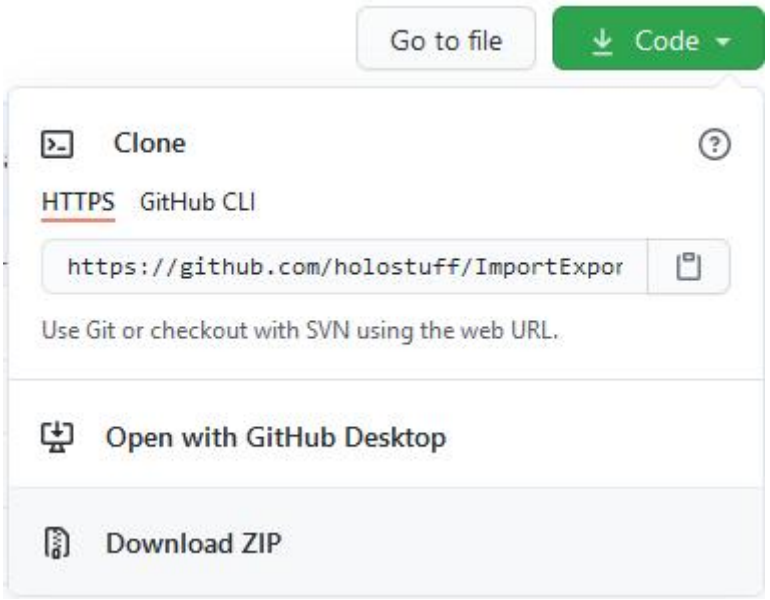
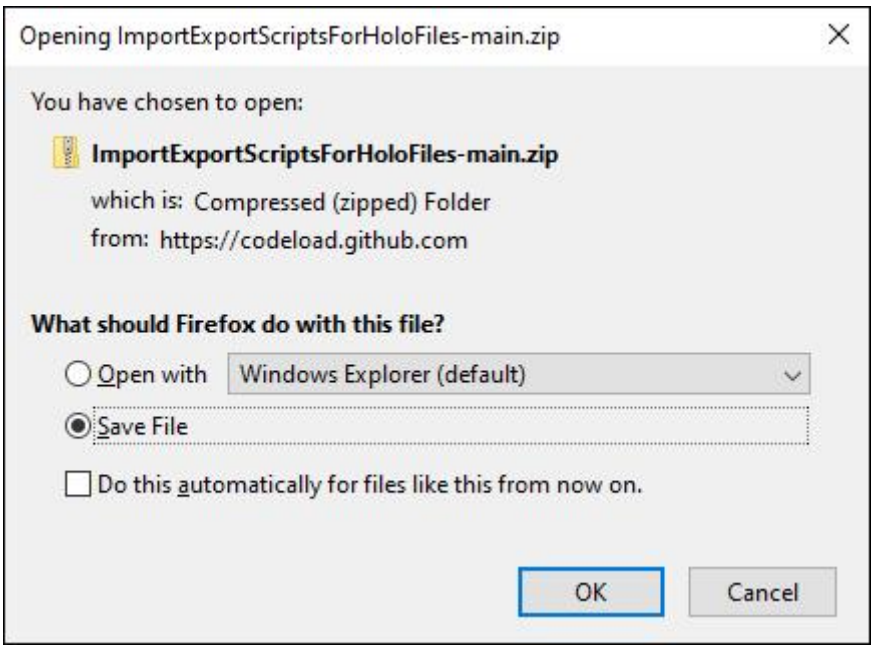
How to install and use HOLO (.holo) file readers and writers for Python, ImageJ and Matlab

Download the collection of scripts and programs from github.com/holostuff by clicking on “Download ZIP” at the “ImportExportScriptsForHoloFiles” folder from the [holostuff github repository](#).



Save the zip file that contains a collection of scripts and programs to read, write and convert .holo files under ImageJ, Python, and Matlab.

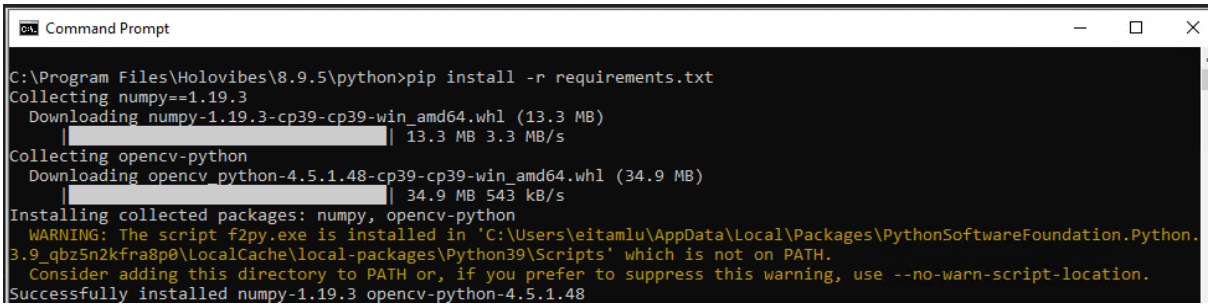


Python scripts

Convert .holo files to movies or raw data (optional)

In the “python” folder inside the Holovibes installation folder (C:\Program Files\Holovibes\9.0\python\), the “convert_holo.py” script can be used to convert .holo files from and to different file formats. For that, have python 3 installed, and install dependencies with “pip install -r requirements.txt” (the file requirements.txt can be found in the “python” folder of Holovibes). In the windows search tab, type “Windows PowerShell” or “Command prompt” and run it.

In the PowerShell or the Command Prompt, type : “pip install -r requirements.txt”.



You must provide file extensions to get the expected conversion. The supported file types and extensions are :

From	To	Command input output
.holo	.avi	python3 convert_holo.py input.holo output.avi
.holo	.mp4	python3 convert_holo.py input.holo output.mp4
.holo	.mkv	python3 convert_holo.py input.holo output.mkv
.holo	.raw	python3 convert_holo.py input.holo output.raw
.raw	.holo	python3 convert_holo.py input.raw output.holo

Default video fps is 20. However, the video fps can be specified with the option --fps.

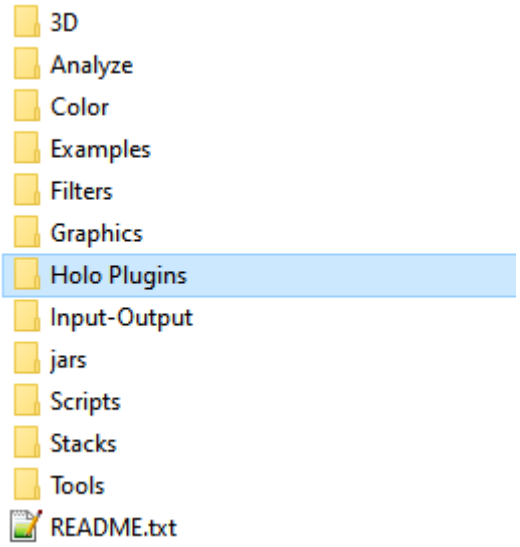
Example: **python3 convert_holo.py “input.holo” “output.mp4” --fps 60** (the output video fps will be 60 fps).

Sometimes people don’t have writing access to the directory “C:\Program Files\Holovibes\9.0\python\”, in that case, an error message may be obtained while trying to use the script “convert_holo.py” : “PermissionError: [Errno 13] Permission denied: 'test.raw'”. To solve this, either get admin rights or simply try to move and use the scripts somewhere else on your computer.

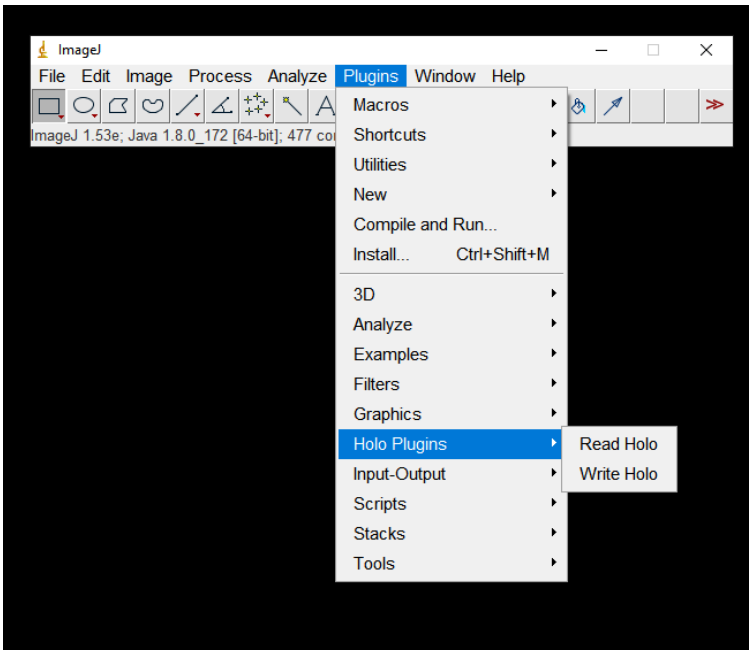
Matlab scripts

ImageJ scripts and plugins

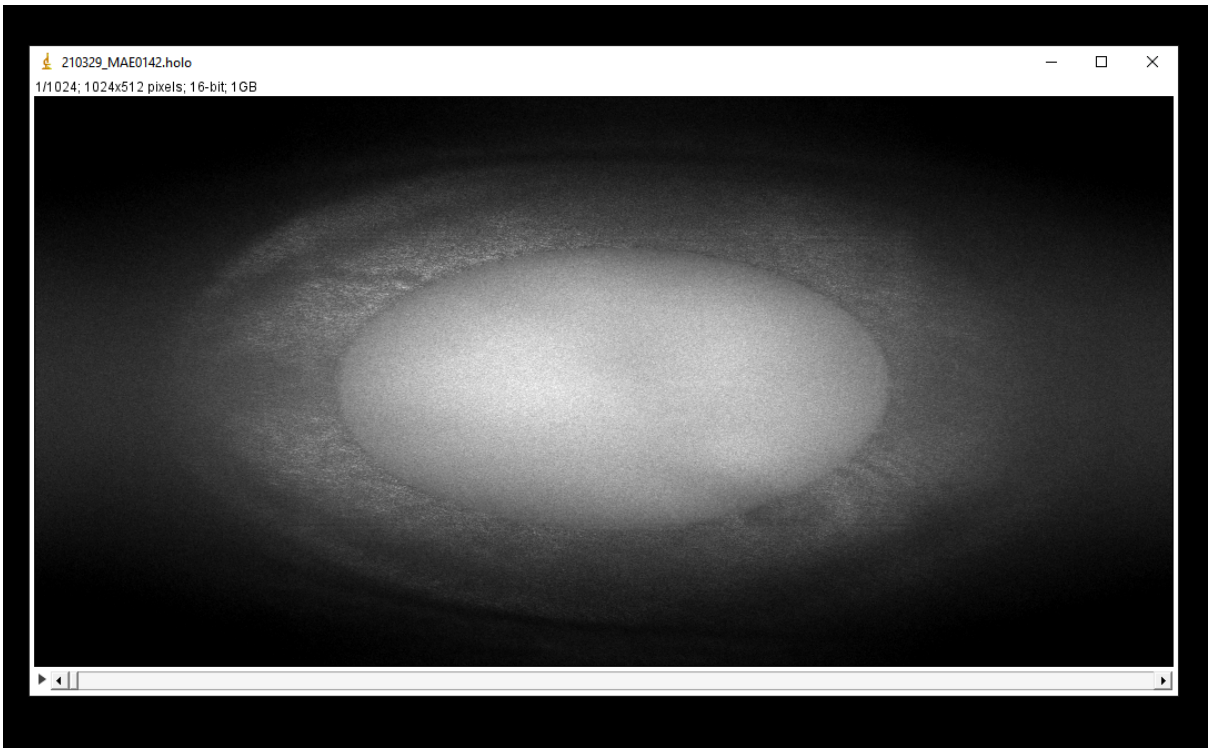
First, download the ImageJ software (not Fiji, for which Holostuff plugins will not work out-of-the-box) and install it on your computer. Download the “Holo_Plugins” folder from the holostuff github repository. This folder contains .class and .java files. The java files are the source code for the .class files. Move this folder to the ImageJ/Plugins/ folder.



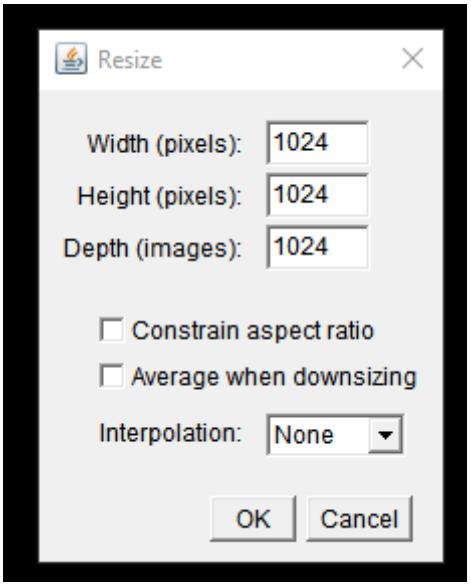
Restart ImageJ if it was open. Click on the “Plugins” menu where you will find new plugins for ImageJ gathered in the folder “Holo Plugins”.



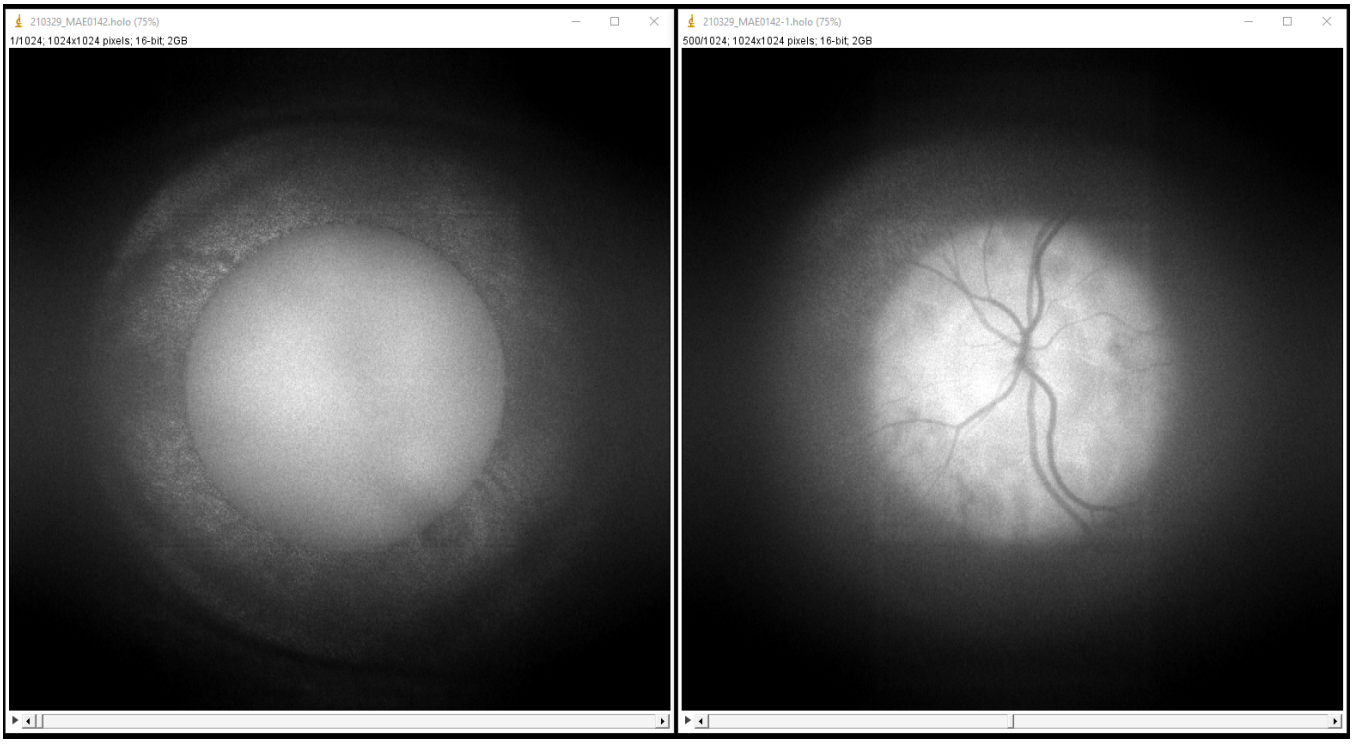
You can test the “Read Holo” plugin by downloading the file 210329_MAE0142_rendered_images.holo. Click on the “Read Holo” plugin in ImageJ and select the HOLO file that you have just downloaded. The following window displaying an eye will open. Its aspect ratio is 2:1 because the original interferograms were recorded with an anamorphic frame with the same aspect ratio, and the reconstruction was done on the same grid size..



You can resize the frame by clicking on “Image/Adjust/Size…” and setting equal width and height values.



The displayed frame should show reconstructed holographic images of the anterior and the posterior segments of a human eye.



Congratulations now you know how to open .holo files with ImageJ !