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ZOOPROCESS setup MANUAL

ZOOSCAN – UVP5 – FLOWCAM – GENERIC

QUANTITATIVE IMAGING PLATFORM

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Modification date	Author	Where?
2021/02/15	Amanda Elineau	Chapter 2.3
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SUMMARY

1 Introduction

This manual has been written as a reference document for the Zooprocess software. The new Zooprocess 8.08 and above versions are fully compatible with the following instruments:

- Zooscan
- Underwater Vision Profiler 5 and 5HD, including piloting tools
- Flowcam using both RAW images and COMPOSITE images
- Almost any other imaging instrument (microscope, ISIIS…) => generic

Do not hesitate to contact the author if you want to add any new instrument and use the complete image process for it.

This manual details:

- Zooprocess setup
- Use of Zooprocess for Zooscan, FlowCam ,UVP and GENERIC

The version 8.08 provides all necessary tools to export data into the ECOTAXA application which replaces now Plankton Identifier and XnView. It permits to export both already sorted images and newly acquired ones.

http://ecotaxa.obs-vlfr.fr
http://ecotaxa.sb-roscoff.fr

The version 8.08 also provides piloting tools for the new UnderWater Vision Profiler 5 Standard and High Definition.

1.1 Related documents

- User should refer to the Hydroptic manuals for the Zooscan and the UVP5 systems.
- In order to complete the installation of Zooprocess with the correct settings, users should also refer to the Calibration and Qualification reports delivered with the UVP5 and the Zooscan instruments.
- General methods are presented in
  Gorsky et Al, 2010
  Picheral et Al, 2010
- Scanning an processing procedures with ZOOSCAN are described in
  ZOOSCAN Protocol 2022
- We can also provide a manual to use the FlowCam according to our best standards and correctly fill metadata before processing raw data (Zooprocess for Flowcam Manual 2018).

1.2 About Zooprocess

Zooprocess is a suite of routines in ImageJ macro language. It is thus free for all users and everybody can adapt it to its needs. We would appreciate if people share the new tools that they develop with the Zooprocess community and inform us if they use it (email to marc.picheral@imev-mer.fr).

Zooprocess has been developed for our use by Marc Picheral who is not a professional programmer! It is still in development and new versions will be posted on our Website.
We consider that the file formats and project architectures will not be modified. In any case ascending compatibility will be kept.

The Zooprocess manual is regularly updated on the PIQv website. Please check that you have installed the last version before proceeding. **We support ONLY the last version**. **Please check that you have upgraded Zooprocess (see below) before asking for assistance.**

Please refer to ImageJ and Zooprocess in your publications. The reference publication for Zooprocess is:
J. Plankton Res. Gorsky et al. 32 (3): 285.

2 Software installation

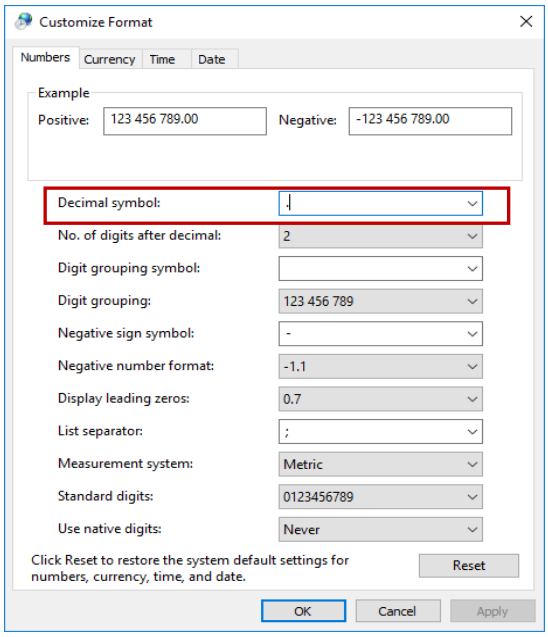
2.1 Computer specifications

- 2 Go of RAM is necessary to process the Zooscan 2400 dpi images on Windows Xp pro systems 32bits. We no longer recommend these systems which are now obsolete.
- A minimum of 8 Go of RAM is requested on Windows 7 pro 64bits, Windows 8 and 10 to process the 4800dpi images while 4 Go are necessary for 2400dpi images.
- A 1280 x 1024 monitor is a minimum for the Zooscan. We recommend 1680 x 1280 for better image viewing. **The minimum vertical resolution is 1024 dpi** for the ZOOSCAN tools limiting the use of some laptop PC.
- A mouse fitted with a roll button is requested for most of the manual graphic tools (measurements, tag, separation, identification, vignette display from graph…)

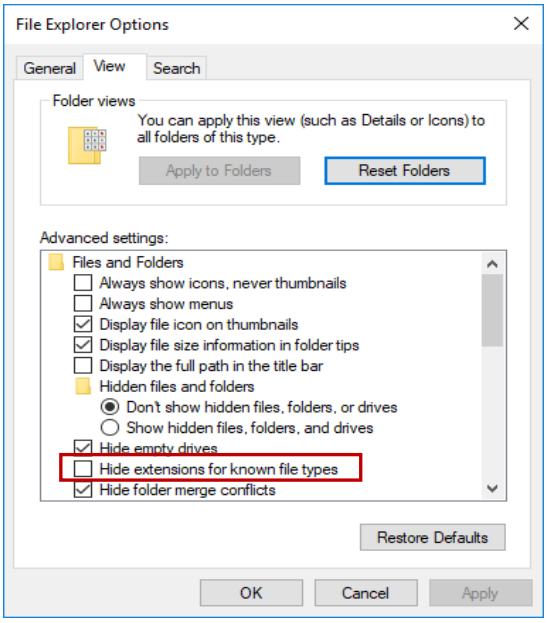
We recommend keeping the Zooprocess computer free of software that is not requested for the Systems operation and checks. This is the simplest way to avoid any conflict with ImageJ and Java.

2.2 Computer Settings

You must configure the computer to use **dot** between integers and decimals (Control Panel) :



Make extensions visible in Windows Explorer (Control Panel) :



If you use Windows 11, you need to turn off “Device encryption”:

1. Open Settings.
2. Click on Privacy & security.
3. Under the “Security” section, click the Device encryption page.

4. Turn off “Device encryption”:

2.3 Provided installation files

The table below indicates the files to be used according to your Zooscan version and your Operating System.

If you install Zooprocess for other instruments than ZOOSCAN, you do not have to install Vuescan and the drivers.

These files can be downloaded on the memory stick provided with the Zooscan and from the PIQv website for the latest updates.

Operating System		**Windows XP pro 32bits**	**Windows 7 pro 64bits**	**Windows 8 & 10 pro 64bits**
Install Archive (downloaded)		Zooscan_install_32_bits_OS.zip	Zooscan_install_64_bits_OS.zip	Zooscan_install_64_bits_OS.zip
RAM, minimum recommended		2Gb	8Gb	8Gb
DRIVERS versions for ZooScan	**Biotom**	epson12181.exe	epson12181.exe	epson12181.exe
	Hydroptic V1	epson12181.exe	epson12181.exe	epson12181.exe
	Hydroptic V2	epson13552.exe	epson13552.exe	epson13552.exe
	Hydroptic V3	not compatible	epson13677.exe	epson15550.exe
	Hydroptic V4 + V5	not compatible	epson16804.exe	epson16804.exe
VUESCAN		vuex64-9.7.67.exe		
JAVA machine installer		jre-6u29-windows-i586-s.exe	jre-6u29-windows-x64.exe	
ImageJ installer		ij141-nojre-setup.exe		
RS232 for UVP5 piloting module		rs232_w32.zip	rs232_w64.zip	

WARNING:

If you have a Zooprocess version below 8.01, you have to re-install the good version of Vuescan then ImageJ and the last version of Zooprocess.

Before that, uninstall ImageJ and Vuescan properly. Do not forget to delete the shortcuts, the ImageJ folder on the desktop, the Zooprocess and Zooscan files in the C drive and to check the Pictures folder to remove files associated with Vuescan.

2.4 Setup order

Not all software need to be installed but **the different applications must be installed following the indicated order according to the different cases**. Do use the detailed setup procedure for each software.

2.4.1 Case 1 : scanning and processing Zooscan images

1. Zooscan drivers (epsonXXXXX.exe).
2. Vuescan
3. Java machine
4. ImageJ and Zooprocess

2.4.2 Case 2 : processing only Zooscan images (no scan)

1. Java machine
2. ImageJ and Zooprocess

2.4.3 Case 3 : running UVP using piloting tools and processing images

1. Java machine
2. ImageJ and Zooprocess
3. RS232 piloting tools

2.4.4 Case 4 : processing UVP images and data only or images from other instruments (Flowcam, Generic…)

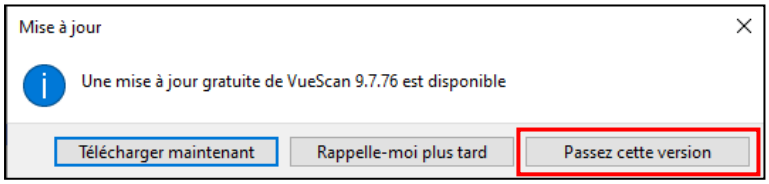
1. Java machine
2. ImageJ and Zooprocess

2.5 Zooscan driver setup

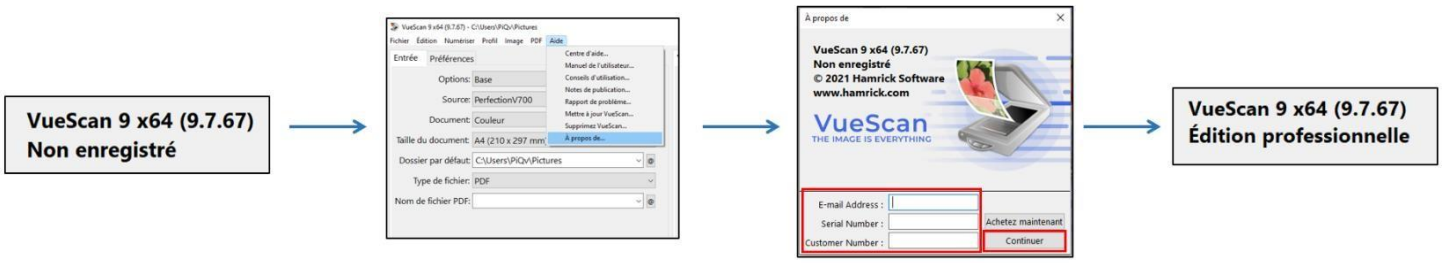
1. Turn ON Zooscan
2. Launch the selected installer: epsonxxxx.exe.
3. Follow the default installation procedure

2.6 Vuescan setup (Zooscan systems)

1. Launch the **vuex64-9.7.67.exe** installer
2. **Do not accept** the updated version



3. Launch Vuescan and enter the license information provided in the documents delivered on the memory stick with the Zooscan : “Papers and warranty” folder (Contact Hydroptic if necessary)



If the Update message is displayed again, go to the HELP menu and UPDATE tool to deactivate again the message related to the update.

4. Create a shortcut **on desktop** by right cliking on the icon of Vuescan.exe in the Program files.

2.7 JAVA setup

1. Launch the selected installer: jre-6u29-windows-XXX.exe
2. Follow the default installation procedure

It is mandatory to run ImageJ with the provided JAVA machines. **NEVER update**! JAVA must thus be setup before ImageJ in order to link ImageJ to the proper JAVA machine

2.8 ImageJ setup

2.8.1 ImageJ version

Only the version 1.41o
of ImageJ should be used for Zooprocess above version 7.00.

2.8.2 ImageJ for Windows systems 32bits (Xp pro SP3)

32 bit Operating Systems are much slower and should no longer be utilized. We keep this chapter for older users who may still have to re-install an old system.

These systems allow to scan and process both Large and Narrow frame images at resolutions up to 2400dpi.

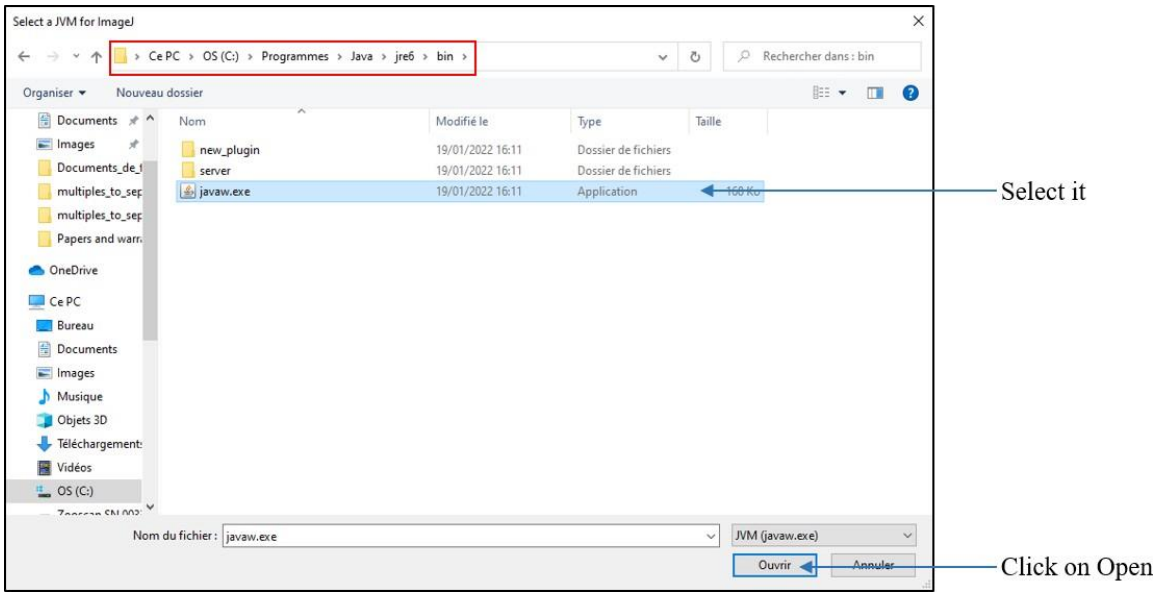
If ImageJ is already installed on your computer, check the version, use the Help/About ImageJ…on Image J menu

If version is not 1.41o, you have to perform installation.

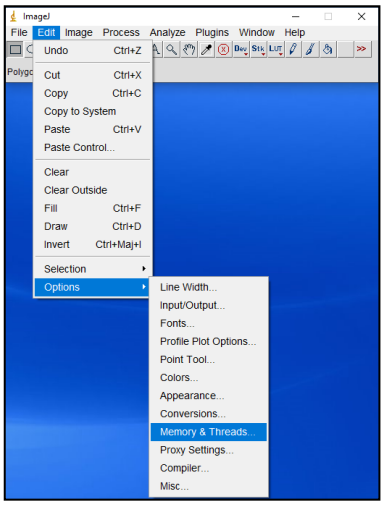
Use the installation files provided for this OS (WXp_32bits.zip).

1. Install first the ORACLE Java machine provided in the install archive (jre-6u29-windows-i586-s.exe).

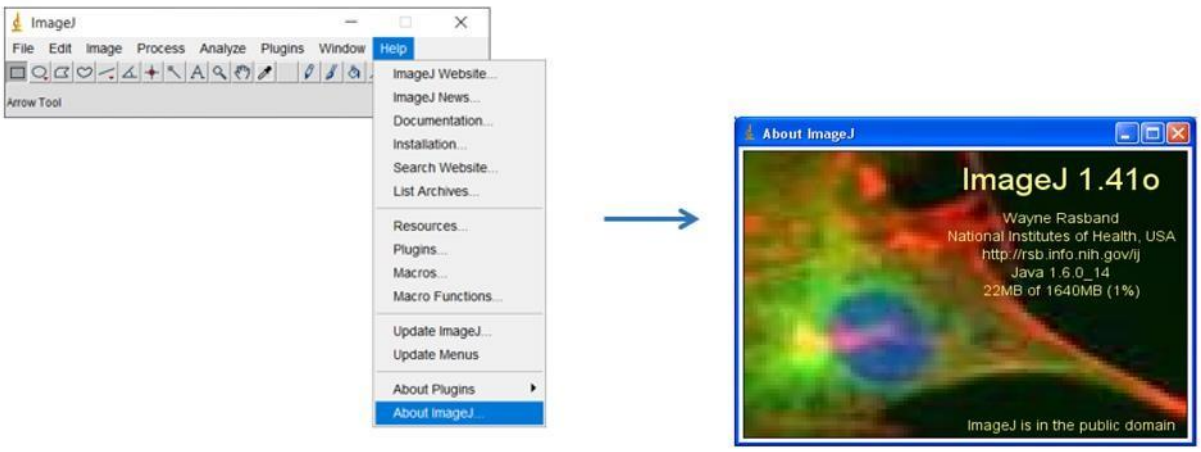
2. Install then ImageJ from the same archive (ij141-nojre-setup.exe) and define the Java machine above when asked to. **ImageJ must be installed in a folder that users can write such as the Desktop (C:\Users\nameofaccount\Desktop\ImageJ).** Set then the memory in ImageJ to 2/3 of the RAM available on your computer. **A minimum of 1680Mb is requested to process Large frame images acquired at 2400dpi.**
3. Define the path to the Java machine (javaw.exe) that you have previously installed. It can be done when asked by the ImageJ installer. Find the location of the javaw.exe installer: C:\Program Files OR Program Files (x86)\Java\jre6\bin\javaw.exe



4. Set then the memory in ImageJ to 2/3 of the RAM available on your computer (use the Edit/Options/memory & Threads… on Image J menu).



5. Restart ImageJ to check that the memory is properly set.

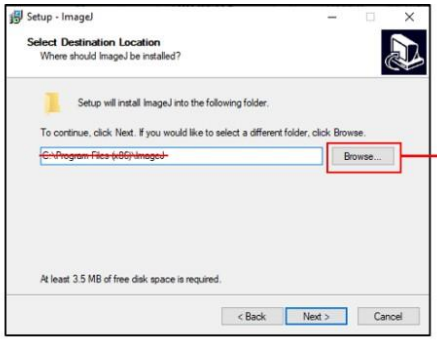


2.8.3 ImageJ for Windows system 64bits (W7, W8, W10)

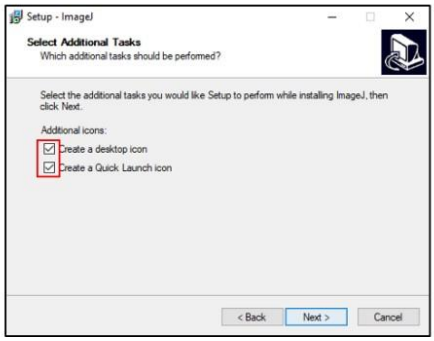
These operating systems allow to scan and process both large and narrow frame images at resolutions up to 2400dpi. There is no improvement in the process speed with more RAM.

1. Launch the selected installer: ij141-nojre-setup.exe

2. Follow the default installation procedure **BUT ImageJ must be installed in a folder that users can write such as the Desktop**



C:\Users\nameofaccount\Desktop\ImageJ



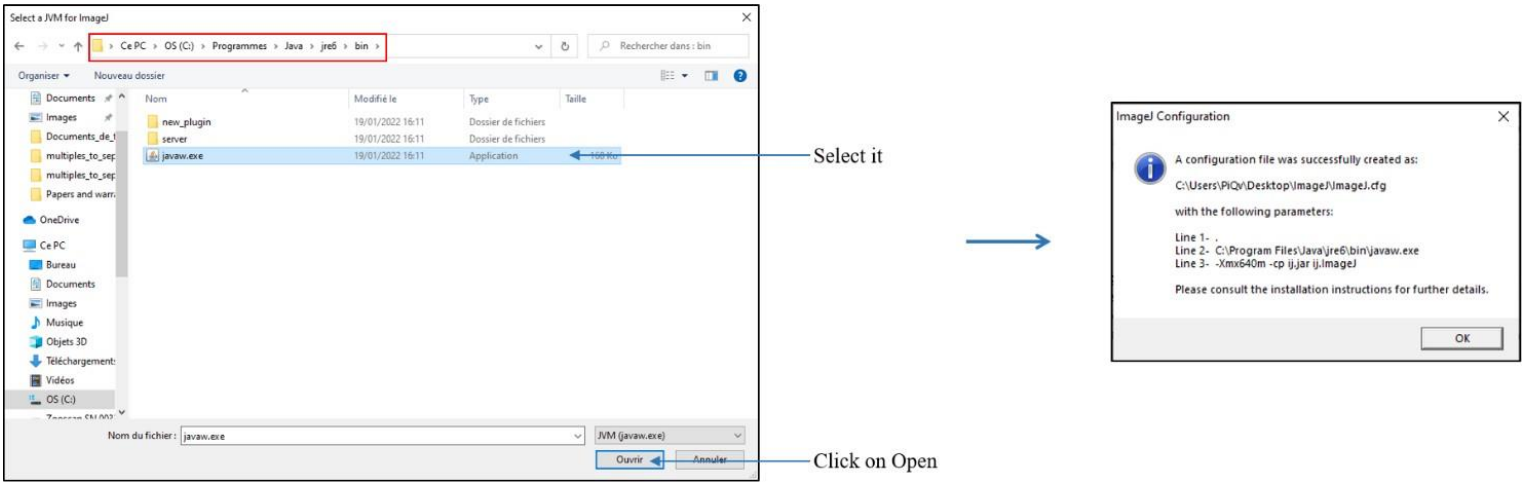
You can also create shortcuts

3. Define the path to the Java machine

➔ Lauch ImageJ

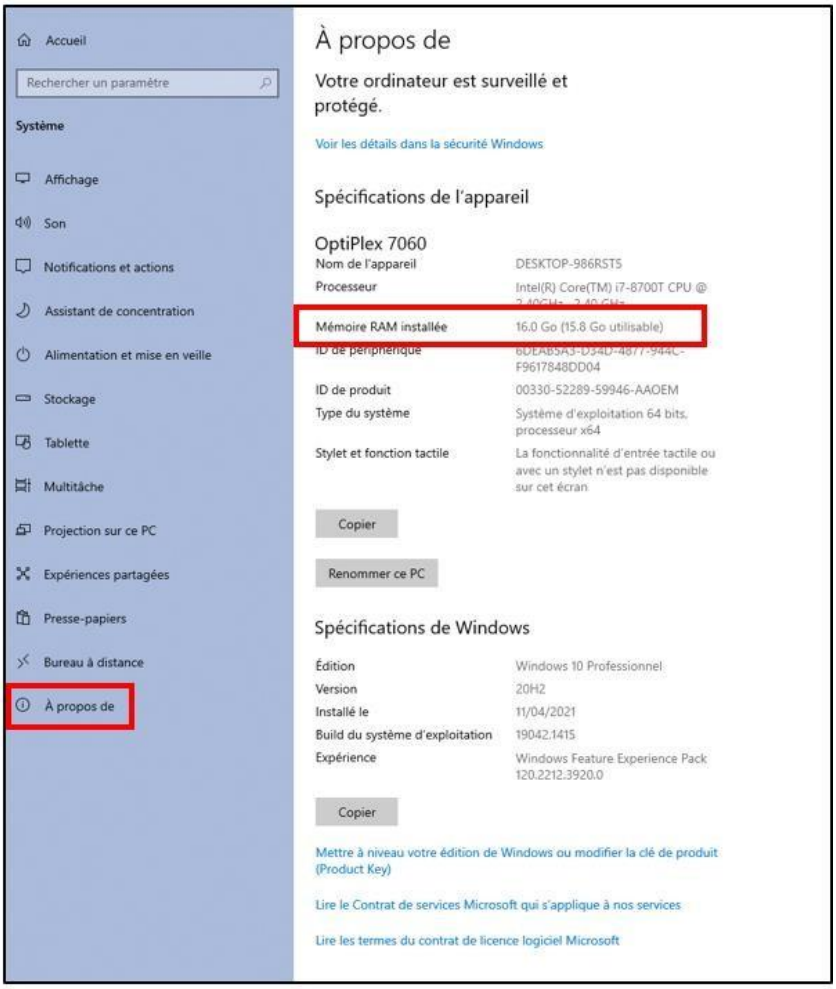
Find the location of the javaw.exe installer: C:\Program Files OR Program Files

(x86)\Java\jre6\bin\javaw.exe

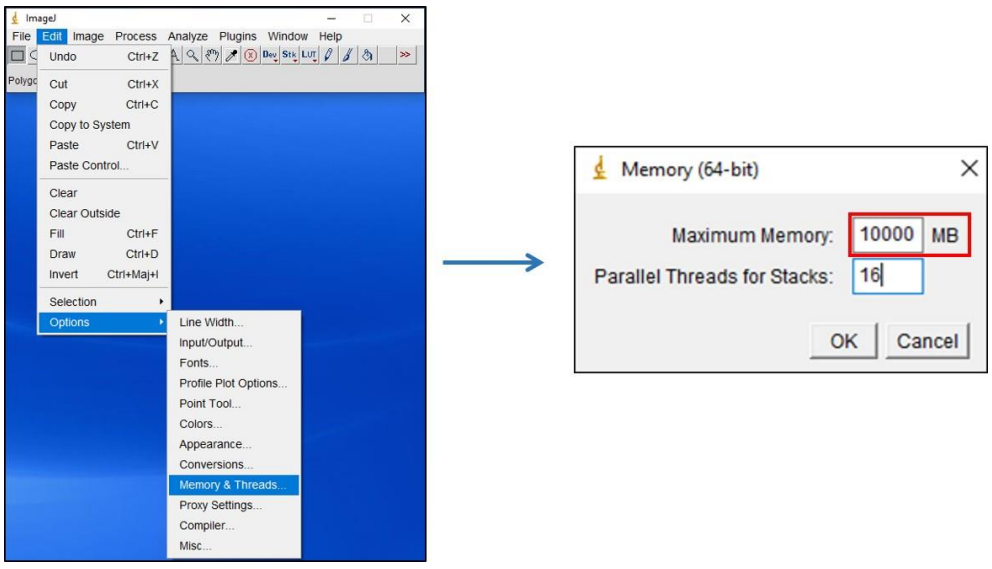


2.8.3.1 Memory in ImageJ

1. Find the memory RAM of your computer: Parameters/System/About



2. Use the Edit/Options/Memory & Threads… on Image J menu to set the memory to 2/3 of the RAM available on your computer.
   For example : Here, memory RAM = 16 Go ; 2/3 of 16 = 10 so you have to enter 10 000 MB



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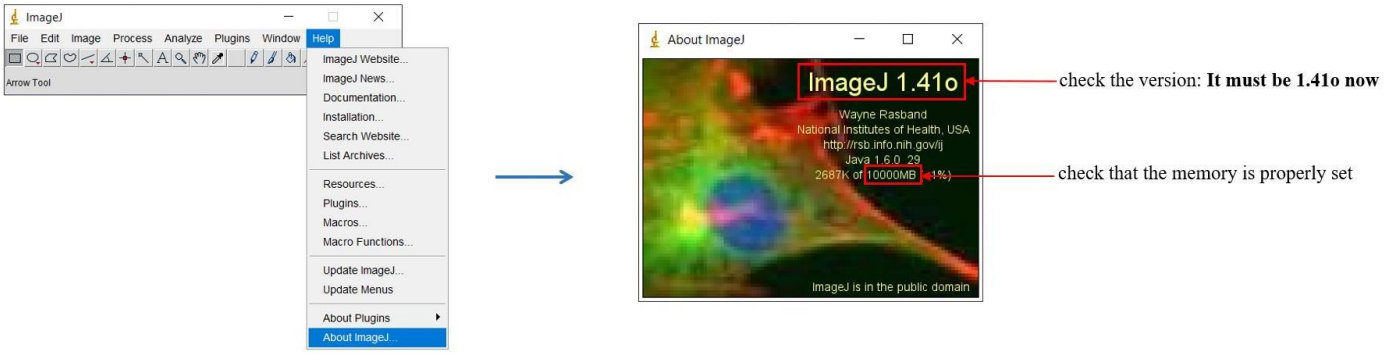
2.8.3.2 Check ImageJ version. It must be 1.41o now.

➔ Restart ImageJ

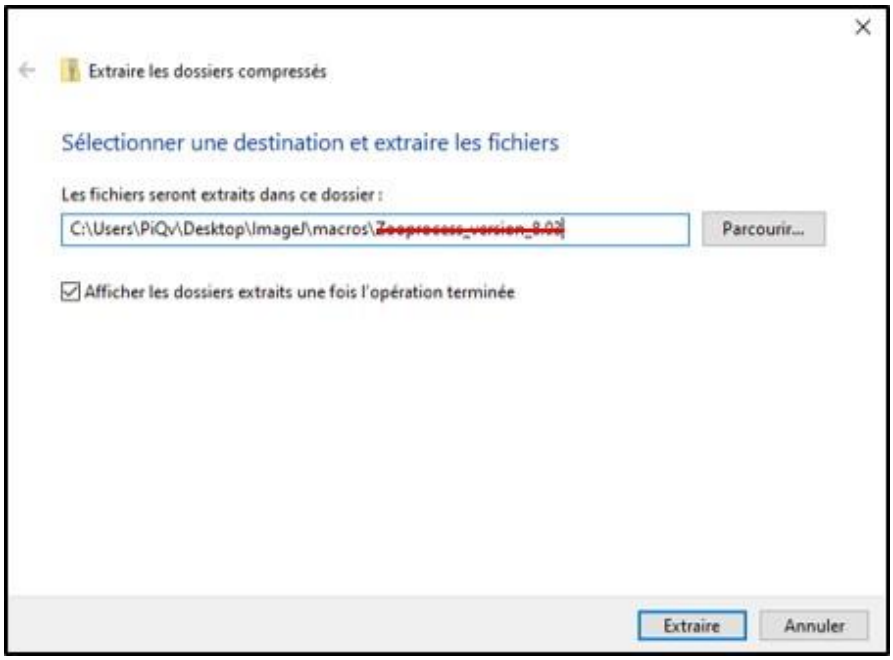
➔ Use the Help/About ImageJ… on Image J menu



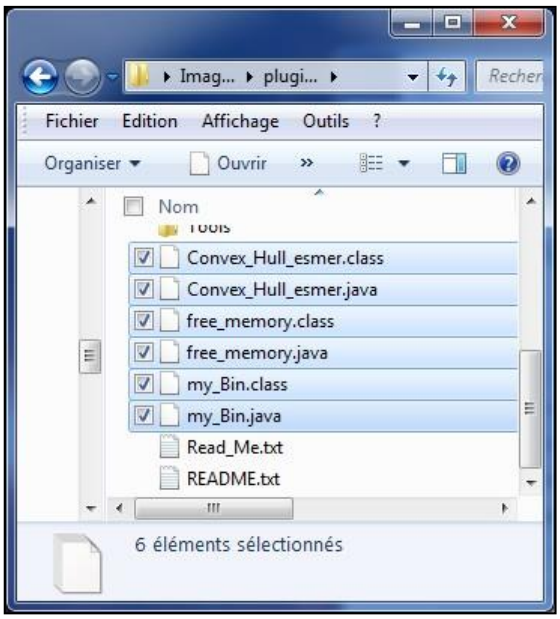
2.9 Zooprocess setup

1. **QUIT** ImageJ !

2. Download the last version of Zooprocess (**Zooprocess_version_X.XX.zip**): from [PIQv website]
3. Extract all files into **ImageJ/macros** folder and replace all previous files if a former setup was done. **DO NOT** create a “Zooprocess_version_X.XX” subfolder in macros folder during the extraction.

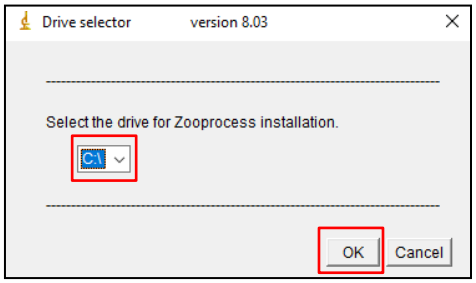


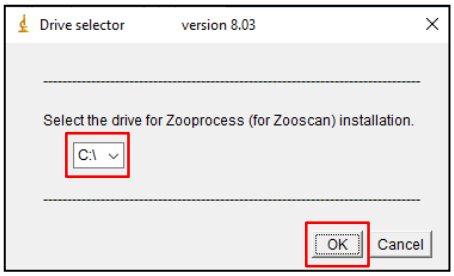
4. Move the 3 files ***.class** and the 3 files ***.java** from the **ImageJ\macros** folder to the **ImageJ\plugins** folder.



5. Restart ImageJ

Choose C:\ for Zooprocess installation and Zooscan installation:

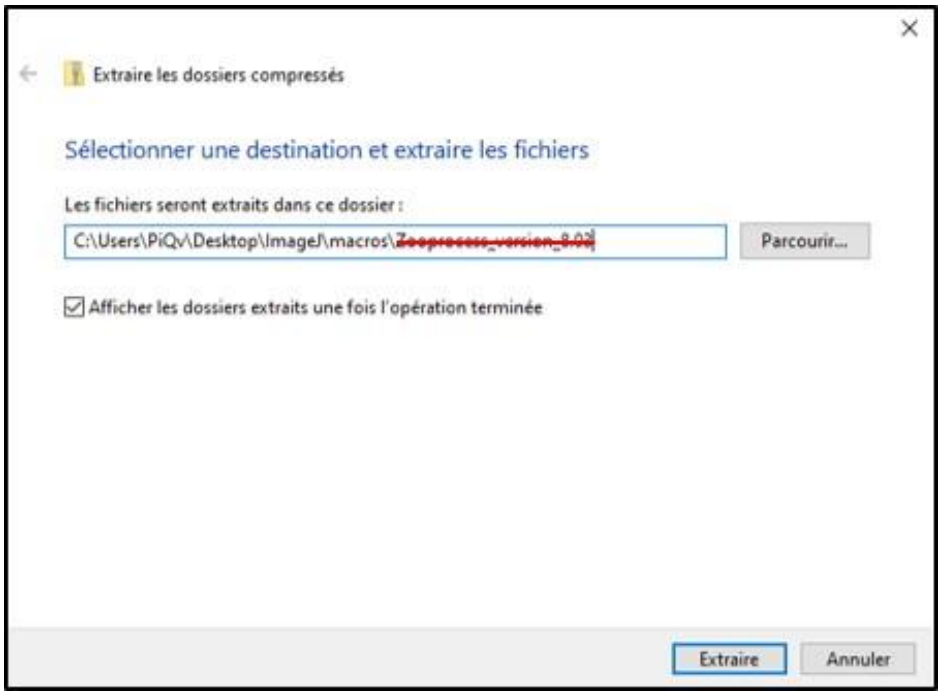




Read and follow the procedure indicated on Zooprocess.

2.10 Zooprocess update

Just unzip the new Zooprocess_XXX.zip archive as you did for the initial installation and erase existing files into **ImageJ/macros** folder and replace all previous files if a former setup was done. **DO NOT** create a “Zooprocess_version_X.XX” subfolder in macros folder during the extraction.



2.11 Optional RS232 tools

These tools are requested only if you want to pilot a UVP5 using Zooprocess.

1) **QUIT** ImageJ !
2) Download and extract the **rs232_wXX.zip** archive adapted to your OS
3) Move **RXTXcomm.jar** and **serial_ext.jar** into **ImageJ\plugins** folder
4) Move **rxtxParallel.dll** and **rxtxSerial.dll** into C:\Program Files\Java\jre6\bin folder or C:\Program Files (x86)\Java\jre6\bin folder
5) Restart ImageJ