` folder.
Delete the `loci_tools.jar` and the `OMERO.insight-ij-4.4.x` folder.

2 Download the latest 5.1.x version of the Bioformats Package plugin from:

http://downloads.openmicroscopy.org/latest/bio-formats5

(See screenshot above)
Check there is a “Bio-Formats 5.1.x Downloads” heading on the page.
Save or move the downloaded file into the `ImageJ > plugins` folder.

3 Download the latest 5.1.x version of the `OMERO.insight-ij` plugin from:

http://downloads.openmicroscopy.org/latest/omero5

(See screenshot above)
Check there is a “OMERO 5.1.x Downloads” heading on the page.
Save or move the downloaded file into the `ImageJ > plugins` folder.

Note: The `bioformats_package.jar` you need, to use ImageJ with OMERO version 5.1.x, is incompatible with `loci_tools.jar`, and ImageJ will not work with OMERO if both are in the plugins folder.

We suggest that if you wish to access both 4.4.x and 5.1.x versions of OMERO from ImageJ that you run two appropriately named copies of ImageJ each with the appropriate plugins for the version.

For more information on OMERO version 4.4.x see - imagej-4.pdf at:

http://downloads.openmicroscopy.org/help/pdfs/imagej-4.pdf