BatchCrop User Guide

QBI Microscopy Facility

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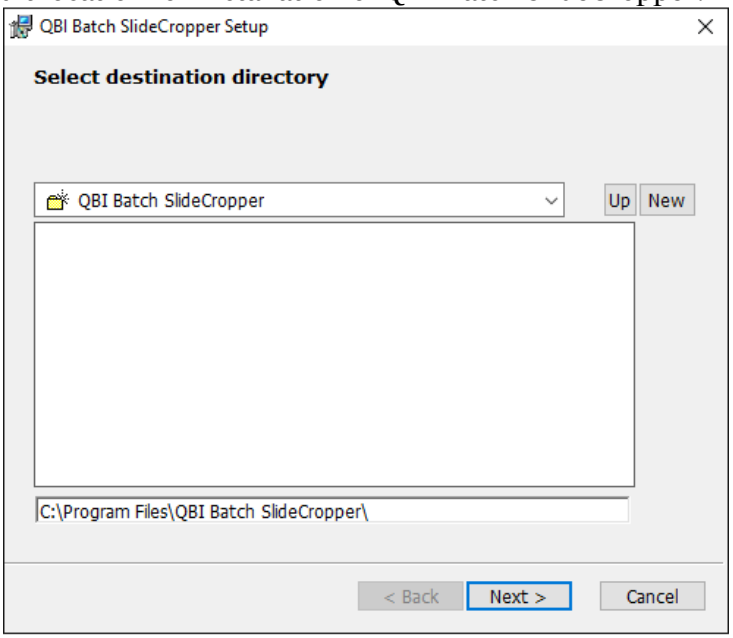
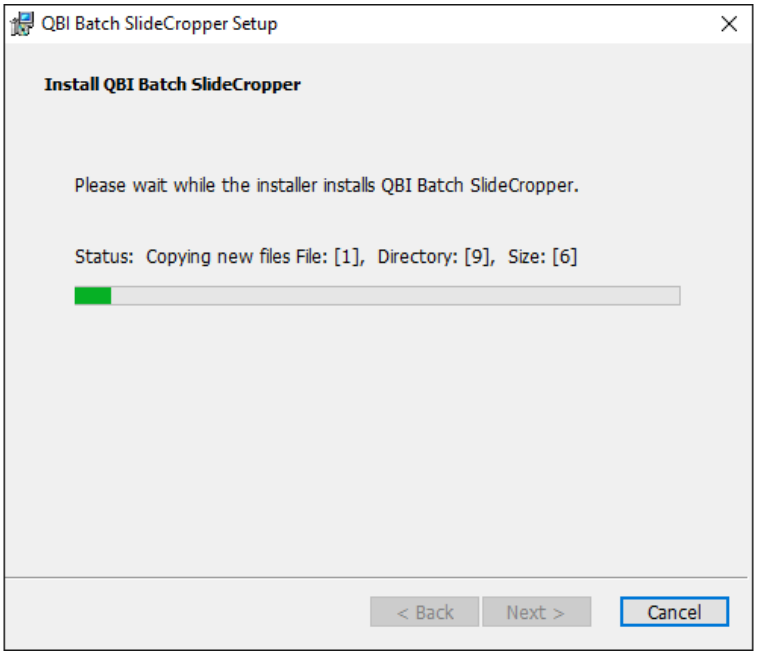
- To start, check the requirements at the end of this document.
- Download the latest Windows .msi installer from GitHub here:

https://github.com/QBI-Microscopy/BatchCrop/releases/

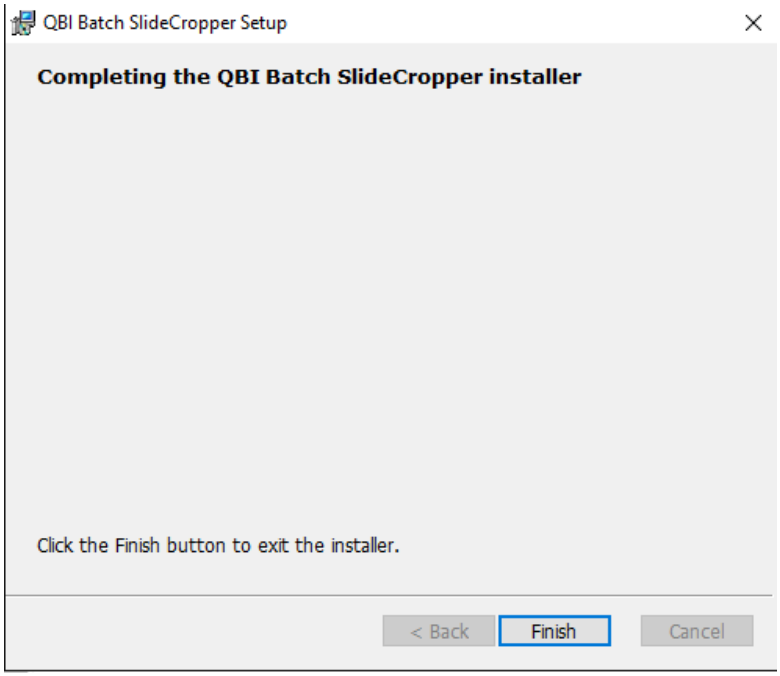
- Select default location for installation of QBI Batch SlideCropper:



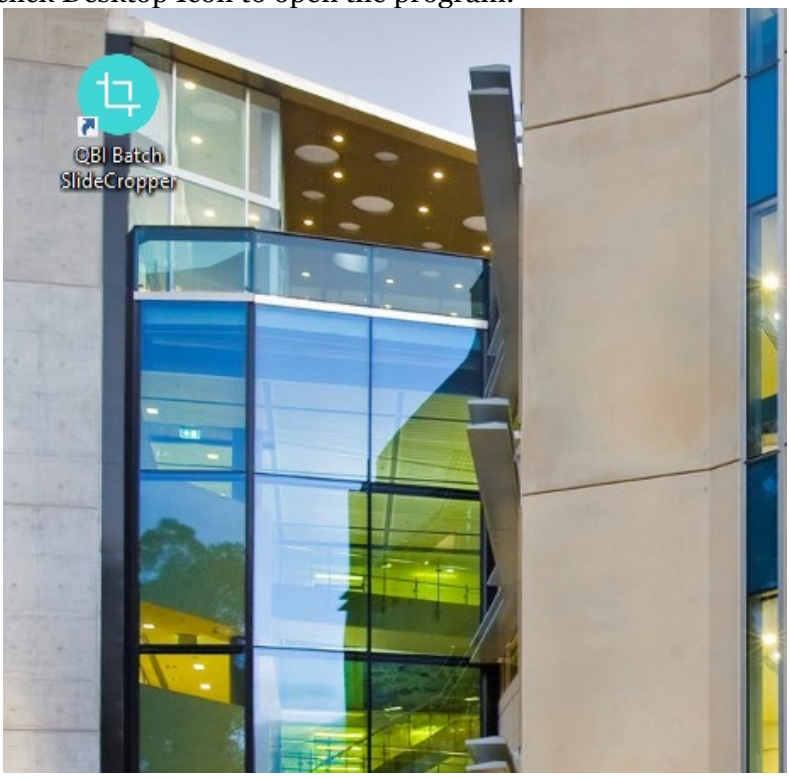
- Click "Yes" to allow the program to make modifications if prompted, then wait while the program installs:



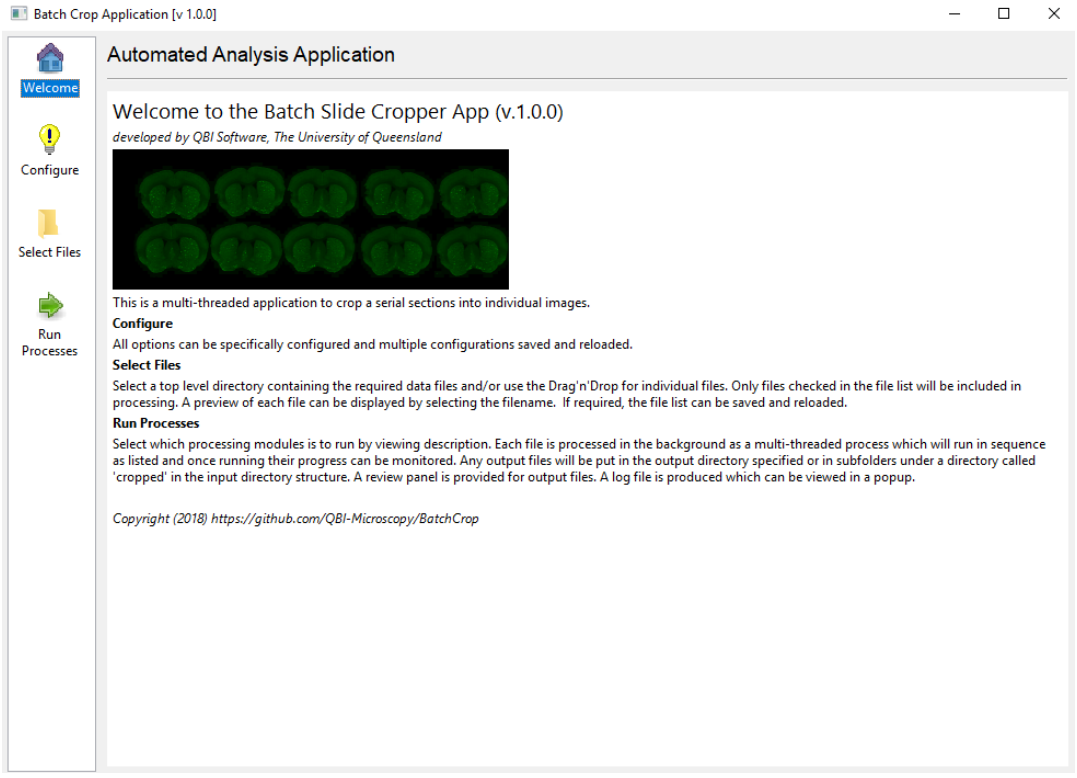
- Click “Finish” to finish installation:



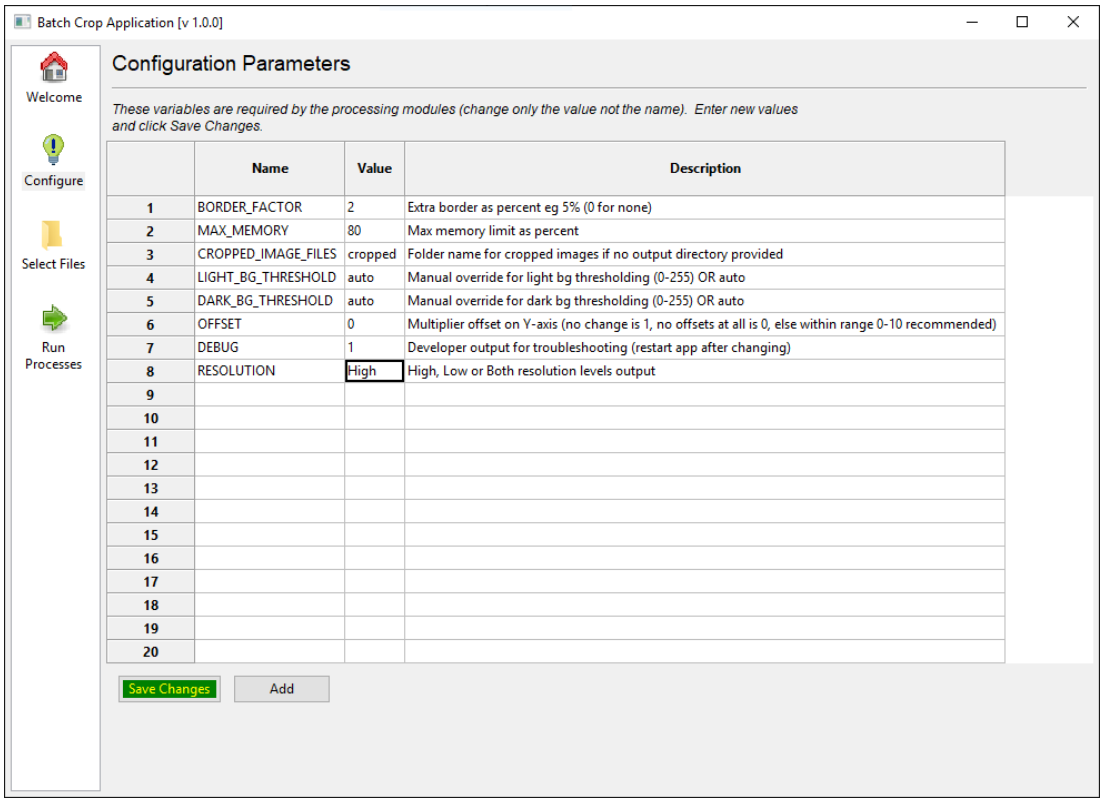
- Double-click Desktop Icon to open the program:



You can navigate the programme via the 4 tabs on the left column.



- The "Configure" screen is where you will make any changes to the configuration such as adjusting the amount of border to apply or changing the 'auto' thresholding to a specific grey value (eg. 20). You can also choose to output your cropped images in 'High' resolution, 'Low' resolution or 'Both' (default = Both). You must Run the program as an Administrator then click "Save Changes" to apply any changes in this configuration.



	Name	Value	Description
1	BORDER_FACTOR	2	Extra border as percent eg 5% (0 for none)
2	MAX_MEMORY	80	Max memory limit as percent
3	CROPPED_IMAGE_FILES	cropped	Folder name for cropped images if no output directory provided
4	LIGHT_BG_THRESHOLD	auto	Manual override for light bg thresholding (0-255) OR auto
5	DARK_BG_THRESHOLD	auto	Manual override for dark bg thresholding (0-255) OR auto
6	OFFSET	0	Multiplier offset on Y-axis (no change is 1, no offsets at all is 0, else within range 0-10 recommended)
7	DEBUG	1	Developer output for troubleshooting (restart app after changing)
8	RESOLUTION	High	High, Low or Both resolution levels output
9			
10			
11			
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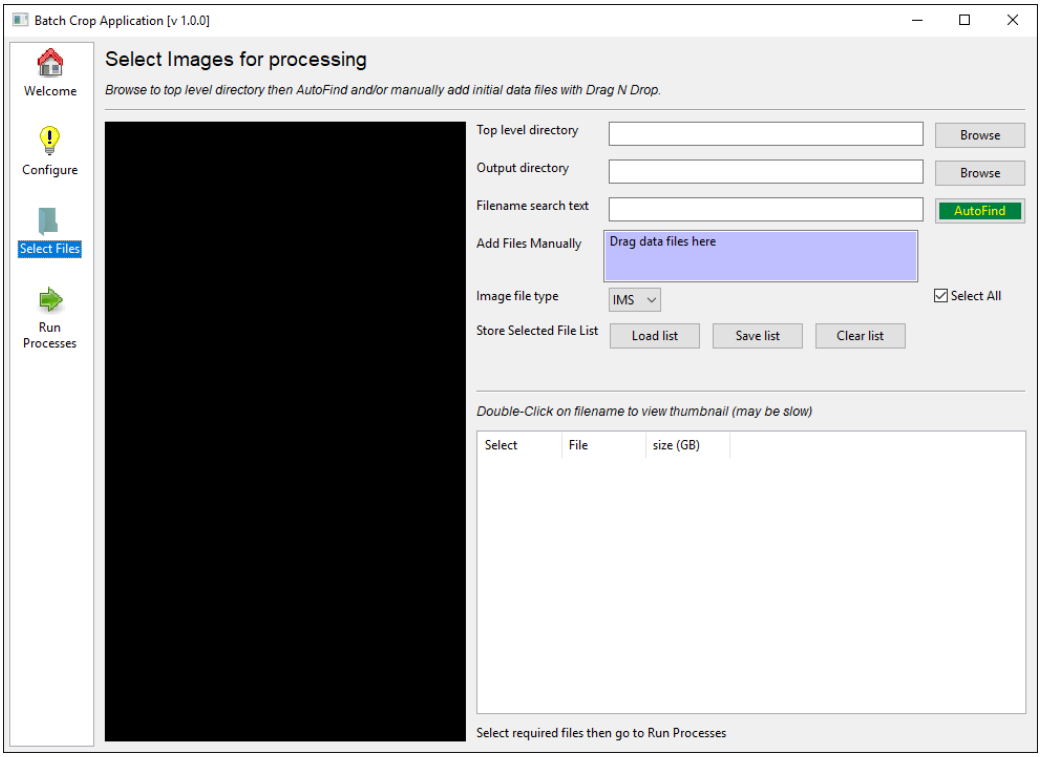
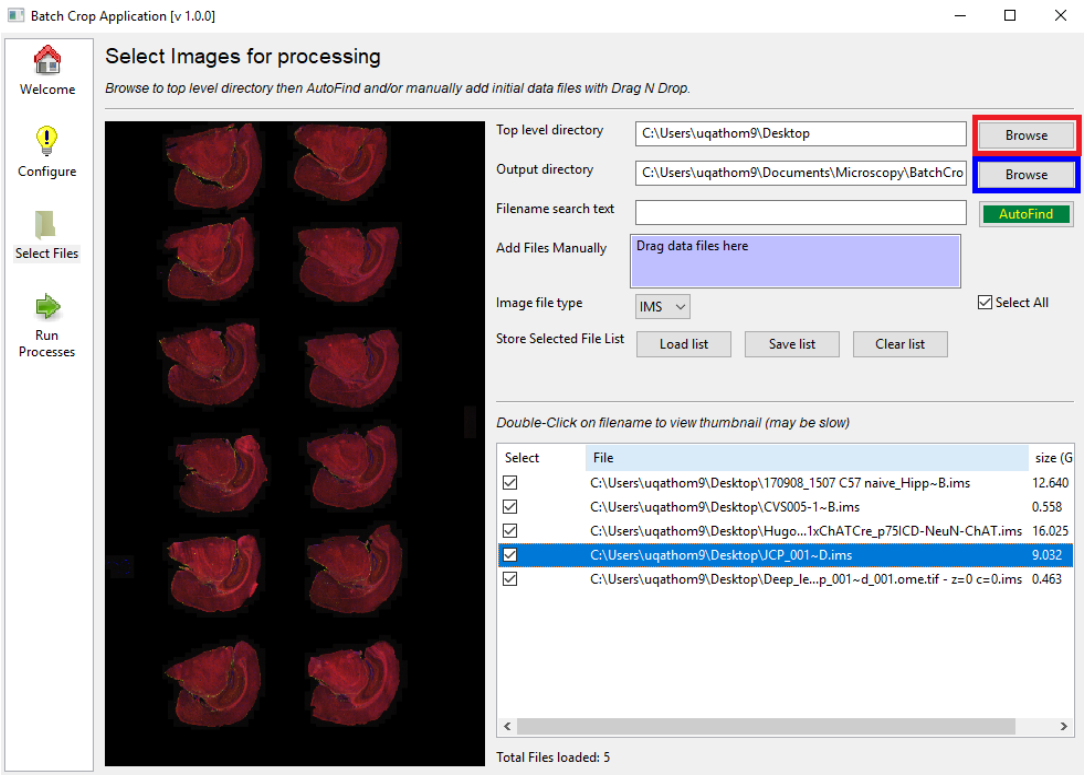
16			
17			
18			
19			
20			

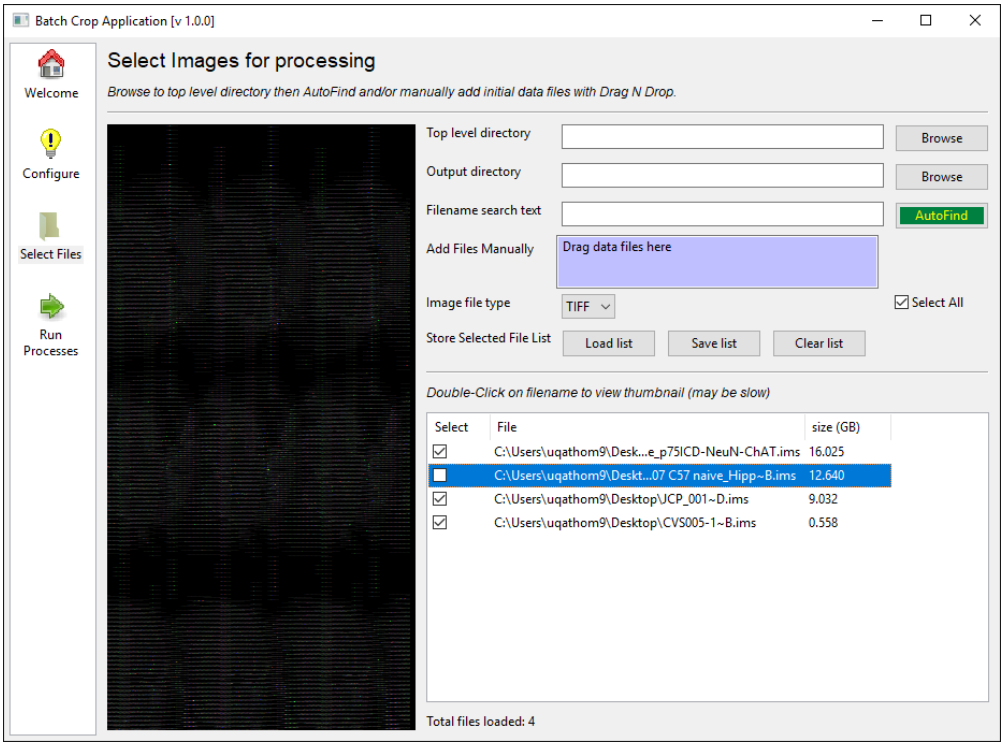
- The “Select Files” window:



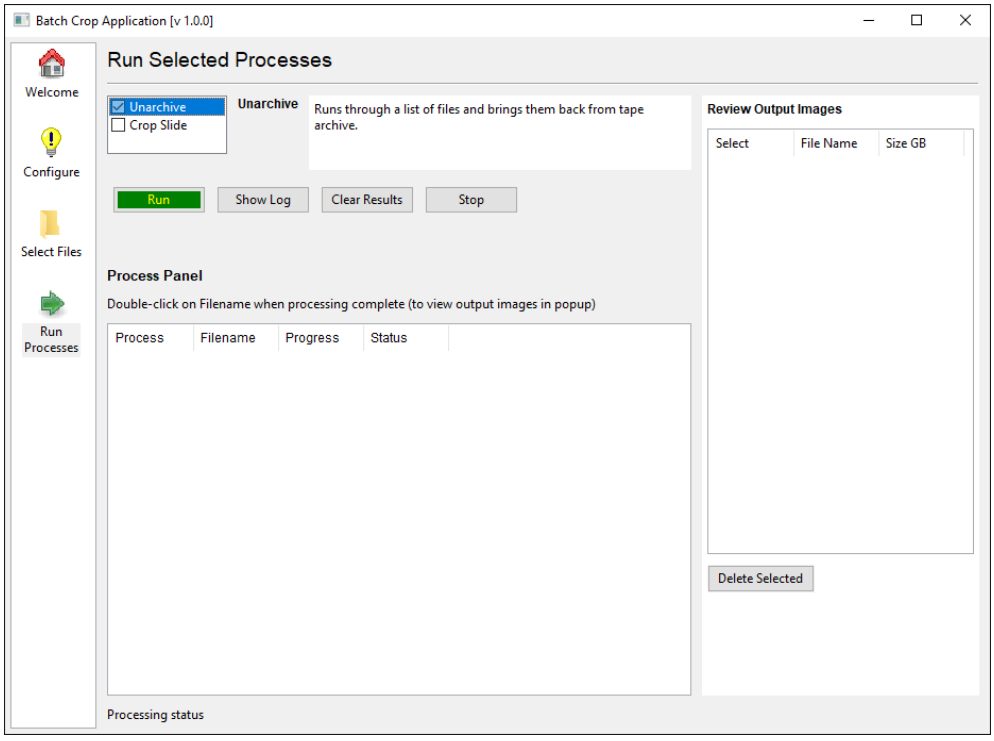
- Select the directory with the ‘.ims’ files you wish to crop (red). This can be on the server (eg. group_microscopy if the network location is mapped). Then click the green “AutoFind” button to load all ‘.ims’ files in the folder. Next, select the directory where you would like the cropped ‘.tiff’ files to be saved (blue). You then have the option to search only for a particular subset of files with a given string in the filename, eg. all files with the text “CA1” in the filename. Alternatively you can just ‘Add Files Manually’ by dragging and dropping where indicated. You can then double-click on an image to see a preview of it on the left:



- 4-channel images will not display correctly at this point, but they will be cropped properly during processing:

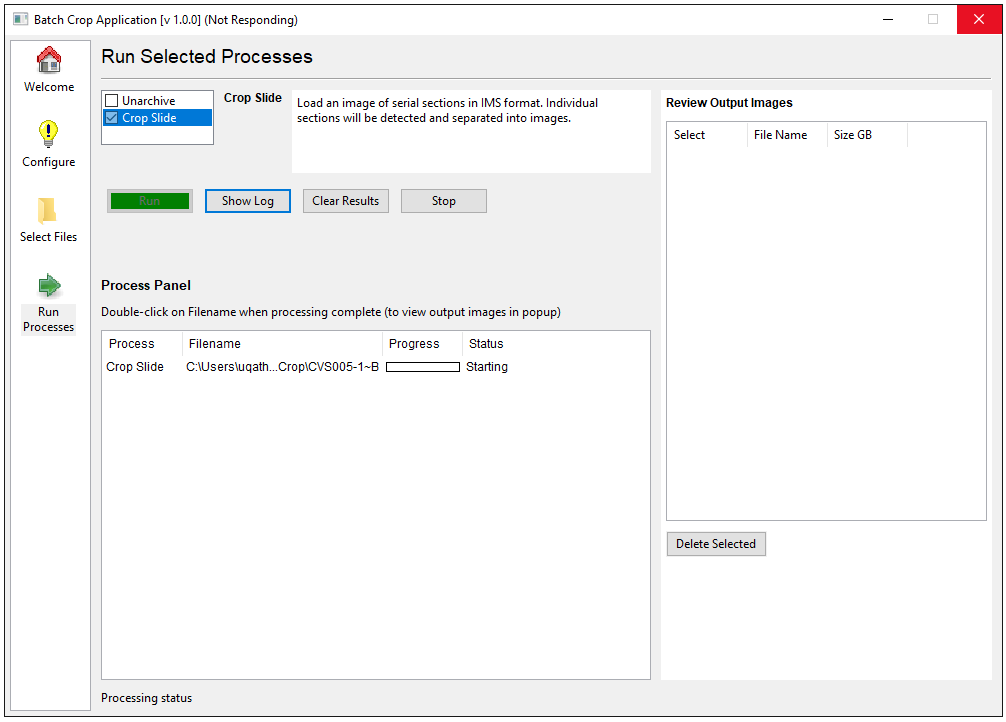


- The “Run Processes” window:

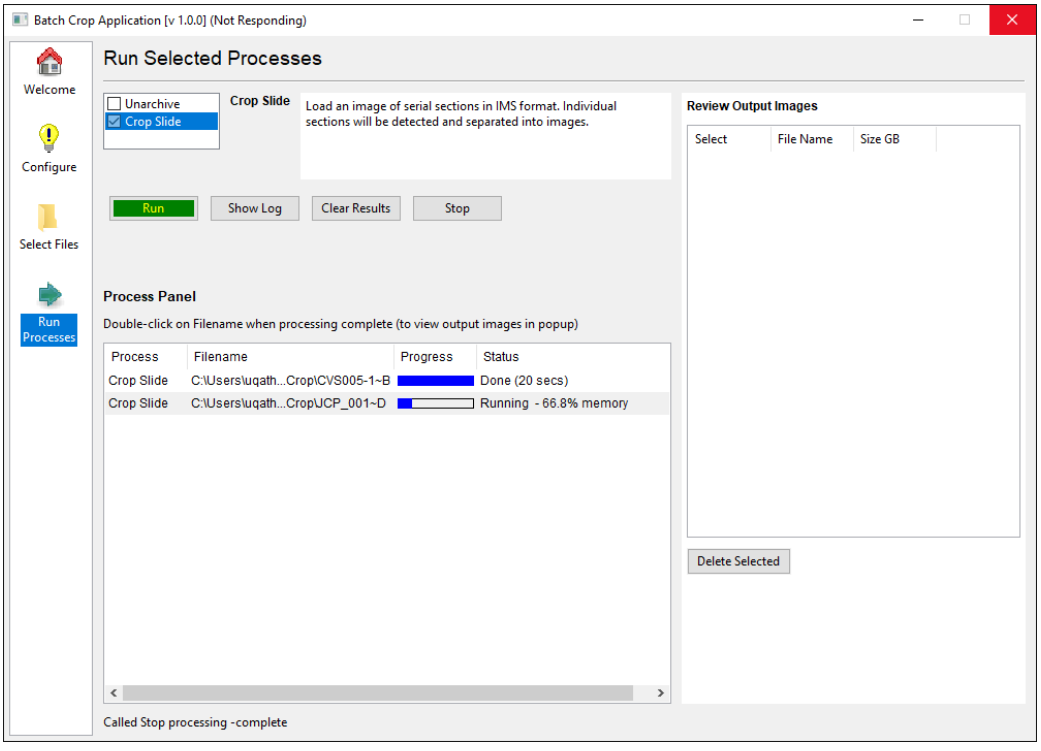


- The “Unarchive” process simply “opens” and “closes” the ‘.ims’ file on the network (eg. group_microscopy). This is necessary if the file has not been accessed on the network recently, meaning it will have been transferred to tape archive and needs to be retrieved (a slightly slow process). These files will then be accessible on the local network and able to be opened/closed much faster (you may have noticed this previously when accessing old files on the group shares).

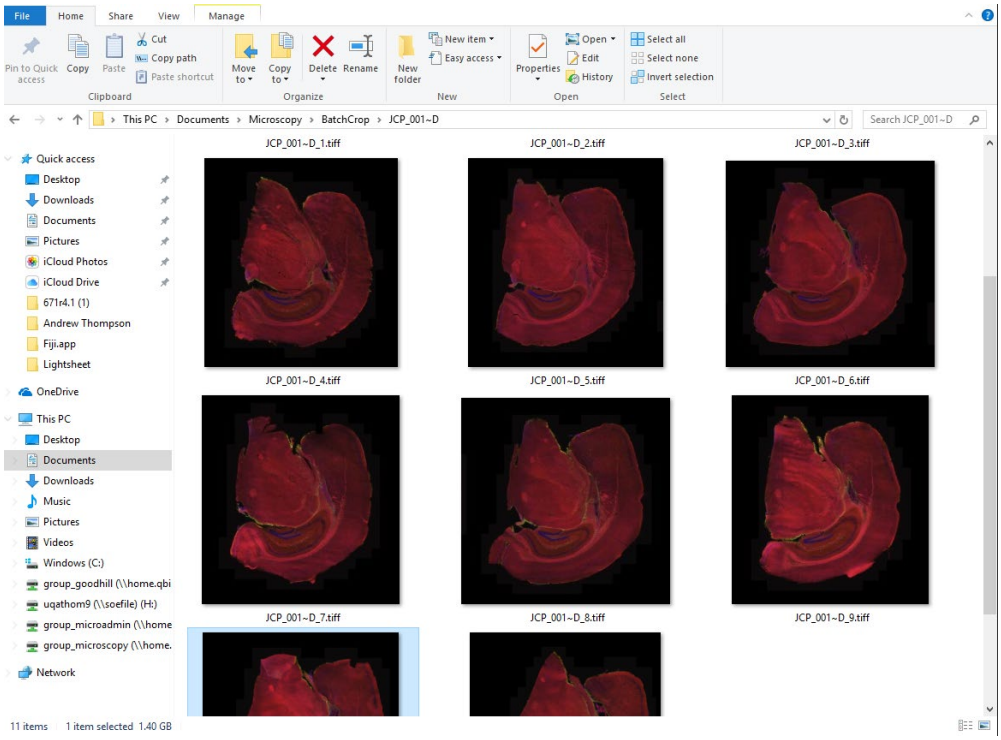
- The “Crop Slide” process performs the cropping. Tick this and click the green “Run” button to process images:



- It will step through the files you have ticked in the “Select Files” window and spit out the images in your selected “Output folder”:



- This should give you all the images in .tiff format in your output directory:

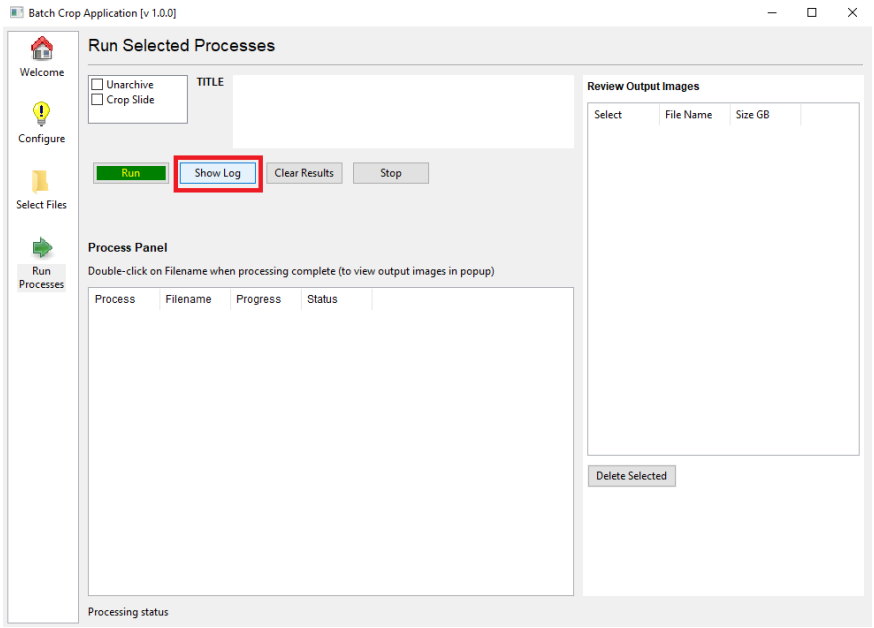


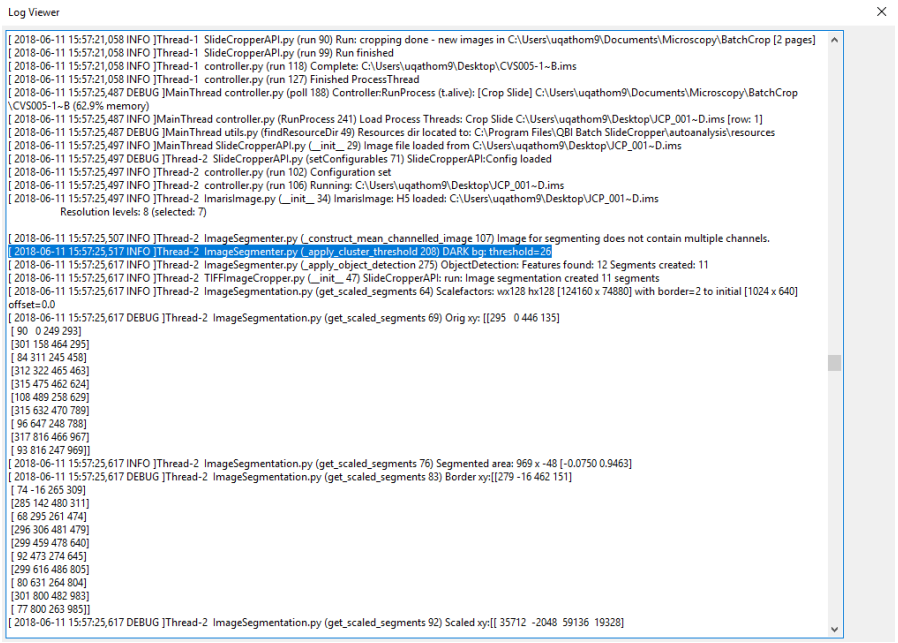
- By default, 3 channel images are processed as 'RGB' images, while 4 channel images will be processed as a multi-page .tiff. If the sections are very large, 3 channel images will also be exported as multi-page .tiff files.

This program should work just as effectively for Brightfield Slide Scanner images or Fluorescent Slide Scanner images.

This is a very RAM intensive program, especially when cropping large images from your files so please be aware of this.

If your sections are mounted too close together on the slide, automatic thresholding will struggle to separate them and will therefore generate large images with multiple sections. You can see what value was used for thresholding in the Log file:





We hope this new slide cropping program is beneficial to researches at QBI. Feedback on this new program is encouraged, though we are not programmers and we no longer employ a Research Software Developer at QBI so please be aware any updates we deem necessary may be slow to implement.

Requirements

- Windows 7 Service Pack 1, Windows 8 or Windows 10
- At least 16Gb RAM
- Visual C++ Redistributable for Visual Studio 2015 (https://www.microsoft.com/en-in/download/details.aspx?id=48145) – if this is not installed, QBI BatchCrop will fail to open citing a missing .dll file

Acknowledgements

QBI Microscopy Facility would like to give a huge thank you to Mr Jack Eadie and Dr Liz Cooper-Williams, who put an incredible amount of work into developing BatchCrop for QBI researchers.