

GigaPX Tools Mac 1.0

Solutions for oversized images

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Introduction

GigaPX Tools is a program which consist in a set of useful functions to manage gigapixel images. It supports, both for input and output, three of the most used file formats : **RAW**, **TIFF/bigTIFF** and **KRO**.

The tools provided by the software are : “**Format conversion**”, “**Split**” and “**Merge**”. **Format conversion** is useful to change the image file format to a different one. **Split** is used to divide the giant image into small tiles. This could be necessary when the image needs to be retouched in some areas and it’s not possible to edit the whole image due to the size of the picture. **Merge** is used to recombine the tiles into a single image, but it could be used to paste different images into one picture too.

The program doesn't need much memory, thus it can be used successfully with a 32-bit operating system and 2-4 GB of ram. Using a test image of 76.8 gigapixel it ran smoothly and all procedures were completed with success.

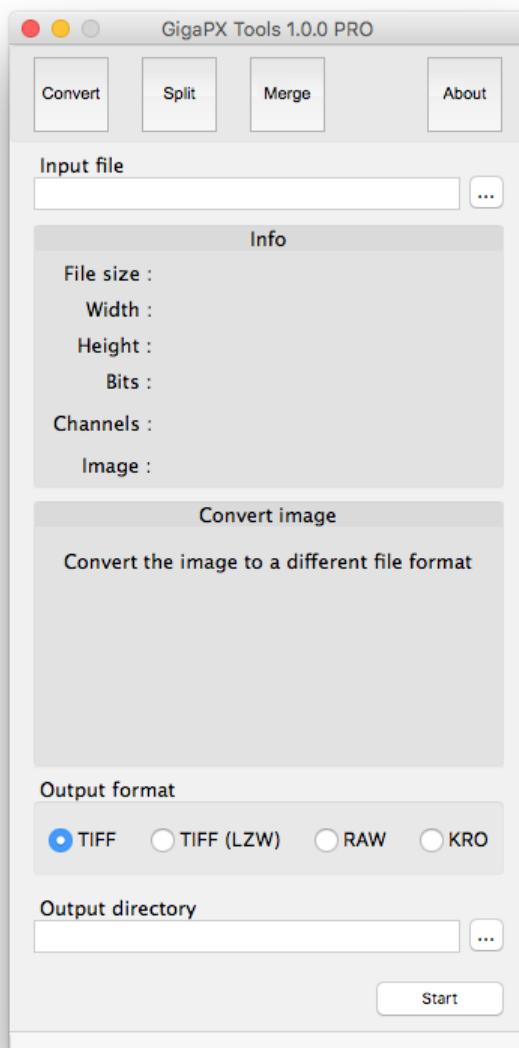
Choose the right version

GigaPX Tools is offered in three different editions : **Free**, **Lite** and **Pro**. The **Free** version is free both for personal and commercial use. See the table below for the differences between the versions:

	FREE	LITE	PRO
Maximum image side dimension (width or height)	150,000 pixels	300,000 pixels	100,000,000 pixels
Maximum image size	2.0 gigapixel	6.0 gigapixel	No limits
Maximum tile side dimension (width or height)	30,000 pixels	30,000 pixels	1,000,000 pixels

Please refer to www.gigapxtools.com for additional information regarding the price of the licenses.

Format conversion



As stated in the introduction, the program is capable of managing **RAW**, **TIFF/bigTIFF** and **KRO** files both **8-bit or 16-bit**.

RAW and TIFF must have **3 channels** (RGB), while KRO must have **4 channels** (RGB + Alpha). The byte order of the 16-bit RAW files must be “**PC-IBM**”.

The conversion tool can open any image in one of the supported formats and save it in any other supported format. The saved images always have the same color depth as the input files.

Before proceeding with the conversion, you've got to select the input file (the image to be converted). Click the button on the right side of “**Input file**” and select the image.

When a RAW file is selected, a new small window could appear asking the width, the height and the number of bits of the image. Click the 8-bit or 16-bit button, then, while the width or the height value is typed in the proper input box, the program automatically calculates the value of the other dimension.



If the file name ends with the values of the width and the height, then the program retrieves the image dimensions and the number of bits automatically.
Ex : test_10000x5000.raw.

The presence of the underscore (“_”) before the first number is mandatory.

Before saving the picture it is possible to select a different folder for the output file. This could be useful to save time in moving the image after conversion, but it's very helpful to increase the conversion speed if the computer has at least two physical disks (one disk with two or more partitions counts as one disk). Saving the image to a different disk dramatically reduces the disk heads movements, increasing the read/write operations speed.

Click the button on the right side of “Output directory” and choose the disk and folder you want.



If this field is left empty the program saves the image in the same directory as the source file.

To clear a previous selection double click the “**Output directory**” input box.

To convert the image into one of the three formats, click the appropriate radio button : “**TIFF**”, “**TIFF (LZW)**”, “**RAW**”, “**KRO**”.



“**TIFF**” means uncompressed, while “**TIFF (LZW)**” means compressed using the lossless LZW algorithm. If the possible compression ratio is low, the size of the compressed file could result bigger than the uncompressed version.

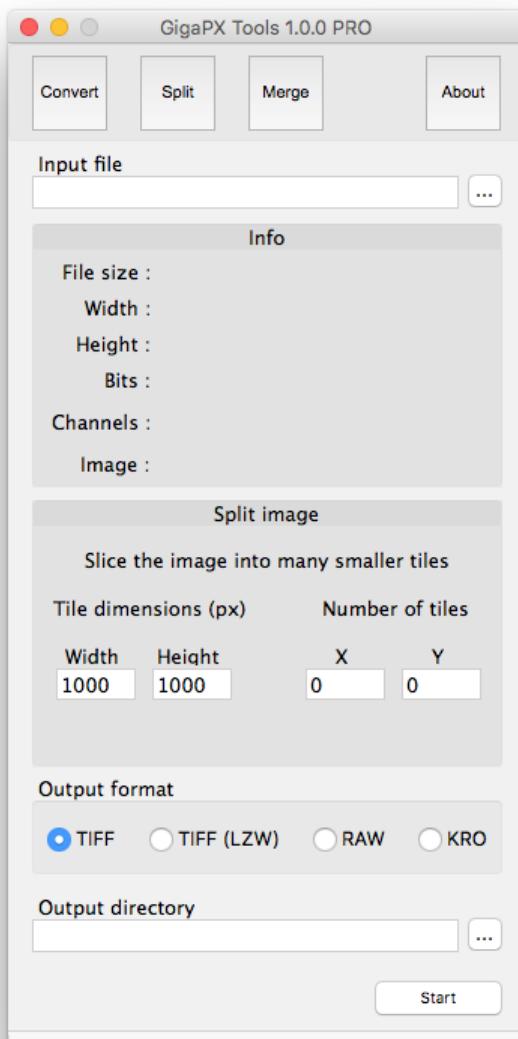


The “**bigTIFF**” format is automatically used, while saving, if the predicted file size is 4 GB or more. To avoid confusion, in this case the program adds “.big” to the end of the file name and before the .tif extension (.big.tif).

Depending on the image dimensions the conversion process could take from some minutes to some hours. Click “**Start**” to begin the conversion.

To interrupt the process, loosing the output result, click “**Stop**”.

Split image



Stitching many photos into a gigapixel image is not a problem using recent software. These programs are powerful and precise, and often there is the possibility of removing ghosts artifacts automatically. However, it could happen that small areas of the big image needs to be retouched by hand using a photo editing software like Photoshop or Gimp. In most cases it's not possible to load the whole image in the editor due to the huge file size.

To bypass this problem **GigaPX Tools** offers the “**Split**” function. This tool divides the picture into small pieces, so it's possible to edit the tiles that need to be adjusted.

When all the required changes are done, it's possible to combine the tiles back to the gigapixel image using the “**Merge**” function.

Before proceeding, choose the input file and the output directory as described in the “Format conversion” chapter.

Now select the width and the height, in pixel, of the tiles. The program calculates the number of tiles along the X axis and the Y axis that will be generated. Choose the file format of the tiles (Tiff, Raw or Kro), then click “Split”.

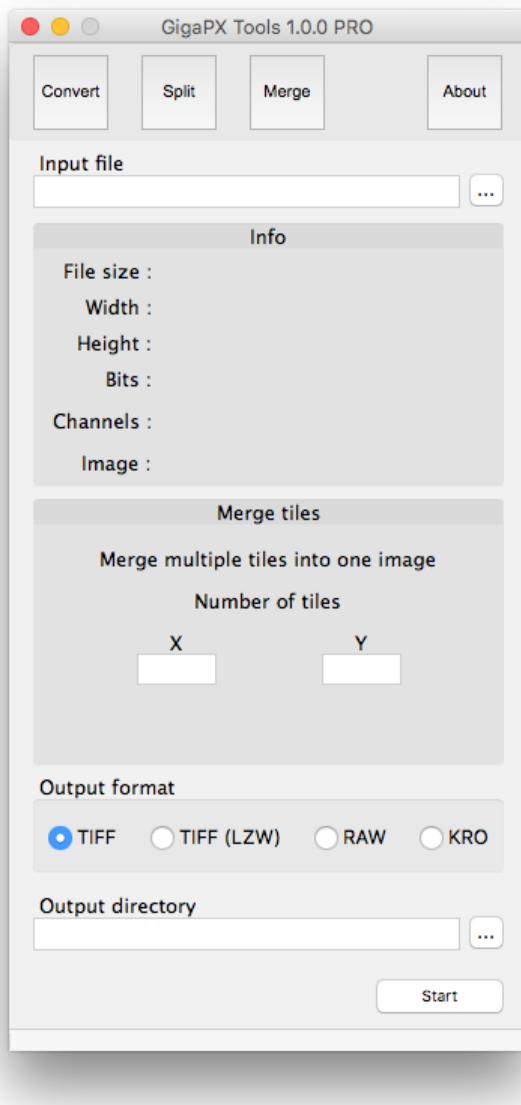
It is even possible to type the number of the tiles along the X and Y, and the program calculates the tile dimensions.

It could take a while, depending on the image size, but in the end the user will find $X * Y$ tiles saved on the disk.



Don't change the file name of the tiles or the merge function will fail. For more info about the file name convention see the “Merge tiles” chapter.

Merge tiles



This function is normally used after the “Split” to recombine all the tiles generated into a single gigapixel image, but the same tool could be useful to merge two or more images not related with the splitting process.

Merge after split:

click the button on the right side of “Input file” and select all the images of the set.

After the selection of the input files, the program checks if one ore more tiles are missing analyzing the file names. If everything is right, the software shows the number of tiles along the X and the Y axis as confirmation. If an error message is displayed, check if you selected the right number of tiles.

Select the output format of the gigapixel image and the output directory as explained in the first chapter, then click “**Merge**” and the big file will be recreated.

Merge images without a previous split:

as mentioned above, it is possible to merge two or more images even if these files weren't created using the “**Split**” function. In this case it's important to follow two simple rules :

1. **Tile size:** all tiles must have the same dimensions (the shape can be square or rectangular).
The tiles of the last column can be thinner, and the tiles of the last row can be lower.
2. **File name:** all tiles must have the same base name (let's say “Test”). After the base name, add the underscore “_” and the size in pixel (ie “1000x500”), then a new underscore “_” and the X/Y position of the tile (ie “X1Y1”, which is the topmost left tile). Finally add the file extension (ie “.raw”)

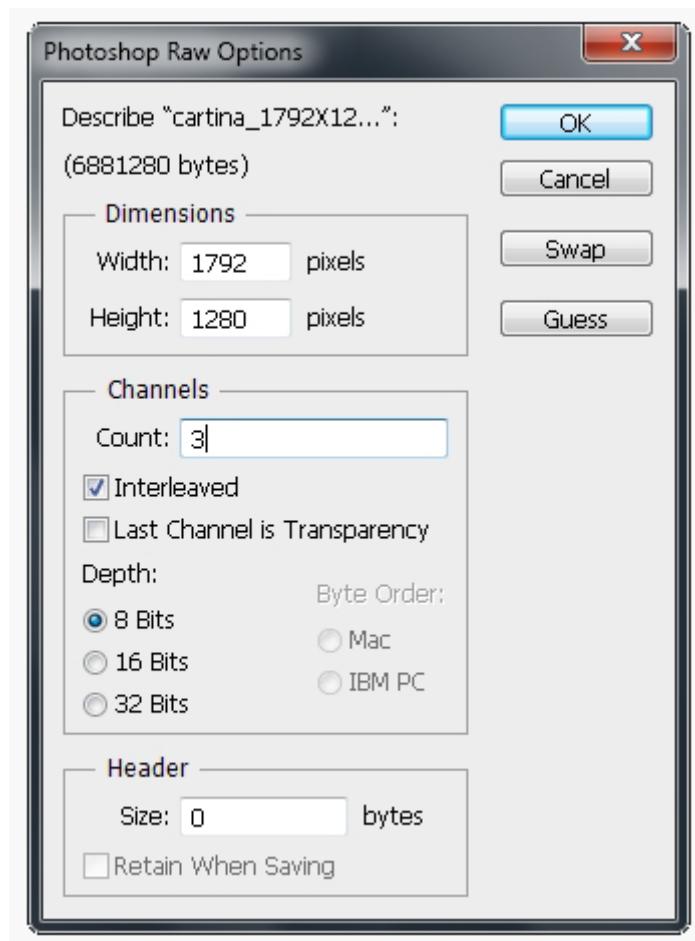
Example: “Test_1000x500_X1Y1.raw”, “Test_1000x500_X2Y1.raw”,
“Test_750x500_X3Y1.raw”. The X3 is the last in the row and it's thinner. As last tile it's permitted to have a different width.

When the tiles follow these rules it's possible to merge the files as described in the previous paragraph.

Appendix A : Opening RAW files

Most of the image file formats contain useful info as the width and height in pixels, the number of color channels and the number of bits per color. The RAW file format doesn't contains anyone of these info, so, when opening it with an image editor like Photoshop or Gimp, you must provide these info manually. Using wrong parameters will cause to show the image as corrupted.

To give an example of the corrected data, suppose the image's dimensions are 1792 x 1280 pixels, with 3 channels and 8 bits color depth. The right data to insert to open the image correctly are:



Contacts

Website : **www.gigapxtools.com**

Support : **tools@gigapxtools.com**