Operating instructions and assumptions about images were scanned

scriptVersion = "Book Scanner Images: Scaling and Numbering -- V2.4"

; AutoHotkey script using GraphicsMagick library
;
; Rescale images book page images scanned with single camera or dual camera book scanners.
;
; Downscale images to match the smallest image or upscale to match the largest image.
;
; Optional calibration pages are automatically skipped during processing.
;
; Original images are untouched and new, rescaled/renumbered images are placed in subdirectories.
;
; Number filenames of right-hand (odd) and left-hand (even) pages so they interleave correctly, in reading order. Maximum number of total pages (left+right) is 9998.
;
; Process only left hand or only right hand pages if needed.
;
; ------------------------
;
; INSTRUCTIONS
;
; 1) Double click to start the script.
;
; 2) If the script reports an error, that the "GraphicsMagick's gm.exe file could not be found automatically ..." then edit the script in Notepad, or other text editor, and set the path to gm.exe below.
;
; 3) Set the processing options and click the "Start" button. For "Page numbering only" scaling pixel counts are not needed.
;
; ------------------------
;
; ASSUMPTIONS FOR ALL BOOK SCANNERS
;
; 1) The file modified date and time of each image increase from first to last page scanned on each side for single page scanners, or for each spread with dual camera scanners.
;
; 2) ALL pages must be scanned (including blank) with equal number of pages in separate directories for left and right hand pages.
;
; 3) Zoom is unchanged while scanning any one side of the book, but zoom amount for left and right hand cameras/pages does not have to be identical.

;
; 4) The same number of files in left and right directories (if both are specified).
;
; 5) Number of pixels 6" on the ruler uses on the calibrations page has been measured in an image editor (Irfanview, Photoshop, etc.).
;
; ------------------------
;
; ASSUMPTIONS ABOUT IMAGES CREATED WITH SINGLE CAMERA BOOK SCANNERS (TIFLIC STYLE WITH VARIABLE PLATEN/CAMERA DISTANCES)
;
; 1) Pages have been scanned as follows:
;
; a) All right hand pages (odd numbered) are scanned first in reading order (1, 3, 5, ... x; i.e. from start of the book to the end, up to a maximum of 9997),
; so the largest and first scanned page should be page 1 and smallest and last scanned should be page x.
;
; b) All left hand pages (even numbered) are scanned second, in reverse reading order (x+1, ... 6, 4, 2; i.e from the end of the book to the start)
; by turning the book upside down and starting at the end, so largest and first scanned page should be page x+1 and smallest and last scanned should be page 2.
;
; c) Using the book's printed page numbers (starting on page 1) and the image files' numbers, double check the quantity of left and right image files is the same as there are numbered pages in the book (i.e. that no pages were missed by mistake, even if the number of files in the left and right directories are the same).
;
; d) Then check all left and right un-numbered pages, typically found at the start and end of books (copyright pages, title pages, dedications, etc.), were scanned.
;
; e) If any pages are missing, scan them, and copy their image files to the correct directory (left or right).
;
; f) Rename the image files so the missing images drop into sequence. So, for example, if the image file names are:
;
; IMG_1416.jpg
; IMG_1417.jpg
; IMG_1418.jpg
; IMG_1419.jpg
;
; and one page was missed after 1417 and another missed after 1418 then, after scanning the missing pages, rename them as follows so they drop into sequence:
;
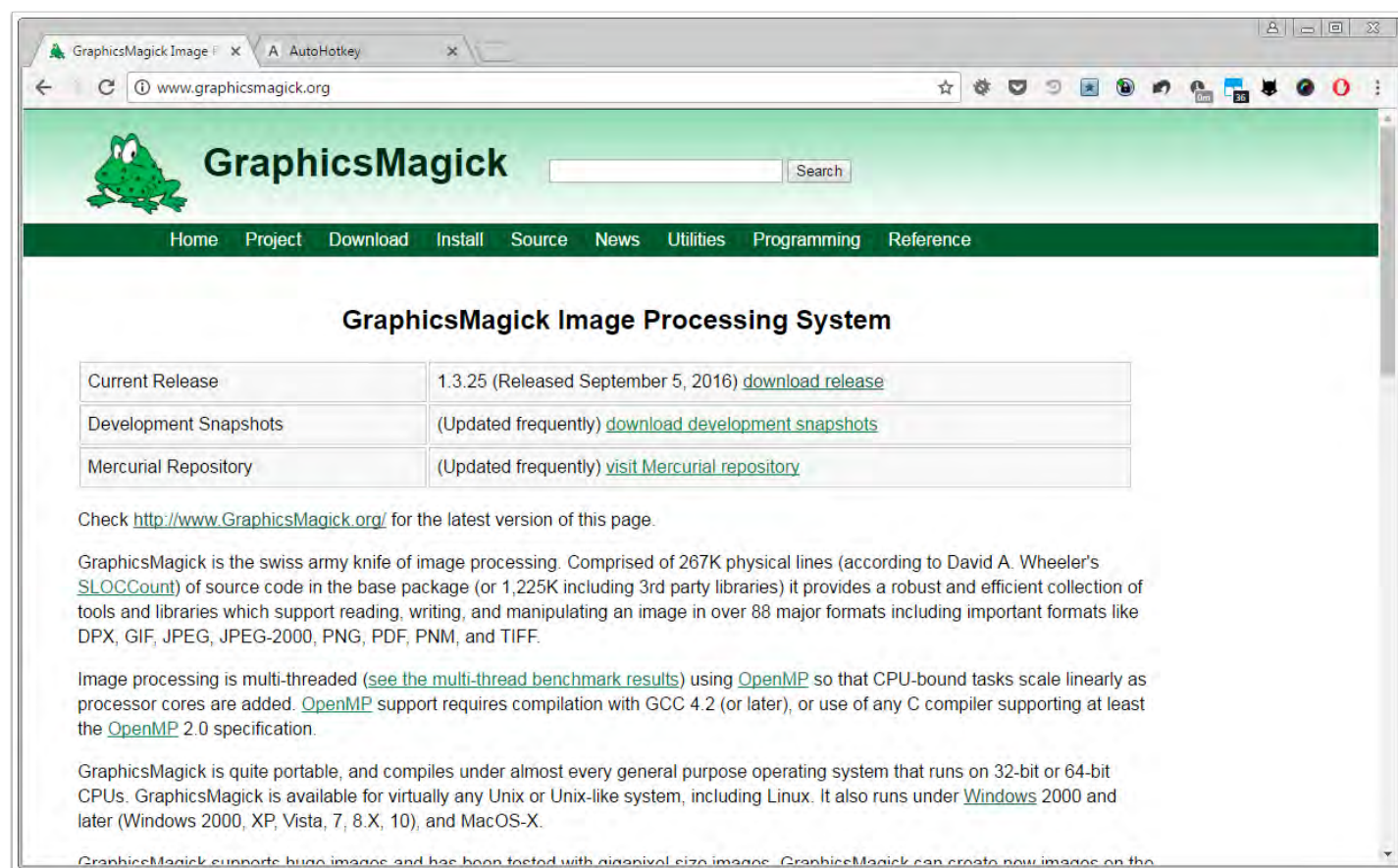; IMG_1416.jpg
; IMG_1417.jpg
; IMG_1417a.jpg
; IMG_1418.jpg

; IMG_1418a.jpg
; IMG_1419.jpg
;
; 2) Camera/platen distance is not fixed, and the difference in distance from camera to first page and last page scanned is thickness of
; book so first page scanned is larger than last page scanned. The script will rescale the images so the content on each page is same as first page (i.e. last page is scaled the
; most amount).
;
; 3) If calibration images are provided, 4 calibration pages are scanned as follows:
;
; a) Before scanning page 1 and page x+1 (i.e. the first pages scanned on each side of the book), an extra scan of page 1 and x+1 is made with a ruler on it.
;
; b) After scanning page x and page 2 (i.e. the last pages of scanned on each side of the book, an extra scan of page x and page 2 is made with a ruler on it.
;
; ------------------------
;
; ASSUMPTIONS ABOUT IMAGES CREATED WITH DUAL CAMERA BOOK SCANNERS (WITH FIXED PLATEN/CAMERA DISTANCES)

; 1) Pages have been scanned as follows:
;
; a) All pages are scanned in sequence from the start of the book to the end as spreads. After page numbering, first right hand image will be numbered as page 1, the first left hand image as page 0.
;
; b) Using the book's printed page numbers (starting on page 1) and the image files' numbers, double check total number of left and right image files is the same as there are numbered pages in the book (i.e. that no page spreads were missed by mistake).
;
; d) Then check page spreads for all un-numbered pages, typically found at the start and end of books (copyright pages, title pages, dedications, etc.), were scanned.
;
; e) If any page spreads are missing, scan them and copy the image files to the left and right directories.
;
; f) Rename the images in both directories so the missing spreads drop into sequence. So, for example, if the image file names for the left-hand pages are:
;
; IMG_1416.jpg
; IMG_1417.jpg
; IMG_1418.jpg
; IMG_1419.jpg
;
; and one spread was missed after 1417 and another missed after 1418 then, after scanning the spreads, rename them as follows so they drop into sequence in the left-hand page directory:
;
; IMG_1416.jpg

; IMG_1417.jpg
; IMG_1417a.jpg
; IMG_1418.jpg
; IMG_1418a.jpg
; IMG_1419.jpg
;
; Repeat the process for the new page in the right-hand page directory.
;
; 2) If calibration images are provided, before scanning the first page spread (i.e. pages 0 and 1) an extra scan of the spread is made with a ruler on it.
;
; ------------------------
;
; Change log:
;
; V1.3
;   -- New -- Insert page numbering of right-hand (odd) and left-hand (even) pages into file name
;
; V1.3.1
;   -- Changed -- Updated above documentation.
;
; V2.0
;   -- Bug fix -- Scaling between first and last page was adjusting the scaling spread over 1 step to many pages.
;   -- Changed -- New user interface.
;   -- New -- Option to process images produced by single or dual camera scanners.
;   -- New -- Option to choose page numbering and scaling, or just page numbering.
;   -- New -- Option to normalise zoom of between the left and right pages if camera zoom settings are/were not identical for both sides.
;   -- New -- Option to upscale or downscale images.
;   -- New -- Option to indicate if have or don't have calibration images.
;   -- New -- Update page numbering to process left hand pages for dual camera scanners.
;
; v2.1
; -- Changed -- Add progress bar to application window.
;
; V2.2
;   -- Bug fix -- Properly sequence missed pages scanned later
;
; V2.3
;   -- New -- Option to use multi-processors
;
; V2.4
;   -- Changed -- Try and automatically find path to GraphicsMagick executable

Download and install GraphicsMagick

http://www.graphicsmagick.org/

Download and install AutoHotkey

https://www.autohotkey.com/

Save the script you need from the PDF

Double click to run the script and test it starts without errors. If it reports the GraphicsMagick executable (gm.exe) could not be found follow these instructions.

a) Check if you've got a 64 bit installation or 32 bit installation of GraphicsMagick.

A 64 bit installation will be found under: C:\Program Files\

A 32 bit installation wil be found under: C:\Program Files (x86)\

b) Open the script in NotePad and, at the location shown by the arrow below, replace the path shown (in yellow highlight) with the path where GraphicsMagick is installed on your computer. The gm.exe should be in that directory.

Right-hand page images

SINGLE & DUAL CAMERA SCANNERS: Notice, if provided, the first image is the calibration page (i.e. page 1 with a ruler on it before page 1 itself is scanned).

SINGLE & DUAL CAMERA SCANNERS: Starting calibration image (first page with a ruler placed on it)

Right-hand page images

SINGLE CAMERA SCANNERS ONLY: Notice, if provided, the last image is the ending calibration page (i.e. page x rescanned with a ruler on it after page x was scanned).

SINGLE CAMERA SCANNERS ONLY: Ending calibration image

Left-hand page images

SINGLE & DUAL CAMERA SCANNERS: Notice, if provided, the first image is the calibration page (i.e. page 1 with a ruler on it before page 1 itself is scanned).
For single camera scanners this is the last page of the book with a ruler on it before the last page itself is scanned.

Left-hand page images

SINGLE CAMERA SCANNERS ONLY: Notice, if provided, the last image is the ending calibration page (i.e. page 2 rescanned with a ruler on it after page 2 was scanned).

Double click on script to launch it and show its window, set the processing options and click "Start."

"Single camera" and "Dual camera" affects how page numbering is performed and which scaling options are available.

Choose "Single camera" if you use a single camera scanner and scan the left hand pages by turning the book upside down and starting at the last page.

Choose "Page numbering only" if you only want to number the left hand and right hand image files so they interleave correctly.

Choose "Have calibration images" if you scanned them (as above: 4 calibration images for camera scanners; 2 calibration images for dual cameras scanners.

Choose "Downscale to smallest image" or "Upscale to largest image" to downscale or upscale images to match the smallest or largest image respectively.

Choose "Multi-processor" for faster processing. Note, with multi-processing your computer response may slow down during processing.

Click "Choose left directory" and "Choose right directory" to indicate where the image files are located. Generated output will be created under subfolders of each. Set only one directory to process images from one side of the book.

Scaling options available for "Single camera" scanners or "Dual camera" scanners are explained below. Pixel counts are the number of pixels 6" the ruler takes on the various calibration pages measured in an image editor (Irfanview, Photoshop, etc.).

Once the options are set, click "Start" and you can monitor the processing in the "Progress" area.

"Single Camera" allows one or both scaling options

- Use first/last page scaling if your scanner does not have a fixed platen/camera distance, but it varies by the thickness of the book, from start to finish (i.e. like TIFLIC style scanners). The pixel count for first page (closest to the camera and the largest scale) must be greater than the pixel count for the last image (furthest away from the camera and the smallest scale).

- Use left/right hand zoom scaling if the camera's zoom setting for left hand pages does not exactly match the zoom setting for the right hand pages.

"Dual Camera" only allows left/right scaling

- Use left/right hand zoom scaling if the camera's zoom setting for left hand pages does not exactly match the zoom setting for the right hand pages.

Processing right-hand pages

Processing left-hand pages

SAMPLE SINGLE CAMERA OUTPUT: Starting right-hand pages, renumbered and scaled. Note the ODD page numbers pre-pended to start of file name

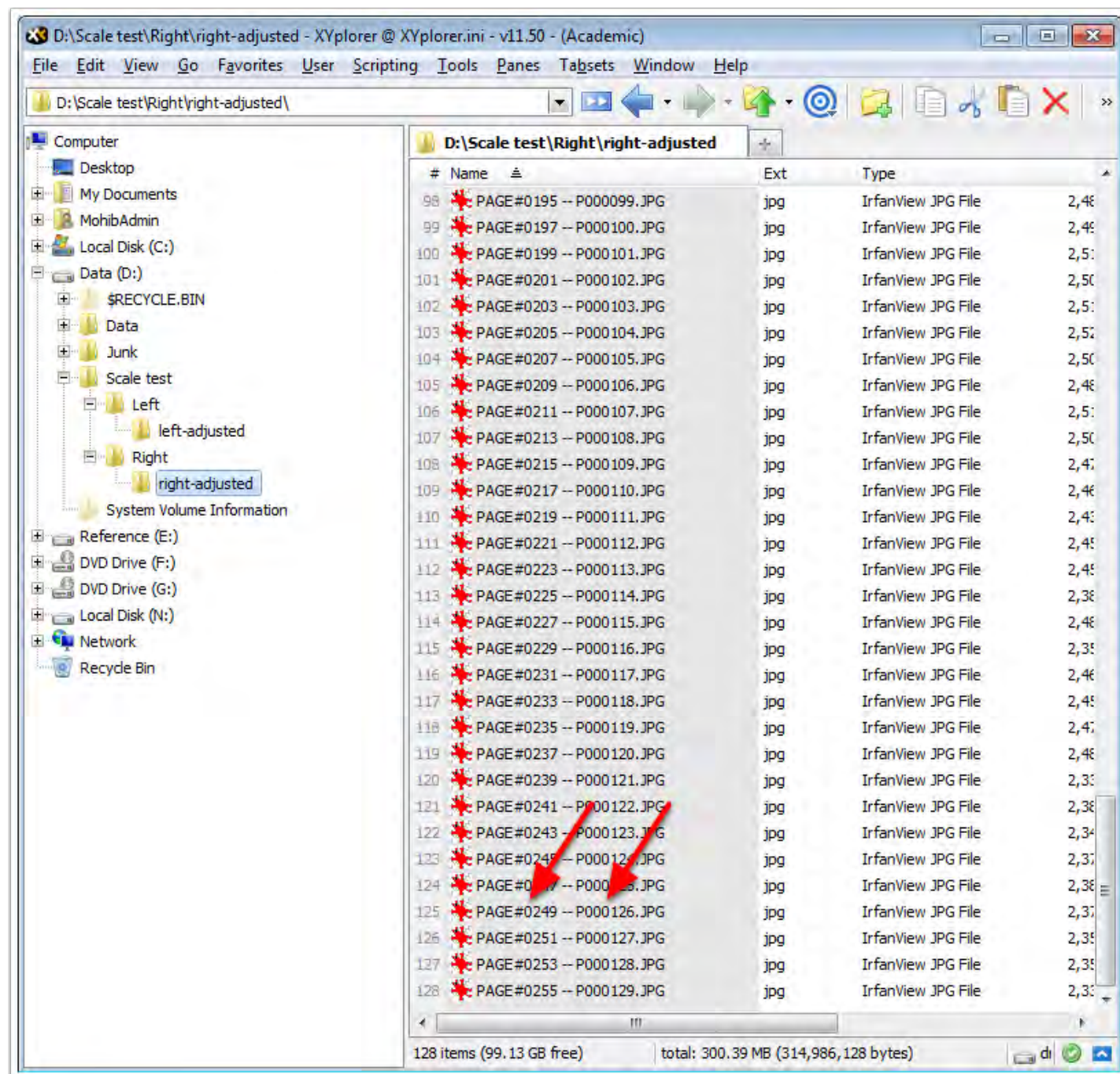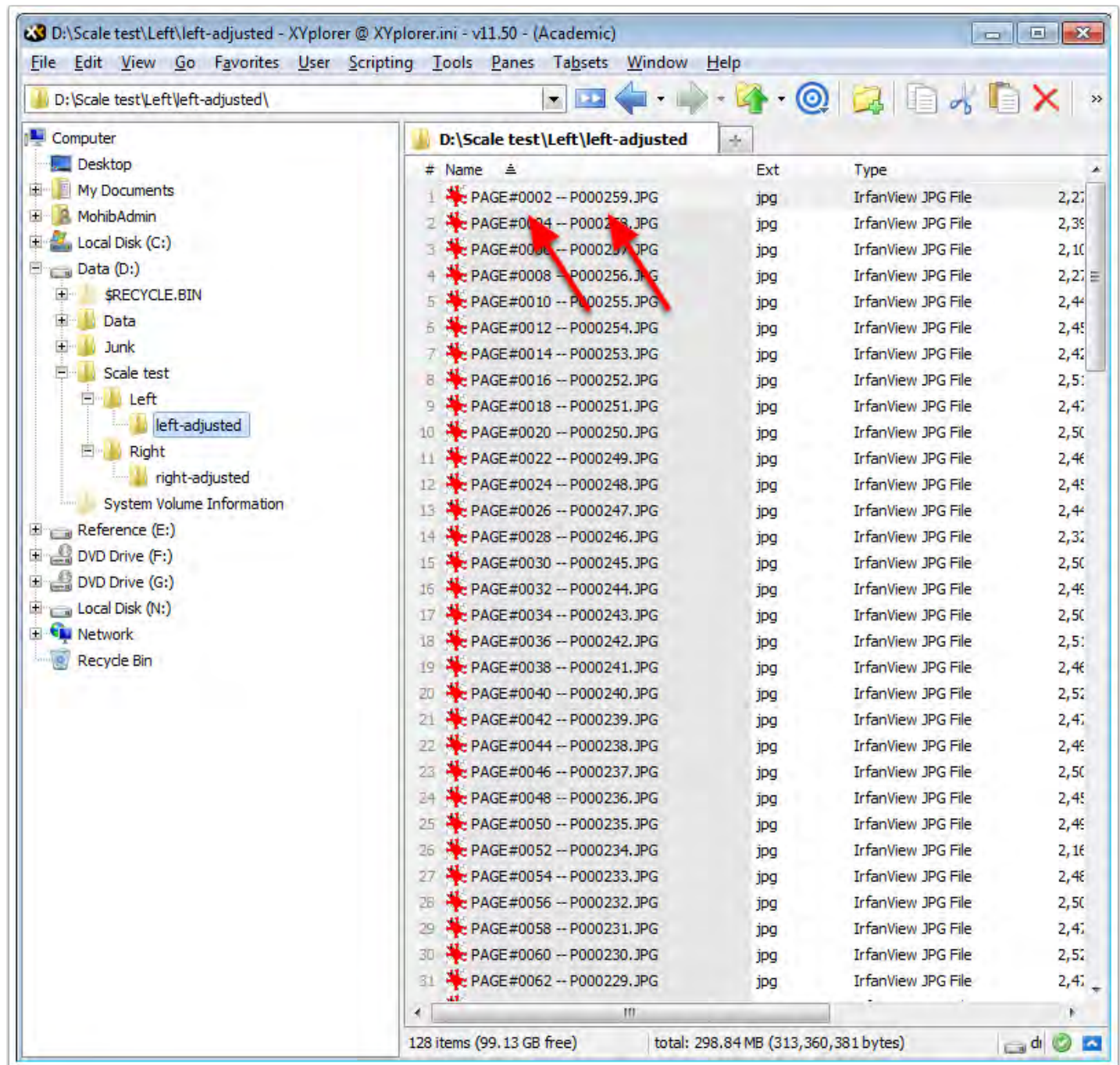## SAMPLE SINGLE CAMERA OUTPUT: Ending right-hand pages, renumbered and scaled. Note the ODD page numbers pre-pended to start of file name
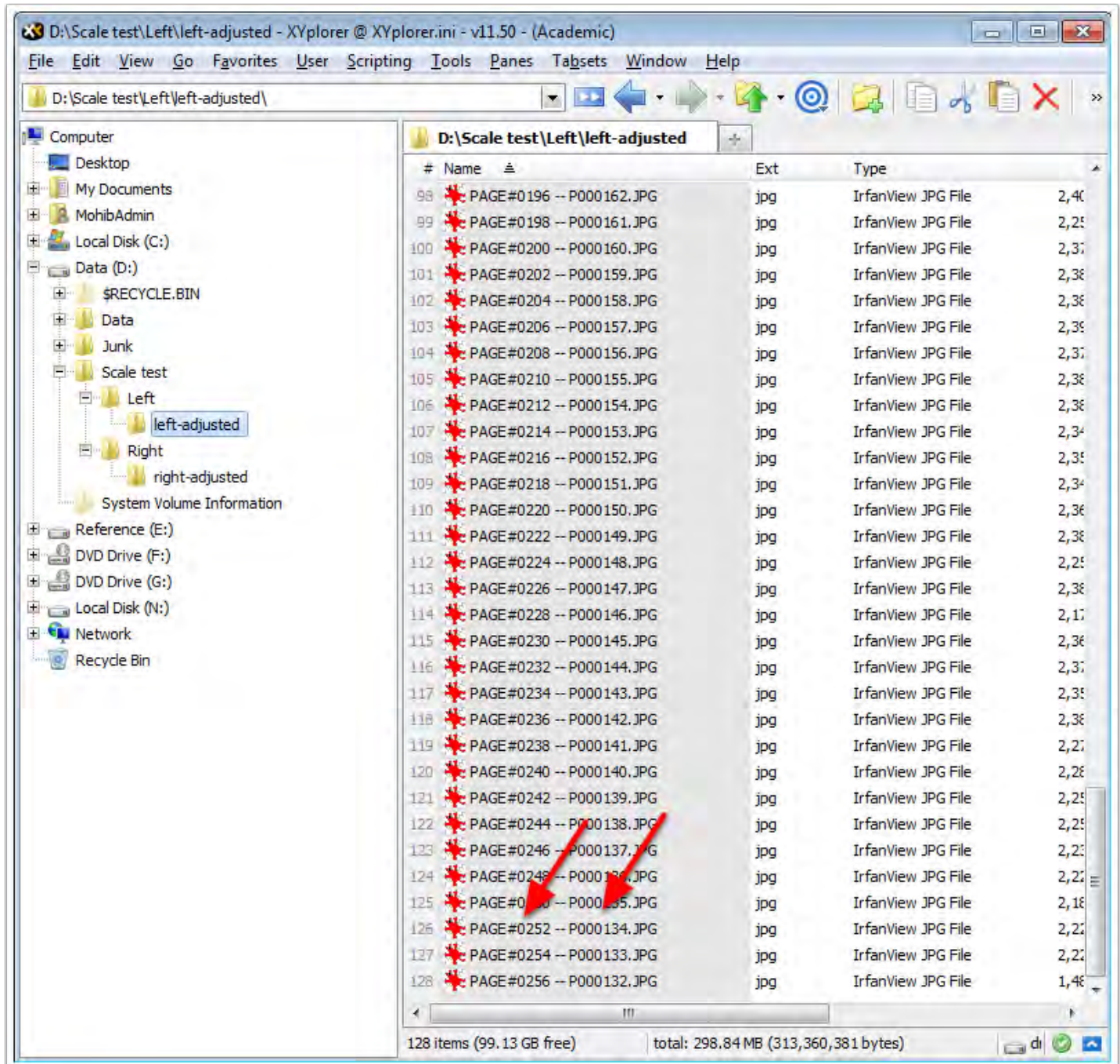
SAMPLE SINGLE CAMERA OUTPUT: Starting right-hand pages, renumbered and scaled. Note the EVEN page numbers pre-pended to start of file name.
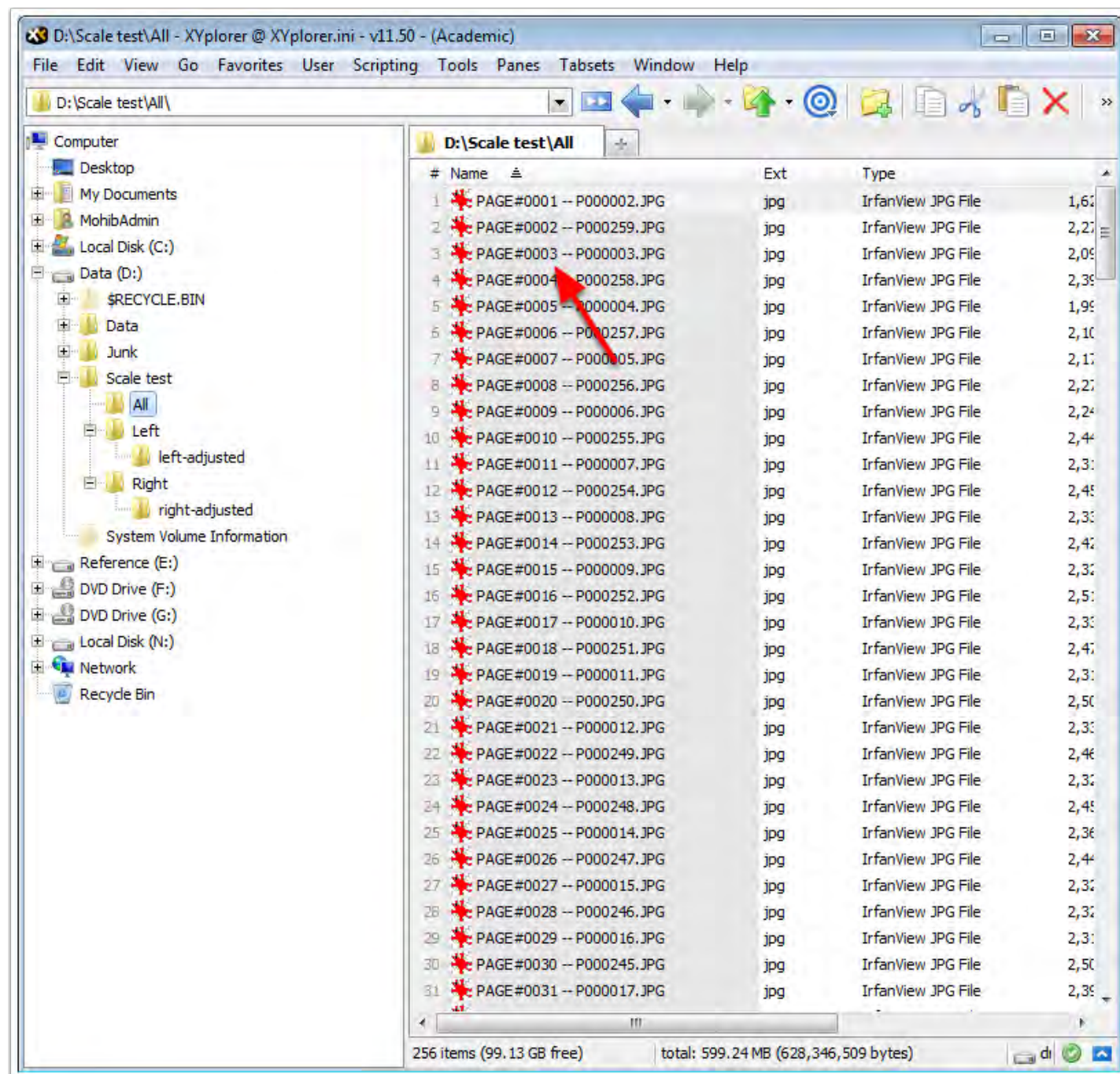
SAMPLE SINGLE CAMERA OUTPUT: Ending right-hand pages, renumbered and scaled. Note the EVEN page numbers pre-pended to start of file name

SAMPLE SINGLE CAMERA OUTPUT: All scaled and renumbered pages moved to a single directory with right (odd) and left (even) pages interleaved correctly.

SAMPLE SINGLE CAMERA OUTPUT: Comparison of facing pages at one end of book BEFORE first/last image scaling

Page 2 was one of the LAST even pages scanned, so was the furthest from the camera and thus appears small.

Page 3 was one of the FIRST odd pages scanned, so was closest to the camera and thus appears large.

SAMPLE SINGLE CAMERA OUTPUT: Comparison of facing pages at one end of book AFTER first/last image scaling. Both pages have the same scale.